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Parental and Peer Influences on Adolescent Drug Use in Korea

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Abstract The analysis and findings reported here are from a self-report questionnaire survey of a sample of 1,035 high school students in Pusan, a metropolitan area of South Korea. Multiple regression and path analyses reveal that, for all types of drug behavior among these adolescents, the influence of parental variables was generally less than the influence of the peer variables. Even in South Korean society, where the stability and authority of the family is greater than in American society, peers have a greater influence than do parents on adolescents' engaging in or refraining from deviant behavior. The findings conform more to the expectations of social learning theory than to those of social bonding theory, and generally replicate findings from research on adolescent drug use in the United States. Further research is clearly needed, but the findings here suggest that the social processes of substance use among adolescents and the theoretical explanations focusing on those processes are not confined to western societies.

Keywords Adolescents · Drug use · Parental influence · Peer influence

1 Parental and Peer Influences on Adolescent Substance Use

One of the most confirmed and replicated research finding in criminology is the powerful influence of peers on adolescent delinquency, drug use, and deviance (Agnew, 1991a; Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979; Ary, Tildesley, Hops, & Andres, 1993; Aseltine, 1995; Bailey & Hubbard, 1990; Bauman, Foshee, Linzer, & Koch, 1990; Brook, Brook, Gordon, Whiteman, & Cohen, 1990; Curran, White, & Hansell, 2000; Elliott, Huizinga, & Ageton, 1985; Flay et al., 1994; Kandel, 1986; Lee, Akers, & Borg, 2004;

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McGee, 1992; Oetting, Spooner, Beauvais, & Banning, 1991; Sieving, Perry, & Williams, 2000; Warr, 1993a, b; 2002). McGee (1992) found that peer influence had much greater impact than parental influence on adolescent drug use. Ried, Martinson, and Weaver (1987) found students' perceptions of their peer's drug use had over twice as much influence on drug use as the students' own attitudes. Flay et al. (1994) found that friends' smoking affects adolescent initiation into smoking both directly and indirectly, whereas parental smoking influences smoking initiation only indirectly. Sieving et al. (2000) examined support for models of peer influence, which postulate that adolescents whose friends use alcohol engage in that behavior. They identified higher levels of friends' drug use leads to increased participant's alcohol use. Lee et al. (2004) found that, among other variables, differential peer association mediated the effects of family structure and other variables on adolescent drinking and drug behavior.

The findings from research such as this should not be taken to mean that parental and family influences are insignificant. A large body of research has found that parent-adolescent relationships are indeed important in adolescent delinquency and drug use (Simons, Simons, & Wallace, 2004). Hawkins, Catalano, and Miller (1992) identified low bonding to family as a risk factor and strong bonding to family as a protective factor in adolescent drug use. Wade and Brannigan (1998), in a Canadian study, found that the effect of family attachment on risk-taking is significant, although moderated by both school and peer involvement. Brook, Whiteman, and Gordon (1983) also examined how stages of adolescent drug use were related to characteristics of the family and peer group. They found that low parental warmth and high parental rejection were associated with a higher stage of drug use regardless of the nature of the peer group. Several other researchers have indicated that strong bonds with parents have a significant influence on the amount of adolescent drug use (Coombs & Landsverk, 1988; Dembo et al., 1985; Hansen et al., 1987; Johnson & Padina, 1991). Family support is important, even after taking into account socio-economic status, age, gender, race, and family history of alcohol abuse (Barnes & Farrell, 1992). The greater the internal family closeness the less likely adolescents are to use drugs (Lewis, Piercy, Sprenkle, & Trepper, 1990; Smart, Chibucos, & Didier, 1990), while poor family relationships and conflict with parents are risk factors in transition to harder drugs for both boys and girls (Andrews, Hops, Ary, Lichtenstein, & Tildesley, 1991). Lack of parental affection, concern, involvement, conventional role modeling, and guidance appear to be central factors in the family's influence on adolescent substance use (Coombs & Landsverk, 1988; Hundleby & Mercer, 1987). Li, Feigelman, and Stanton (2000) maintain that low levels of parental monitoring are associated with adolescents' participation in substance use and drug trafficking. Parents have both direct and indirect effects on their children's deviance. Direct parental effects arise through role modeling, through social reinforcement, and through the quality of the parent–child interaction (Brook et al., 1990; Chilcoat, Dishion, & Anthony, 1995; Dishion & Poe, 1994; Gorman & White, 1995; Kandel & Wu, 1995; Loeber, Weiher, & Smith, 1991; Melby, Conger, Conger, & Lorenz, 1993). Parents have both a direct effect through parental support and an indirect influence on their children's deviance through monitoring their children's choice of friends (Bahr, Anastasios, & Maughan, 1995; Kandel, 1996; Kandel & Andrews, 1987; Kim & Goto, 2000; Ardelt & Day, 2002).

As the foregoing suggests, American research shows that drug-related attitudes and behavior by adolescents are strongly influenced by peer association (see also Agnew, 1991a; Akers & Cochran, 1985; Akers et al., 1979; Ary et al., 1993; Brook et al., 1997; Curran et al., 2000; DeWit, Silverman, Goodstadt, & Studuro, 1995; Elliott et al., 1985; Flay et al., 1994; Jones-Webb et al., 1997; Kandel & Adler, 1982; Kandel & Chen, 2000; Labouvie,

1996; McGee, 1992; Szalay, Inn, & Doherty, 1996; Wong, Tang, & Schwarzer, 1997). The research also shows that strong bonds with parents mitigate against youthful involvement with drugs and drug-using peers (Sampson & Laub, 1993; Wade & Brannigan, 1998), supportive parent–child relationships are inversely related to adolescent substance use, and parental role models help shape adolescent attitudes and behavior toward drugs at younger ages and for certain kinds of substance use (see also Barber, 1992; Coombs & Landsverk, 1988; Dishion & Loeber, 1985; Glynn, 1981; Hundleby & Mercer, 1987; Kandel, 1987; Lewis et al., 1990; Li et al., 2000; Smart et al., 1990; Teichman & Kefir, 2000). However, in general, research has found the influence of peers to be greater than that of parents on adolescent drinking, smoking, and consumption of other drugs. Is this a function of the weakened family and parental authority and the centrality of the youth culture in American society or is this relative impact of peers and parents on adolescent behavior found elsewhere, even in societies in which the family structure is more stable and authoritative than in western societies?

2 Theoretical Perspectives

The place of family and peers in explaining, predicting, and preventing adolescent misconduct is itself an important focus of research, but it also has relevance for general sociological theories of crime and deviance. The same question posed above about the generalizability of findings on adolescent substance use from western to other societies around the world can be asked about the cross-cultural applicability of general theories. Therefore, we address the question of parent/peer influences in Korean society in the context of examining the applicability of social learning (Akers, 1973; 1998) and social bonding (Hirschi, 1969) theories. These theories are the most frequently applied, tested, and endorsed by American criminologists as explanations of both serious and minor offending (Ellis & Walsh, 1999; Walsh & Ellis, 1999; Stitt & Giacopassi, 1992). The research literature on these theories, then, is extensive and some of it compares the two with one another and with other theories (Agnew, 1991b; Akers, 1998; Akers & Cochran, 1985; Akers et al., 1979; Akers & Lee, 1999; Akers & Sellers, 2004; Benda, 1994; Benda & DiBlasio, 1991; Costello, 2000; Costello & Vowell, 1999; Kandel & Davies, 1991; Krohn, Lanza-Kaduce, & Akers, 1984; Longshore, 1998; Matsueda & Heimer, 1987; McGee, 1992; White, Pandina, & LaGrange, 1987; Wright, Caspi, Moffitt, & Silva, 1999). A few studies have been done outside North America. These studies have been conducted mainly on substance use and delinquent behavior, using self-report measures with adolescent samples, and have included measures of family supervision, bonding, self-control, attitudes, and peer relationships as independent variables. Although not all the research is directed primarily toward testing theories, the findings generally are consistent with social learning theory and also with social bonding theory. (Bruinsma, 1992; Junger-Tas, 1992; Kandel & Adler, 1982; Lee, 1989; Yang, 1999; Zhang & Messner, 1995; Hwang & Akers, 2003).

There has been some research on adolescent substance use in Korea, documenting that there have been increases in consumption of alcohol, tobacco, and other substances by both adults and adolescents (Kim & Park, 1995; Korean Youth Association, 1996; Supreme Public Prosecutors Office, 1995). Beginning in the 1990s, adolescent drug use has become a recognized problem in South Korea. For instance, from 1992 to 1995 arrest of juveniles for inhalant use increased by 57% (Supreme Public Prosecutors Office, 1995). A survey by the Korean Youth Association (1996) found that 8.6% of middle school students, 16.2% of

high school students, and 64% of adjudicated delinquents had used illicit drugs. Data such as these help us gauge the nature of the problem in the South Korean context, but do not shed much light on the factors that may be involved in use and non-use of substances by Korean adolescents. Our research in Korea is meant to provide findings on whether peers play as prominent a role, and whether social learning and bonding processes are as operative, in adolescent alcohol and drug use in the more family-oriented culture of Korea, as has been found in research in the youth-oriented culture of America.

In Korea, the ideal family is a patrilocal stem family. The stem family originally includes two families in adjacent generations, that is a father and mother living with a married oldest son, his wife and children in the same household. The other sons are expected to establish a separate family after their marriages. This form of family is still regarded as an "ideal" one, although the most predominant family type is the nuclear family (Cho & Shin, 1996). Under such family structures, familism is dominant. It is based on Confucian values that family order is the ideal model for the whole world order. Thus, familism is strongly pursued as an ideal ideology for the society, and, although Korean families are changing as industrialization continues, the traditional values of the importance of parental influences on their children and family ties over individualism are still most important and dominate Korean families' everyday lives. Generally, familism is considered to be strong regardless of age, living areas, marital status, and sex (Cho & Shin, 1996).

According to social learning theory (Akers, 1998; Akers & Cochran, 1985; Akers et al., 1979), whether individuals will abstain from or take drugs (and whether they will continue or desist) depends on: (1) *differential association* with conforming and deviant others in primary groups of family and friends, and to some extent in other groups (2) the past, present, and anticipated rewards and punishments perceived to be attached to abstinence and use, including the physiological effects of the drugs and alcohol, and the social reinforcement of peers and others (*differential reinforcement*); (3) acquiring the attitudes and values that are favorable or unfavorable to using drugs (*definitions*); and (4) observation of using and abstinent behavioral models (*imitation*). There is a large body of evidence that provides consistent (and usually strong) support of social learning theory as an explanation of adolescent substance use and delinquency (see Agnew, 1991a; 1993; 1994; Akers et al., 1979; Akers & Lee, 1996; 1999; Conger & Simons, 1995; Dabney, 1995; Elliott et al., 1985; Inciardi, Horowitz, & Pottiger, 1993; Johnson, 1988; Kandel & Andrews, 1987; Kandel & Davies, 1991; Lauritsen, 1993; Massey & Krohn, 1986; Matsueda, 1982; Matsueda & Heimer, 1987; McGee, 1992; Rowe & Gulley, 1992; Warr, 1993a, b; 1996; Warr & Stafford, 1991; Winfree, Griffiths, & Sellers, 1989; Winfree, Sellers, & Clason, 1993; Winfree, Mays, & Vigil-Backstrom, 1994; Wood, Cochran, Pfefferbaum, & Arneklev, 1995; Haynie, 2002; Warr, 2002; Akers & Sellers, 2004).

Social bonding theory (Hirschi, 1969) would hypothesize that the more the youth has close relationships to others (*attachment*), has built up stakes in conventional aspirations (*commitment*), is involved in conventional lines of activity (*involvement*), and adopts the general values of the parents, the law, and conventional society (*beliefs*), the less likely he or she is to use disapproved substances and engage in other forms of delinquent behavior. There is a large body of research in the United States that provides support for the social bonding theory of adolescent substance use and delinquency (see Agnew, 1985; 1991a; 1991b; Bahr, Anastasios &Maughan, 1995; Cernkovich & Giordano, 1992; Hindelang, 1973; Johnson, 1979; Krohn, Massey, Skinner, & Lauer, 1983; Rankin & Kern, 1994; Stark, Kent, & Doyle, 1980; Wiatrowski, Griswold, & Roberts, 1981; Costello, 2000; Baier & Wright, 2001; Akers & Sellers, 2004).

Social learning theory (Akers, 1998; Akers & Sellers, 2004) highlights and utilizes learning processes occurring in both the family and peer groups. While the theory puts more emphasis on differential association, peer group norms, and peer behavior in the explanation of adolescent deviance, it also recognizes that parental reinforcement and modeling processes in the family have an impact on conforming and deviant behavior of the adolescents in the family. Bonding theory, on the other hand, focuses more on the adolescent's attachment to parents, parental supervision, and the disciplinary practices of parents. Bonding theory includes both attachment to parents and attachment to peers, but otherwise downplays the effects of peers on deviance. The theory posits that the deviant or conforming attitudes and behavior of peers to whom the adolescent is attached are unimportant in accounting for the adolescent's own conforming or deviant behavior. Therefore, the issue of parental and peer influence, and which has more importance in adolescent drug use, is a consideration in evaluating these theories. The main purpose here is to test the relative, direct, and indirect effects of parental and peer variables on adolescent substance use in Korea, but the findings are relevant to and are interpreted in the theoretical context provided by these two major sociological theories of deviance.

2.1 Sample and Procedures

The data in this study were gathered by administering a self-report questionnaire to a sample of adolescents in Pusan, South Korea. The target population for the study consisted of high school students attending the 10th and 11th grade in each of the 16 districts (Gu) of Pusan. The student population was stratified by district, gender, and high school system (liberal and industrial),[1] and students were selected from those strata at random. In each randomly selected boys and girls high school, a classroom was randomly sampled from the required or general enrollment classes; all students (40 to 45) in that class were included in the sample. The questionnaire was administered to all students in attendance in the sampled classes who had obtained prior written permission from the school principal,[2] a total of 1,035 students. All of them completed the instrument (100% response rate). However, 23 of the respondents' questionnaires were excluded from the analysis because they were too incomplete. Therefore, the final sample size is 1,012. No teacher was present during the survey. Instead, the survey was administered in the class with only the researcher (senior author) present. He introduced himself as a graduate

[1] In Korea, mandatory education is six years in elementary school and three years in middle school. Upon graduation from middle school, students have to take a national test. Those who score well on the test can enter into a "liberal" high school that is preparatory to university enrollment. Those who do not do well on these standardized tests will normally select one of the "industrial" high schools, variously referred to as "technical", "commercial", and "informational" high schools, to attend. Most high school seniors in the liberal school are able to be admitted into a university after taking another national test, similar to the SAT in America. On the other hand, industrial high school students are largely limited to a trade, factory job, or other manual (or what would be referred to in America as a blue collar) job after high school. They have essentially no opportunity for a college or university education. Whether liberal or industrial, the high schools are not co-educational; there are separate schools for boys and girls (see the Appendix).

[2] There was some small but unknown number of students who had been kicked out of school or moved to a different school district by the time of the study and therefore did not participate.

student of sociology interested in learning more about Korean adolescents and their use of tobacco, alcohol, and other substances. The informed consent statement was read to the students, and the questionnaire distributed by the researcher. The students were assured of complete anonymity, no identifying names or marks were entered, and that only the researcher would see the questionnaires. They were instructed to insert the completed questionnaire in a ballot-box style receptacle placed in the room for that purpose. Administration of the instrument was accomplished within one class period (approximately 40 minutes). (For additional information on the research procedures and protocols see the Appendix).

3 Measurements of Variables

3.1 Substance Use Variables

The dependent variables in this study are self-reports of frequency of use of alcohol, tobacco, depressants, and stimulants in the past year. Response options were—never, once or twice, several times, less than once a month, once or twice a month, at least once a week but not everyday, and every day or nearly everyday. Frequency of lifetime use was also measured, but since it was nearly perfectly correlated with past year frequency (alcohol alpha = 0.95, tobacco alpha = 0.98, depressants alpha = 0.84, and stimulants alpha = 0.87), only the latter was retained as the measure of the dependent variables.

3.2 Parental Variables

Parental variables are all measured by reports of the respondents in the survey. The parents were not surveyed. Parental variables taken primarily from the social learning perspective are father's and mother's use of the various substances, parents' normative attitudes toward use of the various substances (norm qualities), anticipated reaction of parents' to one's own use of the various substances, and imitation of parents. Variables taken to be important from the social bonding perspective are parental attachment, parental supervision, and belief in parental norms. Responses to the questions about father's and mother's use of the substances ranged from "never used (1) to "every day or nearly everyday" (7). Parents' norm qualities was measured by asking " what is the attitude of your parents toward using each of the substance? (asked separately for alcohol, tobacco, depressants, and stimulants). Parents' reaction (differential reinforcement) was the respondents' report of actual or anticipated positive or negative sanctions by parents for respondents' use of drugs, ranging from encouraging their use to turning them into the authorities. While the reported use by parents can itself be taken as a measure of modeling (and hence source of imitation), "imitation of parents" was measured more specifically by a single item asking "observing my parents using _____ has influenced me to use" (asked for each type of substance). Parental attachment (attachment of respondent to parents) was measured by asking how close the respondent feels to his or her parents. Parental supervision was measured by a question asking respondents whether their parents usually know where they are when they are away from home. The indicator of belief in parental norms was the extent to which respondents endorsed or held positive attitudes toward the values and rules perceived to be held by their parents.

3.3 Peer Variables

Peer variables included measures of peer association, peer norm qualities, peer reactions, and imitation of peers (primarily social learning variables) and strength of attachment to peers (primarily a social bonding variable). Peer association was the respondents' report of how often and what proportion of one's close friends' use drugs, producing a two-item scale each for alcohol (alpha = 0.76), tobacco (alpha = 0.77), depressants (alpha = 0.82), and stimulants (alpha = 0.64). Peer norm qualities was measured by the relatively approving or disapproving attitudes toward drugs that respondents perceive are held by peers ("what is the attitude of your friends toward using each of the substances?"). Peer reaction (differential reinforcement) was the respondents' report of actual or anticipated positive or negative sanctions of friends for respondents' use of drugs (ranging from encouraging their use to turning them into the authorities). Imitation of friends was measured by a single item asking about "observing my friends using _____ has influenced me to use" (asked separately for alcohol, tobacco, and other substances). Peer attachment was measured by a single item asking about how close the respondent feels to his or her friends (without differentiating between using and non-using friends).

4 Results of Statistical Analysis

A series of multiple regression analyses were conducted in which sets of variables (parental and peer variables) are entered into equations with frequency of alcohol, tobacco, depressant, and stimulant use in the past year as the dependent variables. Regression models for each of the dependent variables were run separately for the peer variables and parental variables (Table 1) and for each dependent variable with all of the peer and parental variables was run (see Table 2) [3]. All of our empirical models here show strong net effects of the differential peer association variable. These findings are consistent with previous research showing that, whatever direct influence parents have on adolescent deviance, they also indirectly influence it through monitoring their children's choice of friends and other aspects of peer associations (Brook et al., 1990; Dishion, Patterson, Stoolmiller, & Skinner, 1991; Elliott et al., 1985; Melby et al., 1993; Patterson, Reid, & Dishion, 1992; Simons et al., 2004). Such findings from ours and previous research, in addition to the theoretical expectation that parental effects will be substantially mediated by social learning variables (Akers, 1998), suggest a path model of the relationship of parental, peer, and substance use variables. Therefore, path analyses (Agresti & Finlay, 1986) were run testing the direct and indirect effects of parental variables on adolescent substance use with the peer association variable entered as a mediating variable as shown in Fig. 1. In the path models, peer association variables are first regressed on parental variables and then each type of substance use is regressed on parental variables (see Figs. 2, 3, 4, 5).

The results presented in the upper part of Table 1 show that the peer variables explain 54% of the variance in frequency of alcohol use, 64% in tobacco use, 42% in depressant use, and 34% in stimulant use. The peer attachment variable as such, with no measure of the behavior or attitudes of peers to which one is attached, has no significant effect on use of any of the types of substances. On the other hand, differential peer association, which does measure the behavior of the peers with whom one interacts, is the strongest predictor

[3] Number of cases for the equations in Tables 1 and 2 range between 884 and 910, reflecting listwise deletion cases without missing values.

Table 1 OLS regression separate peer and parental models of adolescent substance use in Korea.

Variable	Alcohol	Tobacco	Depressants	Stimulants
Peer variables				
Peer association	0.558***	0.640***	0.586***	0.570***
Peer norm qualities	0.107***	0.118***	0.069*	0.028
Peer reaction	0.075***	0.059**	0.053*	0.010
Imitation of peer	0.182***	0.107***	0.041	0.026
Peer attachment	0.010	0.013	0.015	−0.027
R^2	0.541	0.640	0.416	0.338
N	1,006	991	981	981
Parental variables				
Father's use	0.103***	0.075**	0.120***	0.198***
Mother's use	0.029	0.026	0.316***	0.079*
Parents' norm qualities	−0.007	−0.020	0.133***	−0.045
Parents' reaction	0.157***	0.293***	0.106**	0.078*
Imitation of parents	0.437***	0.433***	0.053	0.082*
Parental attachment	−0.020	−0.043	0.025	−0.013
Parental supervision	−0.090**	−0.076**	0.010	−0.020
Parental norms	−0.016	0.027	0.001	−0.013
R^2	0.282	0.365	0.264	0.075
N	910	910	910	910

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Table 2 OLS regression: Combined models of peer and parental variables in adolescent substance use in Korea.

Variable	Alcohol	Tobacco	Depressants	Stimulants
Peer association	0.524***	0.587***	0.544***	0.570***
Peer norm qualities	0.088***	0.107***	0.022	0.069
Peer reaction	0.085***	0.015	0.043	0.018
Imitation of peer	0.060	0.034	−0.014	0.069
Peer attachment	0.040	0.044*	0.030	0.002
Father's use	0.053*	0.019	0.046	0.161***
Mother's use	0.015	0.004	0.135***	0.070*
Parents' norm qualities	−0.037	−0.016	0.037	−0.082*
Parents' reaction	0.057*	0.134***	−0.015	−0.001
Imitation of parents	0.153***	0.114***	0.043	−0.054
Parental attachment	−0.017	−0.032	0.017	−0.006
Parental supervision	−0.043	−0.030	−0.007	−0.041
Belief in parental norms	−0.020	−0.003	0.011	0.015
R^2	0.564	0.653	0.465	0.413
N	905	892	884	884

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

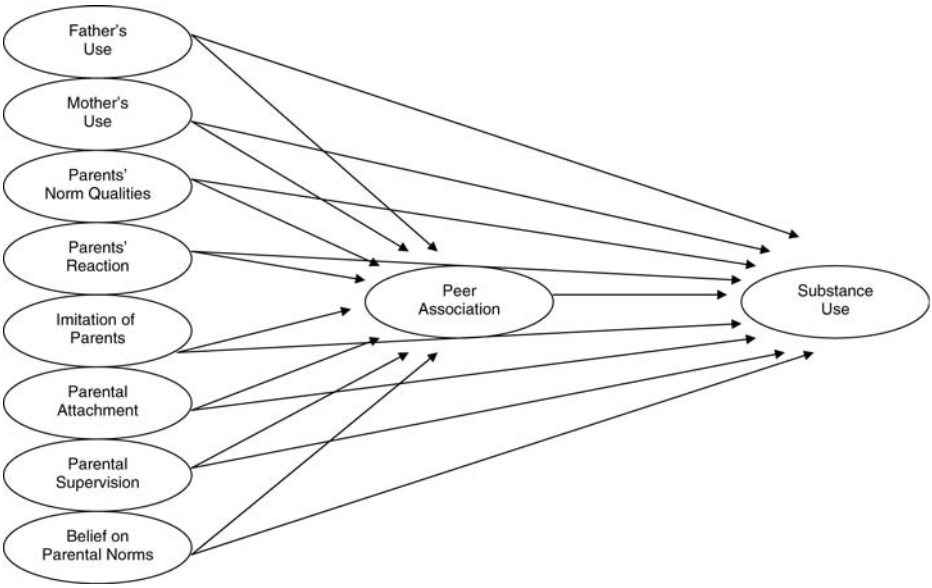

Figure 1 General Path model of direct and indirect influence of parents on adolescent substance use through peer association.

of each type of drug use (B = 0.56–0.64); it is the only one of the peer variables with a significant net effect on the frequency of stimulant use. However, imitation of peer behavior has direct effects on drinking and smoking, while both peer norm qualities and peer reaction have significant direct effects on use of alcohol, tobacco and depressants. The results shown in the lower part of Table 1 indicate that parents also substantially influence adolescent substance use in this Korean sample; 28% of the variance in frequency of alcohol use, 37% in tobacco use, 27% in depressant use, and 8% in stimulant use are explained by the measures of parental influence. As with the peer variables, the parental

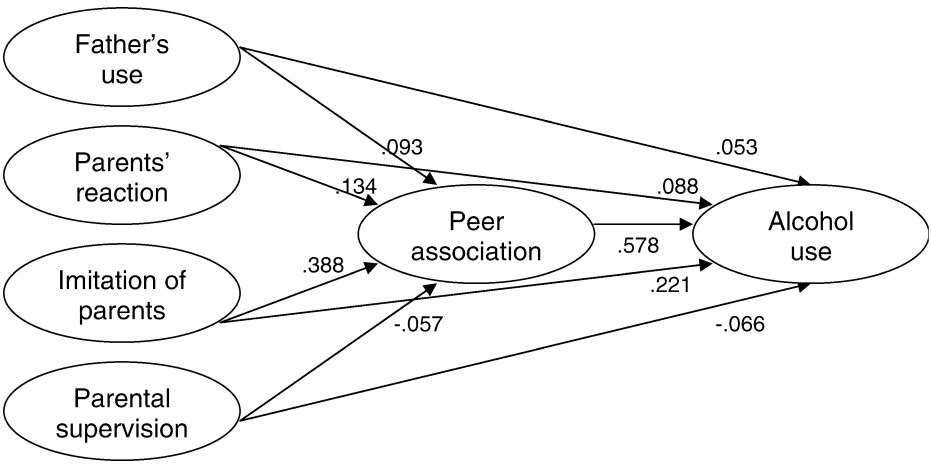

Figure 2 Path diagram for adolescent alcohol use.

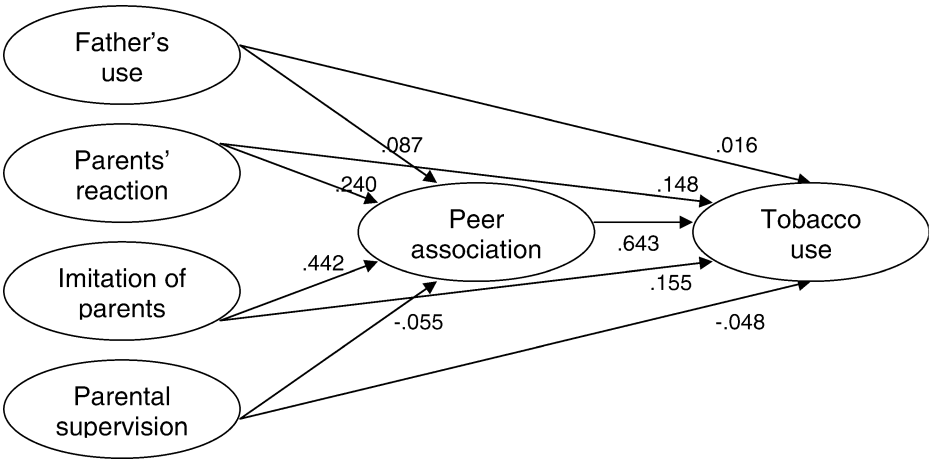

Figure 3 Path diagram for adolescent tobacco use.

variables that account for most of these explained variances are those most consistent with social learning theory. That is, father's use of substances and parents' reaction have significant effects on their adolescents' use of all of the substances; for alcohol and tobacco use, imitation of parents has the strongest effects. Parental variables most consistent with social bonding theory have less effect; parental attachment and belief in parental norms do not have significant effects on the adolescents' substance use, while parental supervision does affect alcohol and tobacco use.

Table 2 presents regression models of adolescent substance use including both peer and parental variables. Results indicate that differential peer association (B = 0.52–0.59) has the strongest net effect on the frequency with which each of the substances was used in the past year by these Korean adolescents. For the most part, the other parental and peer variables that have significant effects (imitation of parents, peer norm qualities, peer reaction, parents' reaction, father's use, and mother's use) on use of the various substances are those

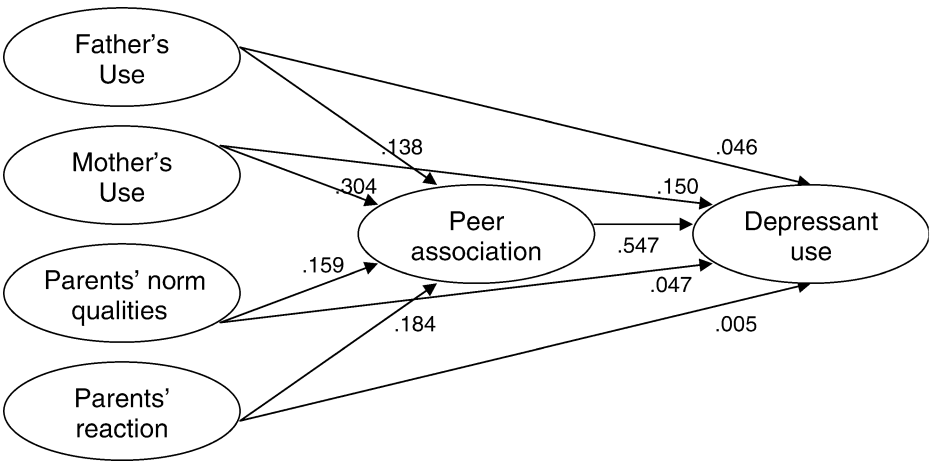

Figure 4 Path diagram for adolescent depressant use.

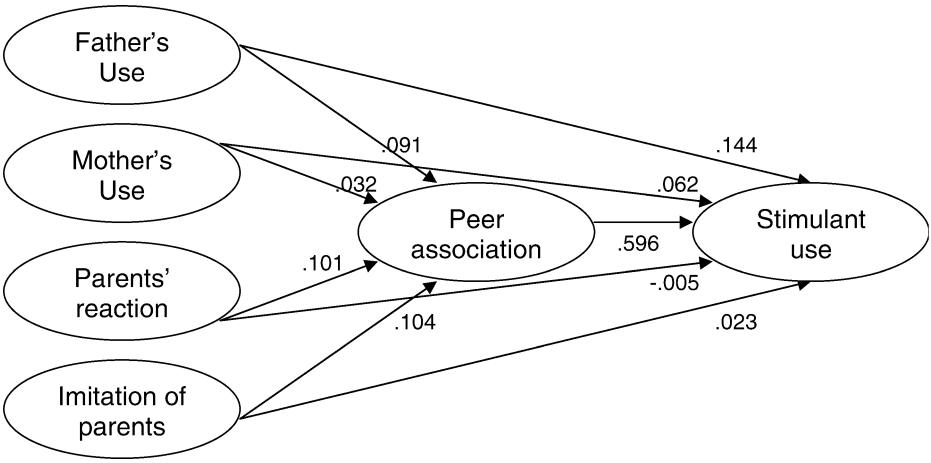

Figure 5 Path diagram for adolescent stimulant use.

that are identified in social learning theory, while none of the parental bonding variables (attachment, supervision, and belief in parental norms) retains a significant net effect in any of the models. The bonding element of peer attachment does have a significant effect on smoking.

In summary, regardless of the particular drug use behavior, there is a stronger influence of peers than of parents. The results support Akers' summary of American research that "it is in peer groups that the first availability and opportunity for delinquent acts are typically provided and that peer association variables are strongly related to delinquency, alcohol, drug use, adult crime, and other forms of deviant behavior" (Akers, 1997: 74). Both parental and peer variables affect drinking, smoking, and consumption of other substances by adolescents, but the peer variables, particularly differential peer association, have greater impact than the parental variables. When placed in the same OLS models with peer variables, many of the parental variables do not have significant direct effects on adolescent substance use (Table 2).

The path model shown in Fig. 1 hypothesizes direct paths from all of the parental variables, indirect paths through the peer association variable, and a direct path from peer association to substance use. Path analyses based on this general model were run separately for frequency of use of alcohol, tobacco, depressants, and stimulants. The initial path analyses indicated that only about half of the possible paths were statistically significant. Therefore, the models were re-computed for each type of substance use after eliminating non-significant paths. The results of the final path analyses are shown in Figs. 2, 3, 4, 5.

There are several major findings in the path analyses. First, as expected, peer association had a direct positive effect upon each type of substance use. Second, for the most part (again as expected by the model in Fig. 1), the indirect effects of the parental variables on adolescent substance use through peer association were greater than their direct effects. However, parental supervision had a greater direct effect on alcohol and tobacco use. Parents' reaction had a greater direct than indirect influence on alcohol use, and both father's use and mother's use had greater direct than indirect effects on stimulant use. Adolescents who have parents who use alcohol, tobacco, depressants, and stimulants tend to have peers who use them as well. Just as was found in the regression models, and compatible with previous research in the United States, the path analyses revealed that peer

association has the major direct influence on adolescent substance use among these Korean adolescents, while parental influence tends to be indirect through its effect on peer associations.

5 Conclusion, Limitations, and Implications

Our data support the general conclusion, similar to that from American studies, that the Korean adolescents reported stronger direct influence of peers than of parents on substance use. The stability, authority, and integration of family is greater in Korean society than in contemporary western societies (Cho & Shin, 1996; Na & Loftus, 1998), and it would seem reasonable that parental influence would be greater than peer influence on substance use in such a society. One could argue from a cultural perspective that in Korean society, with its stronger family structure, peer influence on adolescent deviance would not be as significant as it has been found to be in American studies. Parental variables did have an impact in our study (and one could say that it is probably more of an impact that is exerted by American parents), and there is no doubt that the Korean family is strongly traditional (90.3% of the youth in this sample lived with both parents and the vast majority were in traditionally organized families with the father as the head and breadwinner and the mother not working outside the home), the drug using or abstaining behavior of the Korean youth was still more strongly influenced by their peers than their parents. Moreover, the path analyses showed that, while parental variables did have some direct effects on their children's substance use, the parental influences were felt mainly indirectly through differential peer association. Again, these results are similar to the findings from previous studies in the United States (Bahr, Hawks, & Wang, 1993; Brown, Mounts, Lamborn, & Steinberg, 1993; Dishion et al., 1991; Elliott et al., 1985; Hoffman, 1993; Melby et al., 1993; Warr, 1993b; Simons et al., 2004). In addition, the parental and peer variables primarily identified with social learning theory generally had more substantial and statistically significant effects than the parental and peer variables primarily identified with social bonding theory.

Assuming additional research confirms the findings here, it would seem that the kinds of preventive programs drawing on social learning theory, with elements from social bonding theory and addressing both family and peer factors, that have had some success in the United States (Hawkins & Weis, 1985; Hawkins et al., 1992; Chamberlain, Fisher, & Moore, 2002; Andrews & Bonta, 2003) are also likely to have some success in Korea. Intervention can be direct with in-school or after-school programs for promoting association with pro-social peers and reducing association with peers who use or support using substances. Further, although parents had less direct impact on their children's drug use than did peers, programs aimed at reducing smoking, drinking, and other substance use by parents as role models, and enhancing effective parenting and supervision skills to have an effect on their children's behavior and selection of friends, would seem to have some chance of some success.

Future research in Korea can build on this first study, and perhaps point the way to develop further the small body of research in other non-western societies. But that research should address some of the limitations of the present study. This analysis is based only on Korean adolescents in Pusan, an urban metropolitan area. There may be considerable differences in adolescent drug use in urban compared to rural areas in Korea. The Pusan metropolitan area might be among the most affected by American influence in Korea, and it is possible that the similarity of findings from studies in the United States reflects a greater westernization of this urban region than would be found in other, more rural, regions of

Korea. Therefore, additional research is needed to assess the extent to which these findings would apply to adolescents in non-metropolitan areas in Korea. Also, we have referred here to familism and family structure in Korean society and provided some evidence for the intact and authoritative families of our adolescent respondents. It may be that future research and analyses should address other aspects of Korean society and culture, such as the extent to which they may be described as communitarian rather than (or in addition to) being characterized by familism, and how this would add to or modify research variables of interest beyond family and peer variables. Future research should collect primary data with exactly the same instrument (properly translated, of course) and exactly the same measures with samples drawn in the same way and within the same time period in different societies, not only Korea but in other Asian societies (and beyond that to samples from North and South America and Europe). Thus, instead of referring to how the findings from one society do or not now conform to those found in previous research in the United States or other societies, the data analysis could directly compare the findings from the cross-cultural samples.

Appendix: Additional Notes on Research Procedure and Protocols

Sampling and Procedures

The sample design was two-staged. In the first stage of the research schools were stratified on the basis of (1) geographical location (district), (2) type of school (industrial or liberal), and (3) gender of school population (boys or girls). In Pusan, different districts exhibit different social characteristics, and thus geographical dispersion is important for maximizing representativeness. In addition, as noted in the footnote to Sample and Procedures, schools in Korea are commonly differentiated into two general quality levels: liberal (high or middle quality) and industrial (middle or low quality). At the time of the study, the schools in Pusan were sex segregated (although this has changed). This produced four mutually exclusive strata from which the schools were sampled—boys' liberal high school, boys' industrial high school, girls' liberal high school, and girls' industrial high school—from the 16 school districts in Pusan.

To provide representation from the different districts and types of school, 26 schools were selected from 136 high schools of Pusan—10 boys' liberal high schools (38.5%), 6 boys' industrial high schools (23.1%), 5 girls' liberal high schools (19.2%), and 5 girls' industrial high schools (19.2%)—from the 16 districts in Pusan. Two of the high schools are in a small town outside the metropolitan Pusan area, while the other twenty-four are within the metropolitan area.

In the second stage, for each high school in the sample, classes were randomly sampled from the required or general enrollment classes, and all students in that class were included in the sample. While this sampling procedure does not yield a true random sample of students, it does approximate to allowing each student in the school district to have an equal chance of being sampled for the study, and provided the best means available to us to avoid systematic selection bias.

Data Collection: Administration of the Questionnaire

The data collection instrument was a questionnaire constructed originally and specifically for this research project. It was modeled closely on the items and format of the

questionnaires developed by Ronald L. Akers and his associates for the Boys Town study of adolescent substance use and the Iowa study of teenage smoking (see Akers, 1998). A key feature of this instrument is the careful construction of items designed to measure theoretical concepts from social learning, social control, and strain theories with items having strong face validity and subsequently shown to have some predictive validity. For the complete instrument, see Hwang (2000).

The questionnaire was administered to all students in attendance in the randomly sampled classes who had obtained written permission from the school principal prior to the day of the survey. Respondents were informed, carefully and clearly, of the nature and purpose of the study and the questionnaire, were assured of the complete anonymity of their responses, and that no one would see the responses except the researchers. They were informed that they had no obligation to participate, that there were no risks or consequences to participating or not participating, that they could omit any question or section of questions they did not want to answer, and that if they did not wish to participate they could leave the entire instrument blank.

The items on substance use included alcohol, tobacco, depressants (with Geborin, Saridon, Penjal, Sedaphin, and Nubain given as examples), stimulants (with Timing, Night, Esnanine, Reglin given as examples), inhalants (with bond, sinna, and butane-gas given as examples), marijuana, and other drugs (with LSD, philophone, concaine, narcotics given as examples). The analysis here does not include findings on inhalants or other drugs. Most of the examples given of stimulants and depressants are brand names of drugs produced by Korean pharmaceutical companies for legitimate distribution but which have been diverted to recreational use. The high school students responding to the questionnaire who have used these substances are familiar with the names.

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