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Initiation of Smoking, Drinking, and Drug-Use among Filipino Youths

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AYARR
Asian Young Adult Reproductive Risk Project

This research is a product of the East-West Center's Asian Young Adult Reproductive Risk (AYARR) project, supported by USAID through its MEASURE Evaluation Project. The AYARR project supports a research network devoted to producing an Asian regional perspective on young adult risk behaviors through secondary and cross-national comparative investigation of large-scale, household-based surveys of youth.

The project presently involves investigators and national surveys in six Asian countries. The government of **Hong Kong** (now the Hong Kong Special Administrative Region) has supported area-wide youth surveys, both household-based and in-school, in 1981, 1986, 1991, and 1996. The 1994 **Philippines**' Young Adult Fertility and Sexuality Survey (YAFS-II) was conducted by the Population Institute, University of the Philippines, with support from the UNFPA. **Thailand**'s 1994 Family and Youth Survey (FAYS) was carried out by the Institute for Population and Social Research at Mahidol University, with support from the UNFPA. In **Indonesia**, the 1998 Reproduksi Remaja Sejahtera (RRS) baseline survey was funded by the World Bank and by USAID through Pathfinder International's FOCUS on Young Adults program. The RRS was carried out by the Lembaga Demografi at the University of Indonesia under the supervision of the National Family Planning Coordinating Board (BKKBN). The **Nepal** Adolescent and Young Adult (NAYA) project, which includes the 2000 NAYA youth survey, is being carried out by Family Health International and the Valley Research Group (VaRG) with support from USAID to Family Health International (FHI). The **Taiwan** Young Person Survey (TYPF) of 1994 was carried out by the Taiwan Provincial Institute of Family Planning (now the Bureau for Health Promotion, Department of Health, Taiwan) with support from the government of Taiwan.

Initiation of Smoking, Drinking, and Drug-Use among Filipino Youths

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INTRODUCTION

This paper examines drinking, smoking, and drug-use among Filipino adolescents and youths. Early experimentation with these substances are known to be associated with both immediate and lasting problems, including abuse and dependence, which can result in profound, long-term health and social consequences (Gruber et al. 1996). The health risks of the use especially the abuse of all three substances particularly smoking and drugs affect all age groups. Drug use is socially unacceptable at any age while smoking and drinking are socially unacceptable for minors. These behaviors have legal risks as well. Drug use is illegal at any age and drinking and smoking are illegal for minors.

Although drinking, smoking, and drug-use usually result in adverse health consequences, there are some perceived benefits or advantages of these behaviors particularly from the point of view of the adolescents and youths. Adolescents may view drinking and smoking as privileges of adults and may want to engage in them to feel grown up and to present themselves as adults to others. Adolescents and youths may drink and smoke to keep the company of their friends who are already engaging in these behaviors, especially if sharing of drinks and cigarettes are common and considered "cool" in group activities. It is known that peer pressure may occur in the form of encouragement, dares, or actual offers of the substances. Indirect influence may also occur when young people associate with peers who drink, smoke and use drugs and thus providing role models, establishing substance use as normative, and creating the perception that using these substances will increase social acceptance or get them a feeling of "belonging" to a sought-after group. Drinking, smoking, and drug-use may be viewed as providing pleasure as well.

Domingo and Marquez, who analyzed the 1994 Young Adults Fertility Survey (YAFS-II), provide the first close look at these risk-taking behaviors among Filipino adolescents and youths (Domingo and Marquez 1999). They report that the prevalence of drinking, smoking, and drug use among Filipino youths are quite high. Among 15–24 year olds, 55% have ever drunk, 38% have ever smoked, and 6% have ever used drugs. The study also found that these behaviors are highly interlinked: persons who engage in one type of risk-taking behavior are likely to engage in the other types of such behavior. Most risk-taking behavior is usually initiated at ages 16–17. They also found that current risk-taking behaviors of adolescents and youths are strongly influenced by family characteristics and peer group behaviors. The gender differences in the levels of risk-taking behavior are also reported to be large wherein the males engage in risk-taking behavior much more frequently than females.

Complementing the report by Domingo and Marquez, this paper first examines current risk-taking behavior in detail, using the same YAFS-II data. We then proceed to examine the age pattern of initiating drinking, smoking, and drug use, and then estimate covariates of early initiations of drinking and smoking, and initiation of drug use. YAFS-II collected a number of family- and individual-level characteristics retrospectively. Thus, we are able to construct variables describing the conditions of

each individual at different ages, and analyze the initiation behavior that occurred sometime in the past in relation to individual and family characteristics at the time of occurrence. Finally, we will examine how having started one type of risk-taking affects initiation of another type of risk-taking.

BACKGROUND

Risk-taking among adults

Many adolescents and youth are likely to adopt behaviors that are very common among adults sometime during their transition to full adulthood, even when they are aware of the undesirable health consequences of these behaviors. For example, the primary socialization theory contends that individuals learn social norms and behaviors from primary sources which include the family. There are evidences that young people whose parents smoke are more likely to smoke (Conrad et al. 1992). Some of the reasons given are: the availability of cigarettes at home, parents being model of smoking and drinking behavior and consequently parents lack the credibility as advocates for non-smoking or non-drinking.

According to a report by American Cancer Society, 75% of men age 20+ and 18% of women age 20+ were smokers in the Philippines in 1999 (Corraro et al. 2000, 418).

Drinking and smoking is very common in the Philippines especially among adult males. Therefore, in the process of transition to adulthood, most male adolescents are likely to begin drinking and smoking. It is likely that the initiation of drinking and smoking is closely related to some markers of transition to adulthood such as reaching socially and legally recognized age of adulthood, completion of education, leaving parental home, and beginning of full-time employment. Once controlled for these transition indicators, other individual and family characteristics may have small effects.

Smoking among adult women is much less. Drug use is even less common for both genders. Individual and family characteristics are likely to have large effects on the initiation process of these relative rare behaviors.

Parents' attitudes on drinking and smoking

Parents' attitudes are likely to represent prevailing social norms. The views of adolescents and youths of their parents' attitude, then, can be interpreted as their views of the social norm. In addition, parents who are demanding and responsive to their children are likely to serve as protective factors against initiation of smoking and drinking. Parental involvement and monitoring of their children can have the same protective effect (Cohen et al. 1994).

The YAFS-II asked each respondent about his/her views on whether his/her father (or the male who raised the respondent) and mother (or the female who raised the respondent) would approve or disapprove if he/she drinks and smokes. Table 1 shows the proportions of respondents who thought that their fathers and mothers disapprove drinking or smoking by respondent' sex and age. Respondents who did not provide "yes" or "no" responses were excluded from the tabulation. The excluded cases are about 10 percent for father's attitudes and about 2 percent for mother's attitudes, with little differences by respondent's gender and age. The differential in the knowledge of their fathers' vs. that of their mothers could represent a manifestation of the prevalent parenting style in the

country where mothers are in closer touch with their children than the fathers. It could also be partly reflecting the condition where some of these respondents did not have father or an adult male who raised them present in their households.

Perception among adolescents and young women that their parents disapprove of drinking and smoking is nearly universal. In contrast, perception of parental disapproval of drinking and smoking among men is much weaker. Disapproval rate among parents of 20–24 year old men is only at moderate level, ranging from 47% to 66%. The disapproval rate is higher for younger respondents than older respondents, for smoking than for drinking, and among mothers than among fathers.

Parents' attitudes reflect social norms. Not surprisingly, Domingo and Marquez found that parents' attitudes affect the behavior of adolescents and youths on drinking and smoking behavior. Thus, drinking, which was thought that parents disapprove at lower rates, is more prevalent than smoking, which, on the other hand, parents disapprove at higher rates. Men are less likely than women to have parents who disapprove, and are much more likely to take these risk-taking behaviors than women. Prevalence increases with age, consistent with the pattern of decreasing parental disapproval rate with age.

Regulations and their enforcement

The Philippines has no national law regulating smoking and sale of tobacco products. There is no minimum age requirement for the purchase of cigarettes and no law regulating the advertising and promotion of cigarettes. There is no law that requires the printing of warning labels on cigarette packages. Instead, the National Tobacco Administration (NTA) is supposed to protect and promote the "balanced and integrated growth" of the tobacco industry. These, despite the results of a survey which says that 72 per cent of the polled adult population were supportive of having a legislation banning smoking advertisements (Arroyo 1994).

There are more restrictions on drinking than smoking especially of the minors. Those who are less than 18 years old are prohibited from purchasing or drinking alcoholic drinks. However, the enforcement of this regulation is weak.

National and local legislations are more developed and restrictive vis-a-vis drugs. The Dangerous Drugs Act or Republic Act 6425 together with subsequent presidential decrees and national programs against drug abuse defined the prohibited and regulated drugs as well as the punishable acts in relation to these drugs and other substances and the penalties thereof. For implementation purposes of the national law, the Dangerous Drugs Board was created. Recently, the Narcotics Group of the Philippine National Police has assumed a significant role in the national program.

Economic aspects of drinking, smoking, and drug-use

In the previous years, costs of cigarettes and alcohol drinks have increased tremendously. A stick of local cigarettes which cost P1 three years ago, now costs P1.50 or a 50 per cent increase in prices. At this price, high school and college students can afford to squeeze in a stick or so in their daily allowances. Beer and other alcoholic drinks as well as drugs are more prohibitive to the young people. Recently however, with the increase in the supply of illegal drugs particularly *shabu* (poor man's cocaine), a larger proportion of the population can afford the drug. Thus, all these substances are easily available to the young people but may not be affordable to a significant number among them.

At the macro-level, it has been estimated that smoking alone drains 20 per cent of the household income of smokers' families. Drugs continue to be the bigger economic and social menace to the families of drug dependents and their communities.

Information on harmfulness of drinking, smoking and drug-use

In general, the harmfulness of drug-use is well known. In fact, national and local information drives are conducted in the country as part of formal programs on anti-drug abuse. Two national agencies are primarily mandated to lead efforts on drug abuse: the Dangerous Drugs Board and the Narcotics Commission of the Philippine National Police. The elementary and high school curricula have integrated anti-drug messages.

As mentioned in an earlier section, there are no national agencies nor consolidated public programs against smoking and drinking. In spite of this, a recent survey of the Social Weather Station revealed that 94 per cent of the adult population knew that smoking is hazardous to health and 92 per cent acknowledged that tobacco smoke also damages the health of the non-smokers.

Gender difference

Domingo and Marquez found large gender differences in the risk-taking behaviors among Filipino adolescents and youths (Domingo and Marquez 1999). Men are much more likely than women to drink, smoke, and use drugs. The large gender difference in risk-taking behavior among adolescents and youths is rather common in Asian countries (Han et al. 2000; Osaki and Minowa 1996; Zhu et al. 1996) but not in the U.S. (Kann et al. 2000). The large gender difference in risk-taking behavior is likely the result of social norms on gender behavior in these societies. In general, the Filipino society accord more liberties and allow a wider range of social activities to men than women. In fact, we have seen that parents tend to approve their sons' drinking and smoking more than their daughters, indicating that it is more acceptable for men than for women to take some risks that are common and provide certain pleasures.

DATA AND METHOD

We use data from the 1994 Philippines Young Adults Fertility Survey II (YAFS-II). The survey collected information on knowledge, attitude, and behavior related to smoking, drinking, and drug use, together with background information on individuals and the family from a national sample of 10,878 males and females ages 15–24 (Raymundo 1999).

We begin with the descriptive analyses of patterns of risk-taking behavior. The analyses will use responses to the following three questions:

- Have you ever tried

a) smoking?
b) drinking (alcoholic beverages)?
c) using drugs?

(Response categories are "yes," "no," and "no information.")

- At what age did you first try to

a) smoke cigarettes?
b) drink (alcoholic beverages)?
c) use drugs?

- Currently, are you regularly

d) smoking?
e) drinking (alcoholic beverages)?
f) using drugs?

(Response categories are "regularly," "occasionally," "not currently," and "no information.")

First, we examine the prevalence of drinking, smoking, and drug use, and also the pattern of multiple risk-taking. We also examine the relationships between respondents' drinking and smoking behavior, on one hand and parents attitudes on drinking and smoking, on the other. Lastly, we examine the patterns of age at initiation using the life table method. All analyses will be done for male and female respondents separately.

We then proceed to analyzing covariates of initiating drinking, smoking, and drug use. The unit of analysis will be person-ages. Thus, we examine whether a person does or does not initiate drinking, smoking, and drug use at each specific age and how the probability of initiation is affected by age and other characteristics of the individual at that age. The person-age records will be created with some time-dependent variables reflecting the condition at the beginning of age segment. Examples of the time-dependent variables are marital status, whether in school or not, whether living at parental home or not, and whether the respondent has initiated some other risk-taking behavior or not. In addition to identifying covariates of each risk-taking behavior, we also examine the extent to which different risk-taking behaviors share common covariates.

The analysis of initiation of drinking and smoking will be limited to ages 15–19. As we will see, the initiation of drinking and smoking takes place mostly during the adolescent ages 15–19. Drinking and smoking at these ages are not socially accepted. The significance of these behaviors are quite different from drinking and smoking at older ages. Drug-use, on the other hand, is illegal at any age and our analysis of the initiation of drug-use will include all ages.

Studies of adolescent behavior in the U.S. led to the problem behavior theory of adolescents. The theory postulates that individuals with certain characteristics such as low self-esteem, and not feeling connected to family, school, and community, and having extremely liberal views are likely to engage in problem behaviors. The theory also speculates that different risk-taking behaviors share common set of characteristics and co-occurrences of a number of risk-taking behaviors are common (Blum and Rinehart 1997; Jessor, Donovan, and Costa 1991; Jessor and Jessor 1997; Resnick et al. 1997). Findings from the study by Domingo and Marquez indicate that the current risk-taking behavior among Filipino adolescents and youths are largely consistent with the problem behavior theory.

We formulate our analysis to test this theory further by examining the initiation of risk-taking behavior. Four sets of covariates will be examined. The first set consists of family background variables. Place of birth is used as an indicator of type of community the respondent spent most of the time in childhood. Children born in urban areas are more likely to engage in risk-taking behavior at early ages than children born in rural areas. Urban communities are likely to be more tolerant of

adolescent behaviors that do not follow norms. Adolescents and youth are likely to find time and place with little adult supervision, and access to cigarettes, alcoholic drink, and drugs more easily in urban areas than in rural areas. Place of birth is classified into three categories, city, poblacion, and village. The three categories are represented by two dummy variables with village as the reference category.

We include two variables indicating some aspects of family life. One is whether the respondent is raised by two parents and the other is whether parents have stable marital relationship. Children who are not raised by two parents or whose parents do not have stable marital relationship are less likely to have strong attachment to family and more likely to engage in risk-taking behavior than others. Although the information on marital stability refers to the condition at the time of survey, unstable marriages are likely to have some signs for a while and could likely have some effects on the children in the family. We also include father's and mother's level of education, represented by dummy variables indicating whether they had more than elementary education or not. Parents education indicates the family's socioeconomic conditions and parents' level of knowledge on health risks associated with drinking, smoking, and drug-use. The presence of print materials and media equipment as well as the level of communication in the household can increase the level of awareness of the harmful effects of the substances among the members of the household.

The second set of covariates consists of life-cycle characteristics including age and age-squared, dummy variables indicating experience of being out of school, experience of living away from parents, and whether the person has ever been married. All of these variables are time-dependent variables reflecting the situation at the beginning of each age. Initiation of risk-taking is likely to increase with age during adolescence. But the relationship is likely to be curvilinear thus we include both age and age-squared variables. Experience of being out of school and living away from parents are likely to increase the probability of initiating risk-taking. Marriage is usually regarded as the beginning of complete adult life. Most of the initiation of risk-taking is likely to occur before marriage and married men and women may be less likely to initiate a risk-taking behavior.

The third set of covariates consists of individual characteristics including educational aspiration, religion (Catholic or not), and religiosity. Educational aspiration is coded as 1 if the respondent already has some college education or the educational goal is college or higher level, and 0 otherwise. Adolescents with high level of educational aspiration are less likely to initiate risk-taking behavior. Catholic being the religion of a very large majority, respondents with other religious affiliations are likely to be quite serious about their religion. Leaders of most religions discourage drinking, smoking, and drug-use. Some religions have strict guidelines preventing their members from these practices. Respondents who are non-Catholics, therefore are likely drink, smoke, or use drugs. For similar reasons, strong religiosity is likely to be associated with low probabilities of drinking, smoking, and drug-use. In our analyses, respondents who attend religious activities once a week or more often are considered to be "strongly religious."

The effects of these three sets of covariates on the probabilities of initiating drinking and smoking at ages 15–19 will be estimated for male and female respondents. For drug-use, we estimated the effects of covariates for initiation at ages 15–24.

As we will see later, the descriptive statistics indicate that most adolescents and youths who take more than one risks begin with drinking, which is frequently followed by smoking, and at much reduced level, followed by drug-use. Based on these findings, we will examine how initiation of drinking affects initiation of smoking. For initiation of smoking, we estimate a second model which include the dummy variable indicating whether the respondent already experienced drinking or not as one of the covariates. For initiation of drug use, three additional models are estimated: one with the addition of the dummy variable indication whether the respondent already experienced drinking or not,

one with the addition of the dummy variable indication whether the respondent already experienced smoking or not, and one with both of these additional dummy variables.

RESULTS

Patterns of drinking, smoking, and drug-use

Table 2 shows the pattern of drinking behavior by gender and age. Drinking is very common among men. Nearly three quarters of 15–24 year olds have tried drinking and more than 60 percent (52+9) are current drinkers. Most of those who ever tried drinking were current drinkers at the time of survey. Not surprisingly, older men are much more likely to have tried drinking and to be current drinkers. More than 60 percent of 15–19 year olds and more than 90 percent of 20–24 year olds have tried drinking. Among the current drinkers, very large majority drink occasionally. Among men, about 6 percent of 15–19 year olds and 13 percent of 20–24 year olds report to drink regularly.

Drinking is much less common among women. Proportions who ever tried drinking are about half of the levels among men. Women are also much less likely to continue drinking after initiation than men. Less than half of women who ever tried drinking are current drinkers. Prevalence of current drinking among women is about one fourth the level among men (61% vs. 16%). Although substantial proportion of women say that they drink occasionally, less than one percent of women report that they drink regularly.

Table 3 shows the pattern of smoking behavior by gender and age. Smoking is less common than drinking for both men and women. Proportions of men and women who ever tried smoking (60% for men and 16% for women) are smaller than proportions who ever tried drinking. Substantial proportions of men and women who ever tried smoking were not current smokers at the time of survey. Among men, one third (20/60) have stopped and among women, three-quarters (12/16) have stopped. Smoking experience and current prevalence of smoking increases substantially with age. Proportion of men who ever tried smoking is little less than half among 15–19 year olds and slightly more than three quarters among 20–24 year olds. Among men, slightly more than a quarter of 15–19 year olds and slightly more than half of 20–24 year olds are current smokers. It is interesting to note that among the 15–19 year olds, occasional smokers outnumber regular smokers by 2:1 ratio, but among the older men, regular smokers outnumber occasional smokers.

The prevalence of smoking among women is much lower than among men. Among 15–19 year old women, about one in eight have tried smoking and only about 3 percent are current smokers. Nearly a quarter of 20–24 year old women have tried smoking but less than 6% are current smokers. Among current smokers, the proportion who smoke regularly is less than one third even among the older women (age 20–24). The difference between proportions who ever smoked and who currently smoke is very large, indicating that a large proportion of adolescents and youths tried a few smokes but much smaller proportions continued with the practice. The differences are especially large among women.

Prevalence of drug-use is low but not negligible (Table 4) among men. Although the proportion of male respondents who report to be current users is only 3 percent, 11 percent report having used drugs some time in their lives. Experience of drug use as well as the current prevalence of drug use is much higher among older men than among younger men. Less than one percent of women report ever using drugs and only very small proportion of them report that they are still using them.

All current users of drugs reported that they are using them occasionally. No one reported that they are using drugs regularly.

Relationship with parents' attitudes

The prevalence of drinking and smoking in Tables 2 and 3 is higher than the levels of approval by parents indicated in Table 1. To what extent do parents' attitudes match the behavior of their children? Table 5 shows the pattern of drinking and smoking of men and women classified by the perceived mother's attitudes on drinking and smoking.

Although respondents' behavior do not match their mother's attitude perfectly, there is high level of agreement between mother's attitude on drinking and respondent's drinking behavior, and between mother's attitude on smoking and respondent's smoking behavior, for both male and female respondents. Thus, the percentages of women who never drank is higher among the respondents whose mothers do not approve their children's drinking, and similarly for smoking. Among those who ever tried the proportions who are current users are higher, and among the current users, the proportions using regularly (compared to using occasionally) are higher, among those whose mothers approve the behavior.

Multiple risk-taking

Table 6 shows the patterns of multiple risk-taking among drinking, smoking, and drug-use by gender. Any experiences of use as well as current use are shown. In general, men and women who have experiences in less common behaviors also have experiences in more common behaviors. For example, among men who ever smoked, 94 percent have also tried drinking ((46.2+10.1)/59.9). Among men who ever used drugs, 94 percent have also tried both drinking and smoking (10.1/10.8). Multiple risk-taking is slightly less common among women than among men. For example, 86 percent of women who ever smoked also tried drinking ((13.3+0.8)/16.4). The table shows that single risk-taking is limited largely to drinking. Similar pattern is observed in current risk-taking behavior.

INITIATION OF DRINKING, SMOKING, AND DRUG USE

Age-pattern

Because our data consist of adolescents and youths of ages 15–24, many of the respondents, especially the young ones have not yet initiated drinking, smoking, or drug-use. Many of them may do so sometime in the future but we have no information about this. In other words, our data include many "censored" cases. It is therefore appropriate to use life-table approach to study the age-pattern of the initiation of risk-taking.

Figure 1 shows the life table estimates of cumulative proportions who have initiated drinking at ages 10 through 25 and age-specific hazard rates of initiating drinking for ages 9 through 24 by gender. Most men begin to drink between ages 15 and 19. Although the initiation rate is high at early twenties, it applies only to a small proportion of men who have not yet begun to drink. At age 15, the proportion of men who began drinking before age 15 is 11 percent. By age 20, 82 percent of men have begun drinking. Women begin to drink at slightly older age than men and at lower rate than men. Initiation of drinking among women, on the other hand, continues steadily beyond adolescent years

into 20s. At age 15, the proportion of women who began drinking is only 4 percent. It increases to 38 percent at age 20 and 71 percent at age 24. It is likely that additional women will begin to drink after age 25. Thus, most men begin to drink as an adolescent but most women begin to drink as a young adult.

Figure 2 shows the life table estimates of initiation of smoking. Most men begin to drink between ages 15 and 19. Twelve percent of men have begun smoking by age 15. By age 20, the proportion grows to 70 percent. Substantial proportion of men begins smoking in their early 20s, the cumulative proportion of ever smoking reaching 88 percent by age 25. Women begin to smoke at very low rates until about age 14 when the initiation rate rises somewhat but never reaching a substantial level. From age 15, the initiation rate remains nearly constant up to age 24. It is likely that the initiation of smoking among women continue into late 20s, albeit at low rate. At age 15, the proportion of women who began drinking is 3 percent. It increases to 18 percent at age 20 and 33 percent at age 24.

Figure 3 shows the life table estimates of initiation of drug-use. Because the prevalence of drug use is very small, Figure 3 uses smaller scales than those used for Figures 1 and 2. Among men, the initiation of drug-use becomes noticeable at age 15, peaks at age 18 and continues at a low rate during the early 20s. One percent of men have begun drug-use by age 15. By age 20, the proportion grows to 13 percent. The cumulative proportion of ever using drugs reaches 20 percent by age 25. Women begin to use drugs at very low rates starting from age 15. After age 20, the initiation rates goes down to negligible level. One tenth of one percent of women has begun drug-use by age 15. By age 20, the proportion grows to 1 percent, and does not change much after that.

Covariates of initiation of drinking, smoking, and drug use

Estimated effects of covariates on the initiation of drinking at ages 15–19 are shown in Table 7. Among the family background variables, birthplace has statistically significant effects for both male and female adolescents. Those who are born in cities and poblacion are more likely to initiate drinking during adolescence than those born in villages. None of the parents' characteristics have statistically significant effects.

The effects of life cycle characteristics on the probability of initiating drinking are somewhat different for male and female adolescents. The probability increases with age for both male and female adolescents. In addition, having an experience of living away from family also increases the probability of initiating drinking for both sexes. Having been out of school, however, increases the probability only for male adolescents, and being married decreases the probability only for female adolescents. Being a non-catholic has protective effect on drinking for both men and women. Religiosity, on the other hand, has strong protective effect against initiation of drinking among men but no effect among women.

Estimated effects of covariates on the initiation of smoking at ages 15–19 are shown in Table 8. The pattern of effects of covariates is remarkably similar to the pattern observed for initiation of drinking. A few differences are noted. Among adolescent women, higher level of father's education is associated with higher probability of initiation. Being married protects adolescent males from initiating smoking but the effect on adolescent women is not statistically significant. Having some college education or planning to have college education protects male adolescents from initiating smoking. Religion does not have statistically significant effect but being strongly religious protects both male and female adolescents from initiating smoking.

Estimated effects of covariates on the initiation of drug-use at ages 15–24 are shown in Table 9. The pattern of effects of covariates is somewhat different from the patterns observed for initiation of drinking or smoking. More family background covariates have statistically significant effects on the probability. Stable marriage of parents protects both male and female adolescents and youth from initiating drug-use. Being raised by two parents also protects women from initiating drug-sue. Surprisingly, among women, higher level of mother's education is associated with higher probability of initiation.

None of the life cycle characteristics and individual characteristics has statistically significant effect on the probability among women. Among men, however, older age and having lived away from parents increases the probability, and being married decreases the probability. In addition, being strongly religious protects men from initiating drug-use.

We have seen earlier that most adolescents and youths who have smoking experiences also have drinking experiences. To what extent does having drinking experience affect initiation of smoking? In order to answer this question, we estimated logistic regression models for initiating smoking using a dummy variable indicating whether the respondent had already begun to drink in addition to all the covariates in Table 8. The results are shown in Table 10. We do not present the coefficients of the covariates included in Table 8 because they are essentially the same as the estimates from the previous model. Having an experience of drinking increases the probability of initiating smoking significantly for male and female adolescents. Furthermore, the effect of having experienced drinking is largely independent of the effects of all other covariates we examined.

To what extent does having initiated drinking or smoking affect the probability of initiating drug use? We estimated logistic regression models for initiating drug-use adding dummy variables indicating whether the respondent had already begun to drink and whether the respondent had already begun to smoke to the list of covariates in Table 9. Model 2 includes the dummy variable for drinking, model 3 includes the dummy variables for smoking, and model 4 includes both dummy variables. For all the covariates included in the model in Table 9, the estimated coefficients and their statistical significance did not change much in magnitude, sign, and statistical significance by addition of either one or both of the dummy variables. Thus, the explanatory power of the additional dummy variable is largely independent of all the variables included in the previous model.

The effects of having started drinking and having started smoking on the initiation of drug-use are shown in Table 11. The table shows that experience of drinking and the experience of smoking add to the explanation of initiating drug use significantly when we consider them one at a time. When both experiences are included in the model, the experience of drinking has no statistically significant effect on initiation of drug-use but the experience of smoking has large and statistically significant effect for both male and female adolescents and youths.

DISCUSSION

Among men, drinking is very common, smoking is common at slightly lower level of prevalence, and the prevalence of drug use is small but not negligible. Among women, drinking is quite common but smoking prevalence is low. Prevalence of drug use among women is negligible. Proportions of men and women who ever tried drinking, smoking, or using drugs are much higher than the current levels of use, especially among women.

Women are less likely to ever try drinking, smoking, and using drugs than men, and after trying, less likely to continue. The large gender difference in behavior is consistent with the large

difference in respondents' views of their parents' attitudes. Men tend to initiate their risk-taking as adolescents but women's initiation of risk-taking are spread over adolescence as well as in the 20s.

Children are less likely to begin, to continue, and to drink/smoke if they think the parents do not approve dinking/smoking. This finding suggests that children's risk-taking behavior may be changed by modifying their parents' attitudes.

A large proportion of adolescents and youths who experience one type of risk-taking behavior are likely to pick up other risk-taking behaviors. The most common risk-taking behavior among Filipino adolescents and youths is drinking. Then, those who have begun drinking are much more likely to begin smoking than those who have not begun drinking and those who have begun smoking is much more likely to begin drug-use than those who have not begun smoking.

Initiation of drinking, smoking, and drug use share a number of factors positively associated with increased risks. Among men, urban birthplace, older age, experience of living away from parents increase the probability of initiation and being strongly religious decreases the probabilities of initiating drinking or smoking at ages 15–19 and initiating drug-use at ages 15–24. Having been out of school increases the initiation of drinking and smoking among adolescent men and being married decreases probability of initiating smoking at ages 15–19 and probability of initiating drug-use at ages 15–24 among men. Among women, urban birthplace increases the probability of initiation of drinking, smoking, and drug use and older age increases the probability of drinking and smoking. Some aspects of religion (being non-Catholic for drinking and strong religiosity for smoking) protect adolescent women from initiation of risk-taking.

A few factors have statistically significant effects on selected risk-taking behaviors. High level of father's education and experience of living away from parents increase the probability of initiation of smoking among adolescent women. For adolescent women, both of these factors may be related to the lower level of supervision of parents on their behavior and increased risk-taking behavior.

The pattern of covariates of initiation of drug-use among women is somewhat different from the patterns of their other risk-taking behaviors, and from the pattern of any risk-taking among men. None of the life cycle characteristics and individual characteristics have statistically significant effects. A number of family background characteristics, on the other hand, are found to have statistically significant effects. Having been raised by two parents and having parents with stable marital relationship protect women from initiation of drug-use. Curiously, high level of mother's education is associated with increased probability of initiating drug-use at ages 15–24 among women. The explanation of this relationship needs further study.

The risk taking behavior among Filipino adolescents and youths is consistent with the problem behavior theory (Blum and Rinehart 1997; Jessor, Donovan, and Costa 1991; Jessor and Jessor 1997; Resnick et al. 1997): indicators of "connectedness" such as strong religiosity, being in school, living in parental home, and being born in rural areas protect adolescents and youths from initiating risk-taking behavior; and having initiated one risk-taking often leads to additional risk-taking. Drinking experience increases the initiation of smoking and the smoking experience the initiation of drug-use to a large extent.

A few interesting research questions arise from the above findings. One is whether current gender differences in risk-taking behavior will persist in the future. And if the gender difference narrows down, will it be because more women will be taking up risky behaviors? This brings about further considerations in the direction of the provision of information against the initiation or stopping of the risky behaviors. Another important question is how drinking, smoking, and drug-behavior are

associated with reproductive health risks such as uncommitted and unprotected premarital sex and their joint consequences.

Clearly, there is enough basis to be concerned about the risk-taking behaviors of Filipino adolescents and youth. While more males are taking up such behaviors, women are not shying away from them either. Some common factors associated with the risky behaviors for both sexes have been identified. But there are also important factors that differentiate them. This paper points out that there are certain identifiable types of adolescents and youths who are prone to pick up risky behaviors and there are also some indicators that can help designing action programs to prevent the further increase in the risk-taking behaviors of Filipino youths.

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Table 1. Proportions of respondents who report that their father and mother disapprove drinking and smoking by gender and age.

Gender and age of respondent	Father disapproves drinking	Father disapproves smoking	Mother disapproves drinking	Mother disapproves smoking
Men				
Age 15–19	67	78	76	86
Age 20–24	47	59	55	66
Women				
Age 15–19	85	89	92	97
Age 20–24	81	87	89	95

Table 2. Percent distribution of past and current drinking behavior by gender and age.

Gender and age of respondent	Ever had drink	Ever tried, currently not drinking	Currently drinking occasionally	Currently drinking regularly
Men				
Age 15–24	73	13	52	9
Age 15–19	61	14	41	6
Age 20–24	91	11	67	13
Women				
Age 15–24	36	20	16	<0.5
Age 15–19	29	17	12	<0.5
Age 20–24	46	25	21	<0.5

Table 3. Percent distribution of past and current smoking behavior by gender and age.

Gender and age of respondent	Ever Smoked	Ever tried, currently not smoking	Currently smoking occasionally	Currently smoking regularly
Men				
Age 15–24	60	19	22	18
Age 15–19	47	19	19	9
Age 20–24	78	20	28	30
Women				
Age 15–24	16	12	3	1
Age 15–19	12	9	3	<0.5
Age 20–24	22	17	4	2

Table 4. Percent distribution of past and current drug use by gender and age.

Gender and age of respondent	Ever Used drug	Ever tried, currently not using drug	Currently using drug occasionally	Currently using drug regularly
Men				
Age 15–24	11	8	3	0
Age 15–19	6	4	2	0
Age 20–24	18	14	4	0
Women				
Age 15–24	1	1	<0.5	0
Age 15–19	1	1	<0.5	0
Age 20–24	2	1	<0.5	0

Table 5. Percent distribution of past and current drinking and smoking behavior by gender and mother's attitude

Gender, behavior, and mother's attitude	% using regularly	% using occasionally	% used in past only	% never used
Men, drinking				
Mother approves	18	71	9	3
Mother disapproves	5	42	16	37
Women, drinking				
Mother approves	1	62	23	13
Mother disapproves	<0.5	12	20	67
Men, smoking				
Mother approves	51	32	10	7
Mother disapproves	9	20	22	49
Women, smoking				
Mother approves	16	21	20	43
Mother disapproves	1	3	12	84

Table 6. Percent distribution of male and female respondents by combination of risk-taking experiences.

Combination of risk-taking	Ever tried		Currently using	
	Male	Female	Male	Female
None	23	61	36	83
Any one	20	25	28	14
Drinking only	17	22	24	13
Smoking only	4	2	4	1
Drug-use only	0	<0.5	<0.5	<0.5
Any two	47	14	34	3
Drinking and smoking	46	13	34	3
Drinking and drug-use	1	<0.5	<0.5	<0.5
Smoking and drug-use	<0.5	<0.5	<0.5	<0.5
All three	10	1	2	<0.5

Table 7. Estimated logistic regression coefficients of the probability of initiating drinking, male and female adolescents age 15–19.

Category of covariate	Covariate	Male	Female
Family	Born in a city	.1275*	.3271*
Background	Born in a poblacion	.1720*	.1948*
	Raised by two parents	.0730	.0848
	Parent's marriage is stable	-.0321	-.0961
	Mother's education > elementary	.0932	.0216
	Father's education > elementary	.0086	.0957
Life cycle	Age	.5529*	.5265*
Characteristics	Age-squared	-.0032*	-.0052*
	Have been out of school	.1227*	-.1165
	Have lived away from parents	.1809*	.2913*
	Ever married	-.5351	-1.1273*
Individual	Have/want college education	-.0203	.0830
Characteristics	Catholic religion	.1966*	.2320*
	Strongly religious	-.2665*	-.1019
Constant	Constant	-9.4355*	-9.8271*
Model statistics	N of observations	25881	31808
	LR Chi-square	2606.35	1081.28

* indicates $p<0.05$.

Table 8. Estimated logistic regression coefficients of the probability of initiating smoking, among male and female adolescents age 15–19.

Category of covariate	Covariate	Male	Female
Family	Born in a city	.1420*	.7535*
Background	Born in a poblacion	.1521*	.2532*
	Raised by two parents	.0318	-.0678
	Parent's marriage is stable	-.0769	-.1963
	Mother's education > elementary	.0309	-.0072
	Father's education > elementary	-.0607	.3073*
Life cycle	Age	.4208*	.3626*
Characteristics	Age-squared	-.0018*	-.0027*
	Have been out of school	.2594*	.0073
	Have lived away from parents	.1525*	.2587*
	Ever married	-.6378*	-.4796
Individual	Have/want college education	-.2146*	.0162
Characteristics	Catholic religion	.0647	.0212
	Strongly religious	-.2313*	-.2468*
Constant	Constant	-7.8974*	-8.7062*
Model statistics	N of observations	26083	32269
	LR Chi-square	1606.14	386.00

* indicates $p<0.05$.

Table 9. Estimated logistic regression coefficients of the probability of initiating drug-use among male and female adolescents and youth age 15–24.

Category of covariate	Covariate	Male	Female
Family	Born in a city	.4599*	1.2082*
Background	Born in a poblacion	.3374*	.5703
	Raised by two parents	-.1320	-.7391*
	Parent's marriage is stable	-.2902*	-.8712*
	Mother's education > elementary	-.0193	.7237*
	Father's education > elementary	.1315	-.3421
Life cycle	Age	.2046*	.1017
Characteristics	Age-squared	-.0003*	-.0008
	Have been out of school	-.1653	.4874
	Have lived away from parents	.3719*	-.5643
	Ever married	-1.0953*	-.0983
Individual	Have/want college education	-.0083	.1472
Characteristics	Catholic religion	.1416	.2373
	Strongly religious	-.5467*	-.5866
Constant	Constant	-7.2588*	-7.6745*
Model statistics	N of observations	33680	37655
	LR Chi-square	249.95	50.61

* indicates $p<0.05$.

Table 10. Comparison of logistic regression models for prediction the probability of initiating smoking from two models: With and without "have initiated drinking" as covariates.

	Other risks	Model 1	Model 2
Male	Initiated drinking	----	.1597*
	-Log Likelihood	7180.77	7175.53
	Likelihood ratio statistic[a]		10.48*
	(Degrees of freedom)		(1)
Female	Initiated drinking	----	.7545*
	-Log Likelihood	2666.03	2653.94
	Likelihood ratio statistic[a]		24.18*
	(Degrees of freedom)		(1)

Notes: ---- indicates that the covariate is not included in the model.

Covariates of Model 1 include only the variables listed in Table 8.

Covariates of Model 2 include the variables listed in Table 8 and whether the respondent had initiated drinking.

[a] Compared to Model-1.

* indicates $p<0.05$.

Table 11. Comparison of logistic regression models for prediction the probability of initiating drug use from two three models: With and without "have initiated drinking" and "have initiated smoking" as covariates.

	Other risks	Model 1	Model 2	Model 3	Model 4
Male	Initiated drinking	---	.7987*	---	.2251
	Initiated smoking	---	---	1.1362*	1.0232*
	-Log Likelihood	2416.2	2393.6	2365.1	2363.8
	Likelihood ratio statistic[a]		45.24*	102.20*	104.78*
	(Degrees of freedom)		(1)	(1)	(2)
Female	Initiated drinking	---	.6631	---	-.7351
	Initiated smoking	---	---	2.3323*	2.6315*
	-Log Likelihood	323.94	322.90	306.63	305.43
	Likelihood ratio statistic[a]		2.08	34.62*	37.02*
	(Degrees of freedom)		(1)	(1)	(2)

Notes: ---- indicates that the covariate is not included in the model.

Covariates of Model 1 include only the variables listed in Table 9.

Covariates of Model 2 include the variables listed in Table 9 and whether the respondent had initiated drinking.

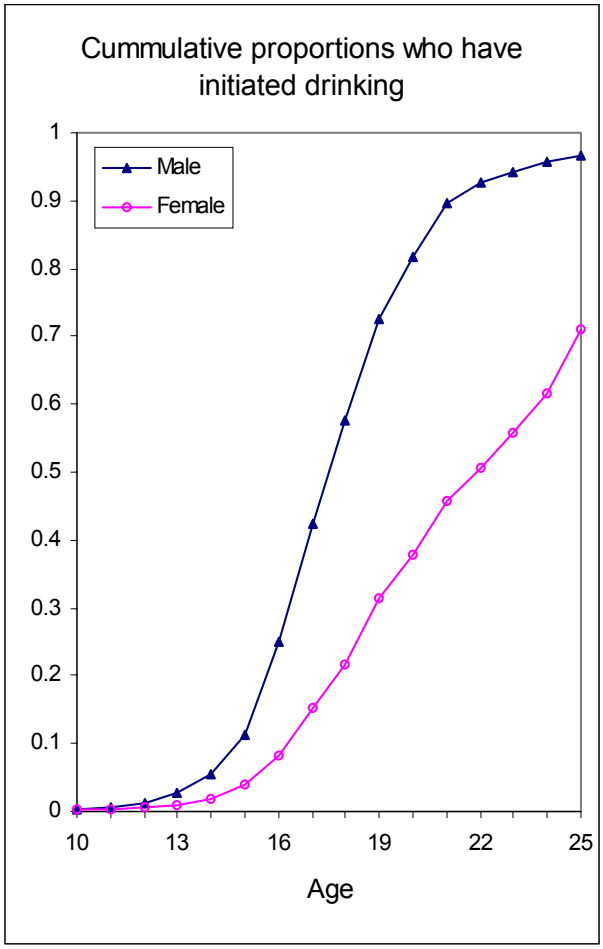
Covariates of Model 3 include the variables listed in Table 9 and whether the respondent had initiated smoking.

Covariates of Model 2 include the variables listed in Table 9, whether the respondent had initiated drinking, and whether the respondent had initiated smoking.

[a] Compared to Model-1.

* indicates $p<0.05$.

Figure 1. Age-specific cumulative proportions of respondents who have initiated drinking and age-specific hazard rates of initiating drinking by gender.



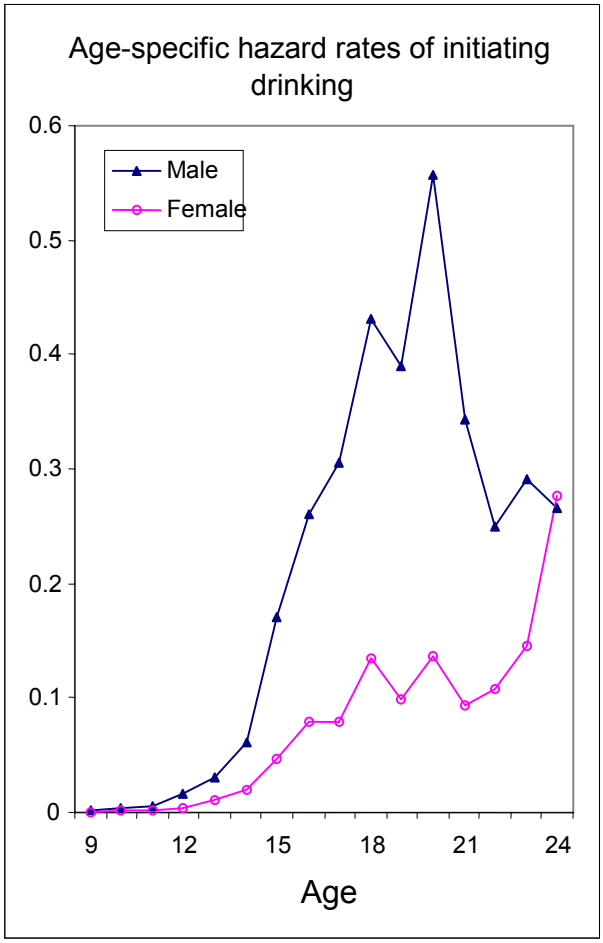


Figure 2. Age-specific cumulative proportions of respondents who have initiated smoking and age-specific hazard rates of initiating smoking by gender.

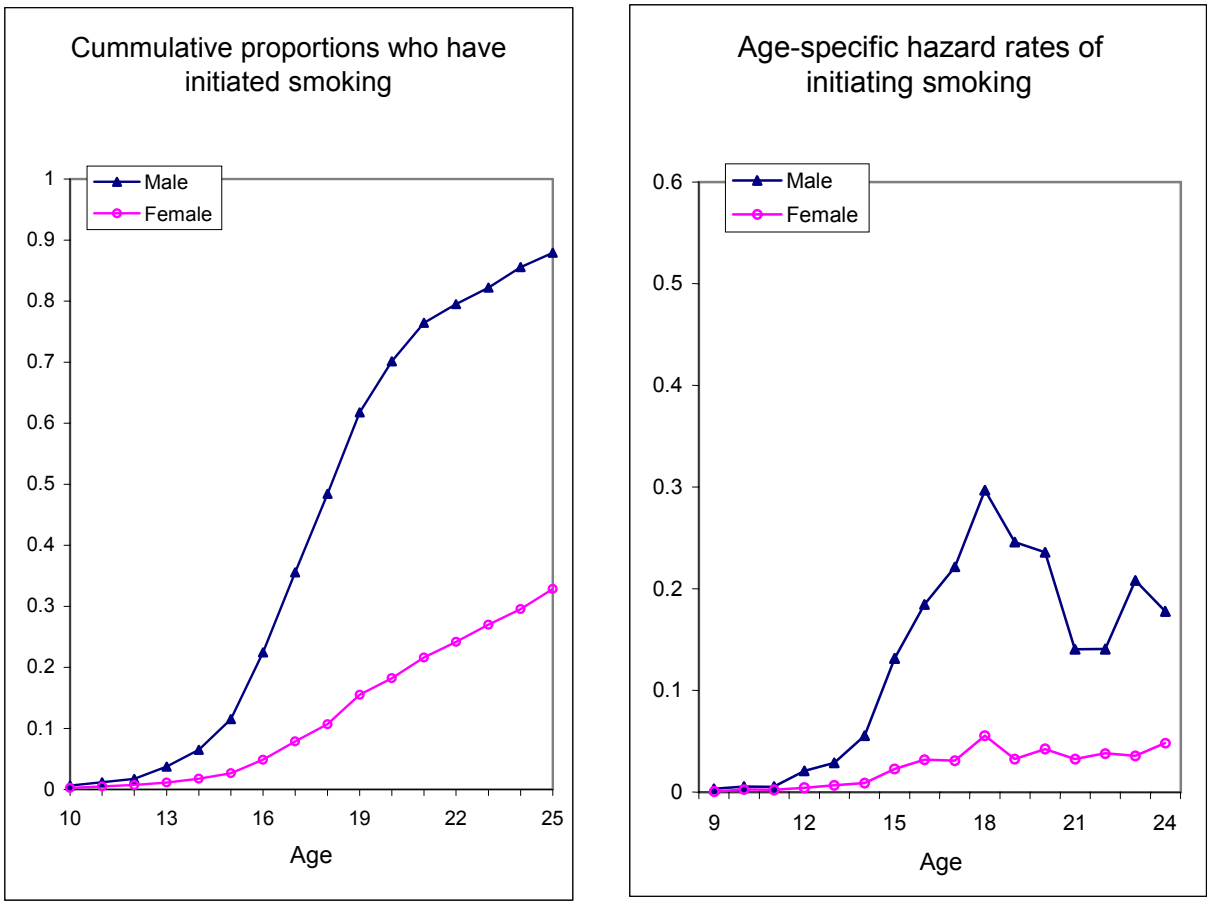


Figure 3. Age-specific cumulative proportions of respondents who have initiated drug-use and age-specific hazard rates of initiating drug-use by gender.