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Drinking, Smoking, and Drug Use among Thai Youth: Effects of Family and Individual Factors

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Introduction

Drinking, smoking and drug use among young[1] people have been major concerns at individual, the family and national levels. The concern is based on a growing number of young users while amount and variety of substance increases and the access to them by adolescent and youth is not adequately controlled. In the case of present-day Thailand, it is perhaps realistic to say that drinking, smoking and other substance abuse among young people constitute nearly as serious a problem as HIV/AIDS.

This paper identifies patterns of youth behavior with regard to drinking alcohol, smoking cigarettes, and use of other drugs. Our aim is to understand the link between family background and individual characteristics, on the one hand, and substance use (drinking, smoking and other drugs), on the other. Our analysis draws upon a core assumption that the family, as a primary social unit within which individual is raised and socialized especially during childhood and adolescence, provides protection for its members against undesirable and harmful acts. It does so through the complex process of socialization, support and control in various forms. It follows from this assumption that we expect various family-level factors to bear directly or indirectly upon youth behavior. We anticipate that these factors will include those that enhance (or inhibit) parent-child relationships and parental support to and control over children's behavior. Our task in this paper is to identify such key family factors, given the data at our disposal. Yet, family factors alone cannot account fully for youth risk behaviors; individual-level characteristics also play their part. It is individuals having particular characteristics and attitudes who make decisions to engage in certain risky activities. In this study a combination of family and individual factors is examined.

In this paper, after a brief review of previous studies on youth drinking, smoking and drug abuse, we present descriptions of the data and methods used in the present analysis. This is followed by a presentation of results and discussion. The paper concludes with some practical issues that we believe to be of policy relevance.

Perspectives on the family and individual background and adolescent substance use

Studies on delinquency and adolescent substance use (drinking alcohol, smoking cigarettes and use of other drugs) have given much attention to factors pertaining to family background and individual characteristics of adolescents. (See, for example, reviews of recent studies in Wells and Rankin 1991;

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[1] Throughout this paper the terms "adolescent" and "youth" are used interchangeably to refer to males and females ages 15–24. Occasionally, the two terms are used together as "adolescents and youth" to refer to the same target population.

Hoffmann 1993; Graham 1996; Kandel 1996; Stice 1998). Most researchers working on this issue suggest that variables reflecting family structure and family relations are significant precursors of youth problem behaviors, including drinking, smoking and drug use. Although findings from these studies are not always consistent, most generally agree that living in an intact family (with both biological parents) has a protective value against adolescent substance use and delinquency. Conversely, living in one-parent families (with mother or father only) is found to be an important risk factor for various problem behaviors including substance use (For example, Thomas, Farrell, and Barnes 1996; Barnes 1990; Hoffmann and Johnson 1998; for analysis of family structure and child well-being, see Thomson, Hanson, and McLanahan 1994).

On family structure, Barnes (1990) found that adolescents in single- and stepparent families reported more alcohol use (both quantity and frequency of use) than did adolescents from intact families. Other studies confirm this contention. Flewelling and Bauman (1990) assessed the relationship between family structure (intact, single-parent, stepparent) and whether cigarettes, alcohol, marijuana, and sexual intercourse had been tried. The results show significantly high levels of ever-usage among children from non-intact families. The differences remain even when age, sex, race, and mother's education are controlled. The authors conclude that their findings are supportive of a relationship between family structure and the initiation of substance use. A recent study of Chilean adolescents also confirms significant effects of family structure on risk behaviors. Working with data for urban adolescents, Murray (2001) found that change in family structure is the only variable that consistently and significantly increases both boys' and girls' transition rates to potentially negative outcome behaviors (sex, smoking, drinking, and marijuana use).

Hoffmann and Johnson (1998) found that the risk of drug use is highest among father-custody families (father only and father-stepmother families), even after controlling for the effects of age, sex, race, ethnicity, family income and residential mobility. The risk of drug use is lowest in mother-father families. Needle, Su, and Doherty (1990) on the other hand, demonstrate that effects of family structure depend on other factors and vary with age and sex of children. Focusing on analysis of the effect of parental divorce and remarriage, these authors found that parental divorce and remarriage during their children's adolescence had more profound effects on adolescent substance use, for both boys and girls, than divorce and remarriage during childhood. They also found that parental divorce has a greater effect on boys than on girls for substance use, while remarriage has a greater effect on girls than boys. Apparently, these findings are supportive of an argument claiming a greater importance for family relations over family structure, with respect to effects on adolescent substance use.

In another study Hoffmann (1994) examined differences in the effect of family structure, family relations and peer relations on marijuana use of younger and older adolescents. His findings suggest that although family structure (in this case, divorce) leads to adolescent use of marijuana, the processes that lead to this drug use are not the same for the younger and older adolescents. For the younger adolescents, divorce attenuates their attachment (affection) to parents, which in turn leads them to associate with drug-using peers and subsequently to drug use. For the older adolescents, parental divorce results in less involvement in the family and that leads them to connect with drug-using peers and drug use. For both younger and older adolescents divorce significantly disturbs adolescent-parent relations, and that consequently leads to greater involvement with drug using peers, a reaction referred to as "strategic withdrawal" (Wallerstein and Kelly 1980, in Hoffmann 1994). Hoffmann's study not only demonstrates the significance of both family structure and family relations but also suggests that the influence of both family structure and relations is better understood when the influence of peer relations is taken into consideration. In terms of policy, this finding supports measures that strengthen adolescent-parent relations to buffer against association with drug using peers.

Studies that focus on the influence of family relations have identified "parenting" as a key concept for analyzing adolescent substance use. Parenting refers to styles by which parents socialize their children; it encompasses most, if not all, aspects of parent-child relations, including a substantial part of children's daily activities. Parenting involves two key concepts. These are *support* (i.e., nurture, attachment, acceptance, love) and *control* (i.e. discipline, punishment, supervision, monitoring) (Barnes and Farrell 1992). Reviews of several issues related to parenting styles and adolescent development have linked different aspects of parental support and control to a wide range of adolescent outcome such as achievement, aggression and substance use (for example, see reviews in Barbers and Rollins 1990; Baumrind 1991). An analysis of parental support and control reveals that the two concepts are important predictors of adolescent drinking and delinquency even after taking into account demographic/family factors, socioeconomic indicators, age, gender, race, family structure, and family history of alcohol abuse (Barnes and Farrell 1992). This study also suggests that children from single-parent families are, in fact, not so much different from those in mother-father families in terms of their problem behaviors. The significant difference lies in the parenting process in which parental support and control are the key issues. Similar findings are reported by Thomson, Hanson, and McLanahan (1994). However, parental control in the form of rules and discipline are more effective only when adolescents are younger; as they become older such parental controls are less effective (Seydlitz 1991).

It should be noted in this connection that in much of the literature the influence of parents (family) on adolescent substance use is often considered in conjunction with peer influence. Indeed, as Kanel (1996) observes, family and peers have traditionally been viewed not only as the two most important social forces impinging on adolescents but also as dissonant and competing influences. Hoffmann (1993) explored effects of the family in relation to that of peers. His analysis reveals that peers have strongest effects on adolescent drug use. Yet, parent-child involvement and family structure also have direct effects. Family factors also influence peers, and family structure affects family relations; both have implications for adolescent relations with peers. Hoffmann's findings suggest that family effects on adolescent drug use are complex. However, a critical review of the literature on this issue suggests that studies often inflate the importance of peers and underestimate the influence of parents. Peer effects based on cross-sectional data and perceptions of peer behavior are found to be overestimated at least by a factor of five (Kanel 1996).

Individual background factors such as the adolescent's gender, sex, ethnicity, etc., are treated in most studies as control rather than as independent variables effecting substance use. However, some psychologically oriented studies identify temperament (which may be considered to be an individual-level psychological characteristic), as playing an important role in deviant behaviors. Stice (1998), for example, identified two temperament constructs for the analysis of adolescent antisocial behavior and substance use. These two constructs are *behavioral under control* (the inability to resist an impulse and to exercise self-restraint) and *negative affectivity* (a mood-dispositional dimension of individual variability, a proneness to negative emotional experience). Adolescents with different levels of behavioral under control and negative affectivity are believed to be at different levels of risk of behavioral deviation including substance use. Stice's analysis reveals that temperament moderates the relation between parenting (defined on the basis of parental support and control) and the antisocial behavior and substance use of adolescents. The combination of high behavioral under control and low parental support and control was associated consistently with the highest levels of antisocial behavior and substance use. Similarly, a combination of low negative affectivity and low parental support and control was associated with the highest levels of adolescent alcohol and illicit substance use in all interactions. Results of this analysis point to the importance of parenting over individual characteristics (temperament) for understanding antisocial behavior and substance among adolescents.

Drinking, smoking and drug use among Thai youth: What is known

A. Drinking

According to the government of Thailand's Report of the Health and Welfare Survey 1991, more than 12 million Thai's aged 14 years and older were identified as current drinkers (NSO 1991). This is nearly one-third of the total population of that age group. Like smokers (see below), drinkers are predominantly male; in 1991 about 85 percent of current drinkers were men. Among youth, current drinkers account for 21.5 percent (12 percent in the 14–19 age-group and 33 percent in the 20–24 age-group).

Most drinkers begin drinking at an early age. Nearly half of the drinking population (45 percent) started drinking before reaching the age of 20; by the age of 24, about 4 in 5 drinkers had already become familiar with drinking. Male and female drinkers differ in this respect; not only do more males drink compared to females, but males also tend to begin drinking at earlier ages.

In the earlier rounds of the Health and Welfare Survey consumption of alcoholic beverages was not examined; therefore, it is not possible to give a national trend in drinking behavior among the Thai. This being the case, the number of drinkers and the extent of alcoholic consumption can only be inferred from other sources such as existing statistics on the supply of alcoholic beverages. Statistics were compiled for the short period from 1987 through 1990, based on the records of the Excise Department, Ministry of Finance (Poshayachinda 1991). Over this four-year period the quantity of imported alcoholic beverages of all kinds (wine, champagne, gin, brandy, whisky, etc.) increased 175 percent from 5.1 million liters in 1987 to 14.0 million liters four years later.[2] Another source of information is an estimate by Pirunsarn (1995) based on statistics from the National Economic and Social Development Board (NESDB). An increase of 83 percent was reported for the five-year period between 1987 and 1991. The average quantity of liquor consumed per person during the same period, according to Pirunsarn (1995), also increased from 18.8 to 30.7 liters.[3]

Note that the quantity of alcoholic beverages reported above is very likely under-estimated as it did not include homemade alcoholic drinks (such as *saa to* and other forms of traditional homemade alcoholic beverage which are considered to be illegal). If the homemade liquors are taken into consideration the total quantity would certainly be higher. Such homemade liquors are very common in the rural areas and are consumed widely on various occasions. Accurate estimates of the quantity of the homemade alcoholic beverage are difficult to obtain; our conservative estimate is around 5–10 percent of the total of alcoholic beverages consumed in the entire country.

Another source from which inferences on the extent of alcoholic consumption can be made is the expenditure on alcoholic beverages as a share of total household expenditures. Statistics from 1981 to 1988 shows fluctuations in the percentage of expenditures on alcoholic consumption by households in different socioeconomic classes reflecting, among other things, fluctuations in their income over the period. In 1988, for example, the share of expenditures on alcoholic beverages among all household

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[2] The increase in imported alcoholic beverages reported here seems too high. Perhaps this indicates a change in tastes among drinkers rather than a real increase in the number of drinkers. The data might imply an increase in the number of drinkers only if some new drinkers use only imported beverages.

[3] This estimate also seems too high, perhaps because of the limited database for estimation. No details were given on how the estimate was derived. If this is accurate, it is difficult to understand what accounts for such a rapid increase.

expenditures ranged from slightly below 1 percent among land-owning rural households to about 4 percent among the households of clerical, service and production workers (Poshyachinda 1991). Again, for the land-owning rural households at least, the estimated share of expenditure above may not reflect the quantity of liquor actually consumed as a substantial part of the consumed liquor is homemade and has no direct monetary cost.

It is difficult to estimate the extent of negative outcomes resulting from alcohol consumption. Apart from its effects on income, drinking causes health and other social problems to individuals and families. One of the serious problems is increasing road accidents. It was reported that about half of the road accidents causing deaths and serious injuries involved drunk drivers (Talk Program, Bangkok TV Channel 9, 13 March 1996). It should be noted that transport accidents of all kinds were among the top five leading causes of death in Thailand around 1992 (Division of Health Statistics 1992); it remains one among the important causes of death up to the present.

B. Smoking

Information on cigarette smoking in Thailand is available from a series of national surveys over the past two decades or so. The National Statistical Office (NSO) has conducted a regular Survey of Cigarette Smoking Behavior, starting in 1976. The survey was at first carried out every five years, but since 1991 it has been conducted biannually. Reviews of smoking prevalence and patterns among the general population presented below are based on brief reports prepared by two concerned, independent organizations. One report was prepared by the Health System Research Institute (HSRI), Ministry of Public Health (Subhawongse and Buasai 1995), the other by the Action on Smoking and Health Foundation (ASH) (Information Center, Action on Smoking and Health Foundation 1998). Both reports, it must be pointed out, are based on the NSO surveys mentioned above. For smoking among youth and among women, our review draws upon recent studies on these issues (Supawongse, Buasai, and Tantigate 1997; Suwanrasmi and Chayasiri 2000; Wateesathokkit and Suwanrasmi 2000). It should be noted at the outset that according to the information from all these sources the prevalence of smoking in Thailand has declined slowly but steadily with some fluctuation over the past twenty years or so.

According to a report based on information from the National Statistical Office surveys, the number of cigarette smokers among the population aged 10 and older increased from 8.6 million in 1976 to a peak of 11.4 million in 1991. After that the number dropped slightly to 10.4 million in 1993 and increased again to 11.2 million in 1996. The increase in absolute number of smokers obviously reflects increases in the population over the period. In relative terms, available statistics shows a decline in the percent of people who smoked up to 1993, to increase slightly again in 1996. In 1976, smokers made up about 30 percent of the population aged 10 and older; the proportion declined slowly but steadily in subsequent surveys to 26.4 percent in 1986 and 22.8 percent in 1993 but then increased slightly again to 23.4 percent in 1996. Across the five regions of the country (Bangkok included as a region by itself), patterns of smoking remain consistent from survey to survey, with the Northern region having the highest proportion of smokers followed by the Northeast, the South, the Central and Bangkok in that order (Subhawongse and Buasai 1995; Information Center, Action on Smoking and Health Foundation 1998).

As expected, males and females are different in smoking behavior. In 1976 when the survey began, more than half of men (54 percent) were smokers. The rate dropped to 44.6 percent in 1996, showing an overall decline of about ten percent over the period of 20 years. The decline, however, fluctuated from one survey to the next throughout this period. Among females, the highest proportion

of smokers is only 6 percent in the initial survey in 1976; twenty years later it had dropped to 2.5 percent.

Smokers in general start smoking at a relatively young age; about two-thirds smoked for the first time before they reached the age of 20, and by the age of 24 nearly all eventual smokers were already familiar with cigarette smoking (National Statistical Office 1993). The report of the HSRI referred to above indicates that the proportion of young smokers, aged 15–24, fluctuated through the past five surveys. Among the 15–19 year olds (both males and females), for example, proportions who smoked fluctuated between 12.4 and 8.5 percent over the period from 1982 to 1996. For youth aged 20–24, a decline from 28.3 percent to 24.6 percent is observed, again with fluctuations. The decline in the proportion of smokers in recent surveys is believed to be a positive response to the more aggressive campaigns against smoking. Notable among these is the operation of an active NGO since 1986 (finally known as Action on Smoking and Health Foundation or ASH; see http://www.ash.or.th/home.htm), and the legal measure which was made effective for the first time in 1992.

A recent national cross-sectional survey among two youth groups (one group consisted of youth age 15 and the other age 22, both male and female) reveals the following prevalence of *regular* smokers: 9 percent among males aged 15, 0.7 percent among females aged 15, 39.2 percent among males aged 22, and 2.2 percent among females age 22 (Supawongse, Buasai, and Tantigate 1997). Among female adolescents aged 15–19 there has been a decline in the proportion of smokers from 0.8 percent in 1986 to 0.02 percent in 2000 (Wateesathokkit and Suwanrasmi 2000). The most important factors associated with smoking for male and female smokers aged 15 and 22, according to the study by Supawongse, Buasai, and Tantigate (1997), include poor school performance, drinking peers, smoking peers, experience of violence in the family, and involvement in violence, smoking parents and smoking family siblings. A qualitative study of women smokers, however, lists peer influences, environment conducive to smoking and curiosity about smoking as the factors leading to smoking among women (Suwanrasmi and Chayasiri 2000).

C. Use of Other Substances

Despite the growing problem stemming from drug use, Thailand's national sources of information on the use of substances such as heroin, opium, marijuana, inhalants and amphetamines are limited. There exist scattered small-scale studies over the past two decades or so employing survey methods, but nearly all of them have focused on in-school adolescents. Few studies, if any, really cover the national population, even among adolescents and youth. A survey covering over 6,000 persons including students and the general population reported 1.7 percent of students as current users and 7.8 percent as occasional users of any form of drug (Punnahitanon 1973). Around 1980 the number of drug users nationwide was estimated to be 450,000 or more, some 60–70 percent of these being young users aged 16–24 (Kanchanahut 1980, in Ministry of Education, n.d.).

Another survey was conducted in the early 1980s involving nearly 7,000 students in post-secondary institutions (Vocational and Teacher Colleges) from all regions of the country. This survey reported the following proportions of ever-users of various drugs: 24.5 percent had ever used marijuana, 13.8 percent amphetamines, 3.3 percent opium, 2.9 percent heroin, 3.9 percent "eunoctin" and 9.0 percent inhalants. Among ever-users, the following proportions were reported as current users (defined as using the drug during 1–5 days in the 30-day period prior to the survey): 19.0 percent currently used marijuana, 11.6 percent amphetamines, 14.5 percent opium, 25.7 percent heroin, 20.7 percent "eunoctin" and 14.2 percent inhalants (Ministry of Education, n.d.). These proportions contrast with those from another study by the Division of Educational Supervision, Department of

Teacher Training, which gives a user rate of less than 1 percent for each of the substances listed above (Division of Educational Supervision, Department of Teacher Training 1987).

Several other studies looked at knowledge and attitudes toward drug use and determinants of such knowledge and attitudes among adolescents. Again, the focus was mainly on the in-school adolescents, rather than the general youth population. A few undertook studies of drug addiction cases in treatment centers, but all of them lack information on the extent of drug use at the national level. Lack of large-scale, national representative studies on drug use is understandable given the illegal status of drug use and the social sanctions associated with it, which makes it a difficult subject for the survey method.

In the absence of national survey data, the only sources that can give information on the extent of drug use are the government's drug treatment centers located in different regions of the country. But information from these sources has one serious limitation; it includes only those who voluntarily come to the centers for treatment, and not the unknown number who do not. In addition, information from these centers needs careful scrutiny before it can be used for study purposes. In the past, research use of the data from drug treatment centers has been limited.

According to an unpublished study by the Institute of Health Research, Chulalongkorn University, in collaboration with the Department of Medical Services, Ministry of Public Health (which is in charge of drug treatment centers), the number of new drug-dependence cases of all ages reported to all centers increased steadily throughout the 1980s, from 4,152 at the beginning to 13,101 at the end of the decade. Although there was a minor fluctuation after 1985, overall increase during this period was more than 215 percent (Perngparn et al. 1992). Among youth aged 15–24, new cases of drug dependence showed a similar pattern of increase, reaching a peak around 1985 and then declining slightly thereafter. The overall increase from the beginning to the end of the 1980's was 115 percent among the youth. Aggregated data for the 1990's are not available, but given the increased supply of drugs commonly reported in the local media there is good reason to believe that overall the number of new cases continued to rise up to the present despite campaign efforts of various kinds. New forms of substances are also believed to be more available in the 1990s than in the 1980s.

The document referred to above observes that toward the end of the 1980s there emerged a new form of drug use among adolescents, particularly in the Northeastern region of Thailand. This is organic solvent sniffing, mainly toluene in paint thinner, lacquer and glue. By and large, heroin is the most predominant form of substance used. Others major substances include opium, marijuana, and inhalants. Recently an epidemic of amphetamine use among drivers, laborers and adolescents in schools has been of increasing concern. The current strength of the demand for amphetamine and new forms of drugs such as cocaine and ecstasy is indicated by the increasing supply despite an apparent increase in efforts to control it by concerned authorities in recent years.

The scarcity of information regarding drug use, the sensitive nature of the user's behavior and the illegality of drug production and distribution make it unwise to expect accurate statistics in this regard. Results from behavioral surveys, such as those reported here, cannot be expected to provide more than broad indicators of trends and differentials.

Data and Methods

A. The Family and Youth Survey

The present analysis is based on data from the Family and Youth Survey (FAYS) 1994. This national survey was conducted between March and May 1994 and involved interviews with 2,180 male and female youth from both urban and rural areas in all regions of the country including Bangkok. A multistaged, stratified sampling technique was employed for selection of the eligible respondents.

For sampling purposes, the country was divided into the conventional statistical regions: North, Northeast, Central, and South. Bangkok Metropolis was treated as a separate sampling area. From the North, Northeast, and Central regions three provinces were randomly selected, and from the South two provinces were taken. The next step involved selection of two districts from each province; one of the two districts was a municipal town (urban area). At the district level, the sample areas were stratified into urban and rural communities and two urban and three rural communities were randomly selected. Since Bangkok Metropolis is entirely urban, 24 urban blocks were selected. This procedure yielded 68 rural communities (villages) and 48 urban blocks (including substitutions in case selected communities/blocks did not yield the target number of interviews) from 42 districts of 12 provinces (including Bangkok) across all four regions of the country.

Once the urban blocks and villages had been identified, households were selected in which to screen for eligible respondents (ERs). At this level the field procedure had certain shortcomings that should be made clear. Compete listings of households could not be obtained at the local level. Instead, interviewers were instructed to start from the center of the communities and in a pre-set pattern covered defined part of the whole community; each interviewer was to screen every household on his/her way. Information on each visited household—even those with no one at home at the time of the visit—was recorded on a screening form containing basic information on numbers of residents, of eligible respondents or ERs (persons aged 15–24), and of absent ERs, etc.[4] When multiple ERs were present in a household, every effort was made to interview all of them. This process continued until the target number of interviewed ERs in each community was reached (16 for rural and 25 for urban communities). Thus, various proportions of the households in the communities were actually visited by the survey team. In communities/blocks of small size (about 120 households or less) usually all or nearly all households were visited, but in medium-sized or large communities/blocks (more than 120 households) about half to three-fourths were visited.

Using the field strategy just described, our interviewers were able to contact about half of the households in all sample communities. About three-fourths of the contacted households were screened for ERs; the rest were households with no one present or unoccupied households. Slightly more than half (54.2 percent) of the screened households were found to have eligible respondents, but only 42.5 percent of the identified ERs were successfully interviewed; nearly all of the rest were absent from the communities at the time of the field work. (The fieldwork was conducted during the dry season when migration out of home communities is most common.) The sample of youth in the FAYS consists of 2,180 males and females. Females slightly out-number males, perhaps reflecting a higher rate of movement among male youth.

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[4] In case no one was at home at the time of the interviewer's visit or the household was unoccupied, information was sought from the neighbors or the head of the village/community.

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Because our multistage procedures yield varying sampling fractions across areas, that is, different probabilities that households were included in the sample, the sample households are weighted appropriately before analysis to equalize these probabilities. The weights adjust for an urban over-sampling that was built into the design. They also adjust for unavoidable departures from the sampling design as expressed in information from each community on the total number of households, the proportion of contacted households, the proportion of households actually screened for ERs, the proportion of households with ERs, and the proportion of ERs actually interviewed. Results using these procedures were compared with statistics from the 1990 census (the census closest to the 1994 FAYS survey) to verify that an age-sex composition and regional distribution of the sample population very similar to that of the census population had been obtained.

The questionnaire was field-tested three times before data collection began. It consisted of ten parts designed to collect data on various aspects of adolescents' life such as family background, education, work, family formation, self-esteem and values, health related issues and sexual experience. The questionnaire also includes information collected through the Life History Matrix, which provide rich data on key events (schooling, residence, work, and family formation) in each year of the respondent's life from age 10 to 24. The data for the present analysis are taken from relevant sections of the main questionnaire.

B. Measures

1. *Outcome variable*: The outcome variable in this analysis is consumption of alcohol and tobacco and use of other drugs (marijuana, heroine, painkillers, amphetamines, inhalants). FAYS provides information on lifetime and current use of these substances. In the questionnaire, the respondents were asked whether they ever used each of the substances and if so how old they were when they first tried it, and how often they used it in the past one month before the survey. Any use in the past month is considered "current use." For our purpose, we group use of any drugs other than alcohol and cigarettes under "use of other drugs." However, only 4.7 percent of the total sample reported current use of any drugs; and among the females, the proportion is only 2.3 percent. For smoking, proportion of female users is only 1.6 percent.

Because of the small number of female smokers and male and female users of other drugs, our logistic regression analysis in this paper will focus only on drinking (for both male and female samples) and smoking (male sample only).

2. *Independent variables*: Our independent variables consist of two sets of measures, one on family background and the other on individual background. Family background encompasses mainly measures of family structure (living arrangement), family socioeconomic status (primary sources of family income, parental education) and family relations (relationships with parents, relationships with siblings, family control). Individual background consists of the following measures: self esteem, personal values, frequency of exercise activities, frequency of visiting entertainment places, peer influences, and exposure to media. Descriptions of each measure are provided below.

(1) Family Background

Living arrangements: So much has been found about the significance of family structure, especially living with parents versus all other forms of living arrangements, although findings are not always consistent (see review above). In this analysis, unless stated otherwise, we use information from the conventional questionnaire to classify types of living arrangements. The life history matrix information on place of residence is used in two of the tables and this is indicated. While information

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from the conventional questionnaire tells us the place of residence at the time of interview, life history information allows us to link key events in the respondent's life (such as first experience of drinking or smoking) to the type of living arrangement around the time of the event. Based on knowledge from previous studies about the significance of family structure on adolescent risk behaviors (see review above), we hypothesize that living with both or any of the parents has greater protective value against risk behaviors than other forms of living arrangements.

Primary source of family income: This is a measure of socioeconomic status of the family which is believed to facilitate opportunities for adolescent development (or lack thereof). Low family socioeconomic status may put some youth at higher risk of problem behaviors compared to youth from families of high socioeconomic status. This measure is based on information from a direct question on the primary source of family income. Our analysis tests if this assumption holds for drinking, smoking and use of other substances.

Parental education: This is another measure of family socioeconomic status which may impinge upon youth risk behaviors. For our analysis, only the educational level of mother or father (the higher of the two), is taken to represent "parental education." If one of the parents died before the respondent was 10 years old, the education of the surviving parent is used. In case both parents died before the respondent was 10 years old, the case is excluded from analysis. This criterion yields the following distributions of cases in the sample: about 80 percent had parents with only some or completed elementary education; 10 percent with some middle-high school level; 5 percent with college education or higher; the rest (over 4 percent) have parents with no education. Studies in some Western settings indicate a mixed effect of parental education; some found it to have a protective effect (Forste and Heaton 1988), while others found no effect of this measure on youth's risk taking behavior such as sexual intercourse (Miller, Forehand, and Kotchick 1999; Small and Luster 1994). In our analysis we expect youth whose parents have higher levels of education to be less likely to engage in drinking, smoking, or substance use.

Relationship with parents: The respondents were asked to assess their relationships with parents (biological or adoptive). Responses are grouped into three categories: "good with both mother and father," accounting for 79.3 percent of the sample, "good with either mother or father" (15.1 percent), and "good with neither of them" (5.6 percent). For analysis, we hypothesize that youth who have good relationships with both parents are less likely to be involved in drinking, smoking or substance use. This hypothesis reflects an assumption that the protective function of the family rests upon, among other things, the quality of relationships between parents and children.

Relationship with siblings: To adolescents, siblings are other family members with similar social status who largely share common ideas and attitudes. This fact provides a basis for the assumption that siblings may influence each other in their behaviors, especially when they have good relationships. On the other hand, when the relationship is not smooth, this may cause stress and tension that may eventually lead adolescents to drinking or drug use. In the survey, respondents were asked to assess their relationships with other siblings (full or half). Those with no siblings were excluded. Nearly all respondents (93 percent) reported that they had a "good relationship with all siblings" while negligible proportions said they had a "good relationship with some siblings only" (six percent) or a "good relationship with none of their siblings" (one percent). Our analysis tests the hypothesis that youth with good relationships with all siblings are less likely to engage in drinking and smoking and drug use.

Family control: As indicated by some previous studies (see review above), parental control has significant preventive effects against adolescent problem behaviors. In our analysis we anticipate similar effects of parental control on the drinking and smoking behavior of youth in the sample. We

use the concept of "family control" rather than "parental control" for two reasons. First, in most Asian societies (Thailand included) control of children's behavior is not affected by parents alone; any adults in the family, or even extended kin in some cases, can play important roles. Second, this concept fits better with how the information for this measure was obtained. In the questionnaire the relevant question reads: *"At present how much freedom (i.e., not being under strict control from other family members) do you think you have in the following aspects."* The questions address freedom with regard to the kind of people to make friends with, spending money, going out for fun, choosing a job, having a boyfriend /girlfriend, dressing/ clothing, choosing whom to marry, and choosing what to study. A three-point scale response was provided for each item, ranging from 1 (*no freedom at all*) to 3 (*a lot of freedom*). For our purpose here, lack of freedom in any of these items is considered more family control; more freedom, less family control. The index of family control is taken as the percentage of the total score obtainable from all completed items. For the entire sample the observed index ranges from 0.39 to 1.0, with the mean of 0.59 (S.D. = .081). An index value lower than the mean is considered "low family control"; equal to or higher than the mean value, "high family control." Based on this treatment, 56.8 percent of the sample youth were of low family control. Our analysis tests whether lower risks of drinking or smoking are associated with higher levels of family control.

(2) Individual Background

Self-esteem: This variable is measured as an index based on the total score obtained from completed responses to the following statements: *You feel that you have a number of good qualifications; You feel that you are as important to your family as other members; You feel that you can accomplish many things just as other people; You are hardly proud of yourself (reverse-coded); You always know your own strengths and weaknesses; You feel that many things you do are not so meaningful for yourself (reverse-coded);* and *You feel that you mean much to your friends.* Respondents were asked to choose from a four-point scale answers that best described themselves. The scale ranges from 1 (poorly describes) to 4 (best describes). The index represents the obtained score taken as a percentage of the total score possible from completed items. A high index score reflects high self-esteem; a low index, low self-esteem. The observed indexes for the entire sample range from 0.43 to 1.0 (mean = .74, S.D. = .086). Cases with an index lower than the mean are grouped under "low self-esteem," and those with a score equal to or higher than the mean are classified "high self-esteem." Approximately half of the youth in the sample were of low self-esteem. Our analysis tests whether a higher self-esteem index is associated with a lower risk of drinking or smoking. Our assumption for this is that a higher level of self-esteem can lead to strong self-restraint which functions against risk behaviors.

Personal values: This measure is constructed in the same way as self-esteem. The concept of "value" is understood here simply as "importance" that an individual gives to something. Although statements of "things" listed in the questions are generally positive, we anticipate respondents to differ in their responses reflecting what they regard as important or not important, i.e., they are of different personal values. In the survey, the respondents were asked to indicate how important each of the following "things" is to them: *freedom to do things the way one wants, honesty, fun and enjoyment, religion and morality, a goal-oriented life, friendship, collective interest over individual interest, equality of men and women, and self-restraint.* Respondents chose their answers from a four-point scale ranging from 1 (not important) to 4 (most important). An index score lower than the mean is considered "low personal value," otherwise "high personal value." More than half of youth (55.7 percent) in the sample are of high personal values. Our analysis tests a hypothesis that high personal values are associated with a lower risk of drinking or smoking.

Clubbing: This is a measure of frequency of visiting entertainment places such as nightclubs, pub and bars in the one month before the survey. The frequency is measured as "very often" (4–6 times per week or more), "often" (2–3 times per week), and "hardly or not at all" (once a week or less). Our assumption for including this variable in the analysis is that one risk factor is often associated to another risk factor. Frequenting entertainment places is considered a kind of risk factor, which is often associated with drinking and smoking.

Exercise: This is a measure of the frequency of exercise and playing sports and games for health and recreational purposes. Regular engagement in exercise and sports reflects health awareness which is believed to keep one away from health risk behaviors such as drinking and smoking. Our analysis tests whether a high frequency of exercise activities is associated with a low risk of drinking and smoking among the sample youth.

Exposure to media: Due to the limitations of our data, only use of the printed media (newspapers and magazines, etc.) is included here. Exposure is measured as a frequency—very often, often, hardly or not at all (see "clubbing" above). Exposure to the printed media might be regarded either as a source of protection from risk behaviors, in the form of practical information and warnings, or as a source of risk-enhancing propaganda in the form of commercial advertising. Both influences operate in Thailand as elsewhere, but, as we have already noted, some important restrictions have been placed on tobacco advertising in the media. Therefore we anticipate that youth with high exposure to the print media will be less likely to engage in drinking and particularly smoking.

Peer influence: Just as in most Asian societies, drinking and smoking in the context of Thai society are elements of social behavior that often take place among friends and peers. One of the most common behaviors, among Thai men particularly, is sharing of (alcoholic) drinks and cigarettes in a social setting. It is simply considered generous and friendly to share such things with friends and peers. Based on this cultural value and practice, we anticipate that drinking and smoking will be more common where peer influence is strong. Ideally, to measure peer influences on drinking and smoking most accurately one should have information on the peer drinking and smoking behavior. The FAYS questionnaire, however, did not include questions on this aspect. For our purpose here we create a variable which indexes general peer influence on the respondent. This is done by combining information about "friends" from two sets of questions in the questionnaire. The first set of questions asks respondents to indicate whether their friends, versus other kinds of people (such as family members, spouses, institutions/organizations, etc.), would be *the first source* of help, if needed for specified kinds of help. Five domains of help are identified which include jobs, money, boy/girlfriends, loneliness, and conflict with family members. Another set of questions asks whether friends were *the most important source* of information from which the respondents learned important things in their lives. Nine domains are identified which include proper behavior when in public, job skills, what one should or should not do to male/females friends, sex, courting/dating, sources of job information, health care, and goodness/badness. Peer influence is considered strong if friends are reported as the first source of help or the most important source of knowledge for each domain. The level of peer influence is expressed as an index calculated from the responses to the fourteen domains mentioned above. A higher index means higher peer influence; a lower index, lower peer influence.

3. *Control Measures:* In order to eliminate the possible effects of the variables that are not included in the list above, our multivariate analysis is controlled for sex, age, place of residence (urban, rural) and the school status (in-school, out-of-school) of the respondents.

Results

A. Patterns of Risk Exposure

Prevalence: Consumption of alcohol is the most common form of substance use among youth in the sample. As seen in Table 1 which shows prevalence by selected characteristics, drinking is most common in terms of both the percentages who ever tried it and current users. A high prevalence of drinking is observed across all characteristics—age, sex, rural-urban residence and school status. The second highest prevalence is for cigarette smoking. Current use of other drugs accounts for relatively small proportions of the sample although substantial proportions of males reported having ever tried drugs (percentages range from 17 to 40 percent). The data indicate that drinking is engaged in by both sexes, while smoking and use of other drugs are largely male behaviors.

The differentials by youth characteristics are worth noting. First, there is a marked difference in prevalence between male and female users across all the substances. Age differentials generally reflect the different exposures to these substances of the younger and older youth. Urban-rural differences across the three substances are more or less uniform, with higher prevalence observed among males and females in urban areas. Perhaps, this reflects, among other things, differential access to the substances and social acceptance of their use, especially for drinking and smoking. Differences by school status are also observed; higher proportions of ever-users as well as current users are found among out-of-school youth. It is also worth noting that while the prevalence of drinking among urban and rural females is virtually the same (20 percent), nearly all female smokers in our sample are from urban areas.

The onset of behavior: Male and female youth in our sample began substance use at early ages. On average, by age 16 fifty percent of them had already started this behavior (see overall mean and median in Table 2). The means and medians by age group given in Table 2 reflect age truncation, but in general they indicate early onsets of the behaviors. In only a few are the mean and median ages above 18. (See, for instance, the median age for drinking and the mean and median ages for use of other drugs among females aged 20–24.) Among males, except for the age group 15–19 whose mean age of onset is practically the same for all substances used, the mean ages of onset by residence and school status for drinking and smoking are about one year younger than for drug use. Our information does not explain why drug use generally starts at a relatively older age than for drinking and smoking. Perhaps this is because new users generally begin with a "softer" substance (such as tobacco); after gaining some familiarity, some of them then move on to the "harder" drugs (such as marijuana and heroine). This is the so-called "gateway theory." As indicated by the mean ages in Table 2, there is a small difference between youth from the urban and rural areas and between those who are in school and out of school. The onset of drinking, smoking and drug use is almost always earlier for urban and out-of-school youth.

The onset of behavior and living arrangements: Based on the life history data, Tables 3–6 provide information on the timing of the onset of drinking and smoking and the living arrangements of respondents at the age when they first tried the substance. (Drug use is not included in this presentation due to the small number of drug user cases in the sample.) Each table shows distributions of the sample at each age group, by sex and the total sample. Tables 3 and 4 focus on timing of the onset of drinking; tables 5 and 6, on smoking. The information in Tables 3–6 refers to lifetime experience, and not only current use. The percentage in each cell indicates the proportion of youth who were living in a particular type of living arrangement (e.g., with parents) who ever experienced drinking or smoking by particular age (say, age 13). In effect, the proportion in each cell is cumulative in that it includes youth who started drinking or smoking at that particular age while they were living

at that particular type of living arrangement, plus those who had already initiated the behavior previously. In other words, this is the proportion of youth who lived in a particular type of living arrangement and who ever had the experience of drinking or smoking, by a particular age.

One of the core tenants of our analysis is that living with parents has a protective value against risk behaviors including drinking and smoking. If this assumption holds, we would expect to see some supporting results from these tables. The results, however, indicate that the association between the initiation of drinking and smoking behaviors and living arrangements is complex, as will be seen in the description below.

For drinking among the younger age group (15–19, Table 3), while youth who lived with parents and those who live away from parents both engaged in drinking, there seems to be but a weak tendency for those who live away from parents to be at a higher risk, and then only among males. In the older age group (20–24, Table 4), a similar but less linear tendency is observed. Here the results show higher proportions with experience among youth who live with parents up to age 15, after which the proportions among those who live away from parents are generally greater. The proportions with drinking experience among youth who live with spouses (i.e., the married) are noticeably high (albeit with a small case base). Perhaps this suggests a shift in status and role stemming from marriage— implying greater independence that may facilitate "adult" types of behavior. The pattern for smoking shows a more uniform tendency for higher risk among youth who live away from parents. This pattern is observed across the samples as well as for the younger and the older age groups. The only observed difference in this case is the much smaller proportions of youth who lived with a spouse (i.e., who were married) and who ever smoked at each age (Tables 5 and 6). Perhaps, this reflects the fact that smoking among youth is a relatively less common behavior than drinking.

While the results presented above seem to support our assumption, one should be cautious in drawing such a conclusion. The results may be complicated by the skewed distribution of cases across the three types of living arrangement. As will be seen in Table A-1 (See Appendix), the large majority of youth at each age live with parents (both parents or only mother or father). Although the greater tendency is for those who live away to have ever had substance use experience, this does not mean that those who live with parents are not at risk. In fact, the gap in proportions who had experience while living at the two types of residence is not very wide, suggesting that other factors may also account for the drinking and smoking behaviors.

Use Behavior: Tables 7 and 8 provide information on some aspects of use behavior. This includes use of single and multiple substances and sequences of substance initiation. As illustrated in section (A) of Table 7, males and females contrast quite clearly in their use behavior. While more than 4 in 5 using females used only one substance (drinking), more than half of using males used two or more substances simultaneously. Among multiple users, drinking and smoking are most common; only a small proportion of youth in the sample combine any kind of drug with alcohol and cigarettes (see the bottom row of Table 8). As for the sequence of substance initiation, our data allow only a rough estimate of this based on broad chronological age of the respondents who reported the age at which they first tried each substance. This information gives only a general idea of whether the two substances in question were initiated at the same age regardless of which came first, or whether one was initiated before the other but at different ages. Thus, the sequence of initiation within the same age (which we believe to exist) is not captured in our data. Information in section (B) of Table 7 gives only sequence of initiation of two substances, namely, drinking and smoking, drinking and drug-use and smoking and drug-use. Sequence of initiation for use of more than two substances is not attempted here due to the small number of sample cases. Nevertheless, the results can give us some idea of use behavior.

First, some difference between males and females can be observed. Well over half (57.3 percent) of male drinkers and smokers began drinking and smoking at the same age. For those who started these behaviors at different ages there seems to be no real tendency for drinking to be tried first (22.6 percent for drinking first compared 20.1 percent for smoking first). For females, the majority began with drinking; only about one-third initiated drinking and smoking at the same age (note small number of cases for female users). When drinking and smoking are combined with other drugs among males, they generally came first. This is so, perhaps, because both drinking and smoking are more common, especially among males. Another reason may have to do with the fact that substance users generally begin with the "softer" substances; after gaining some familiarity, many move on to the "harder" substances. Note, however, that smaller but substantial proportions of males began drinking and drug use or smoking and drug use at the same age. Probably, for these users drinking and/or smoking came first, followed by drugs of some sort.

The results in Table 8 seem to suggest a tendency for users of one substance to use another substance. Among the male sample, for instance, more than two-thirds of the drinkers smoke, and nearly three-fourths of the smokers drink. For male drug-users, chances are great for them to drink or smoke simultaneously. Over 90 percent of the male drug-users drink, and over 93 percent of them smoke.

Despite some likelihood of users of one substance using another, one should be cautious in concluding a causal link between substance uses. The findings in Table 8 seem indicate just that drinking and smoking are co-factors; so are drug use and smoking and drinking.

Substance use and risk enhancing backgrounds: Our main interest in this paper is to identify the link between substance use (drinking, smoking and drug use) and the backgrounds of youth. For analysis, we identify two sets of backgrounds; one set is related to the family, the other to individual characteristics. Based on these two sets of backgrounds, male and female youth can be evaluated as to their levels of risk due to the presence or absence of certain characteristics. We examine the prevalence of substance use against these backgrounds of respondents. It should be noted that the background variables that we are dealing with here refer to the family and individual backgrounds at or around the time of interview.

Table 9 presents distributions of current users of alcohol, tobacco and other drugs by family and individual background characteristics for males and females separately. Results show that substance use among youth in our sample does not seem to have strong and consistent associations with family background variables. A lack of strong and consistent associations is particularly the case among females. This may partly have to do with smaller number of valid cases involved, especially for smoking and drug use. For males, results on drinking and smoking, but not drug use, are more or less in line with our hypotheses. Four out of six family background variables seem to show some association with youth drinking and smoking. These include living arrangements, relationship with parents, relationship with siblings and family control. The associations are largely in the expected directions. As indicated in Table 9, drinkers and smokers tend to be the ones who live away from their parents, do not have good relationships with parents or siblings, or are under weak (low) control of the family. No uniform association can be identified between the other two family background variables (parental education and primary source of family income) and drinking and smoking behavior of youth in our sample.

Similar and fairly consistent associations are found for individual-level background variables (see second half of Table 9). Here males and females seem to be more similar than in the case of family background variables, especially for drinking and smoking, but less so for drug use. Associations between the independent and the outcome variables are in the expected directions, except

for "personal value." Overall the results suggest that male and female youth are more likely to engage in substance use (drinking, smoking, drug use) if they have low self-esteem, more frequently visit entertainment places, hardly or never exercise, hardly or never use the printed media, and are under strong influence of their peers. Some inconsistencies are found in the association of "clubbing" and drinking (male and female), "peer influence" and smoking (male), and "exercise" and drinking (female).

Based on results of Table 9, a general conclusion may be drawn that family and individual background variables show a fairly clear association with various levels of substance use among Thai youth. The associations, however, do not seem to be very strong.

To further investigate potential links between the independent variables and the outcome variables, we present Table 10 which provides information on the proportions of current users of alcohol, tobacco and drugs, by age and the number of risk enhancing backgrounds they are connected with. Results for males and females are presented separately. The presence of multiple substance uses is added as another category. Family risk enhancing backgrounds (FREB) are distinguished from individual risk enhancing backgrounds (IREB). Youth are considered to have family risk enhancing backgrounds if they are of the following characteristics: not living with both parents, not having good relationships with both parents, not having good relationships with all siblings, being under low or weak family control, having parental education lower than middle-high school level, and being from families with agriculture as a primary source of income. The individual risk enhancing backgrounds consist of low self-esteem, low personal value, frequent or very frequent visitation to entertainment places, hardly or never exercising, hardly or never looking at printed media, and moderate to strong peer influence. For each set of risk enhancing backgrounds (family, individual), the sample youth are grouped into three categories, "no risk enhancing backgrounds," "any 1–2 risk enhancing backgrounds," and "any 3 or more risk enhancing backgrounds." A simple assumption behind this presentation is that substance use is positively associated with the level of risk enhancing backgrounds; hence, youth with more risk enhancing backgrounds are expected to show higher rates of substance use.

The results presented in Table 10 are similar to those presented in Table 9 and are more or less in line with our expectations. Overall, there is a marked difference between male and female youth with no risk enhancing backgrounds and those who have at least one REB. Youth with any number of risk-enhancing backgrounds are more likely to be using substances than are their counterparts. This observation is true across all substance uses, especially for the respondents of "all ages." For example, about 43 percent of males who have no family risk enhancing backgrounds (FREB) are current drinkers compared to 51.3 percent among those with 1–2 family risk enhancing backgrounds and 60.8 percent among those who have 3 or more (section A, Table 10). Similar patterns (although at lower levels) are found in smoking, drug use, and multiple substance use for the sample of "all ages." The same is true for the female sample although the case base is much smaller. When considered by age group of respondents, the pattern of association between the independent and the outcome variables remains more or less the same with only minor inconsistencies in smoking, drug use and multiple substance use. Results for the individual risk enhancing backgrounds (section B, Table 10) also show more or less the same pattern with somewhat more irregularity. It is understood that part of this irregularity is due to the small number of cases.

Overall, the information presented in Table 10 indicates that substance use among Thai youth is associated with family and individual risk enhancing factors. Use of substances, particularly drinking and smoking, is found among youth of all characteristics, but it is among those with no risk enhancing backgrounds or with fewer of them that the prevalence rate is lowest. At the same time, the

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prevalence among those with no risk enhancing backgrounds as defined here suggests that other factors, not included here, are also at work.

B. Family and Individual Factors as Precursors of Substance Use

So far, our analysis has looked at bivariate associations of a limited number of independent variables with outcome variables, with limited controls for potential effects of all other variables. In the analysis that follows we utilize logistic regression to estimate effects of each of the family and individual factors, net of the effects of all other factors. We do this by estimating five logistic regression models. In Model 1, the Baseline model, only the effect of age is examined. Model 2.a looks at effects of all social background variables taken together, while Models 2.b and 2.c examine the effects of individual and family characteristics taken together, respectively. All include age as a control. Finally, in Model 3 we look at the effects of all explanatory factors net of the effects of age and of all other variables. Due to the small number of valid cases for drug use, we have excluded it from our models, focusing only on drinking and smoking behaviors. Also because of the small case base, women are dropped from our analysis of smoking behavior. Results of the logistic regressions are presented in Tables 11 and 12.

1. *Male Drinking*

Age: Table 11 presents results for drinking with separate models for males and females. Focusing first on the males, the analysis reveals expected effects of some, but not all, independent variables on male drinking behavior. Considered by itself, age shows a significant effect on male drinking. An increase in one year of age raises the odds of drinking by 25 percent (Model 1). The effect of age on the odds of drinking for males is statistically significant at a high level, and this statistical significance persists across the models although with some decline in the coefficient. This suggests that age alone can significantly explain variation in male drinking behavior regardless of the effects of other measures. Older male youth are more likely to drink.

Social background factors: In Model 2.a, effects of the social background variables are considered in conjunction with age. It appears that being enrolled in school significantly reduces the odds of male drinking by nearly half, compared with being out of school. In the overall model (Model 3) where each variable is considered net of the effects of all other variables, school status (being in-school) continues to show a significant effect on drinking but the coefficient is smaller and the significance level is lower. Living in urban area raises the odds of drinking for males but the estimated coefficient is not statistically significant. This seems to suggest that urban environment is more conducive to drinking among youth than is the rural environment. Parental education at the middle-school level or higher raises the odds of drinking but again the coefficients are not statistically significant in both Models 2.a and 3.

Individual background factors: Effects of individual background characteristics on drinking are largely in the expected directions, but not all of them show statistical significance. Frequent visitation of entertainment places (clubbing) slightly raises the odds of drinking although the coefficient is not statistically significant. But "very frequent" visitation doubles the odds and this coefficient is significant. This clubbing effect persists even when we control for effects of all other variables (Model 3), suggesting the importance of this variable in explaining drinking behavior among male youth. Exercise seems to have inconsistent effects; "frequent" exercise significantly reduces the odds of drinking; but not when all other variables are taken into account. Contrary to expectations, "very frequent" exercise increases the odds of drinking although the coefficient is not significant. Exposure to printed media (newspapers, magazines, etc.) has significant negative effects on drinking;

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frequent or very frequent reading of newspapers, magazines, etc., reduces the odds of drinking substantially. Compared with youth who hardly or never read newspapers etc., in the past one month prior to the interview, the odds of engaging in drinking alcohol among those who read frequently or very frequently are reduced by more than 50 percent. This statistically significant effect persists even when the effects of all other variables are controlled for.

Smoking can be considered a co-factor of drinking; users of one are more likely to be users of the other (see also the findings based on Table 8 above). The results of our logistic regression analysis seem to support the above conclusion, but not at a statistically significant level. Frequent smoking (once a week or everyday) substantially increases the odds of drinking compared with the reference category (ever-smokers who did not smoke in the past one month before the interview). The odds of drinking are significantly reduced among youth who identify themselves as non-smokers. This effect remains significant even taking into account all other variables. A high self-esteem scale shows a significant effect as expected although at only a marginal level statistically (in Model 2.b only); but, the significance of this coefficient disappears when we control for all the other variables. Compared with low self-esteem scale, the odds of drinking decline slightly with high self-esteem. A high personal value scale, on the other hand, increases the odds of drinking, although this coefficient is insignificant. This result is opposite to our expectations. Peer influence shows the expected effect on drinking; that is, more peer influence slightly raises the odds of drinking among male youth. The effect becomes marginally significant when all other variables are controlled for.

Family factors: When only age and other variables in the same group are controlled, family factors show only weak effects on the odds of drinking (Model 2.c); and when taken into account all other variables, the effects become insignificant (Model 3). In addition, effects of some family factors are opposite to expectations in direction. Compared to living with both parents (the reference category), living with only mother or only father reduces the odds of drinking at a marginally significant level. This is opposite to expectations. Living with none of the parents, however, increases the odds in the expected direction though the coefficient is not significant. Having no good relationship with any or both parents, and with any or all siblings, increases the odds of drinking, but the effects are not statistically significant (Model 2.c). When we control for all other factors (Model 3), effects of relationships with parents and siblings are in opposite directions (except for the category "good with neither" for relationship with parents). This seems to suggest that in the real lives of male youth relationships with family members are not so important as far as drinking is concerned. With regard to the primary source of the family income, a regular cash income source (such as a government service job, secure salary jobs of various kinds, etc.) reduce the odds of drinking but only slightly. Non-regular cash-income sources (any insecure sources, wage labor, self-employment, etc.) increase the odds significantly (Model 2.c only). The effects of this source persist in the same direction when we control for the effects of all other factors, but without statistical significance, Finally, increase in the family control scale considerably reduces the odds of drinking for males, although the coefficient is not significant.

In sum, after controlling for the effects of all other factors, only a small number of the individual and family factors in our logistic regression models show statistically significant effects on the odds of drinking for male youth. Apart from age, "very frequent" visitation to entertainment places and our "peer influence scale" have effects that significantly increase the odds of drinking. Three other variables have effects that reduce the odds. These include school status (being in-school), frequent or very frequent use of printed media, and smoking status (being a never-smoker).

2. *Female Drinking*

As there are general similarities in the results for males and females, our discussion focuses mainly on differences and contrasts between the two. First, while age shows statistically significant effects on the odds of drinking for males regardless of whether considered alone (Model 1) or in conjunction with other factors (Models 2.a – 3), age seems to be of minor significance among females. Also worth noting is the lower but more or less stable coefficient for age for females across the models compared to the higher level for males that declines with controls. This suggests that age makes almost no difference in female drinking when we compare younger and older youth. In terms of the social background factors, minor contrasts between female and male models are observed in school status and parental education. While being in-school reduces the odds of drinking in both male and female models, it is only in the male models that the effect of this variable is statistically significant. Compared to the reference category (no education), an elementary level of parental education reduces the odds of drinking in the male models, but the odds increase substantially (though not significantly) in the female models. Earning one's own income also more than doubles the odds of drinking among the females in the overall model (Model 3), but the odds for males are slightly reduced. The substantial increase in the coefficient for parental education from female Model 2.a to Model 3 seems to suggest that higher levels of parental education increase opportunities for drinking among female youth, hence the odds are substantially increased.

There are some differences in the effects of individual factors in the male and female models. A high level of significance for exposure to printed media is observed in the male model but not in the female model. While frequent smoking (once a week or everyday) increases the odds of drinking in both male and female models, the increase among females is much greater and is highly significant. Being non-smokers tends to increase the odds of drinking for females, but for males the odds are substantially and significantly reduced for this category. A high personal value scale for females reduces the odds of drinking significantly (Model 3) but it increases the odds in the male model. In both male and female models effects of peer influences are very similar, except that among the males this is slightly more significant, suggesting that peers make slightly more different to males than to females as far as drinking is concerned.

With regard to the family factors, a few contrasts in the male and female models are worth noting. Co-residence with parents seems to work in a different direction for males and females. While living with the mother or father only reduces the odds of drinking for males with a marginal statistical significance, it increases the same odds for females. Similarly, having a good relationship with the mother or father only slightly reduces the odds of drinking for males, but it significantly increases the same odds for females by more than double when compared to the reference category (good with both). In the overall model (Model 3) for both males and females, a good relationship with only some or none of the siblings reduces the odds of drinking, a finding which is opposite to our hypothesis. While only a regular cash-income job as the primary source of the family income reduces the odds of drinking for males, for females any primary sources of family income substantially and significantly raise the odds of drinking. The finding seems to suggest that differences in the primary source of the family income do not make a difference as far as female drinking is concerned. Increase in the scale of family control reduces the odds of drinking for both males and females, but for females the reduction is more substantial and statistically significant at a moderate level.

In sum, results of the logistic regressions show that effects of the following variables increase the odds of drinking for female youth in the expected direction: earning own income, very frequent visits to entertainment places, frequent smoking, good relationships with mother or father only. Very frequent exercise increases the odds but in the opposite direction to our expectation. A high personal

value scale and family control scale reduce the odds of drinking as expected. The primary source of family income increases the odds in the expected manner.

3. *Male Smoking*

Age: Whether considered alone or in conjunction with other factors, the effects of age on smoking are more or less constant across the models; they are also statistically significant at a high level. As in the case of drinking, an increase of one year of age raises the odds of smoking substantially. This is not surprising since in most normal cases each additional year in an individual's life brings him or her into contact with a broader environment and range of people, hence brings more exposure to many things including opportunities for smoking.

Social background: Like the result in the drinking model, being students (in-school) reduces the odds of smoking greatly and significantly. But while urban residence raise the odds of drinking, for smoking it does the opposite. Among other things, this probably indicates differential exposures to the information, education and communication (IEC) on the negative effects of smoking on health among urban and rural youth. Compared to the reference category (no education), any level of parental education raises the odds of smoking. This finding is also observed in the drinking model. The difference, however, is that statistical significance is found only in the smoking model.

Individual factors: Frequent or very frequent visitation to entertainment places increases the odds of smoking while frequent to very frequent exercise decreases them. The results appear largely as expected, although not statistically significance in the smoking models. Exposure to printed media shows significant reduction in the odds of drinking; in smoking model the reduction is less substantial with moderate significance found in the "frequent" category only (Model 2.b). In the overall model, "very frequent" use of printed media even increases the odds of smoking which contradicts the result in Model 2.b. Frequent drinking (once a week–everyday) significantly increases the odds of smoking by more than double, suggesting that drinking and smoking actually go hand-in-hand. Just as being never-smokers reduces the odds of drinking, so does being never-drinkers; it reduces the odds of smoking. The reduction of the odds, however, is much less substantial and not statistically significant. When controlled by age and by other individual background factors (Model 2.b) high self-esteem scale slightly reduces the odds of smoking, but when controlled by all other factors in Model 3, the odds increase although not showing a significant level. High personal value scale increases the odds of smoking just as in the drinking model, but here the effect becomes more statistically significant when it is controlled by all other factors. Similar effect is found for the peer influence scale; increase in peer influence raises the odds of smoking. Significance of the effect of peer influence is greater than in the drinking model.

Family factors: When controlled by age and other factors within family background, living with mother or father only reduces the odds of smoking; but when controlled for the effects of all the other variables, it raises the odds although not significantly. Perhaps, this suggests that effects of living with only one parent are not clear-cut. The effect of living with none of the parents, however, is in the expected direction and is similar to that observed in the drinking model; it raises the odds of smoking. Relationship with parents has mixed effects. When it is good with only one parent, it makes almost no difference compared with the reference category (good with both parents); but when it is not good with both parents, the odds are substantially reduced. Note that when we control for the effects of all factors (Model 3), the coefficient decreases but the significance level increases. This is contrary to expectations. Regarding relationship with siblings, when it is good only with some, the odds increase. But when the relationship with any siblings is not good, the odds of smoking increase by more than double, although this result is not statistically significant. This is in sharp contrast to results in the drinking model where the odds are reduced when effects of all other factors are controlled for.

Compared to agriculture, a regular cash-income job as a primary source of the family income significantly reduces the odds of smoking but only when controlled by age and other family factors (Model 3); when effects of all other factors are controlled for, the significance level disappears. On the other hand, a non-regular cash-income occupation as a primary source of the family income hardly makes a difference from the reference category (agriculture) but reduces the odds fairly substantially when controlled by all other factors. It appears that primary source of family income presents mixed effects on the odds of smoking. With regard to the family control scale, the analysis shows that increase in the family control raises the odds of smoking by more than double; the odds are further increased when effects of all other factors are controlled for although this result is not statistically significant. Results of the family control scale observed in the smoking model are in contrast with that in the drinking model where the odds are reduced when family control increases.

It appears that for smoking, age, school status, parental education, income earning status, frequency of drinking, the personal values scale, peer influence, and lack of good relationships with both parents have statistically significant effects on the odds of smoking among youth in the sample. Among these, effect of the personal value scale is not in the expected direction. Compared to the reference category (no education), all levels of parental education significantly increase the odds of smoking by over three times, suggesting that parental education does not make a difference as far as male smoking is concerned.

Discussion and Conclusion

As in most other societies, drinking and smoking among Thai youth are by and large male behaviors. The results of this study reveal that across all characteristics, the share of male current drinkers and smokers is by far greater than that of females. Use of other drugs is also more common among males than among females. What is of particular interest in terms of the policy and intervention, however, is the greater prevalence of these behaviors among out-of-school than in-school youth. Although youth of the two groups engage in substance use, the difference observed in this case suggests that school provides some immunity against certain health risk behaviors through education and appropriate environment. This is very much in line with the logistic regression analysis where enrollment in school reduces the odds of drinking and smoking for both males and females. Another point of interest may also be noted here. The rates of substance use among youth in urban areas is almost away higher for all behaviors, except for smoking which shows slightly higher rates among rural males. Nearly all female smokers, for instance, are from the urban areas. This is probably due to differentials in lifestyle and access to substances, which are relatively more convenience for rural residents.

As noted above, drinkers, smokers and drug users in this study began these behaviors at young ages; by age 16 about half of ever-drinkers or ever-smokers already had their first try. Among drug users the first try is just a year or so later. This implies convenience of access to alcohol and cigarettes by minors. This is not surprising, however, since the legislation prohibiting access to cigarettes and alcohol by the minors did not exist in Thailand until 1992, just two years before data collection for the present study was conducted. Even after it was constituted, enforcement of the law has not been effective enough to inhibit young drinkers and smokers. Lack of law enforcement has been noted by some researchers in recent years (Supawongse, Buasai, and Tantigate 1997). Findings from our study suggest that necessary measures should be taken to keep alcohol and cigarettes out of the convenient reach of adolescents.

Although youth could begin drinking or smoking while they are at home with parents or when they live away from them, our findings on the timing and the place where youth lived when they began the behaviors suggest that those who live away from their parents are more vulnerable. In rural

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Thailand, living away from home and from parents takes place at a relatively young age. Youth who are going to school beyond the primary level may have to leave home and live closer to their schools, which are often located in towns or cities not convenient for commuting. Those who do not continue studies to a higher level after the six years of compulsory education often leave the rural home a year or two after age 12 to look for jobs elsewhere. Indeed, it is quite common for the rural Thai youth to leave home in early adolescence. To most young adults, living away from home often means independence from family supervision and that makes adolescents more vulnerable to risk behaviors. The vulnerability may be even greater when being away from family supervision is combined with the fact that they are now earning income. As observed in our logistic regression analysis, earning own income significantly raises the odds of drinking for females and the odds of smoking for males. In other words, the risk is greater if youth are earning income while being away from home. Based on this finding, appropriate programs of information, education and communication may be developed to prevent substance use among early-adolescents. So far, programs targeting adolescent migrants have not been given much emphasis. There are possibilities for governmental and non-governmental organizations to develop appropriate interventions through existing public and private channels for the benefit of young migrants.

Males and females have different use behaviors. More males than females use multiple substances As shown above, about 55 percent of men are multiple users (using two or more) compared to just 11 percent of women. Drinking and smoking tend to be tried at the same age while drug tends to come later. Base on the findings for male use behavior, we believe that drinking and smoking are co-factors in the sense that a user of one is likely to be a user of the other. If adolescent males are drinkers, they are more like to smoke; and if they are smokers, they are more likely to drink. This, however, is not the same as saying that drinking leads to or causes smoking, or vice versa. In practice drinking and smoking seem go hand-in-hand. For further understanding of use behavior, it is important to find out why this is the case. Investigation may look at social, psychological and clinical aspects of this.

The main focus of our analysis is to identify links between substance use (drinking, smoking and drug use) and family and individual factors. Results of bivariate analysis suggest that relatively clear associations exist between the family and individual background variables, on the one hand, and use of alcohol, tobacco and other drugs on the other. As already noted in the analysis, users of these substances are found among youth of all characteristics, not just among those who have risk enhancing backgrounds. Given this, our analysis indicates that there is a fairly clear distinction between those who have risk enhancing backgrounds and those who do not. In almost all cases the higher rates of use are found among youth with risk enhancing backgrounds. There is also an indication from our analysis that the more risk enhancing background characteristics youth have, the higher the rates of substance use. Our conclusion about the links between the independent and the outcome variables above is based on this evidence.

Results of logistic regression analysis confirm the above conclusion. Whether considered with age only or with all other factors, most variables under family and individual background show effects on the odds of drinking and smoking in expected directions. Yet, the overall results do not suggest very strong effects of our independent variables. As already seen in Tables 11 and 12, only some variables among the family and individual background characteristics show statistically significant effects on the odds of drinking and smoking. Given what we have from the logistic regression analysis, it suffices to say that individual background factors probably play a more important part in explaining youth drinking and smoking behavior, at least in the Thai context. This seems to apply to both male and female youth. If this contention holds, it remains to be determined what accounts for the relative weakness of family effects when compared to individual factors. While the data do not

exist for us to examine this here, we propose that this may have to do with the changing context of independence in the lifestyles of young adults today.

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Table 1. Prevalence of Drinking, Smoking, and Drug Use among Sample Youth, by Sex, Age, Place of Residence, and School Status.

Characteristics	Drinking		Smoking		Other drugs		N
	Ever-user	Current user	Ever-user	Current user	Ever-user	Current user	
TOTAL	58.7	37.1	36.9	26.5	16.2	4.7	2180
Age							
15-19	52.7	30.7	28.4	19.6	10.0	3.5	1104
20-24	64.9	43.7	45.6	33.7	22.7	5.9	1076
Residence							
Urban	68.0	41.4	44.3	28.7	18.1	4.7	465
Rural	52.6	36.0	34.8	25.9	15.7	4.7	1715
School Status							
In-School	50.0	27.9	27.7	14.7	11.6	2.8	668
Out-of-School	62.5	41.4	41.1	32.0	18.4	5.6	1491
MALE							
Age							
15-19	65.9	42.2	51.8	37.7	17.0	5.4	552
20-24	84.9	68.0	80.6	65.4	40.0	8.8	535
Residence							
Urban	83.8	59.9	67.2	48.6	28.3	6.9	247
Rural	72.7	52.5	65.7	52.4	28.7	7.1	840
School Status							
In-School	64.9	37.6	45.7	27.3	20.1	3.6	359
Out-of-School	80.4	62.2	76.0	63.5	33.2	8.8	728
FEMALE							
Age							
15-19	39.7	18.8	4.9	3.3	2.5	1.8	553
20-24	45.0	23.1	11.1	2.0	5.2	3.0	541
Residence							
Urban	49.1	20.2	19.3	6.0	5.0	1.8	218
Rural	40.2	20.1	5.0	0.5	3.5	2.4	875
School Status							
In-School	34.3	17.3	8.5	0.9	2.7	1.8	329
Out-of-School	45.5	21.5	7.7	1.8	4.5	2.5	763

Source: The Family and Youth Survey, 1994, Thailand.

Table 2. Mean Age at First Drinking, Smoking, and Drug Use, by Selected Characteristics.

Characteristic	Drinking			Smoking			Other Drug		
	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range
MALE									
Age									
15-19	15.1	15.0	13.0	15.1	15.0	14.0	15.9	16.0	7.0
20-24	16.5	17.0	18.0	16.4	16.0	15.0	17.8	18.0	13.0
Residence									
Urban	15.6	16.0	18.0	15.4	15.0	18.0	16.6	16.8	11.0
Rural	15.9	15.0	14.0	16.0	16.0	12.0	17.4	17.0	13.0
School Status									
In-School	15.2	15.0	18.0	15.0	15.0	15.0	16.8	17.0	10.0
Out-of-School	16.1	16.0	17.0	16.1	16.0	15.0	17.4	17.0	12.0
FEMALE									
Age									
15-19	15.9	16.0	14.0	14.4	15.0	10.0	14.5	14.7	8.0
20-24	18.7	19.0	13.0	17.4	17.0	13.0	19.1	21.0	13.0
Residence									
Urban	16.8	17.0	19.0	16.6	17.0	13.0	16.4	16.0	12.0
Rural	17.6	17.0	13.0	16.4	15.0	13.0	18.0	21.0	13.0
School Status									
In-School	15.9	16.0	18.0	14.7	15.0	13.0	14.2	14.0	6.0
Out-of-School	17.9	18.0	14.0	17.3	17.0	13.0	18.5	20.3	13.0

Source: The Family and Youth Survey, 1994, Thailand.

Table 3. Living Arrangement by Drinking Experience Through Age 14 of Youth Aged 15-19.

	Age						
	10	11	12	13	14	10-12	13-14
MALE (N=553)							
Live with parents	2.9	3.7	5.4	10.3	15.7	4.0	13.0
Live with spouse	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Live in dorm/ work place/ other	2.3	2.4	5.3	11.8	23.6	3.3	17.7
FEMALE (N=552)							
Live with parents	0.2	0.6	1.2	2.5	5.5	0.7	4.0
Live with spouse	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Live in dorm/ work place/ other	0.0	0.0	0.0	1.3	3.2	0.0	2.3
TOTAL (N=1105)							
Live with parents	1.6	2.2	3.3	6.4	10.7	2.4	8.5
Live with spouse	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Live in dorm/ work place/ other	1.2	1.2	2.7	6.6	13.1	1.7	9.8

Source: The Family and Youth Survey, 1994, Thailand.

Table 4. Living Arrangement by Drinking Experience Through age 19 of Youth Aged 20-24

	Age														
	10	11	12	13	14	15	16	17	18	19	10-11	12-13	14-15	16-17	18-19
MALE (N=535)															
Live with parents	1.9	2.0	2.6	9.6	15.5	34.6	39.2	51.6	70.7	75.2	2.0	6.1	25.1	45.4	73.0
Live with spouse	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0	100.0	100.0
Live in dorm/ work place/ other	0.0	0.0	0.0	2.4	9.0	33.1	48.8	55.4	65.4	75.4	0.0	1.2	21.0	52.1	70.4
FEMALE (N=541)															
Live with parents	0.0	0.2	0.4	0.5	1.5	4.4	8.0	12.8	19.7	21.3	0.1	0.4	3.0	10.4	20.5
Live with spouse	0.0	0.0	0.0	0.0	0.0	66.7	75.0	66.7	25.6	27.0	0.0	0.0	33.3	70.8	26.3
Live in dorm/ work place/ other	0.0	0.0	0.0	0.0	0.0	7.1	7.4	14.2	24.3	31.3	0.0	0.0	3.6	10.8	27.8
TOTAL (N=1076)															
Live with parents	1.0	1.1	1.5	5.1	8.4	19.3	23.8	32.5	46.5	50.5	1.0	3.3	13.8	28.1	48.5
Live with spouse	0.0	0.0	0.0	0.0	0.0	66.7	80.0	70.0	28.9	31.3	0.0	0.0	33.3	75.0	30.1
Live in dorm/ work place/ other	0.0	0.0	0.0	1.0	4.7	20.6	27.0	34.3	44.9	53.2	0.0	0.5	12.7	30.7	49.0

Source: The Family and Youth Survey, 1994, Thailand

Table 5. Living Arrangement by Smoking Experience Through Age 14 of Youth Aged 15-19.

	Age						
	10	11	12	13	14	10-12	13-14
MALE							
Live with parents	1.2	1.6	3.8	8.2	15.8	2.2	12.0
Live with spouse	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Live in dorm/ work place/ other	0.0	0.0	3.6	13.2	30.0	1.2	21.6
FEMALE							
Live with parents	0.6	0.6	1.0	1.1	2.0	0.7	1.5
Live with spouse	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Live in dorm/ work place/ other	0.0	0.0	0.0	2.6	4.2	0.0	3.4
TOTAL							
Live with parents	0.9	1.1	2.4	4.6	8.9	1.5	6.8
Live with spouse	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Live in dorm/ work place/ other	0.0	0.0	1.8	7.9	16.7	0.6	12.3

Source: The Family and Youth Survey, 1994, Thailand.

Table 6. Living Arrangement by Smoking Experience Through Age 19 of Youth Aged 20-24.

	Age														
	10	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**10-11**	**12-13**	**14-15**	**16-17**	**18-19**
MALE (N=535)															
Live with parents	2.1	2.6	3.9	7.1	13.2	26.8	35.8	50.8	63.9	69.2	2.4	5.5	20.0	43.3	66.6
Live with spouse	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	0.0	0.0	0.0	100.0
Live in dorm/ work place/ other	13.6	10.0	7.3	14.1	12.2	43.8	56.1	58.1	66.5	74.3	0.0	10.7	28.0	57.1	70.4
FEMALE (N=541)															
Live with parents	0.0	0.0	0.0	0.0	0.2	2.3	2.8	3.7	6.6	6.1	0.0	0.0	1.3	3.2	6.3
Live with spouse	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	11.6	9.5	0.0	0.0	0.0	16.7	10.6
Live in dorm/ work place/ other	0.0	0.0	0.0	0.0	0.0	10.8	9.6	10.3	8.3	10.5	0.0	0.0	5.4	9.9	9.4
TOTAL (N=1076)															
Live with parents	1.1	1.3	1.9	3.6	6.6	14.4	19.5	27.6	36.7	40.3	1.2	2.8	10.5	23.5	38.5
Live with spouse	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	15.6	14.9	0.0	0.0	0.0	15.0	15.2
Live in dorm/ work place/ other	4.7	4.3	3.1	6.3	6.5	28.0	31.7	33.6	37.5	42.2	0.0	4.7	17.2	32.6	39.8

Source: The Family and Youth Survey, 1994, Thailand.

Table 7. Substance Use Behavior, by Sex (Current Users Only).

	Male	Female
(A) Single vs Multiple Use		
Drinking only	24.8	83.7
Smoking only	20.6	0.9 *
Drug use only	-	4.3 *
Multiple use (2-3 substance)	54.6	11.2
N	**751**	**233**
(B) Which Comes First?		
Drinking & Smoking		
Drinking first	22.6	46.7 *
Smoking first	20.1	20.0 *
Same Age	57.3	33.3 *
N	**398**	**15**
Drinking & Drug Use		
Drinking first	62.9	21.4 *
Drug use first	8.6 *	71.4 *
Same Age	28.6 *	7.1 *
N	**70**	**14**
Smoking and Drug Use		
Smoking first	52.8	40.0 *
Drug use first	4.2 *	20.0 *
Same Age	43.1	40.0 *
N	**72**	**5**

Note: * Number of cases under 30

Table 8. Proportions Who Used Another Substance among Current Drinkers, Smokers, and Drug Users, by Sex.

Proportion who used other substance	Male	N	Female	N
% of drinkers who smoke	67.6	589	6.8*	219
% of smokers who drink	71.1	560	83.3*	18
% of drinkers who use drugs	11.9	589	6.4*	220
% of drug-users who drink	90.9	77	56.0*	25
% of smokers who use drugs	12.9	560	23.5*	17
% of drug-users who smoke	93.5	77	16.7*	24
% of all users who drink, smoke & use drugs	8.7	751	1.3*	233

Note: * indicates case number under 30

Table 9. Current Use of Substances by Family and Individual Factors, by Sex.

	Male			Female		
	Drinking	Smoking	Drug	Drinking	Smoking	Drug
FAMILY FACTORS						
Living Arrangement						
With both parents	51.0	48.9	6.1	19.4	1.3	1.9
With mother/ father only	51.0	56.1	11.5	19.4	0.7	2.2
With neither	65.8	56.4	7.0	22.2	2.8	3.1
Relationship with Parents						
Good with both	51.6	50.1	5.8	18.7	1.2	1.0
Good with mother/ father only	56.3	53.6	12.6	26.8	4.3	10.1
Good with neither	60.3	39.7	-	16.7	2.3	2.3
Relationship with Siblings						
Good with all	53.5	52.2	6.8	19.7	1.5	1.8
Good with some	50.0	55.1	8.3	17.5	2.5	2.5
Good with none	60.0	66.7	16.7	29.4	5.9	31.3
Family Control						
Low	56.3	53.3	6.0	21.8	1.8	2.2
High	50.5	45.8	8.9	18.6	1.5	2.4
Parental Education						
No education	60.5	42.1	10.5	17.9	2.6	-
Elementary	53.8	54.5	7.9	20.0	1.1	2.6
Middle-high school	55.7	29.5	8.9	17.6	2.9	1.0
College or higher	52.6	38.6	-	20.0	2.9	2.9
Primary Source of Family Income						
Agriculture	52.7	53.7	7.9	35.9	0.6	2.6
Sources with regular cash income	50.4	35.1	3.8	24.2	3.3	6.5
Sources with non-regular cash income	57.8	53.7	7.0	23.9	2.3	0.7
INDIVIDUAL FACTORS						
Low	58.5	54.8	7.4	22.6	1.8	2.5
High	50.2	48.4	6.8	17.6	1.5	2.1
Personal Value						
Low	52.2	47.7	8.7	23.9	2.0	2.7
High	55.9	55.0	5.6	17.5	1.4	2.0
Clubbing						
Very frequent	58.2	52.7	10.9	31.6	8.8	3.6
Frequent	64.9	51.3	8.8	38.5	4.6	6.2
Hardly/ never	52.6	51.5	6.6	18.4	1.0	2.1
Exercise						
Very frequent	45.7	46.3	4.2	15.1	2.3	1.2
Frequent	59.0	51.4	6.2	26.1	2.3	3.4
Hardly/ never	61.7	57.8	11.1	20.0	1.3	2.4
Media Exposure						
Very frequent	44.9	43.7	5.0	17.9	2.0	2.3
Frequent	46.9	50.5	3.1	21.6	2.0	1.0
Hardly/ never	61.8	56.2	9.5	20.8	1.4	2.9
Peer Influence						
Strong	56.0	50.8	7.7	23.8	3.6	2.8
Moderate	57.2	59.9	9.5	20.9	1.6	2.2
Weak	48.9	43.9	3.9	17.8	0.6	2.1

Table 10. Percents Using Various Substances, by Family and Individual Risk Enhancing Backgrounds (FREB/IREB), Age Groups, and Sex.

Substance and Age Group	Male				Female			
	Total	No FREB	1-2 FREB	3+ FREB	Total	No FREB	1-2 FREB	3+ FREB
A.FAMILY								
Drinking								
All Ages	53.1	42.9	51.3	60.8	19.5	20.0	28.6	22.1
15-19	40.4	36.8	40.5	40.8	19.7	24.0	18.6	23.4
20-24	66.8	*	63.7	74.5	19.1	*	18.7	20.6
Smoking								
All Ages	50.8	19.0	50.6	52.2	1.3	*	1.0	2.3
15-19	39.6	21.1	33.7	55.3	1.1	*	0.9	2.6
20-24	66.0	33.3	70.2	55.2	1.8	*	1.6	2.2
Drug Use								
All Ages	6.5	4.8	5.9	8.8	2.5	*	2.3	3.3
15-19	4.6	5.3	4.7	3.9	1.8	*	0.3	9.1
20-24	8.5	*	7.2	12.4	3.0	*	4.7	*
Multiple Substances								
All Ages	53.7	44.0	53.8	54.0	12.2	*	10.3	18.4
15-19	51.3	50.0	51.8	50.0	10.0	*	7.6	21.4
20-24	55.0	33.3	54.9	56.2	16.0	*	13.0	15.4
B. INDIVIDUAL								
Drinking								
All Ages	54.1	36.4	54.9	60.0	20.2	23.6	15.3	25.7
15-19	42.5	27.8	47.2	42.4	18.9	19.1	15.0	24.8
20-24	66.2	52.0	61.7	79.3	21.3	26.8	15.7	26.6
Smoking								
All Ages	51.5	44.0	50.2	57.1	1.6	2.2	1.4	1.8
15-19	37.9	32.2	37.8	40.9	1.3	2.1	1.3	1.0
20-24	65.6	66.0	61.1	74.4	1.9	*	1.5	2.6
Drug Use								
All Ages	7.0	5.0	4.6	12.1	2.4	1.1	1.2	4.1
15-19	5.6	5.6	5.2	6.2	1.8	2.1	2.3	1.0
20-24	8.8	5.9	4.1	18.9	3.0	*	*	6.9
Multiple Substances								
All Ages	54.6	47.4	48.8	67.1	11.2	5.1	8.8	13.5
15-19	49.2	42.1	48.5	53.1	10.2	10.0	8.0	11.7
20-24	58.4	53.8	49.2	76.2	12.0	*	9.5	15.3

* Not calculated; fewer than 30 cases.

Source: The Family and Youth Survey, 1994, Thailand.

Table 11. Coefficients (Relative Odds Ratios) and Significance Levels for Various Models Involving Drinking Behavior and Combinations of Age, Social Background, Individual, and Family Explanatory Factors, Male, and Female Youth Ages 15-24 in Thailand, 1994

Sex and Group of Explanatory Factors	Model 1 Baseline Coefficient Sig.	Model 2.a Social Background Factors and Age Coefficient Sig.	Model 2.b Individual Factors and Age Coefficient Sig.	Model 2.c Family Factors and Age Coefficient Sig.	Model 3 All Explanatory Factors Coefficient Sig.
MALE					
A. Base (Age only)	1.250 ***	1.224 ***	1.166 ***	1.256 ***	1.182 ***
B. Social Background					
In school		0.529 ***			0.603 *
Urban Resident		1.312			1.509
Parent's Education					
None (ref. Category)					
Elementary		0.835			0.723
Middle - High School		1.633			1.857
College or Higher		1.292			2.187
Earning own income		1.444			0.980
C. Individual Characteristics					
Frequent Clubbing (Past 1 Month)					
Hardly/ never (ref. Category)					
Frequent			1.197		1.327
Very frequent			2.121 **		2.418 **
Frequent Exercise (Past 1 Month)					
Hardly/ never (ref. Category)					
Frequent			0.722 *		0.705
Very frequent			1.067		1.301
Exposure to Printed Media (Past 1 Month)					
Hardly/ never (ref. Category)					
Frequent			0.450 ***		0.380 ***
Very frequent			0.436 ***		0.453 **
Smoking (Past 1 Month)					
Not at all (ref. Category)					
Once a week - everyday			1.349		1.254
Never-smoker			0.288 ***		0.274 ***
High self-esteem scale			0.705 *		0.870
High personal values scale			1.271		1.263
Peer Influence Scale			1.054		1.076 *
D. Family					
Co-residence with Parents					
With both parents (ref. Category)					
With mother or father only				0.555 *	0.594
With neither				1.375	1.184
Relationship with Parents					
Good with both (ref. Category)					
Good with only one				1.014	0.937
Good with neither				1.465	1.184
Relationship with Siblings					
Good with all (ref. Category)					
Good with some				1.229	0.739
Good with none				1.182	0.891
Primary Source of Family Income					
Agriculture (ref. Category)					
Regular cash-income source				0.920	0.728
Non-regular cash-income source				1.543 **	1.222
Family Control Scale				0.353	0.488
-2 Log Likelihood	1404.234	1117.387	1214.510	1169.614	893.498
Degrees of Fredom	1	7	13	11	29
N	985	790	973	835	716

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Table 11. Coefficients (Relative Odds Ratios) and Significance Levels for Various Models Involving Drinking Behavior and Combinations of Age, Social Background, Individual, and Family Explanatory Factors, Male, and Female Youth Ages 15-24 in Thailand, 1994. (continued)

Sex and Group of Explanatory Factors	Model 1 Baseline Coefficient Sig.	Model 2.a Social Background Factors and Age Coefficient Sig.	Model 2.b Individual Factors and Age Coefficient Sig.	Model 2.c Family Factors and Age Coefficient Sig.	Model 3 All Explanatory Factors Coefficient Sig.
FEMALE					
A. Base (Age only)	1.045	1.017	1.074 *	1.013	1.031
B. Social Background					
In school		0.767			0.859
Urban Resident		1.071			0.801
Parent's Education					
None (ref. Category)					
Elementary		1.260			2.368
Middle-High School		1.241			1.202
College or Higher		1.779			2.107
Earning own income		1.406			2.284 **
C. Individual Characteristics					
Frequent Clubbing (Past 1 Month)					
Hardly/ never (ref. Category)					
Frequent			1.713		1.051
Very frequent			2.730 ***		2.887 **
Frequent Exercise (Past 1 Month)					
Hardly/ never (ref. Category)					
Frequent			0.766		0.721
Very frequent			1.486		1.988 *
Exposure to Printed Media (Past 1 Month)					
Hardly/ never (ref. Category)					
Frequent			0.794		0.651
Very frequent			1.048		0.883
Frequent Smoking (Past 1 Month)					
Not at all (ref. Category)					
Once a week - everyday			16.950 ***		109.454 ***
Not a smoker (never smoked)			0.916		1.396
High self-esteem scale			0.773		0.725
High personal values scale			0.727		0.430 ***
Peer Influence Scale			1.080		1.086
D. Family					
Co-residence with Parents					
With both parents (ref. Category)					
With mother or father				1.073	1.137
With neither				0.971	0.713
Relationship with Parents					
Goodwith both (ref. Category)					
Good with only one				1.493	2.084 *
Good with neither				0.806	0.454
Relationship with Siblings					
Good with all (ref. Category)					
Good with some				0.787	0.515
Good with none				1.966	0.821
Primary Source of Family Income					
Agriculture (ref. Category)					
Rerular cash-income source				1.193	2.513 *
Non-regular cash-income source				1.352	1.851 **
Family Control Scale				0.147	0.031 **
-2 Log Likelihood	1095.249	878.433	1014.400	916.535	702.398
Degrees of Fredom	1	7	13	11	29
N	1193	966	1180	1029	885

Source: The Family and Youth Survey, 1994, Thailand.

Table 12. Coefficients (Relative Odds Ratios) and Significance Levels for Various Models Involving Smoking Behavior and Combinations of Age, Social Background, Individual, and Family Explanatory Factors, Male Youth Ages 15-24 in Thailand, 1994.

Group of Explanatory Factors	Model 1 Baseline Coefficient Sig.	Model 2.a Social Background Coefficient Sig.	Model 2.b Individual Factors Coefficient Sig.	Model 2.c Family Factors and Coefficient Sig.	Model 3 All Explanatory Coefficient Sig.
MALE					
A. Base (Age only)	1.282 ***	1.231 ***	1.218 ***	1.284 ***	1.188 ***
B. Social Background					
In school		0.470 ***			0.441 ***
Urban Resident		0.901			0.797
Parent's Education					
None (ref. Category)					
Elementary		2.293 *			3.670 **
Middle-High School		1.918			3.095 *
College or Higher		2.943 *			7.546 **
Earning own income		2.896 ***			3.192 ***
C. Individual Characteristics					
Frequent Clubbing (Past 1 Month)					
Hardly/ never (ref. Category)					
Frequent			1.137		1.324
Very frequent			1.029		0.957
Frequent Exercise (Past 1 Month)					
Hardly/ never (ref. Category)					
Frequent			0.911		0.885
Very frequent			0.872		0.951
Exposure to Printed Media (Past 1 Month)					
Hardly/ never (ref. Category)					
Frequent			0.609 **		0.905
Very frequent			0.848		1.140
Drinking (Past 1 Month)					
Not at all (ref. Category)					
Once a week - everyday			2.865 ***		2.712 ***
Never-drinker			0.905		0.894
High self-esteem scale			0.816		1.096
High personal values scale			1.438 *		1.784 **
Peer Influence Scale			1.064 *		1.106 **
D. Family					
Co-residence with Parents					
With both parents (ref. Category)					
With mother or father only				0.694	1.324
With neither				1.152	1.017
Relationship with Parents					
Good with both (ref. Category)					
Good with only one				1.007	1.073
Good with neither				0.482 *	0.327 **
Relationship with Siblings					
Good with all (ref. Category)					
Good with some				1.517	1.370
Good with none				2.698	2.812
Primary Source of Family Income					
Agriculture (ref. Category)					
Regular casg-income source				0.542 **	0.602
Non-regular cash-income source				1.024	0.783
Family Control Scale				2.206	3.142
-2 Log Likelihood	1389.293	1043.551	1264.972	1169.945	868.617
Degrees of Fredom	1	7	13	11	29
N	985	790	973	835	716

Source: The Family and Youth Survey, 1994, Thailand.

Appendix Table A.1. Living Arrangements of Youth Aged 20-24 During Ages 10-19
(Number of Cases)

	Age									
	10	11	12	13	14	15	16	17	18	19
MALE 15-19 (N=553)										
live with parents	509	511	496	477	464					
live with spouse										
live in dorm/ work place	4	4	4	11	20					
other	40	38	53	65	69					
FEMALE 15-19 (N=552)										
live with parents	512	508	495	476	454					
live with spouse					2					
live in dorm/ work place		2	6	14	29					
other	40	42	49	62	65					
MALE 20-24 (N=535)										
live with parents	513	505	493	450	445	413	411	386	352	351
live with spouse							1	1	2	4
live in dorm/ work place			4	36	37	44	63	65	96	91
other	21	30	38	48	52	77	60	83	86	88
FEMALE 20-24 (N=541)										
live with parents	499	501	485	434	460	427	400	375	319	296
live with spouse						1	3	4	9	43	63
live in dorm/ work place			16	38	33	44	60	71	76	85
other	42	40	40	69	47	68	76	84	105	97

Source: The Family and Youth Survey, 1994, Thailand.