

# Perceptions of Normative Social Pressure and Attitudes toward Alcohol Use: Changes during Adolescence\*

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**ABSTRACT.** The present study examined age differences in perceived normative social pressure and attitudes as well as the importance of these variables for adolescent alcohol use. Seventh, ninth and eleventh graders ( $N = 386$ ) completed a questionnaire. A majority of adolescents reported that friends pressured them not to use alcohol. Ninth and eleventh graders, however, perceived their friends as pressuring less against their alcohol use than did seventh graders.

While parental influence decreased with age, peer influence did not show a consistent age difference across two drinking measures. As expected, the importance of perceived benefits increased with age, while that of perceived costs of alcohol use decreased with age. The findings suggest that the perceived normative pressure varies with the age and the behavior of the adolescent. (*J. Stud. Alcohol* 55: 46-54, 1994)

**B**ETWEEN middle childhood and early adolescence youths start to spend a considerable amount of time with their peers. The time spent with parents, on the other hand, decreases throughout adolescence. As the adolescent strives to achieve independence from parents, close peers become an important source of support for defining oneself and assuring self-worth (Brown, 1990). Being a member of a peer group that renders support is, thus, essential for the early adolescent's emotional and psychological well-being.

Because of the increased importance of peer approval, early adolescence is also marked by high susceptibility to peer conformity. The process by which conformity is achieved among the members of a peer group, however, is unclear. The typical view assumes that peers exert direct pressure on each other in order to get compliance. Based on this view, a large number of prevention programs have focused on teaching how to say "no" to drug use (e.g., Dielman et al., 1986; Telch et al., 1990).

By contrast, recent studies have revealed that adolescent peers rarely control each other's behavior by using explicit or coercive pressure (see Savin-Williams and Berndt, 1990). Similarly, in Berndt et al.'s (1989) study, a majority of adolescents denied that their friends had changed their attitudes or behavior and vice versa. Despite the absence of explicit pressure, however, conformity to peer norms are likely to occur because group acceptance is crucial for teens' feelings of self-worth.

The first interest of the present study is to examine further the view that peers do not use direct pressure to influence each other. When one attaches a high value to being a member of a certain group, the group's norms can operate as pressure on the individual. Similar to Deutsch and Gerard's (1955) normative influence, perceived normative social pressure is defined here as one's perception of others' expectations to conform to their norms. Normative social pressure is distinguished from coercive pressure, which involves threats or sanctions.

Not only social factors but also personal attitudes contribute to one's behavior. As teens become more autonomous and have a more clear self-definition with age, their personal attitudes may play an increasingly significant role in determining their behavior. In the present study, attitudes are defined as expectations of the costs and benefits of behavior (Ajzen and Fishbein, 1970).

Many researchers have shown that both perceived normative social pressure and personal attitudes are good predictors of adolescent substance use such as drinking and smoking (Biddle et al., 1980; Morgan and Grube, 1989). Possible age changes in the mean scores, or in the importance of these variables, however, have received little attention. Unfortunately, youth substance research has often been done apart from the basic developmental research examining the changes in influence processes during adolescence. Alcohol use among youths remains high despite a decline in the use of illicit substances in recent years (Newcomb and Bentler, 1989). Furthermore, automobile accidents, often involving alcohol, are still the number one cause of death and injuries of American youth (Wetzel, 1989). Thus, it is essential to examine adolescent alcohol use in relation to the developmental changes in social and personal influences.

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The present study focuses on two major issues: (1) age differences in perceived normative social pressure and attitudes toward alcohol use and (2) age differences in the importance of these variables for alcohol use. Information on the first issue would further understanding of how social and personal influence processes vary with age. Knowledge about the second issue would be valuable for designing effective prevention programs by uncovering critical variables for different age groups.

In the area of substance use little is known about the direction and extent of normative social pressure. A predominant view is that peers more often encourage adolescent substance use than discourage it. The directions of normative parental and peer pressure are assumed to be opposed to each other. Despite its popularity, however, there is little empirical evidence to support this claim of negative peer pressure.

An alternative view is that perceived normative pressure may vary with the substance and with the age of the adolescent. Perceived peer pressure is generally directed against substance use, although pressure toward substance use increases with age (Brown et al., 1986a,b). In other research (Sheppard et al., 1985; Urberg et al., 1990) most adolescents perceived their peers as discouraging or putting little pressure toward cigarette or marijuana use. Perceptions of peer pressure to use alcohol, however, may show a different pattern. Brown et al. (1986b) found that seventh graders reported strong peer pressure against alcohol use, while twelfth-grade boys reported strong peer pressure toward it.

In the area of substance use as a whole, little is known about how adolescents perceive parental pressure and whether there are age changes in their perceptions. Despite the heightened importance of peers, parents remain a significant reference group for various behaviors throughout adolescence (Youniss and Smollar, 1985). Therefore, the first goal of this study was to examine adolescents' perceptions of normative parental and peer pressure in the area of alcohol use.

The second goal was to explore whether attitudes toward alcohol use vary with age. Some studies suggest that attitudes toward alcohol use may change between early and middle adolescence. Brown et al. (1986b) found that seventh to ninth graders perceived drinking as misconduct, while tenth to twelfth graders viewed it as social involvement. As drinking becomes more common and more acceptable with age, the salience of benefits may increase, while that of legal and social sanctions may decrease. Considering that positive attitudes toward substance use usually precede actual use (see Chassin, 1984), it is essential to examine age differences in attitudes toward alcohol use.

The third goal was to consider whether there is age variation in the importance of perceived normative social pressure and attitudes for alcohol use. During adoles-

cence, parents' influence continually decreases in various areas of the teen's life (Berndt, 1979; Steinberg and Sil-verberg, 1986). On the other hand, peer influence varies with behavior and age. In the area of misconduct, peer influence has been shown to be curvilinear, peaking at ninth grade (Berndt, 1979).

It is important to point out, however, that alcohol use should be examined in its social context. As mentioned earlier, the older adolescents in one study did not regard alcohol use as misconduct (Brown et al., 1986b). Biddle et al. (1980) examined age variations in these variables for adolescent alcohol use. Between the mean ages of 12.9 and 15.2 years, the influence of perceived parental norms decreased, while that of perceived friends' norms increased. Enjoyment beliefs also showed the same age trend as perceived friends' norms. Biddle et al. (1980), however, relied on single-item measures to assess social normative influences and personal attitudes. The present study attempted to clarify age trends for the influence of these variables on adolescent alcohol use. Thus, the study included multi-item measures of social and personal variables and multiple measures of alcohol use.

In short, the current study examined whether or not perceptions of normative pressure and attitudes toward alcohol use differ with the age of the adolescent. Moreover, the study investigated whether the importance of these variables for alcohol use varies with age.

## Method

### Subjects

Students ( $N = 399$ ) from junior high and senior high schools in a small city in the Midwest participated in the study. More than 95% of the adolescents in each grade signed informed consent forms. Thirteen students (9 seventh graders, 3 ninth graders, and 1 eleventh grader), however, were not included in the final sample because of too many missing or random responses. The final sample consisted of 140 seventh graders (84 girls and 56 boys), 120 ninth graders (68 girls and 52 boys), and 126 eleventh graders (57 girls and 69 boys). Their mean ages were 12 years and 5 months at seventh grade, 14 years and 6 months at ninth grade and 16 years and 5 months at eleventh grade. Of these adolescents 98% were white (five were blacks and one was Asian). Seventy-nine percent of the adolescents had fathers who were high school graduates and 82% had mothers who were high school graduates; 18% of the adolescents had fathers who finished college and 13% had mothers who finished college.

### Procedure

The questionnaires were administered to groups of adolescents during regular class periods. To increase the va-

lidity of the self-reports of alcohol use, adolescents were asked not to write their names on the questionnaires. In addition, the anonymity and confidentiality of the responses were emphasized. The questionnaire took about 40 to 45 minutes to complete.

### Measures

*Perceived normative pressure of parents and peers.* To assess the perceived normative pressure of parents and peers, adolescents were given seven comparable statements for each referent. The items dealt with different frequencies and quantities of, and various settings for, drinking. Best friends were included as a major source of peer influence. This is because previous researchers have suggested that close friends have the most influence on adolescent alcohol use (Downs, 1987). The statements consisted of the following: "My parents [My best friends] think that I should not drink at all." "My parents [My best friends] think that it's OK for me to have one or two drinks every other week." "My parents [My best friends] think that it's OK for me to have five or more drinks once or twice every weekend." "My parents [My best friends] think that it's OK for me to have one or two drinks nearly every day." "My parents [My best friends] think that it's OK for me to drink at home." "My parents [My best friends] think that it's OK for me to drink at a party." "My parents [My best friends] think that it's OK for me to drink at a bar." The items were adapted from those used by Johnston et al. (1987) and Schlegel et al. (1977). Adolescents responded to each statement on a 7-point scale ranging from (1) "strongly disagree," (2) "mildly disagree," (3) "slightly disagree," (4) "not sure," (5) "slightly agree," (6) "mildly agree," to (7) "strongly agree." Their responses were recoded in a way that 1 indicated strongest possible pressure against alcohol use, 4 indicated not sure and 7 indicated strongest possible pressure toward alcohol use. Adolescents' responses were averaged across seven items for perceived normative parental pressure and peer pressure, respectively. The internal consistency estimates for the perceived normative parental pressure measure were .87, .89 and .85 for seventh, ninth and eleventh graders, respectively. The internal consistency estimates for the perceived normative peer pressure measure were .93, .92 and .90 for seventh, ninth and eleventh graders, respectively.

*Attitudes toward alcohol use.* Adolescents responded to 19 items on the perceived benefits of, and 16 items on the perceived costs of, alcohol use. The items on the perceived benefits of alcohol use dealt with three types of expectations: social (e.g., "If I drink, I will feel more part of the group"), personal enjoyment ("Drinking will make me feel good") and personality effects ("Drinking will help me forget my problems"). The items on the perceived costs consisted of three types: social and behavioral impairment (e.g., "If I drink, I will get into fights"),

sanctions against alcohol use (e.g., "Drinking is against my religion") and health liability (e.g., "Drinking will make me hooked on alcohol"). The 35 attitude items were selected based on past literature (e.g., Brown et al., 1987; Jessor et al., 1968a). Principal components factor analyses were done on all items for the entire adolescent sample. The items for the perceived benefits of alcohol use loaded on one factor; the items for the perceived costs loaded on a second factor.

Adolescents responded to each item on a 7-point scale ranging from (1) "very unlikely," (2) "quite unlikely," (3) "slightly unlikely," (4) "not sure," (5) "slightly likely," (6) "quite likely" to (7) "very likely." Their responses on the items of the perceived benefits/costs were recoded in a way that 1 indicated the least positive/negative expectations of alcohol use, 4 indicated neutral and 7 indicated the most positive/negative expectations of alcohol use. Adolescents' responses were averaged across the 19 items for the perceived benefits and across the 16 items for the perceived costs, respectively. Coefficient alphas for the perceived benefits measure were .91, .90 and .91 for seventh, ninth and eleventh graders, respectively. Coefficient alphas for the perceived costs measure were .82, .89 and .89 for seventh, ninth and eleventh graders, respectively.

*Drinking intentions.* Adolescents were asked whether they intended to drink beer, wine or distilled spirits in the next month and the next year with six items adapted from Chassin et al. (1985). Responses were coded on 7-point scales ranging from (1) "very unlikely," (4) "not sure" to (7) "very likely." Internal consistencies of this measure were .92, .91 and .90 for seventh, ninth and eleventh graders, respectively.

*Alcohol use.* To examine whether consistent results could be obtained across different measures of alcohol use, multiple measures of alcohol use were included. The Adolescent Alcohol Involvement Scale (Mayer and Filstead, 1979) and the items for the Quantity Index (QI) and the Frequency Index (FI) of Jessor et al. (1968b) were included because they have been most widely used in past research. The Adolescent Alcohol Involvement Scale (AAIS) consists of 14 items. It includes reasons for drinking (e.g., "Why do you usually start to drink?"), first time of alcohol use (e.g., "When did you take your first drink?"), means to get alcohol (e.g., "How do you get your drinks?") and drinking companions (e.g., "Whom do you drink with?"), as well as quantity and frequency of drinking. The lowest total score possible is 0 and the highest total score possible is 79. High scores indicate heavy involvement with alcohol. The test-retest reliability of the AAIS was .89 with adolescent samples in Mayer and Filstead's study (1979). In addition, the AAIS was shown to have high construct validity as well as high internal consistency (Moberg, 1983). Coefficient alphas for the measure of AAIS were .88, .86 and .82 for seventh, ninth and eleventh graders, respectively.



TABLE 1. Means ( $\pm$  SDS) of drinking intentions and behavior, perceived normative pressure and attitudes toward alcohol use for each grade and each sex

Measures	Grade			Sex	
	7th	9th	11th	Girls	Boys
Drinking intentions	1.97 $\pm$ 1.60	3.45 $\pm$ 2.04	3.52 $\pm$ 2.04	2.56 $\pm$ 1.91	3.38 $\pm$ 2.07
<i>n</i>	140	120	126	209	177
Drinking Behavior					
AAIS	16.69 $\pm$ 13.04	26.74 $\pm$ 14.29	28.33 $\pm$ 14.40	21.20 $\pm$ 14.21	26.56 $\pm$ 15.53
<i>n</i>	134	109	118	204	157
QI	.98 $\pm$ 2.07	2.22 $\pm$ 2.97	3.03 $\pm$ 3.29	1.16 $\pm$ 1.95	3.05 $\pm$ 3.49
<i>n</i>	139	117	125	205	176
FI	0.07 $\pm$ 0.23	0.10 $\pm$ 0.21	0.09 $\pm$ 0.18	0.05 $\pm$ 0.12	0.13 $\pm$ 0.27
<i>n</i>	139	117	124	205	175
Perceived parents' pressure	1.51 $\pm$ 1.09	1.75 $\pm$ 1.13	1.76 $\pm$ 1.07	1.47 $\pm$ 0.83	1.89 $\pm$ 1.32
<i>n</i>	140	120	126	209	177
Perceived friends' pressure	2.06 $\pm$ 1.55	2.98 $\pm$ 1.67	3.37 $\pm$ 1.66	2.41 $\pm$ 1.58	3.21 $\pm$ 1.78
<i>n</i>	140	120	126	209	177
Perceived benefits	2.88 $\pm$ 1.23	3.04 $\pm$ 1.13	2.99 $\pm$ 1.13	2.81 $\pm$ 1.12	3.14 $\pm$ 1.20
<i>n</i>	140	120	126	209	177
Perceived costs	5.59 $\pm$ 0.99	4.78 $\pm$ 1.26	4.33 $\pm$ 1.23	5.12 $\pm$ 1.28	4.70 $\pm$ 1.24
<i>n</i>	140	120	126	209	177

Note: *n* indicates the number in sample.

The QI and the FI were concerned with three different types of alcoholic beverages: wine, beer and distilled spirits. In order to measure the QI, three questions were asked: "How much do you usually drink at one time when you drink beer [wine, hard liquor]?" Responses were indicated on a 6-point scale from (1) "never drink beer [wine, hard liquor]" to (6) "seven or more bottles of beer [a bottle or more wine, 7 or more drinks of hard liquor]." The quantity estimate for each beverage consumption was determined in terms of absolute alcohol (AA) content per ounces consumed (for the details of scoring, see Jessor et al., 1968).

The FI was also assessed with three questions: "How often do you usually drink beer [wine, hard liquor]?" Adolescents responded on a 7-point scale ranging from (1) "never" to (7) "1 or 2 times a day." Frequency values were assigned to the frequency response for each beverage based on a times-per-day unit (for the details of scoring, see Jessor et al., 1968b). Both the QI and FI have a lower limit of 0 (no alcohol consumed) and high scores indicate large amount/high frequency of alcohol use. Coefficient alphas for the QI were .72, .73 and .75 for seventh, ninth and eleventh graders, respectively. Coefficient alphas for the FI were .77, .73 and .87 for seventh, ninth and eleventh graders, respectively.

## Results

### Age and sex differences

**Drinking intentions and behavior.** To examine age and sex differences in alcohol use, analyses of variance were done with grade and sex as between-subject factors. Grade was used in place of age in all the analyses. One reason

for the choice of grade over age is that adolescents were recruited by grade into distinct groups. Another reason is that alcohol use during adolescence usually occurs in a social context (Chassin, 1984). An adolescent's social context is more likely to be defined by his/her grade than by his/her age. The dependent variable in each analysis was the measure of drinking intentions, self-reported alcohol use assessed with the Adolescent Alcohol Involvement Scale (AAIS), the Quantity Index (QI), and the Frequency Index (FI), respectively.

There were significant age differences in adolescents' drinking intentions ( $F = 27.14$ , 2/380 df,  $p < .001$ ), the AAIS scores ( $F = 24.21$ , 2/355 df,  $p < .001$ ) and the QI ( $F = 38.36$ , 1/375 df,  $p < .001$ ). Post hoc Scheffe comparisons with an alpha level of .05 indicated that seventh graders expected to use alcohol in the near future less often and were less involved in alcohol use than were ninth or eleventh graders. Table 1 shows the means and standard deviations of the measures of alcohol use and other related measures for each grade and for each sex.

Sex differences were also significant with the measure of drinking intentions ( $F = 13.03$ , 1/380 df,  $p < .001$ ), scores on the AAIS ( $F = 9.32$ , 1/355 df,  $p < .01$ ) the QI ( $F = 38.36$ , 1/375 df,  $p < .001$ ) and the FI ( $F = 14.43$ , 1/374 df,  $p < .001$ ). Girls expected to use alcohol less often and drank less than boys. There were no significant interactions of grade and sex ( $p$ 's  $> .15$ ).

**Perceived normative pressure.** To examine age and sex differences in perceived normative pressure of parents and friends, a repeated measures analysis of variance was done with grade and sex as between-subject factors and referent (parents versus friends) as a within-subject factor. There were effects of grade ( $F = 13.87$ , 2/380 df,  $p < .001$ ) and referent ( $F = 245.28$ , 1/380 df,  $p < .001$ ), which

TABLE 2. Intercorrelations among the measures of drinking intentions and behavior and perceived normative parents' and friends' pressure and perceived benefits and costs of alcohol use for the entire sample

	1	2	3	4	5	6	7	8
1. Drinking intentions								
2. AAIS	.78							
3. Q1	.73	.78						
4. FI	.51	.54	.64					
5. Perceived parents' pressure	.49	.43	.39	.36				
6. Perceived friends' pressure	.78	.67	.57	.38	.53			
7. Perceived benefits	.57	.50	.46	.36	.58	.39		
8. Perceived costs	-.66	-.60	-.50	-.31	-.62	-.36	-.42	

Note: For the correlations between the AAIS and other variables,  $n = 361$ . For the other correlations,  $n = 380-386$ . All the correlations were significant at  $p < .001$ .

were qualified by the Grade  $\times$  Referent interaction ( $F = 17.79$ , 2/380 df,  $p < .001$ ) (see Table 1).

In the rest of this section, only significant differences will be mentioned. Tests of simple effects showed that perceived normative parents' pressure did not vary with age ( $p$ 's  $> .15$ ). The mean scores suggest that adolescents at all three grade levels perceived their parents as strongly disapproving of their alcohol use (see Table 1).

On the other hand, perceived normative friends' pressure varied with age ( $p < .05$ ). Seventh graders reported greater pressure from friends against alcohol use than did ninth or eleventh graders. Ninth graders perceived approximately the same pressure from friends as did eleventh graders. Interestingly, the mean scores for all grades were lower than 4.0, reflecting friends' pressure against alcohol use. Ninth and eleventh graders' perceptions, however, were closer to "not sure" on the response scale than were those of seventh graders. Thus, friends were not perceived as pressuring alcohol use more, but as pressuring less against use with increasing age.

There was also a significant effect of sex ( $F = 21.20$ , 1/380 df,  $p < .001$ ) which was qualified by a Sex  $\times$  Referent interaction ( $F = 3.87$ , 1/380 df,  $p < .05$ ). Girls and boys reported approximately as much pressure from parents against alcohol use. Girls, however, reported greater pressure from friends against use than did boys (see Table 1). Boys perceived their friends as being less against alcohol use than did girls.

**Attitudes toward alcohol use.** A comparable analysis of variance was done with the two subscales for attitudes toward alcohol use (benefits versus costs) as a within-subject factor. There were effects of grade ( $F = 31.42$ , 2/380 df,  $p < .001$ ) and subscale ( $F = 349.73$ , 1/380 df,  $p < .001$ ), which were qualified by an interaction of Grade  $\times$  Subscale ( $F = 15.21$ , 2/380 df,  $p < .001$ ). Perceived costs differed with age. Seventh graders expected more negative consequences to occur as a result of alcohol use than did ninth or eleventh graders (see Table 1). Ninth graders also expected more costs than eleventh graders did. Eleventh graders' perceptions of costs were closer to "not sure" (4.0) on the response scale.

In addition, there was a significant interaction of Sex  $\times$  Subscale ( $F = 10.00$ , 1/380 df,  $p < .01$ ). Girls expected fewer benefits and more costs of alcohol use than boys did (see Table 1). Finally, there was an uninterpretable interaction of Sex  $\times$  Grade ( $F = 4.52$ , 2/380 df,  $p < .05$ ).

#### Relations among the measures

Table 2 shows zero-order correlations of the predictors and measures of alcohol use for the sample as a whole. Drinking intentions were highly correlated with reported alcohol use. The measures of perceived normative pressure and attitudes were also related to both drinking intentions and behavior. In addition, the measures of perceived normative pressure and attitudes were significantly correlated with each other.

#### Age differences in the relations of perceived normative pressure and attitudes to alcohol use

To examine age differences in the relations of the predictors to the measures of alcohol use, multiple regression analyses were done using interaction terms. In the first step, grade and a specific measure of perceived normative pressure or attitudes were entered as predictors (e.g., perceived normative parents' pressure). In the second step, the interaction term of grade and the specific measure of pressure or attitudes (e.g., Grade  $\times$  Perceived Normative Parents' Pressure) was entered as an additional predictor (Aiken and West, 1991). The  $R^2$  for each multiple regression analysis after the above two steps were completed is shown in Table 3.

Tests of the significance of the interaction terms indicate whether the relations between the predictors and the measures of alcohol use vary linearly across grades. Because the goal was to test effects of predictors across three age groups, unstandardized regression coefficients were used (Pedhazur, 1982). In each regression analysis one predictor was the product of the other two predictors. Thus, in order to reduce multicollinearity, every predictor

TABLE 3. Regression coefficients for interaction terms in regression analyses that examine grade differences in the relations of the predictors to the measures of drinking intentions and behavior

	Drinking intentions			Drinking behavior								
	b	t	R <sup>2</sup>	AAIS			QI			FI		
				b	t	R <sup>2</sup>	b	t	R <sup>2</sup>	b	t	R <sup>2</sup>
Grade $\times$ perceived parents' pressure	-.23	-2.45*	.33	-2.15	-2.90 <sup>†</sup>	.29	.11	.74	.22	-.05	4.27 <sup>‡</sup>	.17
Grade $\times$ perceived friends' pressure	-.01	-.15	.42	-1.26	-2.97 <sup>†</sup>	.47	.21	2.34*	.35	-.01	-.81	.16
Grade $\times$ perceived benefits	.18	2.20*	.42	.07	.11	.35	.38	2.91 <sup>†</sup>	.30	.01	.55	.13
Grade $\times$ perceived costs	.12	1.55	.45	1.91	2.99 <sup>†</sup>	.38	.16	1.16	.26	.03	2.41*	.13

Note: b's indicate unstandardized regression coefficients. R<sup>2</sup> is for each regression in which grade, a predictor, and the interaction term of grade and the predictor were entered.

\*p < .05. <sup>†</sup>p < .01. <sup>‡</sup>p < .001.

was centered by subtracting the mean from each score in all analyses (Aiken and West, 1991). Each measure of adolescents' drinking intentions and behavior was used as the criterion in separate analyses. In order to increase the reliability of the findings, only the interaction term that was significant and consistent in its direction for more than one criterion variable was considered as significant. Table 3 shows the results of these analyses.

*Perceived normative pressure.* As shown in Table 3, the interaction term of grade and perceived normative parental pressure was significant for drinking intention, the AAIS and the FI.

The next step was to examine how the relations between perceived normative parental pressure and the drinking intentions, the AAIS and the FI differ with age. Each multiple regression analysis that yielded a significant interaction term was rearranged to show the regression of Y (alcohol use) on X (a predictor) at levels of Z (grade):  $Y = (b_1 + b_2Z)X + (b_0 + b_3Z) + e$ , where  $b_1$ ,  $b_2$  and  $b_3$  are unstandardized regression coefficients<sup>1</sup> (Aiken and West, 1991). This equation specifies a family of simple

regression equations in which both an intercept and a slope depend on the grade level (Z). Because Z represents three grade levels (i.e., seventh, ninth and eleventh grade), there are three simple regression equations for each measure of alcohol use. Table 4 shows the slope of the simple equation at each grade level for each measure of alcohol use whose multiple regression analysis yielded a significant interaction term. The relation of perceived parental pressure to the three measures of alcohol use consistently became weaker with increasing age (see Table 4).

Next, the interaction term of grade and perceived normative friends' pressure was significant for alcohol use measured by the AAIS and the QI (see Table 3). The direction of the interaction terms, however, was the opposite for the two measures. Perceived normative friends' pressure became less important for explaining AAIS with increasing age (see Table 4). In contrast, perceived normative friends' pressure became more significant for explaining the QI with age.

*Attitudes toward alcohol use.* The interaction of grade and perceived benefits of alcohol use was significant for

TABLE 4. Unstandardized regression coefficients showing the relations of the predictors to the measures of drinking intentions and behavior at each grade separately

	Perceived parents' pressure			Perceived friends' pressure		
	7th	9th	11th	7th	9th	11th
Drinking intentions	1.08 <sup>‡</sup>	.85 <sup>‡</sup>	.62 <sup>‡</sup>			
Drinking behavior						
AAIS	7.56 <sup>‡</sup>	5.41 <sup>‡</sup>	3.26*	6.75 <sup>‡</sup>	5.49 <sup>‡</sup>	4.23 <sup>‡</sup>
QI				.71 <sup>‡</sup>	.92 <sup>†</sup>	1.13 <sup>‡</sup>
FI	.12 <sup>‡</sup>	.07 <sup>‡</sup>	.02			
	Perceived benefits			Perceived costs		
	7th	9th	11th	7th	9th	11th
Drinking intentions	.80 <sup>†</sup>	.98 <sup>‡</sup>	1.16 <sup>‡</sup>			
Drinking behavior						
AAIS				-8.62 <sup>‡</sup>	-6.7 <sup>†</sup>	-4.80 <sup>‡</sup>
QI	.78 <sup>†</sup>	1.16 <sup>‡</sup>	1.54 <sup>†</sup>	-.09 <sup>‡</sup>	-.06 <sup>†</sup>	-.03 <sup>‡</sup>
FI						

Note: The slopes of the simple equations are presented at each grade level only for the measures of alcohol use for which multiple regression analyses yielded significant interaction terms.

\*p < .05. <sup>†</sup>p < .01. <sup>‡</sup>p < .001.



drinking intentions and the QI (see Table 3). Moreover, the relation of perceived benefits to drinking intentions and the QI became stronger with increasing age (see Table 4). The interaction of grade and perceived costs was significant for the AAIS and the FI (see Table 3). The relations of perceived costs to the AAIS and the FI became weaker with increasing age (see Table 4).

*Sex differences in relations of perceived pressure and attitudes to alcohol use*

In order to test sex differences in the relations of the predictors to alcohol use, comparable multiple regression analyses were done with sex in the place of grade level. Four out of the 16 interaction terms were significant. These significant effects, however, were not replicated for more than one measure of alcohol use. Therefore, the interaction effects of sex and the predictors will not be discussed.

### Discussion

Ninth and eleventh graders intended to drink more often and were more involved in drinking than were seventh graders. The number of adolescents who reported alcohol use also considerably increased between seventh and ninth grade, which is consistent with results of past research (e.g., Chassin, 1984). Thus, early adolescence seems to be the ideal time for prevention of alcohol misuse.

In the area of substance use, the predominant view has been that the directions of normative parental and peer pressure are opposed to each other. The mean scores in the present study, however, were lower than 4.0 (not sure) for both parents and peers, indicating normative pressure against alcohol use. That is, adolescents at all three grade levels perceived their parents and friends as being against their alcohol use. The findings support those of recent research in marijuana and cigarette use (Sheppard et al., 1985; Urberg et al., 1990). These results have important implications for the direction of prevention efforts. The fact that adolescents perceive their friends as discouraging their substance use suggests that programs teaching how to cope with negative peer pressure would have only limited success. Moreover, peer norms can be used as a deterrent to adolescent substance use. Recent prevention efforts providing for peer support for abstinence have shown to be successful (e.g., Telch et al., 1990).

Based on these findings, one may conclude that the notion of negative peer influence has been exaggerated. Before one accepts a rosy picture of peer influence, however, it should be noted that perceptions of friends' pressure varied with age. While parents were perceived as being strongly against alcohol use at all three grade levels, friends were perceived as being more tolerant of use with increasing age. According to the present sample of adolescents, friends contribute to their alcohol use by not show-

ing disapproval of, or by showing tolerance of, use rather than by pressuring toward use. The results clearly contradict the simplistic view of explicit peer pressure. Friends appear to influence adolescent alcohol use in a subtle and indirect way, which is consistent with the findings of recent studies (see Savin-Williams and Berndt, 1990). As a result, adolescents may not even be aware of friends' influence on their behavior. Further, the findings provide evidence for the importance of normative influence processes in understanding adolescent behavior. The question for future research is what indirect measures friends use to influence each other. More creative studies are needed to tap into the subtle peer influence processes.

The present findings, however, are partly inconsistent with those of Brown et al. (1986b). In Brown et al.'s study, there was a shift in the direction of perceived peer pressure from "against use" to "toward use" with increasing age. While seventh graders reported strong peer pressure not to drink, twelfth-grade boys reported strong peer pressure to drink. Unfortunately, Brown et al. (1986b) relied on a single-item measure to assess perceived peer pressure. On the other hand, the current study used seven items. The findings based on multiple items would, thus, be more reliable than those based on a single item. Considering that peer norms are multidirectional (Brown et al., 1986a,b), it will be more useful in future research to examine the pressure to use alcohol and the pressure not to use alcohol with separate measures.

The correlations of alcohol use with the perceived pressure of parents and friends were significant at all grades, which suggests that the influence of both parents and friends remained important in adolescence. Especially, it is notable that there were high correlations between perceived friends' pressure and the measures of adolescent alcohol use. The result suggests how close a connection exists between adolescents' reports of their drinking and the perceived friends' norms for drinking. It provides a new form of evidence for Kandel's (1978) conclusion that the similarity in drug use between adolescent friends is high because youths feel they need support from their friends for their illegal activity.

With increasing age, however, parents became less influential, which is consistent with the results of Biddle et al. (1980). This finding also supports that of past research on developmental changes in autonomy during adolescence (Berndt, 1979; Steinberg and Silverberg, 1986). Adolescents become more independent of parental influence in their alcohol use with age, as well as in other behaviors.

On the other hand, friends' influence did not show a consistent age difference across the measures of alcohol use. The perceived normative friends' pressure became less important for explaining three measures of alcohol use, drinking intentions, the AAIS and the FI, although the only significant interaction was obtained for the AAIS. On the other hand, the impact of perceived norma-

five friends' pressure on the QI became more significant with age. Two other studies also included more than one measure of alcohol use and found inconsistent results across the measures (Biddle et al., 1980; Downs, 1987). Biddle et al. (1980) included the measures of frequency and quantity of alcohol use. The perceived peer norms were negatively related to the frequency of alcohol use of middle adolescents (mean age = 15.2 years). On the other hand, the perceived peer norms were positively related to the quantity of their alcohol use. In Downs' (1987) study, close friends influenced the level of alcohol consumption of adolescents as measured by the Q-F Index, but not the AAIS.

This lack of a converging pattern across the measures of alcohol use may reflect the complexity of assessing friends' influence. Friends' influence may vary not only with age and a specific behavior but also with the different aspects of the behavior. The AAIS is a measure of overall alcohol use, assessing not only frequency and quantity of drinking but also means to get alcohol, drinking companions and so forth. On the other hand, the QI focuses on only the quantity of drinking at one time across beer, wine and spirits. Most adolescents start to drink between seventh and ninth grade, and those who drink often engage in weekend binge drinking (Johnston et al., 1987). Thus, it is speculated that with age friends may increasingly influence the amount of alcohol intake in adolescence. On the other hand, once teens start to drink, other aspects of alcohol use may be less likely to be influenced by friends. More empirical studies using multiple measures of alcohol use will be beneficial to clarify this issue. Further, this result suggests that developmental changes in friends' influence on various behaviors be examined with more caution.

Perceived costs of alcohol use decreased with age, while perceived benefits differed little with age. Consistent with age differences in the measures of drinking and perceived normative friends' pressure, ninth and eleventh graders expected fewer costs of alcohol use than did seventh graders. One reason for the absence of age difference in perceived benefits may be that enjoyment beliefs of alcohol use occur early in adolescence (Biddle et al., 1980; Brown and Finn, 1982).

The influence of perceived benefits was shown to be stronger for older adolescents' alcohol use, while that of perceived costs was the opposite. As Biddle et al. (1980) and Jessor et al. (1968a) suggested, expectations of benefits become more central factors in adolescents' alcohol use with age. Therefore, prevention programs focusing only on negative consequences of alcohol use would be ineffective for older adolescents. Teaching alternative ways of having a good time without alcohol would be especially successful with these adolescents.

Finally, boys reported greater intention to drink and more alcohol use than did girls. In addition, boys reported

less pressure not to use alcohol from friends than did girls. Further, boys expected more benefits from drinking, such as social acceptance (e.g., "If I drink, I will feel more part of the group") and enjoyment beliefs ("Drinking will let me have more fun"), than girls, which is consistent with the findings of Chassin et al. (1985). Programs that focus on building social skills and encouraging constructive leisure activities will be particularly helpful for boys.

The generalization of the results, however, is limited in some ways. The present study is solely based on adolescents' self-reports, cross-sectional data and a majority white population in a Midwest rural area. Further, social normative influences and personal attitudes are insufficient in fully understanding the etiology of adolescent alcohol use. The importance of modeling (Graham et al., 1991), personality (Brook and Brook, 1988) and prior behaviors such as involvement in delinquent acts (Jessor and Jessor, 1975) has been well demonstrated in past research. The present study, however, provides a necessary step for justifying a longitudinal study that examines developmental changes in the social and personal influence processes in more depth. Whites are more likely to use and abuse alcohol than are blacks or Hispanics in adolescence (Brannock et al., 1990). Thus, the results have significant implications at least for the prevention of white adolescents' alcohol misuse.

In conclusion, the present study demonstrated the importance of developmental characteristics for understanding adolescent behavior. The study showed age variations in the direction and extent of perceived normative social pressure and attitudes toward alcohol use. The study also revealed that the importance of social and personal influence processes varies with age. In addition, the results provide important suggestions for the directions and emphases of prevention programs.

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### Note

1. A multiple regression analysis testing whether the relation between perceived normative friends' pressure and the AAIS differs with age will be examined in detail as an example. The criterion variable was AAIS. As predictors of the AAIS, perceived normative friends' pressure, grade, and the interaction of the two variables were entered. Unstandardized regression coefficients for the perceived normative friends' pressure ( $b_1$ ), grade ( $b_2$ ) and the interaction term ( $b_3$ ) were 5.54, 2.16 and -1.26 ( $b_0 = 23.32$ ), respectively. In order to examine how the relation between the perceived normative friends' pressure and the AAIS differs with age, a multiple regression equation (1) was transformed into (2):



$$Y = 23.32 + 5.54X + 2.16Z + (-1.26)XZ + e \quad (1)$$

$$Y = [5.54 + (-1.26)Z]X + (23.32 + 2.16Z) + e. \quad (2)$$

In order to get a slope of the multiple regression equation at each grade level, the centered Z score of each grade (- .96, .04 and 1.04 for seventh, ninth and eleventh grade, respectively) was then entered in the equation (2). The slopes were 6.75, 5.49 and 4.23 at seventh, ninth and eleventh grade level, respectively. Thus, the relation of perceived normative friends' pressure to the AAIS became weaker with increasing age.

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