The Relationship of Adolescent Perceptions of Peer Norms and Parent Involvement to Cigarette and Alcohol Use

R. Scott Olds, Dennis L. Thombs

ABSTRACT: This investigation assessed the relative influence of peer norms and parental involvement on adolescent cigarette and alcohol use. An anonymous questionnaire was administered to 2,017 seventh- to 12th-grade students in two Ohio public school districts. Cigarette and alcohol use rates in the sample were comparable to those found in national probability surveys. Results indicated that the relative balance of peer-parent influences did not differ across grade level. At all grade levels, perceived peer norms had substantially greater correlations with cigarette and alcohol use than did measures of perceived parental involvement. The findings are interpreted from an efficiency perspective. Optimal use of prevention resources suggests that programming for seventh- to 12th-graders should focus on shaping the perceptions of peer smoking and drinking practices rather than on parent interventions. Social norms marketing or other forms of normative education should be tested in this population. (J Sch Health. 2001;71(6):223-228)

Since the 1970s, a variety of psychological theories and models have been developed to explain adolescent tobacco, alcohol, and other drug use. In 1977, Jessor and Jessor described Problem Behavior Theory which postulated adolescent substance abuse as one feature of underlying syndrome of problem behavior. During the same period, Zuckerman drew attention to the personality trait known as sensation seeking. In the 1980s, a line of inquiry focusing on cognitive processes proposed that alcohol and other drug use result from learned outcome expectancies (ie, the anticipated reinforcement of ingesting a substance). In more recent years, Catalano and colleagues developed a complex, developmental model to explain the multiple protective and risk factors that determine antisocial behavior, including substance abuse. A number of other general theories of human behavior, models of developmental psychopathology, and one level of analysis explanations also sought to explain tobacco, alcohol, and other drug use during adolescence.

A limiting aspect of these lines of basic research is that they generated little practical knowledge for designing population-based, preventive interventions. The reasons that these bodies of knowledge have not transformed practice are numerous. Chief among them is that most theoretical research on adolescent substance abuse has not been based on a psychology of practitioner utilization. Instead, most lines of inquiry on the problem appear to be committed to testing theory with less interest in its application. A critical need exists to develop theory that practitioners can use as a guide. Such frameworks will point to feasible delivery channels, allow for practical interventions to be delivered to specific target groups, and identify programming for specific risk factors. Above all, a need exists for applied theory that explicates the mediating mechanisms by which interventions deter drug-taking behavior.

In efficacious primary prevention trials conducted to date, some uncertainty remains about 1) how intervention activities alter risk factors for substance use, and 2) which program components are responsible for delaying onset of use or reducing substance use. Existing research suggests positive intervention effects alter perceptions of proximal environmental influences, such as parent and close friends. MacKinnon et al noted that perceived norm variables (peer and parent measures) were important program mediators. Williams and Perry found that positive behavior change could be attributed to peer norms, parent-child communication, perceptions of social consequences, and peer-resistance skills.

However, much remains to be known about the priority that should be assigned to programming that seeks to change peer vs. parent factors. General skepticism about the effectiveness of prevention programming, and the limited prevention resources that exist in many communities, suggest that practitioners should take efficiency and cost issues into account when planning programs. Costly preventive interventions that attempt to address all risk factors in an adolescent’s social environment may produce positive outcomes in a field trial, but are unlikely to be implemented in diverse communities.

This observational study sought to compare measures of parental involvement and perceived peer norms for their relative ability to explain adolescent cigarette and alcohol use at middle school and high school levels. The analytic strategy sought to determine the relative influence of peer and parent risk factors at each grade level (7-12). Such information could be useful to prevention specialists seeking to tailor programming to specific grade levels. Researchers expected to find that early onset of cigarette and alcohol use (ie, in middle school) would be most closely associated with low levels of perceived parental involvement, but that among students in higher grades a shift toward peer influence would appear, such that use of cigarettes and alcohol would become most closely linked with perceptions of smoking and drinking norms among peers.

Stated another way, researchers anticipated that teenagers would report that the balance of parent-peer influences would tilt toward the latter at higher grade levels. This hypothesis is consistent with perspectives on adolescent development which emphasized that the early onset of problem behavior is often instigated by parental anti-sociality and depression. This course of adolescence subsequently involves an increasing valuation of independence from parents over achievement and a gradually increasing reliance on peer influences rather than parent influences.

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METHODS

Participants and Procedure

Assessment was limited to cigarettes and alcohol because these substances are more prevalent than other drug use, particularly among middle school students. Data were collected from two school districts located in nonadjacent counties in northeast Ohio in the 1999-2000 school year. One school district was located in a middle class, suburban community (grades 7-12), whereas the other district was a career and technical center (grades 11-12) serving a rural, agricultural, and working class area. Each school district assumed responsibility for obtaining parental consent and student assent. The study was approved by a university Institutional Review Board.

An anonymous questionnaire was administered to a convenience sample of 2,017 seventh- to 12th-grade students. A majority of the students (N = 1,710 or 84.8%) were from the suburban community. Data were collected by trained teachers during schoolwide administrations. From a script, teachers read information about the purpose of the study and the risks of participation. Students were informed that their participation was voluntary, that they could decline to participate without penalty, and that they could not be linked to their responses. Teachers were instructed to remain at the head of the classroom, to not examine student answer sheets, and to prevent students from talking to one another so that they worked independently. To ensure privacy, students placed their optical scan answer sheets in a large envelope upon completion.

A total of 112 students (5.5%) declined or were unable to respond to the questionnaire. Due to school absences on the day of questionnaire administration, survey coverage reached 88.6% at the suburban public school district (grades 7-12) and 61.4% at the career and technical center (grades 11-12). A total of seven answer sheets, from both school districts, was withheld from scanning due to incomplete or obviously frivolous responses. T-tests revealed that the 11th and 12th grade vocational education students at the two school districts did not substantially differ from one another on measures of tobacco and alcohol use. Therefore, the data from the two samples were aggregated for analytic purposes.

In the total sample (N = 2,017), 51.5% were boys. The age range was 12 to 20 years, with a median age of 16. Most (88.1%) identified themselves as Caucasian. Based on the most recent grading period, 33.7% reported their average grade was an “A,” followed by 41.7% with a “B,” 20.0% with a “C,” and 4.6% with a “D” or “F” average.

Representativeness of the Sample

In Table 1, the 1999 rates from the Monitoring the Future Study® and this investigation’s sample (8th, 10th, and 12th graders only) are presented for cigarette and alcohol use. Both studies used identical wording of questionnaire items to assess these measures. The maximum difference between any pair of current and nationwide rates was 12.1% (currently smoking a 1/2 pack or more daily among 12th graders) (Table 1). Eighth graders (current study) reported somewhat higher rates on all four indicators compared to nationwide rates. Conversely, 10th graders in the current study reported consistently lower rates than 10th graders nationwide. Except for smoking a 1/2 pack or more daily, the 12th grade comparisons show little difference between the Monitoring the Future and study samples. Overall, the rates from the samples can be judged to be in similar ranges.

Instrumentation

A composite scale consisting of three measurement items was used to assess each respondent’s cigarette smoking intensity. Age of cigarette smoking onset was assessed with an eight-point scale ranging from “I have never smoked a whole cigarette” (scored as 1) to “8 or younger” (scored as 8). Current pattern of smoking was measured on a four-point scale ranging from “non-smoker—never tried a cigarette” (scored as 1) to “current smoker—smoked at least one cigarette in the previous 30 days” (scored as 4). The number of days on which cigarettes were smoked during the past 30-day period was assessed on a seven-point scale ranging from “I do not smoke” (scored as 1) to “11 days or more” (scored as 7). In this investigation, the Cronbach alpha for these items was .94.

A composite scale consisting of three measurement items also was used to assess each respondent’s alcohol use intensity. Frequency of alcohol consumption was measured on a seven-point scale ranging from “none” (scored as 1) to “40 or more” (scored as 7). Frequency of recent, high-risk drinking (five or more drinks in a row during the past two weeks) was assessed by a six-point scale ranging from “none” (scored as 1) to “10 or more times” (scored as 6). Quantity of consumption (number of drinks on a typical occasion) was measured by a 10-point scale ranging from “I do not drink alcohol” (scored as 1) to “12 or more drinks” (scored as 10). Previous adolescent research found

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<tr>
<td><strong>Cigarette and Alcohol Rates in the Monitoring the Future Study (1999) and the Study Sample</strong></td>
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<tr>
<td>Grade</td>
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<tr>
<td><strong>Cigarettes</strong></td>
</tr>
<tr>
<td>Any use in past 30 days</td>
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<tr>
<td>Currently smoke 1/2 pack or more per day</td>
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<tr>
<td><strong>Alcohol</strong></td>
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<tr>
<td>Any use in past 12 months</td>
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<tr>
<td>Consumed 5+ drinks on one or more occasions in the previous two weeks</td>
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**Note:** In 1999, the Monitoring the Future Study (www.monitoringthefuture.org) collected data from a national probability sample of about 45,000 students (8th, 10th, and 12th grades) attending 433 schools in the United States.
that the items comprising this scale possess good internal consistency. In this investigation, the Cronbach alpha for these items was .88.

Perceived prevalence of cigarette use and alcohol use among "close friends" and the "typical student at school" were each assessed by a single item (total of four items). To report their perception of cigarette and alcohol use frequency (in past 12 months) among these two reference groups, respondents used a scale ranging from "none" (scored as 1) to "40 or more times" (scored as 7). Items of this type have been used in previous work to assess drinking norms in adolescents.

The parent involvement scale assesses adolescents' perceptions of parent involvement in their lives. The 19-item instrument relies on the stem: "Do you have a parent who..." Responses to each item were measured on a four-point Likert scale ranging from strongly disagree (scored as 1) to strongly agree (scored as 4). Examples of items include: 1) "discusses the grades you receive?" 2) "will call another home to confirm your whereabouts?" 3) "listens to your concerns about parties?" and 4) "takes you and your friends places to have a good time?" These items were generated from elicitation exercises conducted with groups of teen-agers.

Previous factor analytic research suggests six dimensions to the parent involvement construct: 1) Education, 2) Rules, 3) Parent/Friend Relations, 4) Grades, 5) Communication, and 6) Telephone. Five of the six derived factors were found to have suitable internal consistency (alpha > .71), and they did not appear to be highly intercorrelated with one another. Furthermore, four of the six factor scores had substantial relationships with measures of alcohol abuse in a multivariate assessment.

RESULTS

Principal Components of Perceived Parental Involvement

To determine whether the six-factor structure for parental involvement would be replicated in this sample, a principal components analysis was conducted before examining the multivariate relationships among parent, peer, and substance use measures. Criterion for extracting factors in the principal components analysis was an eigenvalue greater than or equal to 1.00. Significance of the factor loadings were judged using criteria described by Hair and colleagues. Items were retained only if they loaded above .60 on the designated factor and less than .40 on all other factors, thereby optimizing communality within factors and uniqueness between them.

Oblique and orthogonal rotations were found to yield nearly identical four-factor structures. The factors derived from the oblique rotation as well as their means, standard deviations, and coefficient alphas are summarized in Table 2. Composite factor scores were derived by summing responses to each set of items.

The first factor, Grade Expectations, was represented by three items: "expects you to earn good grades?," "reviews the grades on your report card?," and "discusses the grades you receive?" Telephone Monitoring, the second derived factor, consisted of the items: "will telephone other parents to check to see if parties are supervised by adults?," "will another home to confirm your whereabouts?" and "will telephone other parents about their son's or daughter's poor behavior?" The factor labeled Communication About ATOD (Alcohol, Tobacco and Other Drugs) summarized information about parental willingness to discuss issues related to substance use including: "encourages you to talk about the smoking, drinking, or drug use that some teenagers do?," "listens to your concerns about parties?" and "allows you to express your opinions about teenage smoking, drinking, or drug use?" The fourth factor, Interaction With Friends, was represented by the items: "has friendly relationships with some of your friends?," "is well-liked by your friends?," and "takes you and your friends places to have a good time?" With coefficient alphas ranging from .73 to .82, these four factors were judged to have adequate internal consistency.

Canonical Variate Analysis

Canonical variate analyses were conducted to examine the multivariate relationships among measures of peer drinking norms, the derived parent involvement factor scores, demographic variables (the independent variables), and cigarette and alcohol use (the dependent variables). Canonical analysis examines the possibility that combinations of dependent variables relate to combinations of independent variables. Rather than examining one dependent
DISCUSSION

Limitations of the data collection procedure require that caution be used in interpreting the findings of this study. All measures relied on self-report. When respondents are provided anonymity and privacy, as in this study, and they believe the assessment is being conducted for important reasons, this method is generally considered valid for assessing alcohol and other drug use in young people. Nonetheless, some degree of inaccurate reporting probably occurred. In addition, the study utilized a convenience sample which introduces some uncertainty about the generalizability of the multivariate relationships identified in this investigation. Finally, because the study design was non-experimental, conclusions about causal relationships among the measures must remain tentative; it is possible that perceptions of peer norms and parental involvement do not determine tobacco and alcohol use, but instead are epiphenomenal artifacts of existing smoking and drinking practices.

Lack of Support for Study Hypothesis

The findings did not support the study hypothesis. Contrary to expectations, the relative importance of perceived peer norms and parental involvement in explaining cigarette and alcohol use did not differ across grades seven to 12. Perceived peer norms had substantially greater relationships with cigarette and alcohol use than did measures of parental involvement. The direction of these relationships were such that higher estimated levels of peer

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<th>Table 3</th>
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<tr>
<td>Canoecttical Analysis of Relationships Between Cigarette/Alcohol Use and Measures of Perceived Norms and Parental Involvemen in a Sample of 7th-12th Graders</td>
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<table>
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<tr>
<th>Function 1</th>
<th>Eigenvale</th>
<th>Canonical Correlation</th>
<th>Percent of Total Variance</th>
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<tr>
<td>1.45</td>
<td>.770</td>
<td>59.29</td>
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<tr>
<th>Structure Coefficients for Dependent Variables</th>
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<tr>
<td>Alcohol use intensity</td>
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<td>Cigarette smoking intensity</td>
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<th>Structure Coefficients for Independent Variables</th>
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<tbody>
<tr>
<td>Perception of close friends’ drinking frequency</td>
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<td>Perception of close friends’ smoking frequency</td>
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<td>Age</td>
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<tr>
<td>Perception of typical student’s (at one’s school) smoking frequency</td>
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<td>Average academic grade (self-report)</td>
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<tr>
<td>Perception of typical student’s (at one’s school) drinking frequency</td>
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<tr>
<td>Interaction with friends</td>
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<td>Grade expectations</td>
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<td>Communication about ATOD</td>
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<td>Telephone monitoring</td>
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<td>Gender</td>
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Notes: n = 1,557, F (22, 3,550) = 91.80, p < .0001. Variance in dependent variables explained by Function 1 = 47.01%. Variance in independent variables explained by Function 1 = 25.29%.
use were correlated with higher levels of cigarette use and alcohol use for self.

Misperceived Norms Model

Though these relationships cannot be construed to be causal in nature, the findings are consistent with the misperceived norms model which maintains that substance use is modulated by the adolescent's perceptions of peers' smoking and drinking practices. Research on middle school and high school students, as well as college students, has shown that young people typically overestimate or exaggerate peers' involvement in substance use. These biased perceptions develop because adolescents interact mostly with other teens, and less with older adults, and because in social situations stories about recent parties or other social gatherings become embellished and bragged about in conversation.

In social situations, attention is usually directed toward the extreme behavior (e.g., drunkenness) of a small fraction of people, rather than toward the less-noticeable behavior of the majority. Under such conditions, young people tend to rely on a biased or “false” norm to make decisions about substance use (e.g., “everyone smokes after school” or “my entire class gets drunk on the weekend”). As a result, adolescents often adopt permissive conduct norms for smoking, drinking, and other drug use.

The misperceived norms concept is distinct from the conventional notion of “peer pressure.” The latter concept implies that socially vulnerable youth “cave in” to external pressure placed on them by friends. In contrast, the misperceived norms model points to erroneous perceptions held by youth, and the tendency of this information to make comparisons between self and peer reference groups.

PROGRAMMING IMPLICATIONS

Findings from this study suggest that social norms programming should be systematically tested in middle schools and high schools. Also known as “social norms marketing,” “normative education,” or “norm redefinition campaigns,” this approach attempts to alter permissive social environments. Based on local survey data, messages are created to provide feedback to students to inform them about a more realistic (or “true”) norm in their school. Preliminary evidence suggests that social norms programming may be more effective than peer-resistance skill training in deterring substance use among youth. This fact may be part of the explanation for the failure of Drug Abuse Resistance Education (DARE) to produce positive short-term or long-term outcomes.

School personnel responsible for selecting drug education curricula should pay particular attention to whether it is a prominent goal of a curriculum or program to instill the view that tobacco, alcohol, and drugs are avoided by most youth in their school and community. Students should learn this by being exposed to survey data from their own school. Of course, this means that schools must be involved in routine and systematic collection of this type of data. In addition, school personnel should be wary of curricula and programs that 1) emphasize the widespread prevalence of tobacco, alcohol, and other drug use and 2) inform students that they have a “choice” to make about substance use. These well-intended efforts, often driven by a desire to arouse alarm about the “drug problem,” may lead some segments of students to believe that their social environment is permissive with respect to smoking and drinking, and that it will accept or tolerate such conduct. The data presented here suggest that these types of perceptions are significant risk factors for tobacco and alcohol use in youth.

Findings from this study should not be interpreted to mean that parents have little or no influence on adolescent cigarette and alcohol use. Rather, the data suggest that the extent to which parent involvement will protect a teen-ager from substance use is bound largely by parent-child interaction that occurs prior to seventh grade. Research on the development of alcohol expectancies suggests that the critical period for formation of alcohol risk factors could be third and fourth grades. Identification of a critical period would allow for targeted primary prevention efforts that may be more likely to produce positive results. More research is needed in this area.

The recommendation that prevention resources should be directed toward intentionally shaping the peer environment of seventh- to 12th-graders and away from parent programming may be met with resistance. Some educators and parents may not feel comfortable with acknowledging the limits of parent influence during the adolescent years. The desire to blame parents can be a divisive force that should be anticipated by health promotion specialists. Other community members may not understand the concept of prevention and mistakenly believe that such a recommendation calls for abolishing substance abuse counseling and family counseling services. Nevertheless, the findings presented here suggest that prevention planning should focus on shaping the peer social environment.

References


