

Binge Drinking and Risky Sex Among Adolescents: An Application of Structural Equation Modeling

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Background

- Alcohol use and risky sexual behaviors among adolescents are of major concern to healthcare providers.¹
- The early use of alcohol is related to increased behavioral problems such as risky sexual activity, and this relationship can result in adverse consequences like unplanned pregnancy and the contraction of sexually transmitted infections.²
- Alcohol use, especially binge drinking, has strong relationships with risky sexual activity variables,¹ therefore it is important to understand and intervene in the high-risk practices of adolescents before problems occur.²

Youth Risk Behavior Survey

- An epidemiologic survey system established by the Centers for Disease Control and Prevention and sponsored by the U.S. Department of Health and Human Services to monitor health risk behaviors among youth in the U.S.³
- The biannual, school-based YRBS is a national questionnaire that tracks health behaviors related to morbidity, mortality, and social problems among adolescents in grades 9-12.⁴
- Key risk behaviors include:
 - Injuries and violence,
 - Sexual behaviors,
 - Alcohol and drug use,
 - Tobacco use,
 - Unhealthy dietary behaviors,
 - Inadequate physical activity, and
 - The prevalence of obesity and asthma.⁴

Objective

To test a path model of the relation of binge drinking to specific high-risk sexual behaviors among adolescents using structural equation modeling (SEM). Risky sexual behaviors incorporated in this study include:

- Early age of sexual initiation,
- Multiple sex partners, and
- Lack of condom use during last time of sexual intercourse.

Methods

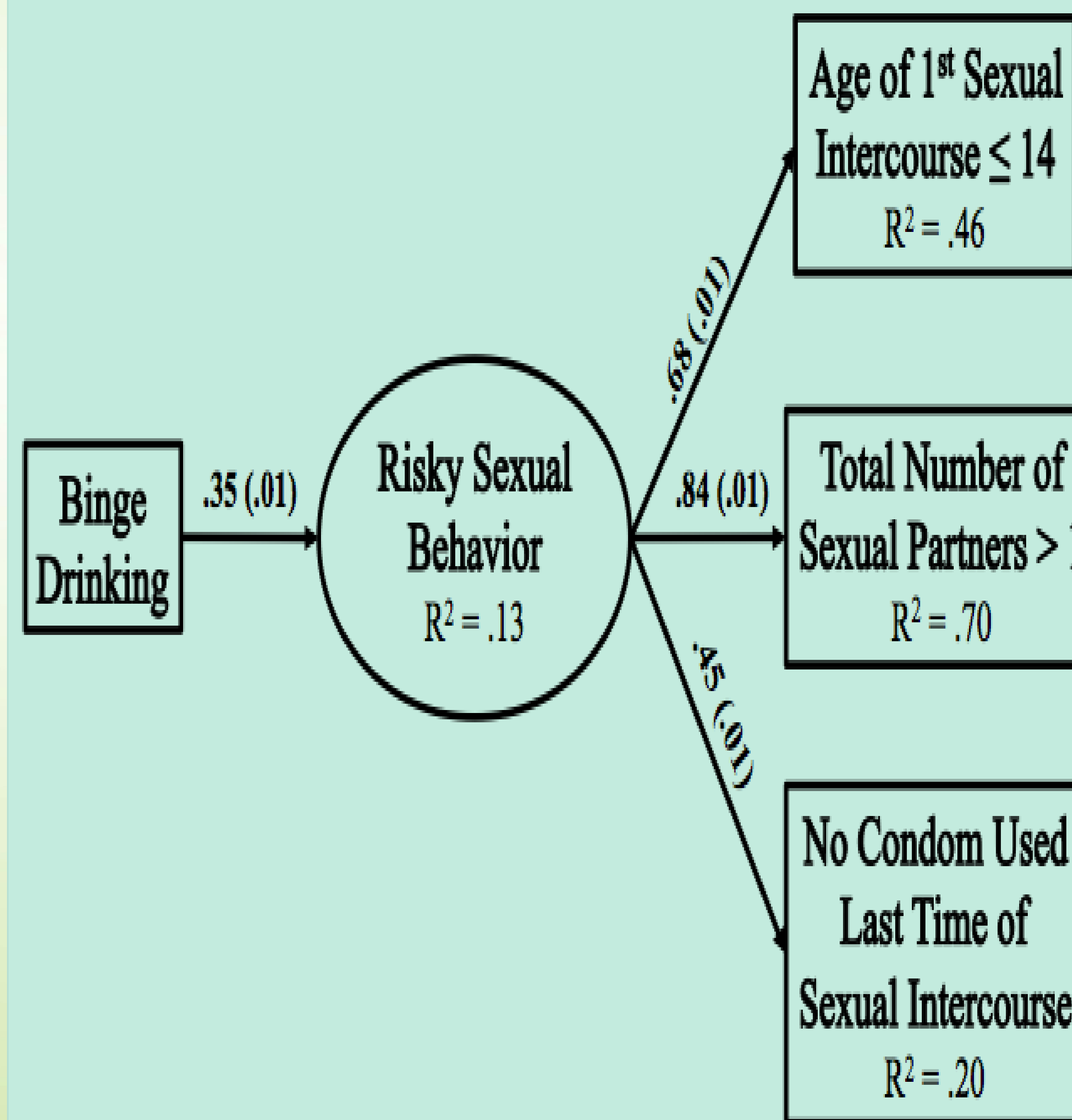
- Data were analyzed from the 2011 National Youth Risk Behavior Survey (YRBS).
- Specific questions from the YRBS used in this SEM analysis include four questions related to:
 - Binge drinking,
 - Age of sexual initiation,
 - Number of sexual partners, and
 - Condom use.

Analysis

- Maximum likelihood estimation was used to fit the data matrix to the model using SAS 9.3 PROC CALIS function.

Results

- Participants were:
 - Predominantly ages 14 and older ($n = 15,295$), and
 - Approximately equally distributed between:
 - Males and females, and
 - 9th, 10th, 11th, and 12th grades.
- Of the national sample, 13,797 surveys were used in this analysis.
- The model's convergence criterion was satisfied, but the model was not the best fit for our data as indicated by the chi-square value:



Fit indices: $\chi^2(2, N = 13,797) = 59.97, p = <.0001, SRMR = .01, RMSEA = .05, CFI = .99$

YRBS Questions

- During the past 30 days, did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?
- Were you less than or equal to 14 years of age when you had sexual intercourse for the first time?
- During your life, have you had sexual intercourse with 2 or more people?
- The last time you had sexual intercourse, did you or your partner use a condom?

Alternative Fit Indices

- Results of SRMR and RMSEA are close to zero, indicating a good fit, and the CFI at 0.99 is close to one, also indicating a good model fit.
- Within the SEM, the R^2 values indicate the percentage of variance in the endogenous variables, which is accounted for by the variables that directly affect them.

Conclusions

- The model indicated a positive relationship between binge drinking and risky sexual behaviors.
- The results indicated that even though the statistically significant chi-square suggests this is not the exact model, the other fit indices point to it being a reasonable model.
 - The SRMR being very low indicates a good absolute fit of the model.
 - Conversely, the CFI being very high indicates a good incremental fit.
- Risky sexual behavior was most strongly associated with age of first sexual intercourse and total number of sexual partners.

References

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