

Student Name(s): _____

School Name: _____

Team Number: _____

Middle School DISEASE DETECTIVES

200 points

**Regional
New Jersey Science Olympiad
Competitions
2006**



Developed by
Detectives in the Classroom
Montclair State University
College of Education and Human Services

Relationship between Parental Restrictions on Movies and Adolescent Use of Tobacco and Alcohol

The description of this study was adapted from Dalton, Madeline A, et al., "Relationship between Parental Restrictions on Movies and Adolescent Use of Tobacco and Alcohol," *Effective Clinical Practice*, January / February 2002, Volume 5, Number 1, Pages 1-10. The questions are based on the same source.

Directions: After reading the summary of the epidemiological study in the box below, answer the questions that follow.

Relationship between Parental Restrictions on Movies and Adolescent Use of Tobacco and Alcohol

Context: Viewing smoking and drinking in movies may prompt adolescents to initiate these behaviors. Movies with R ratings contain more smoking than do movies in all other rating categories.

Objective: To evaluate the extent to which parents restrict the exposure of adolescents to R-rated movies and to determine whether such restrictions are associated with decreased tobacco and alcohol use in adolescents.

Design: Cross-sectional, self-administered survey.

Participants: Students in grades 5 through 8 enrolled in New Hampshire and Vermont schools.

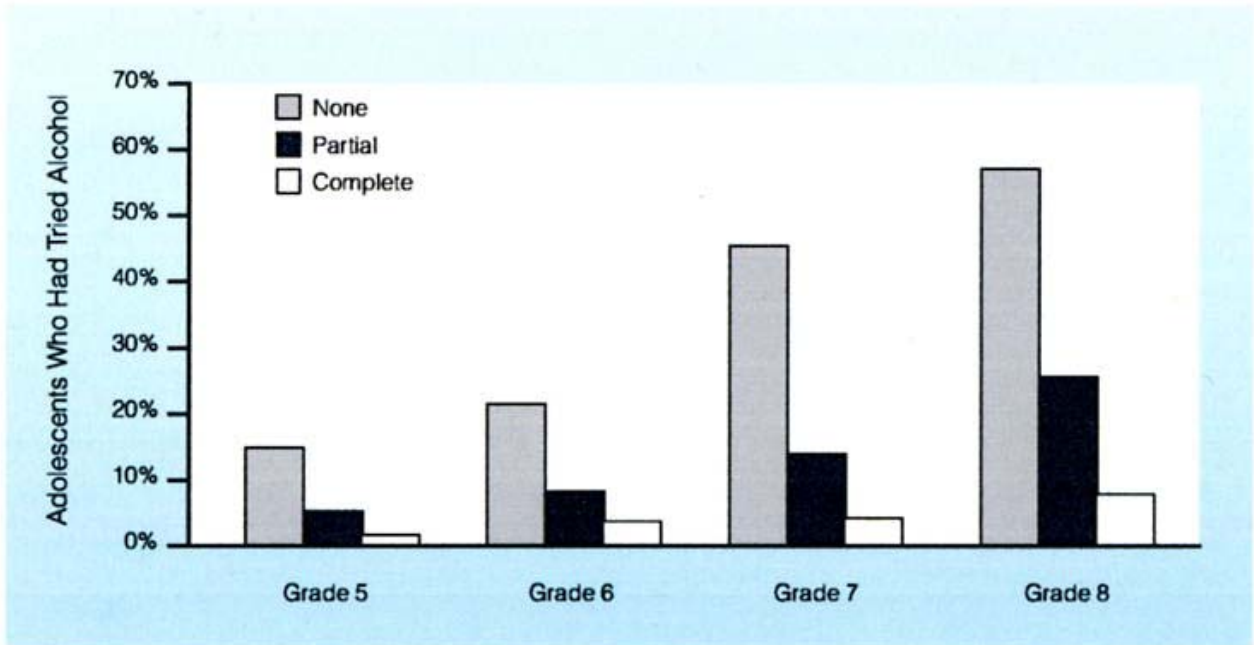
Sampling Strategy: Fifteen schools in Vermont and New Hampshire were randomly selected from all middle schools with ≥ 150 students.

Outcome Measures: Students who had tried smoking cigarettes or tried drinking alcohol without parental knowledge. **Results:** Of 4,544 students surveyed, 801 had tried cigarettes and 1,069 had tried alcohol. Although 90% were younger than 14 years of age, only 16% were completely restricted from viewing R-rated movies. The prevalence of having tried smoking was 35% for those with no restrictions on viewing R-rated movies, 12% for those with partial restrictions, and 2% for those with complete restrictions. The prevalence of having tried alcohol was 46% for those with no restrictions on viewing R-rated movies, 16% for those with partial restrictions, and 4% for those with complete restrictions. Even after controlling for other factors, children who had no restrictions from viewing R-rated movies were significantly more likely to try smoking and alcohol compared with those who had complete restrictions.

Conclusion: Limiting the exposure of adolescents to R-rated movies may prevent early use of tobacco and alcohol.

1. What is the prevalence rate of trying alcohol among all participants in this study? (10 points)
2. What is the exposure of interest in this study? (10 points)
3. Generically describe a cross-sectional study. (10 points)

4. The authors present a graph to show the differences in percentages of participants who tried alcohol, by three groups of parental restrictions and also by grade. In no more than two sentences, write your interpretation of what the graph shows. (10 points)



5. Results can also be shown using numbers rather than percentages. For example, the authors report that 1,427 participants had no restrictions of R-rated movies, 2,402 had partial restrictions, and 715 had complete restrictions. Based on this information and the information in the summary, place the appropriate numbers in Table A below. (Round-off to the closest whole number.)

Table A: Description of Participants Who Tried / Did Not Try Alcohol

Parental Restrictions on R-Rated Movies

| | No Restrictions Number = 1,427 | Partial Restrictions Number = 2,402 | Complete Restrictions Number = 715 |
|------------------------|--------------------------------------|---|--|
| Tried Alcohol | | | |
| Did Not Try Alcohol | | | |

(6 points)

6. The 2x2 table is useful for calculating and comparing risks of having an outcome, that is, among study participants who have or do not have the exposure being studied. A risk in this example may be expressed as a percentage or proportion.

Based on the information above and in the summary, label and fill in the 2x2 table below for Trying Alcohol. Then calculate the risks and the relative risk of having no restrictions on watching R-rated movies. Write these in the appropriate boxes below. Show calculations in the space below the 2x2 table. (The group with “Partial Restrictions” is omitted.) (Round-off to two decimal places.)

| | Tried Alcohol | Did Not Try Alcohol | Total | Risks | Relative Risk |
|-----------------------|---------------|---------------------|-------|----------------------|----------------------|
| No Restrictions | | | | <input type="text"/> | <input type="text"/> |
| Complete Restrictions | | | | <input type="text"/> | |

Show work.

(14 points)

7. In a single sentence, explain the meaning of the relative risk that you have calculated. (15 points)

8. After controlling for grade, parental disapproval of smoking, maternal supervision, maternal responsiveness, peer and family smoking, and child personality characteristics, the relative risk changed to 3.3.

Compare this relative risk to the relative risk you calculated that did not "control for" other influences (answer to question 6). Is it larger or smaller? Does this make sense to you? Explain why or why not. Explain why or why not. (15 points)

9. Identify another important factor that you would need to "control for" when testing the hypothesis that parental restrictions of young adolescents' viewing of R-rated movies lowers their use of alcohol using a cross-sectional study. (10 points)

10. How does the fact that the study sample was students in grades 5 through 8 enrolled in New Hampshire and Vermont schools affect the generalizability of the results? (15 points)

14. In the actual article, the authors report that the mean number of R-rated movies viewed was distributed as follows:

| | |
|-----------------------|--------------------|
| Complete Restrictions | 0.9 R-rated movies |
| Partial Restrictions | 4.0 R-rated movies |
| No Restrictions | 7.8 R-rated movies |

If the authors were interested in the affect of R-rated movie restrictions on trying alcohol, why did they collect data about the number of R-rated movies viewed? (Tie Breaker)

15. In the actual article, the authors report that “Smoking and drinking were (statistically) significantly associated with the level of restrictions for R-rated movies.” What does “(statistically) significantly” mean? (10 points)
16. In the actual article, the authors report that “The association was independent of our measures of maternal supervision, maternal responsiveness, and parental disapproval (of smoking and drinking).”
- a. What does “independent of our measures of” mean? (10 points)
- b. What does this independence imply about the affect of the movie restrictions as opposed to an overall stricter parenting style? (10 points)

17. Given the conclusion that “limiting the exposure of adolescents to R-rated movies may prevent early use of tobacco and alcohol,” identify five public health strategies for limiting exposure to R-rated movies. (10 points)

a.

b.

c.

d.

e.

