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Adolescent Reasoning About Drug Use

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In this study, adolescents' reasoning about drug use was investigated from a social-cognitive perspective. In an interview and classification task, adolescents were asked to evaluate drug use in comparison to other social and moral transgressions; (a) distinguish between soft and hard legal and illegal drugs; (b) conceptualize drug use in relation to acts of self-harm, such as suicide; (c) weigh legal, societal, physical, and psychological consequences of drug use; and (d) evaluate authorities' justifications to prohibit drug use. Sixty adolescents, evenly divided between males and females, in Grades 10, 11, and 12 participated. Age and gender differences emerged regarding adolescents' judgments about drug use and whether individuals have the right to harm themselves. The findings have implications for research on adolescents' social reasoning and for drug education programs.

Research on drug use has concentrated on investigating potential predictors of drug use such as personality traits (Brook, Whitman, Gordon, & Cohen, 1986; Kandel, 1980) and familial relationships (Noren-Hotzeisen, Johnson, Anderson, & Johnson, 1984) rather than on subjects' conceptualizations about drugs and their usage. Yet drug use embodies a number of salient social and moral issues, such as decisions about self-harm, harm to others, societal laws, regulations, and personal decision making, which could be explored from a social-cognitive perspective. Moreover, whereas studies have shown that adolescents score lower on knowledge about drugs than about any other health issue, and that this is true even for adolescents who have been exposed to drug educational programs (Sheppard, Goodstadt, & Williamson, 1985), information on how adolescents reason about drug use may be particularly important.

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Adolescents' lack of knowledge about drugs may be due to the way in which information about drugs is communicated to adolescents. Such information may be conveyed in developmentally inappropriate ways. For example, if adolescents consider self-harm to be a personal issue and drug programs do not emphasize the extent to which drug use causes harm to others, then adolescents may not agree with the message that drug use is wrong, as in their view it is a personal issue, one that does not affect others. In fact, reviews of the literature on drug education have shown that the effects of providing information about drugs to adolescents depends on the way that the information is disseminated, the credibility of the source, and the age and drug experience of the individuals (Pickens, 1985). Thus it is particularly surprising that there is so little research on how adolescents conceptualize the issue of drug use.

The present study was designed to examine how adolescents reason about drug use. Four aspects of adolescents' reasoning were tested. First, hypotheses regarding how adolescents conceptualize drug use in relation to other social and moral transgressions were examined. It was predicted that adolescents, during the high school years, would increasingly consider drug use to be a moral rather than a personal issue. This was expected on the basis of research findings that adolescents evaluate a range of familial conflicts as personal decisions, in contrast to their parents, who view them as moral ones (Smelana, 1988). In addition, research with college students has shown that drug use is often considered to be a matter of moral standards rather than societal laws and regulations (Primavera & Passal, 1986).

Further, it was expected that adolescents' classifications of different types of drug use (e.g., as moral or social-conventional transgressions or personal decisions) would be related to their perceptions of the harmfulness associated with the particular type of drug. For example, drugs that cause great harm, such as crack and cocaine, would be evaluated as moral transgressions and drugs that cause less harm, such as caffeine and nicotine, would be evaluated as predominantly social-conventional transgressions or personal matters. This was hypothesized on the basis of research findings that individuals evaluate acts as moral transgressions when the acts involve threats to others' welfare (Smelana, 1988; Turiel, 1983).

Second, analyses were conducted to test predictions regarding conceptual distinctions between different types of drugs. Due to the findings that some drugs, such as alcohol and marijuana, are controversial with respect to their harmfulness and legal status (Kail, 1985; Martin, McDuffee, & Presser, 1981), it was expected that adolescents would experience personal conflict in their evaluation of these drugs (and more so than for other types of drugs). Thus assessments were made of how adolescents evaluate a range of drugs,

such as crack and cocaine, which are illegal and cause great harm, and others, such as caffeine and nicotine, which are legal and cause less immediate harm.

Third, adolescents' reasoning about self-harm was explored to compare judgments about self-harm with those about drug use. As there is little previous research on adolescents' conceptions about extreme acts of self-harm, such as suicide, specific hypotheses about the relation between judgments of drug use and self-harm were not made. On one hand, an act of suicide could be classified in the same way as the use of crack because the latter constitutes an extreme form of self-harm and causes potential psychological harm to others. On the other hand, suicide could be classified in the same way as the use of nicotine and caffeine because it could be argued that it is a personal decision which does not affect others. A third possibility is that suicide could be evaluated similarly to alcohol and marijuana use because, like alcohol and marijuana, societal views of suicide are quite mixed and controversial (see Szasz, 1986, for a review of this issue).

Finally, how adolescents weigh legal, societal, and consequential aspects of drug use were examined to understand some of the social-cognitive dimensions that are relevant for adolescents when evaluating drug use. For example, direct questions about the legal jurisdiction, authority prohibitions, and intrinsic consequences of drug use were asked of adolescents. These questions were based on ones used in past research and designed to explore social reasoning (Smetana, 1982; Turiel, 1983).

It was expected that adolescents' evaluations of drug use would depend on their view of the harm associated with it and that this would be more salient than its legal status or prohibitions by authority. In addition, it was predicted that adolescents would give positive evaluations of drug use after hearing positive research findings regarding its usage (e.g., marijuana use for cancer patients), as previous research has shown that the legality of drug use is not a major factor in adolescents' evaluations of it (Frimavera & Pascal, 1986).

In order to examine changes in adolescents' conceptions about drug use during the high school years, adolescents in Grades 10, 11, and 12 were selected for participation in this study. An advantage of including only high school students was that all subjects were enrolled in the same school and thus exposed to the same educational environment. In this study, both males and females were included, given prior findings of gender differences regarding substance use (Kandel, 1980). To determine whether the subjects were homogeneous with respect to their knowledge of drugs, a familiarity assessment was administered to all adolescents.

METHOD

Subjects

Participants in the study included 60 adolescents, 20 from each of three grades at the local public high school: Grade 10 (mean age = 15 years, 9 months), 11 (mean age = 16 years, 10 months), and 12 (mean age = 18 years, 0 months), with 10 males and 10 females at each grade level. Subjects were predominantly Caucasian (90%), and, according to the demographics provided by the principal at the high school, were from middle-class families.

Procedure

At the time of the interviewing, several classrooms had discussed issues relating to drug use, but there was no schoolwide drug use program. Two research assistants gave 10-minute presentations regarding the project in each of three social studies classrooms (one at each grade level). All students were told that the purpose of the project was to find out how adolescents evaluate different aspects of drug use. Students were told that the information obtained from the interview was strictly confidential, that no identifying names would appear on any documents or reports of the project, and that parental permission was needed for anyone to participate in the project. Parental permission letters were handed out in class, and students were asked to return them to their teacher or to a box placed in the main office of the school (parents were asked to check "yes" or "no" so that the act of returning a letter did not reveal whether a student would or would not participate). Of 90 permission letters handed out, 60 were returned (providing a 67% response rate), and all those students who were given parental permission to participate did so.

Each subject was escorted by one of the two research assistants to a quiet room provided by the staff at the high school. Each session took approximately 45 minutes.

Measures

Familiarity assessment. A familiarity assessment was developed by the authors for this project and consisted of four questions about each drug item included in the classification task and in the drug and suicide interview. Have

you heard of this drug? Do you know how it is used? Do you know its effects? Do you know where it can be purchased? Subjects' "yes" or "no" judgments for each question were recorded and tallied. Subjects were not asked about their personal drug use history.

Classification task. Two sorting procedures were developed for the classification task. In the first procedure, adolescents were given a stack of 13 cards, each representing one item, and were asked to sort each item as under one of two headings: (a) causes harm or (b) does not cause harm. This procedure was developed in pilot work (Leviton, 1988). The second sorting task was a modified version of the one used by Smetana (1982) to assess how individuals sort items as reflecting moral, conventional, and psychological issues. In the second procedure, adolescents were given the same stack of 13 cards and were asked to sort them under one of three headings: (a) The act is wrong, regardless of existing laws; (b) the act is wrong on the basis of parental rules and/or existing laws; or (c) the act is not a matter of right or wrong but one of personal choice.

The 13 items were composed of six items that came from the list used by Smetana (1982), which included two hypothesized moral decisions: killing and stealing; two hypothesized social-conventional decisions: refusing to call a judge "Your Honor" and driving on the left side of the road (as in England); and two hypothesized personal decisions: hair length and premarital sex. These items were labeled the "nondrug" items. The remaining seven items consisted of items that were generated for the present study and included three legal drugs (caffeine, nicotine, and alcohol), three illegal drugs (marijuana, cocaine, and crack), and suicide. These items were labeled the "drug and suicide" items.

Responses to the classification task were scored for subjects' judgments about harm for each item (responses were scored 1 = yes, causes harm and 0 = no, does not cause harm) and for their sorting of items under one of three headings (a score of 1 was assigned for an item that was sorted under a given heading and a score of 0 if it was not sorted under that heading).

Drug and suicide interview. The interview consisted of 15 questions, grouped as five conditions. The first condition, called *general evaluation*, included three questions on reasoning about drug use in general (e.g., Is it all right or not all right to use illegal drugs? Why or why not?). The second condition, *research findings*, included four questions designed to find out how subjects weigh the consequences of drug use when presented with positive and negative research findings. Two of the questions addressed subjects' evaluations of drugs that are commonly thought to be harmful and

for which research has demonstrated positive physical and psychological effects. Examples of drugs in these categories, as supplied by the interviewer, were based on ones given by adolescents in pilot work (Leviton, 1988). The remaining two questions addressed subjects' evaluations of drugs that are commonly thought to be unharmed and for which research has demonstrated negative physical and psychological effects (e.g., aspirin causes ulcers, and over-the-counter stimulants cause irritability, respectively).

The third condition, *legal jurisdiction*, consisted of two questions about the role of the legal status of drugs in subjects' evaluations (e.g., Do you think it is all right or not all right to use drugs in countries where they are legal? Why or why not? Is it all right or not all right to use legal drugs in the United States? Why or why not?). The fourth condition, *prohibitions by authorities*, included four questions about whether authorities such as parents, government, and religious leaders should prohibit drug use (e.g., Does an individual have the right to prohibit drug use? Why or why not?). Finally, the fifth condition, *self-harm*, consisted of three questions about whether individuals have the right to harm themselves or the right to commit suicide (e.g., Do people have the right to harm themselves? Do people have the right to kill themselves?).

Subjects' responses to the interview questions were analyzed with modifications of previously established coding systems (Smetana, 1982, 1988). Two aspects of subjects' answers were scored: "yes" or "no" responses and reasons for judgments. The four categories used to code subjects' reasons for their judgments were (a) moral (a concern for others' welfare), (b) social-conventional (societal laws and authority's jurisdiction), (c) psychological (personal choice), and (d) other.

Analyses were conducted on six modes of reasoning: (a) use of moral only, referred to as "moral"; (b) use of social-conventional only, referred to as "conventional"; (c) use of psychological only, referred to as "personal"; (d) use of moral and conventional, referred to as a "mixture of moral and conventional"; (e) use of moral and psychological, referred to as a "mixture of moral and personal"; and (f) use of psychological and conventional, referred to as a "mixture of personal and conventional." (There were no instances in which subjects gave reasons from all three categories.)

Reliability Coding

Interrater reliability coding was conducted on 25% of the protocols by a rater who was blind to the hypotheses of the study and the age and gender of the subjects. Reliability was conducted separately for judgments and justifications. For judgments, interrater reliability was calculated at .91 with the

Cohen Kappa coefficient. For justifications, interrater reliability was .86 with the Cohen Kappa coefficient.

RESULTS

Familiarity Assessment

Virtually all subjects (97% to 100%) had heard of all six drugs (alcohol, caffeine, nicotine, marijuana, cocaine, and crack) and believed that they knew how they were used. With the exception of cocaine (77%) and crack (68%), 93% to 100% of all subjects believed they knew the effects of the drugs. The majority of subjects (97% to 98%) said they knew where to purchase legal drugs and marijuana (77%); fewer knew where to purchase cocaine (42%) and crack (28%). There were no significant age or gender effects for these judgments. Thus the group was fairly homogeneous in its familiarity with drugs.

Classification Task

First, the results obtained on the subjects' ratings of harmfulness of each item are discussed, followed by a description of the findings for the sorting judgments for each item. All responses were arcsin-transformed to correct for nonnormality, which often occurs with the use of percentages (Winer, 1971). Follow-up ANOVAs were conducted in cases in which the MANOVA revealed significant between-subjects effects. In addition, the significance level for all follow-up *t* tests were adjusted for the number of comparisons conducted.

Harm ratings. As shown in the first columns on Table 1, the percentage of subjects who rated each item as causing harm ranged from 2% for hair length to 100% for killing and the use of crack, respectively. A 3 (Grade) x 2 (Gender) x 13 (item) MANOVA performed on the percentage of subjects who rated each item as causing harm revealed a main effect for Gender, $F(1, 54) = 6.23, p < .01$, and a main effect for item, $F(12, 648) = 92.56, p < .001$, with no interaction effects. Follow-up ANOVAs revealed that there were gender differences for only one item: nicotine, $F(1, 58) = 4.5, p < .04$; females rated nicotine as more harmful than shown by ratings from males (90% and 77%, respectively).

There was a greater variation in adolescents' evaluation of harm for the nondrug items than for the drug and suicide items. Killing and stealing were

TABLE 1: Percentage of Adolescents Sorting Items as Independent of Authority (Parental and Governmental), Congruent on Authority, or Under Personal Jurisdiction

Item	Transgression			Independent of Authority			Congruent on Authority			Under Personal Jurisdiction		
	All Grades (N = 60)	10	11	12	X	10	11	12	X	10	11	12
Killing	100	65	85	65	72	35	15	30	27	0	0	0
Stealing	97	75	65	60	67	20	30	27	37	4	5	10
Calling a Judge "Your Honor"	5	15	20	5	13	40	35	35	37	40	45	60
Driving on the left												
side of the road	12	25	25	5	18	60	65	75	67	15	10	20
Hair length	2	0	0	0	0	10	10	0	7	90	90	100
Prenatal sex	35	5	5	0	3	15	30	35	27	80	65	65
Suicide	98	35	45	50	43	20	15	15	17	45	40	35
Nicotine	83	15	35	25	25	15	15	15	17	70	60	50
Caffeine	58	0	15	0	5	15	0	10	8	85	85	90
Alcohol	93	40	40	25	35	15	15	15	23	45	45	35
Marijuana	82	40	50	30	40	20	25	25	27	25	25	25
Cocaine	98	65	70	65	67	20	15	15	20	15	15	10
Crack	100	66	75	80	73	15	15	15	13	10	10	13

a. Act is wrong independent of existing laws and authority commands.
 b. Act is wrong on the basis of existing laws and authority commands.
 c. Act is not a matter of right or wrong but of personal choice.

considered significantly more harmful than the four remaining nondrug items ($ps < .003$). There was no significant difference, however, between harm ratings for killing and stealing and any of the drug items, except for caffeine. The difference between the rating for the harmfulness of caffeine and the next least harmful drug, nicotine (83%), was significant, $t(59) = 3.81, p < .0001$. Nicotine was rated as less harmful than cocaine, crack, and suicide but not less harmful than marijuana or alcohol. Thus the vast majority of subjects did not differ in their ratings of drug use, with the exception of caffeine, to the way they rated killing and stealing ($ps > .003$). The vast majority also rated the moral items, the drug items, and the act of suicide as involving harm. Few subjects rated the social-conventional or personal items as causing harm.

Scoring judgments. Three separate 3 (Grade) \times 2 (Gender) \times 13 (Item) MANOVAs were conducted to determine subjects' classification of each item as independent of authority, contingent on authority, or a matter of personal choice. The MANOVAs showed significant item effects for each category and no Grade or Gender effects. For the analysis of independence from authority, there was a significant effect for item, $F(12, 648) = 33.55, p < .0001$. Follow-up t tests showed that, as expected, killing (72%) and stealing (67%) were classified as "wrong, independent of authority and laws" more often than any other nondrug item ($ps < .0001$).

As shown in Table 1, cocaine and crack were categorized as "wrong, independent of authority and laws" more often than any other drug item (67% and 73%, respectively; $ps < .0001$). There were no significant differences between the percentages of subjects who categorized killing, stealing, crack, and cocaine as "wrong, independent of authority and laws," but there was a significant difference between the percentage of subjects who categorized crack and the percentage of subjects who categorized suicide as "wrong, independent of authority and laws," $t(59) = 3.21, p < .002$.

For items classified as contingent on authority, the analysis revealed a significant item effect, $F(12, 648) = 24.58, p < .0001$. Transgressions associated with driving on the left side of the road were classified as "contingent on authority" most often (67%), followed by the transgression associated with calling a judge "Your Honor" (37%), $p < .0001$. The three other nondrug items classified as "contingent on authority" were premarital sex, stealing, and killing (27%). The mixture of acts classified under this heading suggests that subjects interpreted this heading in diverse ways (subjects' reasons for their judgments, as will be described, help to explain this diversity). The drug items classified as under societal jurisdiction most often were marijuana (27%) followed by alcohol (23%). These items were

rated in this category significantly more often than caffeine, $t(59) = 3.29, p < .002$, which was rarely classified as "contingent on authority" (8%).

For items classified as a personal choice, the analysis revealed an item effect, $F(12, 648) = 37.67, p < .0001$. The nondrug items classified as personal decisions were hair length (93%) and premarital sex (70%). These were categorized as personal decisions significantly more often than any other nondrug item. Caffeine was classified as under personal jurisdiction (87%) significantly more often than any other drug item. Nicotine was classified as a matter of personal choice (60%) less often than caffeine, $t(59) = 3.77, p < .0001$, and more often than marijuana (33%). Alcohol (42%) was classified as a matter of personal choice more often than as wrong, independent of authority, or contingent on authority.

To summarize, adolescents classified use of cocaine and crack as moral issues, use of caffeine and nicotine as personal decisions, and use of marijuana and alcohol, along with suicide, as a mixture of moral and personal decisions (few subjects classified the drugs as wrong on the basis of authorities' commands or laws).

Drug and Suicide Interview: Judgments and Justifications

Table 2 displays the percentage of "not all right" responses given by subjects to each condition in the interview. Five Grade \times Gender \times Question MANOVAs were conducted for adolescents' responses to each condition (general evaluation, research findings, legal jurisdiction, prohibitions by authorities, and self-harm). The data in Table 3 show the percentage of subjects' justifications for their judgments to each question in the interview. Five separate Grade \times Gender \times Question \times Justification MANOVAs were conducted to assess the types of reasons subjects gave for their "yes" or "no" judgments.

As described earlier, all responses were arcsin-transformed to correct for nonnormality which often occurs with the use of percentages (Winer, 1971). In addition, the significance level for all follow-up t tests was adjusted for the number of comparisons conducted. To avoid redundancy in the presentation of results, analyses for judgment and justification are described together for each condition.

General Evaluation

To determine whether adolescents distinguished between drug use in the abstract and drug use with explicitly stated negative consequences, a MANOVA for subjects' judgments about drug use was conducted and re-

TABLE 2: Percentage Judging Item as "Not All Right" in Interview

Interview Question	Grade ^a			X
	10	11	12	
General evaluation				
All right to use illegal drugs?	65	60	70	65
Are there negative consequences? ^b	95	90	100	95
All right with negative consequences?	70	65	50	62
Research findings				
All right to use illegal drug which has positive physical effects?	40	65	50	52
All right to use legal drug which has negative physical effects?	75	75	65	72
All right to use illegal drug which has positive psychological effects?	55	60	65	60
All right to use legal drug which has negative psychological effects?	80	60	80	73
Legal jurisdiction				
All right to use illegal drugs in other places if legal?	65	55	30	50
All right to use legal drugs here?	35	35	20	30
Prohibitions by authorities				
All right for government to prohibit?	10	5	5	7
All right for parents to prohibit in the home?	0	0	0	0
Parents to prohibit outside the home?	25	20	15	20
Religious authorities to prohibit?	35	50	35	40
Self-harm				
Do people have right to harm themselves?	5	35	35	25
Have the right to kill themselves?	15	60	50	42
The right to harm self if negative consequences for others?	70	85	55	70

a. N = 60.

b. Judgments indicate positive answers (e.g., 95% said "Yes, there are negative consequences").

vealed a main effect for Question, $F(2, 108) = 16.06, p < .0001$, and a Grade x Gender x Question interaction, $F(4, 108) = 3.49, p < .01$. As can be seen in Table 2, the vast majority of subjects said that there were negative consequences with drug use (95%), and fewer said that individuals should not use drugs (65%) or that drugs should not be used when there are negative consequences (62%). Because there was a near significant difference between males and females for the question about whether there are negative consequences to drug use, $F(1, 59) = 3.2, p < .07$, follow-up *t* tests were

Interview Question	Moral (Welfare and Societal Laws)			Conventional (Personal and Authority)			Personal (Individual Moral and Choice)			Moral and Personal and Conventional Other								
	30	73	38	2	9	5	9	4	11	15	34	2	48	17	5	12	22	45
General evaluation																		
All right to use drugs?	15	36	3	2	9	5	9	4	11	15	34	2	48	17	5	12	22	45
Are there negative consequences?	0	7	10	0	4	7	0	0	0	0	0	0	0	0	0	0	0	0
Research Findings																		
All right if positive physical effects?	15	32	8	0	14	7	0	0	0	0	0	0	0	0	0	0	0	0
All right if negative physical effects?	2	8	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0
All right if positive psychological effects?	5	28	2	2	8	2	2	2	2	5	8	2	5	2	2	2	2	5
All right if negative psychological effects?	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Legal Jurisdiction																		
All right to use drugs in other places if legal?	10	40	4	11	4	22	12	40	2	10	15	10	15	17	25	12	22	45
Prohibitions by authorities																		
All right for government to prohibit?	2	15	3	34	3	42	5	15	3	10	30	3	30	9	10	26	30	8
All right for parents to prohibit in the home?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Parents to prohibit outside the home?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Religious authorities to prohibit?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Self-harm																		
Do people have right to harm themselves?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Have the right to kill themselves?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
The right to harm self if negative consequences for others?	2	18	2	2	4	18	2	2	2	3	12	2	12	21	25	17	22	45

TABLE 3: Adolescents' Justifications for Answers to Interview Questions (for all grades combined, N = 90)

conducted and showed that only 40% of the 11th-grade males said that it was not all right to use drugs, whereas 70% of the 10th-grade and 80% of the 12th-grade males said it was not all right; the majority (67%) of all females, however, said it was not all right to use drugs ($ps < .004$).

To determine whether subjects based their judgments about drug use on moral, social-conventional, or personal reasons, a MANOVA was conducted and revealed a main effect for Justification, $F(5, 270) = 35.45, p < .0001$, a Question \times Justification interaction, $F(10, 540) = 9.76, p < .0001$, and a Gender \times Justification \times Question interaction effect, $F(10, 540) = 2.13, p < .021$. As can be seen in Table 3, subjects used moral reasons more often when asked whether it is all right to use illegal drugs when there are negative consequences (73%) than when asked about drug use in general (30%), $p < .004$.

Follow-up ANOVAs revealed that females used more moral justifications (40%) than did males (20%) for the question about whether there are negative consequences to drug use, $F(1, 59) = 5.8, p < .02$. There were no differences between the males and females in their use of justifications for other questions about drug use.

Research Findings

Four questions were presented to subjects to assess their evaluation of the intrinsic consequences of drug use. The MANOVA for subjects' judgments about drug use when research provides new positive or negative findings revealed a main effect for Question, $F(3, 162) = 3.79, p < .01$; there were no other significant effects. As shown in Table 2, the question effect was due to the finding that, on one hand, 72% of adolescents said that individuals should not use legal drugs that have negative consequences, whereas on the other hand, 52% said that it is all right for individuals to use illegal drugs, if they are shown by research to have positive consequences, $t(59) = 2.69, p < .009$.

To know whether the status of the drug changes from a moral to a personal one depending on the judgments about research results, a MANOVA for subjects' justifications was conducted and revealed a main effect for Justification, $F(5, 270) = 40.58, p < .0001$, and a Justification \times Question interaction, $F(15, 810) = 2.43, p < .002$. The Justification \times Question interaction is explained by the finding that subjects gave reasons based on personal choice when asked about using illegal drugs in situations with positive physical outcomes more often than for any other outcomes described ($ps < .0001$). This indicates that the intrinsic consequences of the drug are pivotal in adolescents' reasoning.

Legal Jurisdiction

Two questions were asked of adolescents to test whether the legal status of drug use was a major criterion for evaluating its use. The MANOVA for subjects' judgments about the legal jurisdiction of drug use revealed a main effect for Question, $F(1, 54) = 9.13, p < .004$, with no other significant effects. As shown in Table 2, the Question effect is explained by the finding that one half of the subjects considered it wrong to use illegal drugs in other countries where they are legal, and 30% considered it wrong to use legal drugs in the United States.

It was also expected that few adolescents would base their evaluations of the legality of drug use on social-conventional grounds. A MANOVA conducted for justifications revealed a main effect for Justification, $F(5, 270) = 6.24, p < .0001$, a Question \times Justification interaction, $F(5, 270) = 3.69, p < .003$, and a Grade \times Question \times Justification interaction, $F(10, 270) = 2.42, p < .009$. The Question \times Justification interaction was due to the finding that, overall, more subjects used a mixture of moral and personal reasons (30%) for judging whether it is all right to use legal drugs in the United States than for the use of illegal drugs in other countries where they are legal (12%), $t(59) = 2.82, p < .007$. When evaluating the use of illegal drugs in other countries, adolescents gave personal and conventional reasons (22%).

Follow-up ANOVAs showed that, with age, adolescents gave more personal and conventional reasons for the use of legal drugs in the United States (25%, 5%, and 45% of 10th, 11th, and 12th graders, respectively), $F(2, 59) = 5.30, p < .008$, and fewer moral reasons, $F(2, 59) = 4.72, p < .01$; younger subjects used personal and conventional reasons more often than did older subjects.

Prohibitions by Authorities

Four questions were asked of the adolescent participants to determine whether they believed that authorities had the right to prohibit drug use and if so, whether some authority figures were perceived to have a greater jurisdiction than other authority figures. The MANOVA for this condition revealed a main effect for Question, $F(3, 162) = 15.92, p < .0001$, with no other significant effects. The data in Table 2 show that the question effect was due to the finding that although no subjects judged it wrong for parents to prohibit drug use *inside* the home (0%), and only a few judged it wrong for the government to prohibit drug use (7%), more subjects judged it wrong for parents to prohibit drug use *outside* the home (20%) or for religious

authorities to prohibit such activities (40%) ($ps < .001$). Thus adolescents varied in their evaluation of the jurisdiction that authority figures have over drug use.

Because adolescents varied greatly in their perception of the various authority figures' jurisdiction, a MANOVA was conducted to test whether adolescents attributed moral rather than social-conventional reasons to parental jurisdiction over governmental and religious jurisdiction. The MANOVA revealed a main effect for Question, $F(3, 162) = 4.22, p < .007$, an interaction for Grade \times Question, $F(6, 162) = 2.18, p < .048$, a main effect for Justification, $F(5, 270) = 11.65, p < .0001$, and an interaction effect for Justification \times Question, $F(15, 810) = 9.05, p < .0001$. Follow-up ANOVAs showed that the Grade interaction was due to the question about parental jurisdiction outside of the home, $F(2, 59) = 3.27, p < .04$. Older adolescents gave more moral and conventional justifications for judgments that parents should prohibit drug use outside the home than did younger adolescents (15%, 25%, and 50% for 10th, 11th, and 12th graders, respectively). In addition, 10th graders used more conventional reasons (50%) than 11th and 12th graders (10% and 15%, respectively) for the question about prohibitions by religious authorities. Older adolescents judged that parental jurisdiction exists for moral as well as conventional reasons more often than younger adolescents gave this judgment.

Follow-up *t* tests showed that, overall, reasons based on others' welfare were used more often for judgments about parents' rights to prohibit drug use in the home than for any other question about authorities' jurisdiction ($ps < .004$). Conventional reasons were used most often for the question about the government's right and religious authorities' right to prohibit drug use ($ps < .004$). A mixture of moral and conventional reasons was used more often for the question about the government's jurisdiction than for religious authorities ($p < .001$). In addition, a mixture of personal and conventional reasons was used significantly more often for the question about religious authorities than for parental jurisdiction in and out of the home ($p < .001$).

Self-Harm

It was expected that adolescents would be tolerant of the right to self-harm but mixed on the question of suicide. To determine how adolescents evaluated acts of self-harm, a MANOVA was conducted for the self-harm condition and revealed a main effect for Grade, $F(2, 54) = 4.11, p < .02$. The MANOVA also revealed a significant main effect for Question, $F(2, 108) = 22.36, p < .0001$, and a Grade \times Question interaction, $F(2, 108) = 2.92, p < .02$. A follow-up ANOVA showed that with age, adolescents judged that

people do not have the right to harm themselves, $F(2, 59) = 5.9, p < .04$, and do not have the right to harm themselves if there are negative consequences for others, $F(2, 59) = 5.15, p < .009$. Older adolescents judged that self-harm is wrong more often than did younger adolescents.

To test whether judgments about self-harm were based on moral reasons or personal choice, a MANOVA for adolescents' justifications was conducted and revealed a main effect for Justification, $F(5, 270) = 19.80, p < .0001$, a Grade \times Justification effect, $F(10, 270) = 2.65, p < .004$, and a Question \times Justification effect, $F(10, 540) = 5.41, p < .0001$. The Question \times Justification interaction effect was due to the finding that subjects used significantly fewer moral reasons when evaluating the right to harm oneself than when evaluating the right to commit suicide and the right to harm oneself when there are negative consequences for others ($ps < .0001$). Subjects also used significantly more personal reasons when evaluating harm to the self and suicide than when evaluating harm to the self with negative consequences for others ($ps < .002$). The predominant mode of reasoning for the right to harm oneself was moral. There were no significant differences for this mode of reasoning for questions in the self-harm condition.

Follow-up ANOVAs revealed that grade differences emerged for adolescents' justifications for two of the three questions about self-harm. For the question about whether people have the right to kill themselves, there was a decrease in the use of personal reasons by Grade, $F(2, 59) = 3.27, p < .04$, from 50% at Grade 10 to 15% at Grade 11, $t(59) = 2.48, p < .01$. For the question about the right to harm oneself if there are negative consequences for others, there was an increase in the use of moral justifications with age, $F(2, 59) = 6.62, p < .003$; moral justifications increased from 5% at Grade 10 to 25% at Grade 11, $t(59) = 3.95, p < .001$. Thus the most dramatic Grade effects pertained to the questions about self-harm. A significant percentage of tenth graders evaluated self-harm and suicide from an individual perspective ("It's a matter of personal choice"), whereas eleventh and twelfth graders evaluated these acts from a moral perspective ("It will hurt others who know you").

To test whether there were significant relationships between judgments about drug use and self-harm, three nonparametric McNemar tests (see Mataschilo & McSweeney, 1977) were conducted to test whether subjects who gave positive answers to questions about drug use also did so for questions about self-harm. The data in Table 4 show that the majority of subjects who said that it was all right to use drugs judged that people have the right to harm themselves, $\chi^2(1) = 17.06, p < .001$, and to a lesser extent the right to kill themselves, $\chi^2(1) = 8.03, p < .05$, but they do not have the right to harm themselves when there are negative consequences for others (n.s.).

TABLE 4: Percentage of Adolescents' Answers to Questions About Drug Use and Self-Harm

	Is It All Right to Use Illegal Drugs?		Total
	Yes	No	
Do people have the right to harm themselves?*	Yes	30 (18)	45 (27)
	No	5 (3)	20 (12)
	Total	21	39
Do people have the right to kill themselves?*	Yes	23 (14)	35 (21)
	No	12 (7)	30 (18)
	Total	21	39
Do people have the right to harm themselves if there are negative consequences for others?*	Yes	6 (5)	22 (13)
	No	27 (16)	43 (26)
	Total	21	39

NOTE: McNemar nonparametric tests were conducted on the frequency of subjects (noted in parentheses) who gave yes or no answers to each pair of questions.

* $p < .001$; ** $p < .05$; n.s.

DISCUSSION

In this study, "harmfulness" of drugs was an important aspect of how adolescents evaluated drug use. This judgment was shown to be more varied and complex than previously reported (Primavera, Guerrero, & Hagan, 1985). This research diverges from the more traditional work in adolescence which has concentrated on the emotional stress of familial relationships (Hill, 1980; Montemayor, 1986) and contributes to a growing body of work which has explored social-cognitive judgments in adolescents regarding familial conflicts (Smetana, 1988) and peer and parental relationships (Younis & Smollar, 1985).

One of the purposes of the research described in this article was to provide a methodology for investigating how adolescents reason about pertinent social issues, such as drug use. The classification task provided a way of examining how adolescents classify a range of social and moral items, including drug use. In addition, the drug and suicide interview allowed for in-depth probing regarding a set of social-cognitive dimensions which could (or could not) be relevant in adolescents' evaluations of drug use.

Overall, the findings showed that adolescents evaluated drug use as either a moral or a personal issue and rarely as a social-conventional one. Further-

more, the results showed that adolescents (a) conceived of drug use as involving a mixture of moral, social-conventional, and personal judgments; (b) consistently classified illegal "hard" drugs differently from legal "soft" drugs and were mixed in their categorization of alcohol and marijuana; (c) evaluated suicide differently depending on whether self-harm is considered a moral or a personal decision; and (d) weighed legal, consequential, and parental aspects of drug use.

The majority of adolescents rated all drugs as causing harm (with the exception of one item, nicotine, which was rated as more harmful by females than by males). Unless directly asked by the interviewer, however, illegal drug use was not evaluated as having negative consequences to others. Even though all drugs were viewed as causing harm, one group of subjects, 11th-grade males, condoned illegal drug use when asked about it in the interview. These males gave reasons based on societal and personal decisions more often than did females, who gave reasons based on a concern for others' welfare. This finding, which suggests that 11th-grade males may be a special target group for susceptibility to drug use, has to be interpreted with caution, given the relatively small sample size. To determine whether substance use is considered to be a personal rather than a moral issue for a particular age and/or gender group, replication studies need to be conducted with larger sample sizes.

As predicted, illegal "hard" drugs, such as crack and cocaine, were classified as moral transgressions and legal "soft" drugs, such as nicotine and caffeine, as personal decisions. Interestingly, there was less agreement about the classification of the use of alcohol and marijuana than there was about the classification of other drugs. This finding parallels the observation by other researchers (Kail, 1985) that there is general disagreement at the societal level concerning the legal and health status of alcohol and marijuana.

The findings for legal and societal aspects of drug use showed that whereas the vast majority of adolescents believed that it was all right for parents and the government to prohibit drug use, only one half said that it would be wrong to use illegal drugs in other countries in which they are allowed. Thus adolescents supported authorities' actions to prohibit drug use but did not see it as wrong in other countries where it is legal. This differs from their judgments about more typical moral transgressions, such as killing and stealing, which they evaluated as wrong when asked whether it would be all right to conduct such acts in countries in which there were no laws about it (Smetana, 1988).

Interestingly, age differences were shown for the use of moral justifications for parents' decisions to prohibit drugs outside of the home, suggesting that there was an increased belief that parents' rules about drug use stem from

concern for their children's welfare. Subjects who stated that parents should prohibit drug use did so on the grounds of parents' rights to legislate behavior in the home and from parental concern for children's welfare. Judgments about governmental and religious authorities were evaluated more often on the basis of conventional reasons than of moral ones, especially by tenth graders, who used conventional reasoning more often than did the older groups. Thus the adolescents in this study believed that parents have a greater responsibility to take care of their children's welfare than do religious authorities. Furthermore, analyses of the influence of positive and negative research findings for drug use showed that positive findings of illegal drugs only partially influenced adolescents' positive judgments. Thus research findings may have a limited influence on adolescents' evaluation of drug use.

An unexpected finding was that adolescents' classification of suicide was not different from their classification of alcohol and marijuana. The implication is that it is not the degree of harm that is involved that makes an act wrong but whether an act is perceived as involving harm to others as well as to the self. Adolescents' responses to the interview questions supported this interpretation. The majority of adolescents judged that it is wrong to use drugs, yet at the same time, they believed that individuals have the right to harm themselves (and even to kill themselves) but not if there are negative consequences for others.

In general, the results of this study should be interpreted with caution given the relatively small sample size. Future research needs to be conducted to determine the generalizability of these findings to other samples, particularly ones in which the subjects come from different cultural and socioeconomic backgrounds. In addition, the developmental pattern of these results should be further explored by interviewing children and preadolescents regarding their evaluation of drug use, especially given the call for implementing drug education programs prior to the high school years.

Moreover, it could be worthwhile to expand the interview to include questions about the legal jurisdiction and prohibitions of drug use for each category of drugs ("hard," "soft," and "mixed," respectively) rather than more generally, as was done in the present study. This would allow for an assessment of the consistency of individuals' classification of drugs with their views about societal laws and regulations. It would also be fruitful to ascertain more differentiated responses from adolescents regarding their judgments about the harmfulness of drugs. This could be done by asking for adolescents' evaluations of the degree of harm caused by different types of drug use as well as the type of harm that incurs.

Clearly, an important next step for research is to compare how drug nonusers, users, and abusers evaluate drug use along the dimensions exam-

ined here. Given that there were age differences in conceptualizations about the right to self-harm, it may be that drug nonusers, users, and abusers differ regarding their judgments about self-harm as well as about legal jurisdiction and who should prohibit drug use.

The findings from this study suggest that educational programs about drugs and their usage should be sensitive to the aspects that individuals consider important when evaluating drug use. Before recommending any changes in curricular programs, however, additional research on social reasoning about drug use needs to be conducted with diverse populations and with larger sample sizes.

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Coping With Anger-Provoking Situations Adolescent Coping in Relation to Anger Reactivity

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This article examines how adolescents cope with different types of anger-provoking situations. Also explored is the degree to which coping changes or remains the same across different situations. Results showed that focusing-on-the-positive coping was negatively associated with anger reactivity in the face of both affiliation and achievement stress. In addition, individuals who engaged in wishful thinking coping in dealing with anger-provoking interpersonal stressors showed exaggerated anger reactivity, whereas seeking social support was positively related to anger reactivity in the context of stressful situations that threatened achievement needs. Results supported the notion that the emotional consequences of being exposed to stressful anger provocations may be mediated by individual differences in coping, and that the adaptiveness or maladaptiveness of some coping strategies depends on contextual factors such as the nature of the stressor. Moreover, the present data also supported the conceptualization of coping as a dynamic, situation-sensitive process.

The recognition that stress and coping processes are important to well-being throughout the life span (Folkman, Lazarus, Pimley, & Novacek, 1987; Garnezy & Rutter, 1983) has stimulated increased interest in understanding the emotional consequences of coping in children and adolescents. However, despite the surge of empirical attention that has recently been given to the analysis of stress and coping processes in these populations (Beiman, Munt-Brader, & Lachenmeyer, 1987; Compas, 1987; Compas, Malcarne, & Fondacaro, 1988; Tolan, Miller, & Thomas, 1986; Tolor & Felton, 1987; Willis, 1986, 1987a), virtually nothing is known about coping processes in the face of situations that provoke anger arousal. The importance of understanding more about the psychosocial and behavioral correlates of anger is underscored by research showing that anger arousal increases the probability of violence and aggression (Rule & Nesdale, 1976), heightens the risk of premature death and physical illness (Appel, Holroyd, & Gorkin, 1983; Chesney & Rosenman, 1965), and is involved in other dysfunctional

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