

Prevalence and Factors Associated with Tobacco Consumption Among People Lived in Pong Klang Village, Pa Daet Sub-district, Mae Suai District, Chiang Rai Province, Thailand

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ABSTRACT

Background: Nowadays, the prevalence of tobacco consumption in Thailand was reported in the decreased trend from 2017 to 2019. However, in the same measure to detect among people living in rural areas in Chiang Rai Province, it was found the increase. **Objective:** This study aimed to determine the prevalence of and determine factors associated with tobacco consumption among people in Pong Klang Village, Mae Suai District, Chiang Rai Province. **Methods:** A cross-sectional study was conducted to gather the information from people aged 15 years and over. Data were collected between March and April 2020. A validated questionnaire and ST-5 were used for data collection. Data were described in forms of percentage, mean, standard deviation. Logistic regression was used to detect the associations between variables at the significance level of $\alpha=0.05$. **Results:** Eighty six people were participated the study; 64.0% were female, and mean of age was 57.6 ± 14.3 years. The prevalence of tobacco consumption was found at 22.1%. In the multivariate model, sex was found to be associated with tobacco consumption; male had a greater chance of tobacco consumption than female with a 7.34 time (95%CI = 2.01-26.86). **Conclusion:** A specific public health intervention is needed to be developed and intervened for reducing tobacco use particularly among males aged 15 years and over.

Keywords: Tobacco consumption, Prevalence, Factors, Thailand

Introduction

In 2019, there were 1.12 billion people those aged 15 years and over using tobacco globally, and among those 942 millions were male [1]. In Thailand, more than 10.7 million of people aged 15 years and over were reported in use of tobacco which accounted for 19.1% in 2017 [2]. While in 2018 and 2019, there were reported at 17.5% and 17% respectively [3]. In Chiang Rai Province, the rate of tobacco consumption among people aged 15 to 70 years was 6.4% (44,248 persons) in 2017. While in 2018, it was 9.2% (62,588 persons), and 10.0% (67,702 persons) in 2019 [4].

Mae Suai District is one of 18 districts in Chiang Rai Province, which was reported the tobacco consumption rate among people aged 15 to 70 at 8.3% in 2017. The rates were presented at 8.5% and 11.4% in 2018 and 2019 respectively. There are 7 sub-districts in Mae Suai District, and Pa Daet Sub-district is the second largest in Mae Suai District. The tobacco consumption rates were reported at 8.9%, 6.2%, and 13.2% in 2017-2019, respectively [4].

Pong Klang Village is located in Pa Daet

Subdistrict, and many key health indicators were reported under the standard rates of the Ministry of Public Health, Thailand. The study aimed to estimate the prevalence of and determine factors associated with tobacco consumption among people aged 15 years and over lived in Pong Klang Village, Pa Daet Sub-district, Mae Suai District, Chiang Rai Province, Thailand.

Methods

Study design

A cross-sectional study was conducted to collect information from people aged 15 years and over lived in Pong Klang Village. The study was conducted between March and April, 2020.

Study setting

Pong Klang, Pa Daet Subdistrict, Mae Suai District, Chiang Rai, Thailand was the study setting.

Study sample

People aged 15 years and over lived in the study setting were eligible to be selected into the study. The

Krejcie and Morgan formula was used to calculate the sample size, and at least 86 participants required for the analysis.

Research instruments

Validated questionnaire was used to collect the data. It consisted of 9 questions to collect the general information such as sex, age, education, occupation, etc. In addition, the standard stress test (ST-5) which developed by the Department of Mental Health, Ministry of Public Health was used to detect the level of stress among the participants [6].

Before use for data collection, the questionnaire was piloted in 20 subjects who had similar characteristics with the study participants. The purposes to do the pilot were to improve the reliability and validity of the questionnaire. The Cronbach's alpha coefficient was found at 0.70.

Data collection

The list of people aged 15 years and over was obtained from village headman. All eligible people who met the inclusion criteria were invited to participate in the study. All participants were explained about the purposes, process and also other essential information of the study. Before starting the interview, participants were asked their agreement to participate by verbal method. Each interview lasted 15 minutes.

Data analysis

Descriptive data analysis was performed to present percentage, mean, and standard deviation. Logistic regression was used to detect the associations between variables at the significance level of alpha 0.05.

Ethical consideration

Verbal consent was used to get the agreement from participants after explaining the whole process of the study to the participants. They kept the rights to withdraw from the study in anytime. All obtained data were kept confidentially.

Results

A total of 86 participants were recruited into the study; 64.0% were females, and the mean of age was 57.6 ± 14.3 years, 22.1% were underweight and 46.5% were overweight. 39.5% were illiterate, 12.8% were unemployed, and 37.2% were detected having an underlying disease. The tobacco consumption rate was 22.1%, while 54.7% used alcohol, 94.19% had low level of stress, and 5.81% had moderate level of stress (Table 1).

In the simple logistic regression, sex and BMI were found to be associated with tobacco consumption with the $OR=8.24$ (95%CI=2.58-26.27) and $OR=4.12$, (95%CI=1.22-13.95), respectively. While age, education, occupation, underlying disease, alcohol use,

Table 1 General characteristics of people at Pong Klang village (n=86)

Characteristics	n	%
Sex		
Male	31	36.0
Female	55	64.0
Age (years)		
15-59	57	66.3
≥60	29	33.7
Education		
Yes	52	60.5
No	34	39.5
Occupation		
Employed	75	87.2
Unemployed	11	12.8
BMI		
Underweight	19	22.1
Normal weight	27	31.4
Overweight	40	46.5
Underlying diseases		
Yes	32	37.2
No	54	62.8
Tobacco consumption		
Yes	19	22.1
No	67	77.9
Alcohol use		
Yes	47	54.7
No	39	45.3
Exercise		
Yes	68	79.1
No	18	20.9
Stress level (ST-5)		
Low	81	94.2
Moderate	5	5.8

exercise, and stress level were not found to be associated with tobacco consumption (Table 2).

In the multiple logistic regression analysis, only sex was found to be associated with tobacco consumption. Males had a greater odds of tobacco consumption than females with a 7.34 time (95%CI=2.01-26.86) (Table 3).

Discussion

In Thailand, the prevalence of tobacco consumption rate in people aged 15 years and over was 17.0% [3]. The prevalence of tobacco consumption was 9.2 % in Chiang Rai Province [4]. We have found that the tobacco consumption rate among the Thai people living in rural area such as Pong Klang Village is over the provincial and national rates. The rate was found a higher in older age and those poor education. Moreover, the people in rural Thailand are facing the problem of stress and having high underlying diseases rate which could attributed many health outcomes in later.

Table 2 Univariate analysis of tobacco consumption among person in Pong Klang village (n=86)

Factor	Tobacco consumption		Total	Crude OR (95%CI)	P-value
	Yes	No			
	(n=19) n (%)	(n=67) n (%)			
Sex					
Female	5(36.36)	50(63.64)	55	1	
Male	14(45.16)	17(54.84)	31	8.24(2.58-26.27)	<0.001*
Age (years)					
≥ 60	5(17.24)	24(82.76)	29	1	
15-59	14(24.56)	43(75.44)	57	1.56(0.50-4.87)	0.440
Education					
Yes	11(21.15)	41(78.85)	52	1	
No	8(23.53)	26(76.47)	34	1.15(0.41-3.23)	0.790
Occupation					
Employed	17(22.67)	58(77.33)	75	1	
Unemployed	2(18.18)	9(81.82)	11	0.76(0.15-3.85)	0.740
BMI					
Overweight	5(12.50)	35(87.5)	40	1	
Normal weight	10(37.04)	17(62.96)	27	4.12(1.22-13.95)	0.023*
Underweight	4(21.05)	15(78.95)	19	1.87(0.44-7.94)	0.390
Underlying diseases					
Yes	4(12.50)	28(87.50)	32	1	
No	15(27.78)	39(72.22)	54	2.69(0.81-8.98)	0.110
Alcohol consumption					
No	5(12.82)	34(87.18)	39	1	
Yes	14(29.79)	33(70.21)	47	2.89(0.93-8.91)	0.070
Exercise					
Yes	13(19.12)	55(80.88)	68	1	
No	6(33.33)	12(66.67)	18	0.47(0.15-1.50)	0.200
Stress level					
Low	18(22.22)	63(77.78)	81	1	
Moderate	1(20.00)	4(80.00)	5	0.88(0.09-8.33)	0.910

* Significant level at $\alpha=0.05$

In our study, males had a greater chance to be a tobacco user than females. This coincides with a study conducted in India, it was reported that the prevalence of tobacco use was significantly higher (39.6%) among males when compared to females (5.0%) [7]. It was also supported by a study in Malaysia, males (43%, 95%CI=41.1-44.6) had a greater prevalence to use tobacco than females (1.4%, 95%CI=1.1-1.7) [8]. Many other studies had supported the findings of us as well [9-11].

Other factors were not found the associations with tobacco use among the rural people of Thailand from our study. However, a study in South Africa was clearly presented that age was associated with tobacco use [12]. Those who were older age had a greater chance to use tobacco than younger age group. Many studies were reported on the associations between education and tobacco use particularly those who were poor education were at a higher risk of tobacco use than those having a higher education [13-15]. While some other studies were presented that type of work or occupation were associated with tobacco use [16-18].

In our study BMI was not detected as the factor associated with tobacco use among the people in rural Thailand which was supported by a study conducted by

Zhang [19]. However, a study conducted among the Korean who lived in California, it was found that those who had a low BMI was associated with tobacco consumption and had a greater chance to use tobacco than those who had overweight at 22 times [20].

One very interesting factor that did not see the association in our study was the relationship between tobacco use and having underlying diseases. Since the underlying disease in our study, we focused on asthma, hypertension and diabetes mellitus which are very common among the tobacco users. However, a study conducted in Japan, it was found that underlying diseases was closely associated with tobacco use among the Japanese [21]. Another study, it was reported that having asthma was associated with tobacco use significantly [22].

Alcohol consumption was not found to be associated with tobacco consumption in our study. While some other studies were presented that alcohol used was strongly associated with tobacco consumption [23]. In our study, exercise and stress were also detected that there were not associated with tobacco use. However, many other studies were reported the associations between exercise and tobacco use [24, 25]. Jiménez-Treviño, et al. reported that stress

Table 3 Multivariate analysis of factor associated with tobacco use.

Factor	Tobacco consumption		Total	AOR (95%CI)	P-value
	Yes (n=19) n (%)	No (n=67) n (%)			
Sex					
Female	5(36.36)	50(63.64)	55	1.00	
Male	14(45.16)	17(54.84)	31	7.34(2.01-26.86)	0.003*
Age (years)					
≥ 60	5(17.24)	24(82.76)	29	1.00	
15-59	14(24.56)	43(75.44)	57	2.21(0.38-12.72)	0.380
Education					
Yes	11(21.15)	41(78.85)	52	1.00	
No	8(23.53)	26(76.47)	34	1.06(0.21-5.47)	0.940
Occupation					
Employed	17(22.67)	58(77.33)	75	1.00	
Unemployed	2(18.18)	9(81.82)	11	1.65(0.19-14.53)	0.650
BMI					
Overweight	5(12.50)	35(87.50)	40	1.00	
Normal weight	10(37.04)	17(62.96)	27	4.21(0.89-19.97)	0.070
Underweight	4(21.05)	15(78.95)	19	3.99(0.43-36.91)	0.220
Underlying diseases					
Yes	4(12.50)	28(87.50)	32	1.00	
No	15(27.78)	39(72.22)	54	3.8(0.86-16.74)	0.080
Alcohol consumption					
No	5(12.82)	34(87.18)	39	1.00	
Yes	14(29.79)	33(70.21)	47	2.95(0.73-11.96)	0.130
Exercise					
Yes	13(19.12)	55(80.88)	68	1.00	
No	6(33.33)	12(66.67)	18	0.55(0.13-2.24)	0.400
Stress level (ST-5)					
Low	18(22.22)	63(77.78)	81	1.00	
Moderate	1(20.00)	4(80.00)	5	0.53(0.01-26.69)	0.750

* Significant level at $\alpha=0.05$

was a key factor to contribute tobacco use [26] and it was also supported by a study of Ami Cohen, et al.[27] which was presented in the same direction that stress was associated with tobacco use.

Conclusions

The people live in rural areas of Thailand are using a high rate of tobacco. A large proportion of them are living in poor education and economic status. The stress that driving from daily life and also other factors such as economic constraints are acting as the major contributors to use tobacco. Public health intervention should be developed and implemented to reduce the tobacco consumption rate among the people in rural area particularly those young adults.

Limitations

Some limitations has been found in this study. First, participants were collected from a community then the findings might not be able to generalize to other populations. Second, some variables such as income, marital status, religion and ethnic are not included in the analysis, there might impact the results.

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