

ORIGINAL ARTICLE

# Factors associated with tobacco use among male adolescents in Magway Township, Myanmar

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*Received: 14 June 2012, Revised: 21 February 2013 Accepted: 28 February 2013*

*Online available: April 2013*

## Abstract

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J Pub. Health Dev. 2013; 11(1): 19-32.

A community based cross-sectional study was carried out in Magway Township, Myanmar to examine factors influencing tobacco use among male adolescents aged 18-24 years. In March, 2012, 275 male adolescents were recruited in this study and the data were collected by using structured questionnaires. Chi-square tests and multiple logistic regression were used to examine factors associated with tobacco use.

The results showed that the prevalence of tobacco use was 49%. Among the users, 94.1% were smokeless tobacco users and 65.4% were smokers and 65.4% were dual users. The median age of the respondents was 20 years and the majority were 18-20 years. Only 1.1% had good knowledge concerning risk of tobacco use. Father education, father smoking habit, presence of friends using tobacco, receiving tobacco advertisements from company and media and parental monitoring were significant predictors of tobacco use among male adolescents. Male adolescents who have friends using tobacco were 9 times more likely to use tobacco while adjusting the other factors.

The study conducted that tobacco use among male adolescents shows no sign of decreasing. Interventions such as health promotion training for the adolescents together with their friends about the harmful effect of tobacco use should be promoted at the school level. Advertising campaigns against tobacco use are also needed to be strengthened to promote behavioral change within the specific age group and gender.

**Keywords:** Tobacco use, male adolescents, Magway Township, Myanmar

# ปัจจัยที่มีความสัมพันธ์กับการบริโภคยาสูบ ในกลุ่มวัยรุ่นชายในเมืองแมกเวย์ ประเทศพม่า

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## บทคัดย่อ

เทียน ลิน จิราพร ชมพิกุล จุฑาธิป ศีลบุตร และสมศักดิ์ วงศาवास  
ปัจจัยที่มีความสัมพันธ์กับการบริโภคยาสูบในกลุ่มวัยรุ่นชายในเมืองแมกเวย์ ประเทศพม่า  
ว.สาธารณสุขและการพัฒนา. 2556; 11(1): 19-32.

การวิจัยแบบตัดขวางเพื่อศึกษาปัจจัยที่มีอิทธิพลต่อการบริโภคยาสูบในกลุ่มวัยรุ่นชายอายุ 18-24 ปี เก็บข้อมูล  
ในมีนาคม 2555 โดยใช้แบบสอบถามกับกลุ่มวัยรุ่นชายในเมืองแมกเวย์ ประเทศพม่า จำนวน 275 คน วิเคราะห์  
ข้อมูลด้วยการทดสอบไคกำลังสองและการถดถอยลอจิสติกพหุคูณ

ผลการศึกษาแสดงให้เห็นว่า ร้อยละ 49 ของวัยรุ่นชายบริโภคยาสูบ โดยที่ในกลุ่มผู้บริโภคน้ำยาสูบ ร้อยละ 94.1  
ของผู้บริโภคน้ำยาสูบจะสูบบุหรี่แบบไร้ควัน (เคี้ยว) และร้อยละ 65.4 ของผู้บริโภคน้ำยาสูบจะสูบบุหรี่ และร้อยละ  
65.4 ของผู้บริโภคน้ำยาสูบจะสูบบุหรี่แบบไร้ควันและบุหรี่ วัยรุ่นชายมีอายุมัธยฐานที่ 20 ปี และส่วนใหญ่มีอายุ  
18-20 ปี มีเพียงร้อยละ 1.1 ของกลุ่มวัยรุ่นชายมีระดับความรู้เกี่ยวกับอันตรายในการสูบบุหรี่ในระดับดี การศึกษา  
ยังพบว่า ปัจจัยที่ส่งผลต่อการบริโภคบุหรี่ในกลุ่มวัยรุ่นชาย ได้แก่ ระดับการศึกษาและพฤติกรรม การสูบบุหรี่ของ  
พ่อ การบริโภคบุหรี่ของเพื่อน การได้รับข้อมูลผ่านการโฆษณา และการควบคุมจากพ่อแม่ โดยกลุ่มวัยรุ่นชายที่มี  
เพื่อนบริโภคยาสูบจะมีแนวโน้มที่จะบริโภคยาสูบเป็น 9 เท่า โดยควบคุมอิทธิพลของตัวแปรอื่นๆ

ผลการศึกษาชี้ให้เห็นว่า ควรจัดให้มีการอบรมด้านการส่งเสริมสุขภาพในเรื่องผลเสียต่อสุขภาพจากการบริโภค  
บุหรี่ ที่โรงเรียน ให้กับกลุ่มวัยรุ่นและเพื่อนพร้อมกัน รวมถึงควรมีโครงการรณรงค์เลิกบุหรี่ที่เหมาะสมกับกลุ่ม  
อายุและเพศ

คำสำคัญ: การบริโภคยาสูบ วัยรุ่นชาย เมืองแมกเวย์ ประเทศพม่า

## Introduction

The tobacco use is one of the biggest public health threats, and it killed nearly six million people a year. It could have killed 7.9 million people a year by 2030 in the World Health Organization's South-East Asian region with it increasing use.<sup>1</sup> Tobacco use is increasing not only in young men, but also in children and among young women and what is worse, among the poor.<sup>2</sup>

It was estimated that one in five young teenagers were victims of tobacco. Between 80-100,000 smoking children are living in Asia, one-third of the world's population, and had the second highest annual growth rate in per capita consumption among WHO regions for the last two decades, making it a lucrative market for the tobacco industry. The region is a fertile ground for tobacco and the prevalence of tobacco consumption now ranges between 55 and 80% among adult men. Every year, over 500,000 die in the region due to tobacco-related disease. Like many other developing countries, the prevalence has increased in Myanmar during the past decade. It is a natural concern that this dangerous addictive behaviors the subject of experimentation among youth, as the younger a person begins to smoke, the greater the risk of eventually contracting tobacco related diseases such as cancer and cardiovascular diseases. The Myanmar survey in 2009 reported prevalence of smoking any form of tobacco and smokeless tobacco of male adults aged 15-64 years were 44.7% and 51.4 % for respectively.<sup>3</sup>

Adolescence is one of the most crucial phases in an individual's life, during which biological and psychosocial changes together with many eventful transitions occur. Adolescents and youths ranging in age from 10 to 24 years constitute approximately

30.0% of the total population of Myanmar, many people at these age levels attend classes from middle school to university.<sup>4</sup> Unhealthy lifestyle or risk behaviors of the youth on such a significant portion of the general population would have caused serious consequences to national development.

In Myanmar culture, smoking has been socially accepted since ancient times. This could pose a major challenge to any tobacco control program. Different types of tobacco are still used in Myanmar including cheroots, cigarettes and cigars. Common smokeless forms of tobacco are betel quid with raw tobacco.<sup>5</sup> Consequently, widespread educational and information activities to promote community awareness of the dangers of tobacco are issues of national importance.<sup>6</sup>

In 2009, a total of 8,587 of adults of 50 townships in Myanmar showed that at about 44.8% and 51.4% smoked tobacco regularly and consumed smokeless tobacco respectively.<sup>7</sup> Numerous studies showing individual knowledge, attitudes and practices have been conducted and the determining factors they found related to tobacco use in the community are important in measuring the magnitude of the tobacco problem.<sup>8</sup> In addition, the study area Magway Township is situated in central region of Myanmar where traditional believes and cultural norms are still strong. A lot of universities are distributed in the regions and young people of different social classes are living in Magway Township. Therefore the data could present most of the young people of other areas of Myanmar. Additionally, ecological factors such as peers and schools have been identified as potential predictors of tobacco use. But most prior studies examined associations between ecological variables and tobacco use were limited with sample size and

potential confounding variables.<sup>9</sup> This study will contribute to information about ecological influences, especially family and school, on adolescents' behavioral. This study aimed to examine the association between tobacco use and ecological factors such as family factors, school factors and community factors, altogether with socio-economic factors.

## Methods

A community based cross-sectional study was carried out from January to March in 2012 to examine risk factors and protective factors of tobacco use among male adolescents. Using two-stage cluster sampling, five villages were randomly selected from 61 villages in Magway Township. About 51 households were randomly selected from each village. One male adolescent were selected from each household. A total of 275 male adolescents aged 18 to 24 years old were participated with their consent. The data were collected by trained interviewers. This study was approved by the Ethical Committee Board of the University of Community Health, Magway. The structured questionnaire was consisted of 7 parts; (i) individual factors (5 questions); (ii) current status of tobacco use (3 questions); (iii) knowledge (11 questions); (iv) perception towards tobacco use (17 questions), (v) family factors (10 questions); (vi)

school factors (5 questions) and lastly (vii) community factors (6 questions). The reliability of the questionnaire was assessed by using Kuder-Richardson formula (KR-20) for knowledge and Cronbach's Alpha for perception. A 5-point Likert scale was used for perception measure. The results of the pre-test were acceptable as follows: KR-20 for knowledge was 0.62 and internal consistency reliability of perception was 0.66. General descriptive statistics such as frequency, percentage, minimum, maximum, mean, and standard deviation were presented. For examining statistically significant associations, Chi-square tests, crude odds ratio were used. To determine predictors of tobacco use, multiple logistic regressions with stepwise approach was used for controlling the other variables simultaneously.

## Results

A total of 275 male adolescents participated in this study. Majority of them (60.7%) aged 18 to 20 years old. Most of them (68.0%) were still studying at the university level. In general, the respondents were still living with their families at about 77.1%. Self-reported tobacco use of all forms (smoking and chewing) was about 49.0%. Almost all (94.1%) chewed tobacco leave.

**Table 1** Prevalence of tobacco use among male adolescents

<b>Tobacco use</b>	<b>Number</b>	<b>Percent</b>
<b>Non users</b>	<b>139</b>	<b>51.0</b>
<b>Tobacco users</b>	<b>136</b>	<b>49.0</b>
- smoking	89	65.4
- chewing	128	94.1
- both smoking and chewing	89	65.4

The association between individual factors and tobacco use was described in Table 2. Age, student status, having enough income and perception were found to be significantly associated with tobacco use, whereas education, living together with family and knowledge level showed no association. The majority of the respondents (71.2 %) aged 21 to 24 used tobaccos. The age group was highly significant ( $p < 0.001$ ) with tobacco use. The younger age group was 0.4 times less likely to use than the older age group. The students were 0.53 times less likely to use tobacco. Nearly 63% of respondents were students, among them more than half (55.9%) used tobacco. The respondents who were not students revealed

higher percentage (70.5%) of tobacco use than students (55.9%). It was significantly associated with tobacco use ( $p = 0.012$ ). Among the male adolescents who did not live with family, there was greater percentage for tobacco use. However the association is not statistically significant. Regarding having enough income, there was a strong association with tobacco use ( $p = 0.005$ ). There was no association between knowledge level and tobacco use. The perception level of the male adolescents was significantly associated with tobacco use ( $p = 0.006$ ). Male adolescents with negative perceptions were more than two times likely to use tobacco.

**Table 2** Association between individual factors and tobacco use among male adolescents

Individual factors	n	Tobacco use		Crude OR	95% OR		p-value
		Yes (%)	No (%)		Lower	Upper	
<b>Age (years)</b>							<0.001***
18-20	167	50.0	50.0	0.40	0.26-0.66		<0.001***
21-24	108	71.2	28.8	1			
<b>Student status (currently)</b>							0.012*
In school	174	55.9	44.1	0.53	0.32-0.87		0.012*
Out of school	101	70.5	29.5	1			
<b>Education</b>							0.157
University students	187	46.5	53.5	0.69	0.42-1.15		0.157
High school or lower	88	55.7	44.3	1			
<b>Living with family</b>							0.164
Yes	212	47.2	52.8	0.67	0.38-1.18		0.166
No	63	57.1	42.9	1			
<b>Having enough income</b>							0.005**
Yes (always)	118	42.4	57.6	0.46	0.27-0.78		0.004
Yes (sometimes)	50	40.0	60.0	0.41	0.21-0.82		0.012
No	107	61.7	38.3	1			
<b>Knowledge level <sup>a</sup></b>							0.490
Poor	154	51.3	48.7	1.18	0.73-1.90		0.490
Fair to good	121	47.1	52.9	1			
<b>Perception level</b>							0.006**
Negative perception	200	54.5	45.5	2.12	1.23-3.68		0.007**
Positive perception	75	36.0	64.0	1			

\*p-value <0.05, \*\*p-value <0.01, \*\*\*p-value <0.001

<sup>a</sup> Knowledge scoring; Min-Max 1-11, Median=6; Poor level (<7 points), Fair to Good (7 or more)

Father smoking was significantly associated with tobacco use (p=0.004) as shown in Table 3. Father and mother education levels were also significantly related. However, family closeness and mother smoking had no significant association with tobacco use. The parental monitoring showed significant association with

tobacco use. Having parents knew what their sons do outside the home was associated with adolescent tobacco use (p=<0.001). Having parents asked their sons the reason of return home late also showed a high association with tobacco use (p=0.015).

**Table 3** Association between family factors and tobacco use among male adolescents

Family factors	n	Tobacco use		Crude OR	95% OR		p-value
		Yes (%)	No (%)		Lower	Upper	
<b>Father smoking</b>							0.004**
Yes	106	60.7	35.3	2.05	1.25-3.37		0.004**
No	169	42.6	57.4	1			
<b>Mother smoking</b>							0.194
Yes	17	64.7	35.3	1.95	0.7-5.43		0.201
No	256	48.4	51.6	1			
<b>Father Education</b>							0.042*
Primary school	80	50.0	50.0	1.86	0.9-3.67		0.721
Middle school	80	47.0	33.0	2.65	1.34-5.26		0.005*
High school	52	27.0	25.0	2.01	0.95-4.27		0.068
Bachelor or Higher	63	22.0	41.0	1			
<b>Mother Education</b>							0.016*
Primary school	104	61.5	38.5	2.07	0.98-4.37		0.06
Middle school	72	38.9	61.1	0.82	0.37-1.82		0.63
High school	60	45.0	55.0	1.06	0.47-2.39		0.89
Bachelor or Higher	39	43.6	56.4	1			
<b>Family closeness</b>							0.905
High level	98	49.0	51.0	1.03	0.63-1.69		0.907
Low level	177	49.7	50.3	1			
<b>Parents knew what their sons do outside the home <sup>a</sup></b>							<0.001***
Yes	153	34.6	65.4	0.25	0.15-0.41		<0.001***
No	122	68.0	32.0	1			
<b>Parents asked reasons when returning home late <sup>a</sup></b>							0.015*
Yes	240	46.7	53.3	0.40	0.19-0.86		0.015*
No	35	68.6	31.4	1			
<b>Enjoying being with family</b>							0.216
Yes	256	48.4	51.6	0.55	0.21-1.44		0.212
No	19	63.2	36.8	1			
<b>Feeling togetherness in family</b>							
Yes	149	49.0	51.0	0.96	0.60-1.54		0.868
No	126	50.0	50.0	1			

\*p-value <0.05, \*\*p-value <0.01, \*\*\*p-value <0.001

<sup>a</sup> item in parental monitoring scale

Table 4 illustrates the association between school factors and tobacco use. School factors such as presence of friends using tobacco products, peer pressure, academic achievement and school achievement were strongly associated with tobacco use (p-value <0.001). Peer closeness showed no association with tobacco use.

**Table 4** Association between school factors and tobacco use among male adolescents

School factors	n	Tobacco use		Crude OR	95% OR		p-value
		Yes (%)	No (%)		Lower	Upper	
<b>Peers using tobacco</b>							<0.001***
Yes	181	64.1	35.9	6.60	3.70-11.80		<0.001***
No	94	21.3	78.7	1			
<b>Peer pressure</b>							<0.001***
Yes	116	63.8	36.2	2.76	1.68-4.52		<0.001***
No	159	39.0	61.0	1			
<b>Academic achievement</b>							<0.001***
Fail	19	78.9	21.1	13.98	3.8-50.68		<0.001***
Pass	204	53.9	46.1	4.36	2.12-8.96		<0.001***
Distinction	52	21.2	78.8	1			
<b>School closeness</b>							<0.001***
High level	78	66.7	33.3	0.37	0.22-0.64		<0.001***
Low level	197	42.6	57.4	1			
<b>Peer closeness</b>							0.982
Higher level	75	49.3	50.7	1.01	0.59-1.71		0.980
Lower level	200	49.5	50.5	1			

\*p-value <0.05, \*\*p-value <0.01, \*\*\*p-value <0.001

Associations between community factors and tobacco use were presented in Table 5. Receiving tobacco advertisements from companies were significantly associated with tobacco use (p < 0.001) and watching tobacco advertisements from media had association with tobacco use (p=0.036). The findings also demonstrated that male adolescents in communities

who were aware of tobacco law were less likely to use tobacco. Tobacco products and tobacco or snuff shops were available in the communities. In addition, providing free tobacco or smokeless tobacco during cultural events such as funeral was common practice. Nevertheless, all above mentioned factors played no significant association with tobacco use.



**Table 5** Association between community factors and tobacco use among male adolescents

Community factors	n	Tobacco use		Crude OR	95% OR		p-value
		Yes (%)	No (%)		Lower	Upper	
<b>Tobacco availability</b>							0.606
Yes	255	49.0	51.0	0.79	0.32-1.96		0.607
No	20	55.0	45.0	1			
<b>Tobacco and snuff shops in the community</b>							0.394
Yes	269	49.1	50.9	0.48	0.09-2.68		0.404
No	6	66.7	33.3	1			
<b>Knowing about tobacco law</b>							0.297
Yes	64	43.8	56.2	0.74	0.42-1.30		0.731
No	211	51.2	48.8	1			
<b>Tobacco/snuff free offerings in cultural events</b>							0.492
Yes	241	47.3	52.7	0.49	0.23-1.03		0.490
No	34	64.7	35.3	1			
<b>Receiving advertisements from tobacco companies</b>							<0.001***
Yes	130	60.8	39.2	2.39	1.47-3.88		<0.001***
No	145	39.3	60.7	1			
<b>Watching tobacco advertising in media</b>							0.035*
Yes	151	43.7	56.3	0.60	0.37-0.97		0.036*
No	124	56.5	43.5	1			

\*  $p$ -value <0.05, \*\*  $p$ -value <0.01, \*\*\*  $p$ -value <0.001

Using the stepwise method in multiple logistic regression analysis, potential risk and protective factors were tested simultaneously. Those significant factors were presented in Table 6. Father education, father smoking, peers using tobacco, and exposing to tobacco company advertisements were found to be significant risk factors of tobacco use. The most significant risk

factor of tobacco use was peers using tobacco. Male adolescents who had friends using tobacco had about 9 times more likely to use tobacco products when controlling other factors. Higher of father education level, parental monitoring, and watching advertisements in mass media played as protective factors of tobacco use.

**Table 6** Multiple logistic regression for predictors of tobacco use among male adolescents

Variables	Adjusted OR	95% CI of OR		p-value
		Lower	Upper	
Father education				
High school or higher	0.45	0.23	0.87	0.017**
Junior high school or lower	1			
Father smoking				
Yes	1.9	1.03	3.48	0.039*
No	1			
Friends using tobacco products				
Yes	9.35	4.58	19.06	<0.001***
No	1			
Receiving advertisements from tobacco company				
Yes	2.83	1.50	5.29	<0.001***
No	1			
Watching tobacco advertisements from media				
Yes	0.34	0.17	0.65	<0.001***
No	1			
Parents knew what their sons do outside the home <sup>a</sup>				
Yes	0.30	0.16	0.55	<0.001***
No	1			
Parents asked reasons when returning home late <sup>a</sup>				
Yes	0.28	0.10	0.74	0.010**
No	1			

\*p-value <0.05, \*\*p-value <0.01, \*\*\*p-value <0.001

<sup>a</sup> item in parental monitoring scale

## Discussion

Prevalence of all forms of tobacco use among male adolescents in this study was 49%. This result was slightly higher as compared to a study in Myanmar in 2009 which had the prevalence of 44.7%.<sup>3</sup> The older age group of male adolescents were more like to use tobacco than the younger age group (71% versus 50%). Nearly 47.2% of male adolescents who were living together with their parents used tobacco while 57.1% of those who were not living with their families did.

Regarding to student status, there was significant relationship with tobacco use. The schools might be reinforced students by law that prohibit them to smoke in the school environment. In line with academic achievement of respondents, the findings demonstrated a higher proportion of tobacco use among those failed than those who got distinction level (78.9% versus 21.2%).

Concerning being students, adolescents who did not study and might not have jobs may get stress. They have more spare time to go out and easy to use tobacco. About 39% did not have enough income and 23% had to work as daily wages. Most of respondents are students have to depend on their parents. Having enough income was significant associated with tobacco use. Lower or not enough monthly pocket money will make the adolescents stress and will make their smoking habit continue. This was due to the fact that when the adolescents live in groups outside their homes, there is higher tendency to do something wrong together such as smoking, more than when they live with family members. Only 1.1 percents were in good knowledge about risk of tobacco use and 27.3% had good perception level.

There was significant association between level of perception and tobacco use. Knowledge could not determine tobacco use; it was more likely to depend on their perception.<sup>10-13</sup>

Tobacco use of adolescents was significantly associated with father smoking while there was no association with mother smoking. Because male gender considers father as their nearest role model and most of them are in universities and so they may be less controlled by their mothers. Parent education levels were also significant predictors for adolescent tobacco use. The lack of education among parents could also be one of the reasons as the parents might not be aware of the ill effects of smoking; therefore, they are less likely to advise their children against smoking. Those students having parents with less education were more likely to smoke than those whose fathers had bachelor degree or higher.

As regard to family factors (parental monitoring), there were highly significant associations with the tobacco use. On the contrary, family closeness was found to be unrelated to tobacco use after controlling for other potential factors. The finding of the present study is consistent with a study in Texas showing that high expectation and pressure from parents can lower self-esteem of the adolescents, leading to early low academic performance and later school dropout. The family became less important at the time when most adolescents traditionally left the schools, entering the workforce.<sup>14-15</sup>

Regarding school factors, tobacco use was significantly associated with high level of school closeness, higher academic achievement, friends using tobacco and peer pressure. These results suggest that schools with relatively few tobacco using peers provide less

opportunity for adolescents to expose them to risk factors and achieve poor academic performance. This situation could turn adolescents to smoking behavior as a coping lifestyle.<sup>13,16</sup>

There was not much different percentage between the higher level and lower level of peer closeness in tobacco use in bivariate analysis. This is because male adolescents treat all their friends like the same level in Myanmar culture. In line with literature review, peer using tobacco was found to be highly significant risk factor of tobacco use in Asian societies. Students having many peer smokers were more likely to experiment with smoking and later became smokers.<sup>17-21</sup>

In this study, receiving tobacco advertisement from companies was one of the significant predictors of tobacco use after controlling other variables. The reason is that tobacco companies aimed their messages at adolescents who are in the risk groups.<sup>18</sup> In the meantime, effective theory based programs in tobacco prevention and cessation programs were quite limited.<sup>22</sup> Nevertheless, this present study had some limitations. First, cross-sectional study could not measure causal effect relationship between risk factors and tobacco use. Second, there are some extraneous variables such as cultural and individual difference factors could not be measured. Third, the multiple logistic regression model was not taken account for mediating variables. Nonetheless, those significant findings indicated risk profile among male adolescents in communities setting which may help to tailor the interventions within the context of Myanmar culture.

## Recommendations

The study revealed that the more tobacco using peers adolescents have, the more they likely to use tobacco. Therefore, it is recommended that programs for preventing tobacco use in adolescents should include their peers. Establishing peer education and counseling, together with the family members enhancing through community involvement need to be promoted. In addition, it is necessary to strengthen and support tobacco free environment such as within school ground and communities. Future research should be more focused on the effective communications of smoking education and cessation campaign in community health service facilities.

## Acknowledgements

I express my deep sincere gratitude to the Rector of University of Community Health, Magway Township, and all of research coordinators in the University who did a wonderful job during data collection, and lastly I am also thankful to all respondents.

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