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Tobacco Use and Exposure among Children in Migrant and Non-migrant Households in Java, Indonesia*

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Abstract

This research note aims to understand the impact of parental migration on the children who stay behind by examining the issue of smoking. It asks whether tobacco use and exposure are higher among children in migrant households compared with those in non-migrant households in Java, Indonesia. Data were collected in 2008 in two provinces, West Java and East Java, as part of the Child Health and Migrant Parents in South-East Asia (CHAMPSEA) Project. The analytical sample used here relates to children aged 9, 10 and 11 living in both non-migrant and transnational households (N=451).

The findings show that the incidence of ever having smoked among these primary school-aged children is relatively low at less than 10 percent, but that boys are much more likely to have used tobacco than girls. Findings from multivariate logistic models predicting smoking behavior show no difference between the children of migrants and non-migrants; nor does household wealth appear to influence whether or not a child has tried tobacco. Gender, child stunting (low height-for-age), carer's education, family functioning and tobacco use by friends are the four main factors found to be significantly associated with child smoking.

Introduction

Youth tobacco use is a serious problem around the world, as well as in Indonesia. Smoking is a leading cause of several diseases, worsens currently-experienced health conditions, and is considered to be an unhealthy habit and lifestyle (Hardinge and Shryock, 2001). White and Watt (1981) revealed that a person smoking 19 cigarettes per day is likely to reduce his or her life span by as much as 5.5 years. Further, smoking is associated with increased risk of major chronic diseases (Aditama, 2002). It is estimated that about 200,000 Indonesians die from smoking-related illnesses yearly (Tuszynski, 2010).

Hidayat and Thabrany (2010) noted that the prevalence of smoking among adults (15 years and above) in Indonesia is significantly high and is increasing, especially among males. In the period between 1995 and 2004, the prevalence of smoking among males increased from the already elevated level of 53.4 percent to 63.1 percent. Even though the prevalence of smoking among females is relatively low, the rate more than doubled, from 1.7 percent to 4.5 percent, over the same period. Given the size of the Indonesian population, the public

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health consequences of smoking are significant. Nevertheless, no restrictions are imposed on tobacco companies. The companies can advertise in various media outlets, including television and billboards. Tobacco companies sponsor scholarships for the youth, popular sporting events and concerts aimed at the young, thereby increasing the likelihood of exposure and association of smoking with pleasurable and desirable activities. Thus it is unsurprising that tobacco consumption is rising. Reflecting both the significant increase in population and rising rates of consumption, cigarette consumption increased from 33 billion in 1970 to 217 billion in 2004, putting Indonesia as the fifth largest consumer of cigarettes in the world (WHO, 2006).

In the Global Youth Tobacco Study (GYTS), Martini and Sulistyowati (2005) found that among young adolescents aged 13 to 15 years old in Jakarta, almost 47 percent had ever smoked cigarettes, 22 percent currently used any tobacco product, and 21.8 percent currently smoked cigarettes. Interestingly, among those who ever smoked cigarettes, 19 percent smoked their first cigarette before 10 years old. Even though Indonesia is not the worst case compared with some of the other countries in the GYTS study, the figures are alarming. The concern over trends in youth tobacco use has also been reflected in the Indonesian media with recent national television news showing children as young as three years old smoking cigarettes.

The infamous case of a two-year old Indonesian child smoking a cigarette which was transmitted around the world prompted concerns not only among the public, but also the government and NGOs. This child is apparently addicted to cigarettes. It was reported that his father gave him his first cigarette when he was 18 months old. According to the father, the toddler would throw a tantrum if not given a cigarette. The Indonesian toddler smokes up to 40 cigarettes a day. This disturbing incident is part of a larger landscape where about two percent of Indonesian children have started smoking by age four (Phillips, 2012). About 3.2 percent of them are active smokers, and the trend is on the rise. While these percentages may seem low, it is crucial to emphasize that these young smokers are all under five years of age and may be seen as indicative of an environment in which smoking is socially acceptable. Smoking behavior among young teenagers is higher – about 25 percent of boys aged 13 to 15 are addicted to smoking (Sagita, 2012).

The onset of smoking at an early age raises the importance of parental guidance. When parents are absent, such as the case of parents working abroad, there are concerns that children may not be properly guided. With significant numbers of mothers and fathers of young children migrating overseas to fulfill the economic needs of their families, Indonesia has become known as a “migration nation.” Figure 1 shows the stock estimate of documented Indonesians working abroad between 2007 and 2010. By 2010, more than 860,000 Indonesians were working abroad (<http://pusdatinaker.balitfo.depnakertrans.go.id/katalog/download.php?g=2&c=17>). The number of female international labor migrants is more than double that of male migrants. This ‘feminization of migration’ has been occurring since the early 1980s and has been discussed in a number of studies (Sukamdi et al., 2004; Hugo, 2004; Setiadi, 2004; Wee and Sim, 2004; Asis, 2003).

Economically, international labor migration has been shown to benefit not only the migrant and the household but also the economy of origin, although many researchers have documented the problems faced by migrants (Faturachman, 2002; Setiadi, 2004; Sukamdi et al., 2004; Sukamdi, 2006). Families are likely to benefit in several ways, including increased income from remittances, better education for the children, and the adoption of positive practices and ideas learned from the destination countries. However, there may also be negative effects related to the vulnerability of left-behind children, which have largely been neglected in previous research. When parents (mother, father or both) migrate, children lose a role model in the family. Consequently, they may look elsewhere for alternative role models and, possibly, be more vulnerable to copying risky behaviors such as smoking.

Given the recent increases in tobacco use among young people in Indonesia, smoking behavior warrants further investigation because it presents significant concerns for the current and future health of children. This becomes even more important in view of the possibility that the rising incidence of smoking among children could be related to the increasing absence of parents, such as what occurs when one or both parents migrate for work leaving children behind. However, the potential effect of having a migrant parent/s is uncertain. On the one hand, parents play an important role in disciplining a child's behavior and the absence of parents may thus lead to the smoking behavior of children due to lack of parental supervision. On the other hand, since a child who sees their parent/s smoking may be more likely to try using tobacco themselves, parental migration could decrease the incidence of smoking in children if a smoking parent is absent. Given this ambiguity, examining the relationship between the initiation of smoking behavior and migration is an important area of inquiry with potential health implications for Indonesia. To date, the issue of smoking among children of migrant parents has not received attention from either academic researchers or policymakers. This research note examines the smoking behavior of primary school-aged children in order to investigate the following questions:

1. Does tobacco use among children differ between those living in non-migrant and transnational (migrant) households?
2. What characteristics of children and their households are significantly associated with ever having used tobacco?

Smoking Behavior and Children

Aritonang (1997) argued that smoking is a complex behavior resulting from the interactions of cognition, the social environment, psychological conditions, and physiological conditions. In the cognitive aspect, smokers seem to have low awareness of the dangers of smoking. In the social aspect, most smokers claim that they smoke due to the influence of others around them. This reason is one of the important causes of smoking. Psychologically, many people smoke for relaxation, to reduce tension and to briefly forget problems. Sari et al. (2000) studied the effect of empathy on smoking behavior among 150 Indonesian students aged 15 to 22 years. They found that active smokers who have empathy for non-smokers refrain from smoking in public places. The same study revealed that smokers were initiated into smoking when they were children, similar to the findings reported by Komarasari et al. (2000).

Green (1991), as cited in Martini and Sulistyowati (2005), included three main aspects related to smoking behavior in their conceptual model: predisposing, enabling, and reinforcing factors. Predisposing factors are those antecedents to the behavior that provide the justification for the behavior. They include knowledge, attitudes, beliefs, values, and perceptions that facilitate or hinder motivation for change. Enabling factors are the antecedents to behavior that enable a motivation to be realized. They are the skills, resources, or barriers that can help or hinder the desired behavioral changes, as well as environmental factors. Accessibility, referrals, rules or laws are also considered enabling factors. Reinforcing factors are those subsequent to a behavior that provide the continuing reward or incentive for the behavior and contribute to its persistence or repetition. In their study, Martini and Sulistyowati (2005) reported that children of high school age were more likely to smoke if they co-reside with smokers. They argued that family smoking is a predisposing factor (children may think that if their parents smoke, then smoking is acceptable), an enabling factor (others in the household are a ready source of cigarettes), and a reinforcing factor (young people may smoke socially with other family members).

Previous empirical studies examining tobacco use among young people in South-East Asia have highlighted the important influence of family and friends. Rudatsikira et al. (2008), for example, used a Social Ecological Model (SEM) of health behavior to explain cigarette use among adolescents. Their model explains that individual-level factors and socio-cultural environment factors may contribute or interact to influence cigarette smoking behavior. Their findings show that, in Thailand, having parents and friends who smoke is a strong predictor for smoking. Another study in Vietnam (Minh et al., 2011) found that parental smoking significantly increases the risk of smoking among students (age 13 to 15), while having friends who smoke is the strongest predictor of smoking status and susceptibility to smoking. Another study in Semarang, Indonesia (Smet et al., 1999) revealed similar findings, namely that having friends who smoke is an important explanatory variable for the incidence of smoking among young people. Bindah and Othman (2011), based on a literature review, also argued that parental and peer smoking behaviors are good predictors of adolescent smoking behavior. Most previous studies of smoking among young people have focused on teenagers rather than primary school-aged children but they underline that smoking behavior is a complex issue with multiple determinants. The GYTS shows that around a fifth of Indonesian teenage smokers had their first cigarette by aged 10, so it is important to increase understanding of the factors that influence the initiation of smoking behavior among young children. In the light of published findings, the smoking behavior of family and friends is expected to be influential but, in this study, an additional factor is investigated – namely the presence or absence (due to international migration) of parents in the child's household.

Data and Methods

The research was conducted in two provinces in Indonesia with a large number of international labor migrants, namely East Java and West Java. In each of these provinces, communities within two districts having the highest volumes of international migration were selected for household screening. For the CHAMPSEA Project in Indonesia, a total of 1,036 migrant and non-migrant households were recruited for the survey, each with an index child

(IC) in one of two age groups.² The current study selects children aged between 9 and 11 years at the time of interview and uses data collected from the children themselves and from adult members of their households. Around half of the children lived in transnational households, and the other half was living in households where both parents were usually resident or non-migrants. Table 1 presents a breakdown of the analytical sample (N = 451) by the migrant-carer status of the household. Cases where both parents were international migrants (n = 34) were dropped due to the small numbers in this group, as were an additional 28 cases (5.8 percent of the sample after dropping cases where both parents were migrants) for which data were incomplete.

The analysis distinguishes between children in non-migrant households and those in three types of transnational household. As has been noted above, Indonesian men are much more likely to smoke compared with women. It is therefore important analytically to distinguish children of migrant fathers cared for by their mothers, who may be less likely to be exposed to parental smoking compared with the second group of children of migrant mothers cared for by their fathers. The third group consists of children with either a migrant mother or father, being cared for by a substitute carer who is usually a grandparent. Exposure to smoking in the household may be lower for these children given lower tobacco use in older generations. The outcome of interest is based on self-reported data on children's smoking behavior. Children were asked about their experience of tobacco use: "Have you ever tried cigarette smoking/spit tobacco and snuff/cigars/pipes/hokkah or flavored cigarettes like bidis or kreteks, even one or two puffs?" The data show that 8.5 percent of the sample had ever used tobacco (Table 2). Although the percentage of children who had ever used tobacco is relatively small, it is alarming considering the age of the children. This suggests that some children in the study communities start smoking at a very early age, and supports Aditama's (2002) study, which found that more than one percent of current and ex-smokers in Indonesia started smoking when they were less than 10 years old, and the study by Barber et al. (2008), which showed that 1.7 percent of current smokers in 2007 began smoking between ages five and nine. As Choe et al. (2001) argued, the younger people start smoking, the more likely they are to become strongly addicted to nicotine. However, the risks are not evenly spread out (Table 2), with a much higher prevalence of smoking among boys (16.07 percent) compared with girls (1.76 percent). This strong gender difference is consistent with the patterns for young adult smoking found by Reimondos et al. (2012) in their study in Jakarta. Similar findings have also been reported in other Indonesian studies, such as those conducted by Choe et al. (2004), Martini and Sulistyowati (2005) and the Ministry of Health Republic of Indonesia (2008).

Assuming that children of migrant parents are not as closely supervised as their peers who live with both parents, we might expect that they are more likely to smoke than children of non-migrant parents. Table 3 shows the prevalence rates across different household types. The prevalence rates for children in non-migrant and transnational households (7.8 percent and 10.1 percent, respectively) appear to lend some support to this assumption. Further, among children in transnational households, the highest prevalence rate (12.2 percent) is

²Further details on the CHAMPSEA sampling methodology are provided in the Editorial Introduction to this volume.

found for children of migrant mothers left in the care of their fathers, which is in line with the suggestion that because Indonesian fathers are much more likely to smoke than mothers, children of migrant mothers may be especially at risk. However, no firm conclusions can be drawn from the prevalence rates as other factors may also be associated with ever having used tobacco, including child, peer and family factors. Based on the literature review and the aims of the study, additional variables from the CHAMPSEA data set were therefore selected for inclusion in the analysis, which was conducted in two phases. First, bivariate relationships were examined to reveal patterns of association; and secondly, a series of multivariate logistic regression models was fitted to identify those factors significantly associated with a child ever having smoked.

In addition to the principal independent variable –migrant-carer status of the household –the child's gender and age were included to account for higher prevalence rates among boys and the expectation that older children are more likely to have ever smoked (Model A). Standard measures of child stunting and child psychological difficulties were then entered to account for the children's physical and mental health (Model B). Stunting is defined as a height-for-age z score of more than two standard deviations below the median of the 2006 World Health Organization (WHO) Child Growth Standards, while a case of psychological difficulties, or poor mental health, is identified by a total difficulties score of 17 or more from the Strengths and Difficulties Questionnaire (SDQ). Next, the age and educational attainment of the child's principal caregiver or carer were added as markers for the quality of care the child receives, along with three household variables – household wealth, whether or not the household is intergenerational, and good family functioning (Model C). The household wealth index is based mainly on housing quality and the ownership of consumer durables, as described in the Editorial Introduction to this volume. Good family functioning was included as a potentially protective factor and is identified using the child's report on the Family APGAR (Adaptability, Partnership, Growth, Affection and Resolve), with scores of 13 or more taken as indicating that a child perceives his/her family as functioning well. Lastly, three binary measures of exposure to smoking are added in Model D: (i) whether or not the child has older siblings (older siblings who smoke are a recognized risk factor for the early initiation of younger siblings); (ii) whether or not family members use tobacco (a well-established risk factor); and (iii) whether or not friends use tobacco (another proven risk factor). The latter two are derived from child reports and capture children's awareness of smoking by those around them. Table 4 provides a list of the selected variables and descriptive statistics showing the distribution of the outcome measure (child ever used tobacco) across each of the variables.

Results

The examination of prevalence rates above revealed the gender bias of smoking initiation, with a male prevalence rate of over 16 percent and a female prevalence rate of under two percent. Boys are thus much more likely to have ever used tobacco than girls and among these child smokers, more than 90 percent are male, as is the general pattern of smoking in Indonesia. The majority of children who had ever used tobacco are 10 or 11 years old, but over 17 percent are 9 years old. Overall, the proportion of children who had ever smoked living in transnational households is only slightly higher compared with those in non-

migrant households, but there is a notably higher percentage of child smokers in mother-migrant/father-carer households compared with father-migrant/mother-carer households (32 percent and 15 percent, respectively). In relation to health, more children who have ever smoked are also stunted, compared with those who have not used tobacco, but in both groups less than 10 percent are identified as having psychological difficulties.

There are only marginal differences in the distributions of children who have ever used tobacco and children who have never smoked across the variables measuring caregiver and household characteristics. The higher percentage of those who have ever used tobacco in the medium wealth category is interesting because it suggests that financial constraints may limit risky behavior among children in poorer households. This may also explain the unexpected positive association between carer education and child smoking, with a higher percentage of children who have ever used tobacco being cared for by better educated caregivers (i.e., with more than primary school education). However, in general, the initiation of smoking appears to be minimally related to the socio-economic circumstances of the family. Chi² tests show that the only significant bivariate differences between groups, besides carer education, are for the two child characteristics, gender and stunting. It may be that the behavior of others is a more important influence on the child than their family circumstances.

Exposure to others who smoke has been reported as an important risk factor in previous studies of adolescent smoking. For this study, Table 4 shows that many primary school-aged children who have ever used tobacco also have family and friends who smoke but, surprisingly, are less likely to have older siblings. For the sample as a whole, 80 percent of children said that at least one member of their family smoked, reflecting the widespread use of tobacco among Indonesian adults. Of those children who had ever used tobacco, 90 percent have family members who smoke and 75 percent have friends who smoke. Interestingly, for children who have never smoked, the comparable figures are 78 percent and 37 percent, respectively. This suggests that children who have never smoked are less likely to have friends who smoke, and vice versa. The importance of peers, as highlighted in several studies (*see* Bindah and Othman 2011), suggests the importance of wishing to 'fit in' with peers for the children in the CHAMPSEA sample. The multivariate analysis allows further examination of this possibility.

Multivariate Results

The results of the logistic regression models predicting whether a child has ever used tobacco are shown in Table 5, which reports odds ratios (OR) and associated confidence intervals (CI). Model A examines the migrant-carer status, accounting only for child gender and age. No significant differences are found between children in non-migrant and transnational households. Although children aged 10 years are over two times more likely than 9-year-olds to have tried tobacco, this finding is only marginally significant (OR = 2.30, $p < 0.1$) and is not observed for 11-year-olds. It is gender that shows the strongest relationship, with girls much less likely to have ever used tobacco compared with boys (OR = 0.09, $p < 0.001$). Model B adds variables measuring the child's physical and mental health. It shows that psychological difficulties are not significantly associated with using tobacco

but that nutritional status (stunting) is, with children who are stunted being more than twice as likely to have tried tobacco compared with those who are not stunted (OR = 2.23, $p < 0.05$). Model 3 then adds carer and household characteristics. Neither household wealth nor living in an intergenerational household is significantly related to children's use of tobacco. However, both carer's education and the measure of family functioning are significant in the model. Children cared for by those with more than primary education are more than twice as likely to have ever tried tobacco compared with children cared for by less educated carers (OR = 2.06, $p < 0.1$), which is not as initially expected. On the other hand, the observed relationship between good family functioning and child tobacco use is in the expected direction, with children who regard their families as supportive and functioning well being only half as likely to have ever used tobacco compared with children in less supportive families (OR = 0.50, $p < 0.1$). The inclusion of these variables further increases the likelihood of tobacco use for children who are stunted (OR = 2.54, $p < 0.05$) but gender remains the most important predictor of child smoking in all three models.

In the final model (Model D), three exposure variables are added to capture different aspects of risk. Once all other factors are taken into account, there is no evidence that having one or more older siblings is significantly associated (positively or negatively) with a child having used tobacco. This is not a surprising result as the variable does not indicate whether older sibling/s smoke, which would have been a better measure had it been available in the CHAMPSEA data set. However, sibling smoking may be partly captured in the second exposure variable measuring whether any family member smokes. The results indicate that this variable is also not related to the likelihood of children ever having smoked. Most interestingly, among the three exposure variables, it is peer group smoking that is significantly associated with children ever having used tobacco. Children who have friends who smoke are over four times as likely to have tried tobacco themselves compared with children whose friends do not smoke (OR = 4.33, $p < 0.01$).

In summary, children are significantly more likely to have ever used tobacco if they are boys, have friends who use tobacco, are cared for by a carer with more than primary education and are physically stunted, but significantly less likely to have ever smoked if their family functions well. Overall, the multivariate models demonstrate that the child's gender is the most important predictor of children's smoking behavior. As would be expected, based on other investigations with older young people, girls are significantly less likely to smoke compared with boys. In contrast to past studies identifying family smoking as an important predisposing factor (Martini and Sulistyowati, 2005), the present study finds that family smoking does not predict smoking behavior among children. This is unsurprising as the majority of children in the sample (80 percent) have at least one family member who smokes, and therefore this variable is less discriminating than the measure of friends smoking, where only 41 percent of children have friends who smoke. Further, the results not only corroborate the findings of other studies which have observed that peer (friends) smoking positively influences smoking behavior among adolescents, but extend these findings to a younger age group. The positive association between carer's education and child tobacco use is strengthened in the final model. This is interesting because in developed countries, there is a strong association between parent education and children's exposure to smoking, but in the opposite direction (Kovess et al., 2013). One possible explanation is that

better educated carers in the CHAMPSEA Project generally live in relatively wealthy households rather than the poorest households, and that there is a financial threshold below which child tobacco consumption is less affordable.

The final statistically significant predictor of tobacco use among children is child stunting. The measure of stunting can be interpreted as a proxy for early childhood deprivation, as well as indicating the current nutritional status of the child. The cross-sectional analysis is unable to shed light on the processes linking child smoking and low height-for-age, but it does highlight an area that merits further investigation. For example, what other conditions are prevalent in the family and community that may predispose children to multiple health risks of malnutrition and tobacco use? Understanding this relationship better could help to design interventions in the future to address these important population health challenges. Other factors examined in the models are statistically insignificant. Neither household wealth nor parental migration is found to be associated with the smoking behavior of children, suggesting that concerns about a general lack of discipline and care among children of migrant parents may be misplaced. Nevertheless, the relationships among these factors are complex and the models do not take into account the effects of past parental absence. Future research should examine the interrelated factors of early childhood deprivation, tobacco use and parental migration longitudinally to better understand the relationships.

Closing Remarks

The overall incidence of smoking among the CHAMPSEA children is relatively low at 8.5 percent, but the crucial factor is to recall that these children are less than twelve years old. Our data indicate that, for some, the initiation of smoking begins at a very young age, and this finding alone warrants greater population-based attention to the issue of youth smoking in Indonesia. Moreover, the prevalence rate for boys is much higher than for girls at more than 16 percent. The health consequences are alarming, yet there is continued high exposure of young children in Indonesia to tobacco products and smoking through mass media (including advertisements) and there is no government regulation on media outlets.

On the other hand, parental migration does not appear to have a direct negative relationship with children ever having used tobacco. This provides some measure of information to help quell debates on the negative side effects of parental migration, a situation which is very common among Indonesian families and a means to help lift households out of poverty; nor is there evidence that higher levels of household wealth increase the risk of primary school-aged children using tobacco, at least directly. It may be, however, that household wealth has a greater effect during teenage years when young people are likely to have more control over their pocket money and spending. Whereas childhood smoking is associated with having a relatively more educated carer in this study, good family functioning acts as a protective factor. Further investigation is needed to clarify the interrelationships between these factors and household wealth. However, it is very clear that friends' smoking behavior plays an important role in influencing children's tobacco use. The influence of peer smoking on the key outcome measure of child tobacco use suggests that children, anxious to be seen as part of the group, may be adopting risky health-related behaviors in response to peer pressure.

This could be an important area on which to target future interventions. In the Indonesian context, preventing early initiation into smoking may be the most effective way of reducing the currently very high prevalence of smoking in adulthood.

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FIGURE 1.
Placement of Indonesian labour overseas 2007-2010
Source: BNP2TKI.go.id (2012)

TABLE 1

Composition of the Analytical Sample by Child's Gender and Household Migrant-Carer Status

Child's gender	Non-migrant household	Transnational Household			Total
		Father-migrant/mother carer	Mother-migrant/father-carer	Parent-migrant/other carer	
Girl	120	36	54	17	227
Boy	124	37	53	10	224
Total	244	73	107	27	451

TABLE 2

Child Ever Used Tobacco by Gender

Child ever used tobacco	Gender					
	Girl		Boy		Total	
	n	%	n	%	n	%
Yes	4	1.76	36	16.07	40	8.87
No	223	98.24	188	83.93	411	91.49
Total	227	100.00	224	100.00	451	100.00

TABLE 3

Prevalence Rates for Child Ever Used Tobacco by Household Type

Child ever used tobacco	Transnational Household (TH)									
	Non-migrant household		Father-migrant/mother-carer		Mother-migrant/father-carer		Parent-migrant/other carer		Total TH	
	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%
Yes	19	7.79	6	8.22	13	12.15	2	7.41	21	10.14
No	225	92.21	67	91.78	94	87.85	25	92.59	186	89.86
Total	244	100	73	100	107	100	27	100	207	100
									451	

TABLE 4

Percentage Distribution of Children Who Have (a) Never and (b) Ever Used Tobacco by Selected Characteristics

Household and child characteristics		Child ever used tobacco	
		(a) No %	(b) Yes %
Migrant-carer status	Both parents are non-migrants	54.74	47.50
	Father-migrant/mother-carer	16.30	15.00
	Mother-migrant/father-carer	22.87	32.50
	Parent-migrant/other-carer	6.08	5.00
Child's gender	Male	45.74	90.00
	Female	54.26	10.00 ***
Child's age (in years)	9	30.90	17.50
	10	34.55	42.50
	11	34.55	40.00
Child is stunted	No	74.45	60.00
	Yes	25.55	40.00 *
Child has psychological difficulties	No	92.94	90.00
	Yes	7.06	10.00
Carer's age	(mean age in years)	39.29	38.45
Carer's education	Primary or less	68.13	52.50
	More than primary	31.87	47.50 *
Household wealth	Low	40.63	27.50
	Medium	38.93	52.50
	High	20.44	20.00
Intergenerational household	No	82.97	80.00
	Yes	17.03	20.00
Family functioning is good	No	49.88	65.00
	Yes	50.12	35.00
Child has older siblings	No	58.64	72.50
	Yes	41.36	27.50
Family uses tobacco	No	21.65	10.00
	Yes	78.35	90.00
Friends use tobacco	No	62.53	25.00
	Yes	37.47	75.00 ***
Total		100	100
n		411	40

p<.001,

**
p<.01,

*
p<.05

TABLE 5
Hierarchical Logistic Regression Models Predicting Child Ever Used Tobacco (n=451)

Variables	Model A			Model B			Model C			Model D		
	OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI	
Migrant-carer status (<i>Non-migrant household</i>)												
Father-migrant/other-carer	1.11	0.41	3.01	1.10	0.40	3.00	0.75	0.26	2.22	0.65	0.20	2.16
Mother-migrant/father-carer	1.68	0.77	3.66	1.67	0.76	3.70	1.55	0.67	3.64	1.65	0.68	3.99
Parent-migrant/other-carer	1.35	0.27	6.60	1.40	0.28	6.97	1.36	0.26	7.21	1.31	0.23	7.35
Child is a girl	0.09	0.03	0.26 ***	0.09	0.03	0.25 ***	0.09	0.03	0.27 ***	0.12	0.04	0.36 ***
Child's age (<i>9 years</i>)												
10 years	2.30	0.90	5.92 ^	2.53	0.97	6.62 ^	2.45	0.92	6.63 ^	2.63	0.93	7.42 ^
11 years	1.89	0.73	4.86	1.84	0.71	4.79	1.95	0.73	5.22	2.14	0.76	6.04
Child is stunted				2.23	1.09	4.58 *	2.54	1.19	5.42 *	2.80	1.27	6.17 *
Child has psychological difficulties				1.21	0.37	3.92	1.81	0.53	6.13	1.95	0.53	7.22
Carer's age in years							0.99	0.94	1.04	0.99	0.94	1.04
Carer's education (<i>Primary or less</i>)												
More than primary							2.06	0.92	4.61 ^	2.46	1.05	5.76 *
Household wealth (<i>Low</i>)												
Medium							1.68	0.72	3.94	1.75	0.72	4.27
High							1.46	0.49	4.36	1.81	0.56	5.80
Intergenerational household							1.47	0.57	3.78	1.21	0.44	3.32
Family functioning is good							0.50	0.24	1.04 ^	0.44	0.20	0.98 *
Child has older siblings										0.61	0.26	1.41
Family uses tobacco										2.63	0.81	8.53
Friends use tobacco										4.33	1.87	10.02 **
Log likelihood			-116.20590			-113.80322			-108.63617			-99.156004

*** Note: p<.001

** p<.01

* p<.05

^ p<.1