

Prevalence, correlates, and changes in tobacco use between 2006 and 2010 among 13-15 year Moroccan school attending adolescents

Masood Ali Shaikh

Abstract

Tobacco use is a preventable cause of disease and death globally. Adolescents using tobacco tend to continue its use in adulthood. Analysis of data from Moroccan Global School-based Student Health Surveys for 2006 and 2010 showed statistically significant differences in prevalence of current cigarette smoking as well as current use of other tobacco products, among school attending 13-15 year old boys and girls within the year 2006 and 2010; with boys having higher prevalence than girls in each year. Combined prevalence of cigarette smoking i.e. between both boys and girls showed statistically significant difference between 2006 and 2010; with a higher prevalence in 2010. Use of tobacco in multivariate analysis of 2010 data, was found to have statistically significant associations with anxiety disorders, gender, truancy, depression, suicidal ideation, inadequate parental monitoring, and parental smoking.

Keywords: Tobacco Use, Adolescents, Morocco.

Introduction

Tobacco use is a major cause of premature death and a leading but an entirely preventable risk factor for many chronic diseases including cancers, respiratory and cardiovascular diseases.¹⁻⁴ Many health behaviours including smoking begin in adolescence that is often carried into adulthood.⁵⁻⁷ Tobacco use among adolescents has been associated with anxiety disorders, truancy, depression, suicidal ideation, inadequate parental monitoring, and parental smoking.⁷⁻¹¹ Two previous nationally representative surveys i.e. 'Global Adult Tobacco Surveys' (GATS) in Morocco on tobacco use among 13 to 15 years old reported the cumulative prevalence rate of cigarette smoking as 2.6% (95% CI: 1.9, 3.4), and 3.5% (95% CI: 2.7, 6.4) in 2001 and 2006, respectively.¹² Prevalence rates for boys were 3.9% (95% CI: 2.9, 5.3) and 4.3% (2.9, 6.4) in 2001 and 2006, respectively. While for girls prevalence rates were 1.0%

(95% CI: 0.4, 2.2) and 2.1% (95% CI: 1.1, 3.9) in 2001 and 2006, respectively. Cumulative prevalence rates for use of other tobacco products were 9.2% (95% CI: 8.1, 10.5) and 9.0% (95% CI: 7.5, 10.8) in 2001 and 2006, respectively. Prevalence rates for boys were 10.4% (95% CI: 9.0, 11.9) and 10.3% (95% CI: 7.8, 13.5) in 2001 and 2006, respectively. While for girls prevalence rates were 7.6% (95%CI: 6.0, 9.7) and 6.9% (95% CI: 5.5, 8.7) in 2001 and 2006, respectively.¹² Two new nationally representative surveys i.e. Global School-based Student Health Surveys have been conducted, and in this study results are presented on prevalence, correlates, and changes in tobacco use between 2006 and 2010 among 13-15 year olds among Moroccan school attending adolescents.

Methods and Results

The World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), and the Moroccan national authorities have conducted Global School-based Student Health Surveys (GSHS) in Morocco, in 2006 and 2010. Both surveys used similar methodology by employing a two-stage cluster sample design to produce nationally representative estimates for all students in the 1st, 2nd, and 3rd Prep. Schools were selected using probability proportional to size during the first stage, while classes were randomly selected in the second stage; with all students being eligible to participate in the selected classes. The details of both surveys as well as data are available, and were accessed from the CDC's GSHS website.¹³ To describe factors associated with self-reported current tobacco use; defined as having smoking cigarettes and/or having used other tobacco products on one or more days in the past 30 days, in Moroccan school attending adolescents aged 13 to 15 year old, data for 2010 GSHS were used. While comparisons were made between the prevalence of cigarette smoking, and use of other tobacco products, between boys and girls; as well as between the two GSHS surveys of 2006 and 2010. In addition comparisons were also made between 2006 and 2010 for parental use of tobacco products and exposure to other people smoking in the presence of adolescents. Design-based analysis using STATA-13 was

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Independent Consultant, Gulshan-e-Iqbal, Karachi, Pakistan.

Correspondence: Email: masoodali1@yahoo.com

Table-1: Self reported tobacco use, parental tobacco use and experience of others smoking in one's presence.

Type of tobacco use and experiences	2006	2010	Year difference (Between 2006 & 2010) P-Value	Boys vs. Girls (Within Same Year) P-Value	
	Percent (95% CI)	Percent (95% CI)		2006	2010
Current cigarette smoking				0.005	0.001
Boys	4.6 (2.6, 6.6)	7.4 (4.7, 10.1)	0.088		
Girls	1.3 (0.03, 2.2)	2.3 (1.2, 3.5)	0.135		
Total	3.0 (1.9, 4.2)	5.2 (3.6, 6.7)	0.024		
Current use of other tobacco products				0.001	<0.001
Boys	8.7 (5.4, 12.0)	10.2 (7.3, 13.0)	0.480		
Girls	2.9 (1.6, 4.1)	4.1 (2.4, 5.8)	0.227		
Total	5.9 (3.9, 7.9)	7.5 (5.5, 9.5)	0.237		
During the past 7 days people have smoked in my presence on one or more days	53.3 (49.8, 56.7)	39.0 (36.0, 42.1)	<0.001		
One or both of my parents/guardians use some form of tobacco	26.1 (23.6, 28.7)	21.9 (19.8, 23.9)	0.009		

Table-2: Respondent's demographic, and psychosocial descriptions; and associations with tobacco use in multivariate analyses.

Factor	Total n* (%**)	Crude OR*** (95% CI\$)	Adjusted OR*** (95% CI\$)
Age (years)	@13.98 (0.23)	1.44 (1.06, 1.97)	0.99 (0.94, 1.05)
13	648 (31.8)		
14	764 (38.4)		
15	585 (29.8)		
Sex		2.74 (1.86, 4.04)	4.05 (2.69, 6.1)
Male	1016 (54.5)	1	1
Female	968 (45.5)	0	0
During the past 7 days, on how many days people smoked in your presence?		3.15 (2.42, 4.11)	3.02 (2.4, 3.76)
Never	1207 (61.0)	0	0
One or more days	770 (39.0)	1	1
Which of your parents or guardians use any form of tobacco?		2.38 (1.76, 3.22)	1.64 (1.33, 2.02)
Neither	1537 (78.1)	0	0
One or both	432 (21.9)	1	1
During the past 30 days, how often did your parents/guardians check to see your homework was done?		1.57 (1.22, 2.02)	0.88 (0.67, 1.16)
Sometimes/most of the time/always	1208 (61.2)	0	1
Never/rarely	759 (38.8)	1	0
During the past 30 days, how often did your parents/guardians understand your problems and worries?		1.04 (0.79, 1.36)	Not Used in the final model
Sometimes/most of the time/always	838 (42.8)	0	
Never/rarely	1124 (57.2)	1	
During the past 30 days, how often did your parents/guardians really know what you were doing with your free time?		1.75 (1.31, 2.33)	1.55 (1.15, 2.09)
Sometimes/most of the time/always	1037 (53.3)	0	1
Never/rarely	911 (46.7)	1	0
During the past 12 months, how often have you felt lonely?		1.24 (0.91, 1.69)	Not Used in the final model
Never/rarely	1164 (59.9)	0	
Sometimes/most of the time/always	812 (40.1)	1	
During the past 12 months, how often have you been so worried about something that you could not sleep at night?		1.61 (1.18, 2.20)	1.33 (1.04, 1.70)
Never/rarely	1254 (64.9)	0	0
Sometimes/most of the time/always	699 (35.1)	1	1
During the past 12 months, did you ever seriously consider attempting suicide?		3.58 (2.09, 6.15)	3.07 (1.94, 4.85)
No	1646 (84.3)	0	0
Yes	317 (15.7)	1	1
During the past 30 days, on how many days did you miss classes or school without permission?		5.22 (3.43, 7.95)	3.34 (2.19, 5.09)
0 Days	1254 (63.8)	0	0
1 or more days	700 (36.2)	1	1

@ Population mean and Standard Error. *Unweighted frequencies. **Weighted percentages. ***Odds Ratios. \$Confidence Intervals.

done using simple and multivariate logistic regression; factors found statistically significant at $p < 0.05$ level on simple logistic regression were used for the multiple logistic regression model. For design-based comparison of tobacco use prevalence differences in proportions between boys and girls and between the two surveys, parental use of tobacco products, and exposure to other people smoking in respondent's presence for 2006 and 2010; t-tests were used to determine the statistical significance, with p -value of < 0.05 as previously reported.¹⁴

Table-1 lists the prevalence rates of tobacco use in respondents, parental use of tobacco, and exposure of respondents to other people smoking in their presence; including comparisons between boys, and girls, as well as comparisons between the years 2006 and 2010. For the prevalence of current cigarette smoking as well as current use of other tobacco products, statistically significant differences were found between boys and girls within the year 2006 as well as 2010; with boys having higher prevalence than girls. There were no statistically significant differences between the years 2006 and 2010 for the prevalence of current cigarette smoking among either boys or girls. However, cumulative prevalence i.e. between both boys and girls showed statistically significant difference between 2006 and 2010; with a higher prevalence in 2010.

Table-2 provides the respondent's demographic and psychosocial factors description, as well as association with tobacco use in bivariate and multivariate analyses. The overall tobacco use prevalence in 2010, defined as having smoked cigarettes and/or used any tobacco products on one or more days during the past 30 days, was 9.5% [95% confidence interval (CI): 7.1%, 12.0%] ($n = 1,997$). In male students the prevalence was 13.0% (95% CI: 9.2%, 16.7%), while among females the prevalence was 5.2% (95% CI: 3.3%, 7.0%). Parents/guardians having understood respondent's problems/worries in the past 30 days, and respondent's having felt lonely in the past 12 months were not found to be statistically significant in the bivariate logistic regression model, and hence were dropped from the final multivariate logistic regression model. Final model included age, sex, others smoking in respondent's presence, parental use of tobacco, parents checking respondent's homework, parents knowing what respondent's were doing in their free time, worrying to the point of not being able to sleep at night, having seriously considered attempting suicide, and having missed classes without permission. Results of the goodness-of-fit-test concluded that this model was a

good fit for the survey data. All these factors were found to be statistically significant, with the exception of age, and parents checking respondent's homework. Male adolescents aged 13 to 15 years old were four times more likely to be using tobacco products in the past 30 days compared to females, after adjusting for all the other variables in the multivariate model.

Conclusion

Compared to GATS survey of 2006, the prevalence rates for current smokers and users of other tobacco products for GSHS 2006 survey were comparable and fell within the 95% confidence intervals. Boys were more likely to be current cigarette smokers as well as users of other tobacco products, compared to girls in 2006 as well as 2010. The combined prevalence of current cigarette smokers went up in a statistically significant manner from 2006 to 2010. This augurs for the need of better health education and promotion campaigns to address this addictive behaviour among adolescents in Morocco. There was a statistically significant difference among adults in terms of not smoking in the presence of school attending adolescents, with prevalence rates going down from 2006 to 2010. Parents/guardians use of tobacco products of these adolescents also showed statistically significant reduction from 2006 to 2010. These are positive developments; however, multivariate analysis for tobacco use among adolescents in 2010 shows that previously reported associations with anxiety disorders, truancy, depression, suicidal ideation, inadequate parental monitoring, and parental smoking hold in Morocco.⁷⁻¹¹ Paediatricians and general practitioners in concert with parents, teachers and health policymakers need to more effectively control tobacco use among school attending adolescents in the country.

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