Tobacco Use and Domestic Violence in Thailand: Matching Case-Control Study

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Background: Tobacco dependence is not only a major health risk which can be prevented, but also is a starting point to use other substances and domestic violence.

Objective: To study the association between tobacco use and domestic violence in Thai families.

Methods: The study was designed as a matched case-control study in women aged 15 years and over, living in households across the country, both in urban and rural areas, in 9 provinces of Thailand. The total of 600 participants were included in this study which half of them are from domestic abused families while the other half are from nonabused families. The criteria of age, education, economic status, housing area and region were determined. Differences between groups were performed using chi-square test and *t* test.

Results: Domestic violence families (55.7%) used tobacco as compared to 42% of families without violence who hadn't used tobacco. The tobacco used families were significantly having more domestic violence 1.63 times (95% CI 1.17 - 2.29) than non-tobacco used families.

Conclusions: This study showed that tobacco used in the families were more likely to have domestic violence than non-used families. This could raise awareness on tobacco used to create campaigns to reduce the rate of tobacco used which causes domestic violence.

Keywords: Tobacco, Domestic violence, Thai society, Case-control study

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Introduction

Domestic violence is a social phenomenon with social conditions, culture and family conditions.[1] It is a factor that has determined and nourished the Thai society and other societies for a long time.[2] Moreover, there are several phenomena that reflected the increasing intensity and more complex daily violence resulting in difficulties to prevent and solved. The victims and by standers are affected physically and psychologically.[3] It is a common problem in every society, every socioeconomic status, every profession, every race, and every religion, so the government and private organizations emphasize more on prevention and solving the problems.

Past study has already shown that the factors causing violence are consistent, especially the factors related to male/husband such as drinking,[4] substance abused, history of childhood trauma and also socioeconomic problems. From literature review, the top 3 factors that related to tobacco used are alcoholic drinking or substance abused (24.4%), stress from work (13.1%), and lack of understanding and love from the family (12.6%)[5] which are consistent with the study of Chunsandee et al[6] in 2014; socioeconomic status, substance abused, alcoholic drinking, and stress. And also consistent with a study from Ross et al[7] which found that the family income, substance abused, alcohol, and gambling of the husband are predicting factors of domestic violence in the couples. The studies about domestic violence still lack a thorough study of the association between tobacco use and domestic violence. The researcher are interested in studying the association between tobacco use and domestic violence in Thai families.

Smoking is the cause of the disease which makes a performance of the body deteriorate and premature death.[8] According to the National Statistical Office's survey,[9] smoking is a global health problem in 2015 there were 10.9 million tobacco users (19.9%). The male tobacco consumption was 39.3%. While the female population was only 1.8%. Tobacco consumption in the Thai population aged 15 years and over in the past 24 years (1991 - 2015) is likely to decline. The Thai population aged 15 years and over, who consumed tobacco in 1991 was 12.26 million (32.0%), down to 10.9 million (19.9%). In 2015, the average reduction was 0.5% per year. Tobacco in are not only a major health risk which can be prevented but also are a starting point to use other substances.

The present study aimed to examine the association between tobacco used and domestic violence in Thai families.

Methods

Design, Setting, and Population

This was a matched pair case-control study. From the literature review, there is no established numbers of participants for the study before in Thailand. This pilot study grouped subjects into pairs, based on 5 blocking variables defined by Parker et al[10] (ie, with similar age, education, economic status, housing area, and region). Within each pair, subject was in different status as in family with or without domestic violence. Sample size calculations were based on 1-case per control, odds ratio (OR) of 1.584, 1-sided tests (α = .05) with a power of 80%. The proportion of smoking families without domestic violence was 0.417. Thus, the study required a sample size of 300 pairs (300 families with/without domestic violence each).

This study was conducted in women aged 15 years and over, living in households across the country, both in urban and rural areas, in 9 provinces of Thailand. Statistical methods have been used to maintain the control factors of each household related to family violence such as age, education, economic status, housing area, and region to balance both groups. Then, the groups were compared by using statistics which showed that there was no statistically significant difference between both groups. Other associated factors are those with domestic violence and the limitation of this study. The collecting data period was performed from May to August 2017.

Statistical Analysis

The STATA version 14 (StataCorp. Version 14. College Station, TX: StataCorp LP; 2015) had been used as

statistical analysis. Information about the participants in the case-control study was initially explored using descriptive statistics (including frequency, proportion for categorical variables, mean ± standard deviation [SD], and range for continuous variables). Comparisons between cases and controls were made using chi-square test for categorical variables and *t* test for continuous variables.

To identify risk factors for domestic violence, conditional logistic regression was used to estimate matched OR and 95% confidence interval (CI). Finding OR for matched-pairs case-control study[11] was analyzed for association between smoking families and domestic violence by calculating (number of matched pairs where the case was exposed and the control was not exposed)/(number of matched pairs where the case was not exposed and the control was exposed) or B divided by C (Table1).

Ethical Considerations

This study was approved by the Faculty of Medicine Ramathibodi Hospital, Mahidol University Ethics Committee, No. MURA2017/302 on May 19, 2017.

Results

This study explored families in the scope of domestic violence all over the country in different areas, rural and urban of 5 regions in Thailand. Overall, there were 300 families with and 300 families without domestic violence. They were selected randomly from all families without domestic violence in the same age, education, economic status, housing area, and region matched case-control study. They were tested and showed no significant difference ($P > .05$) (Table 2).

This study showed that 167 domestic violence families (55.7%) using tobacco. The family without domestic violence had tobacco used only 126 families (42%). There was a statistically significant difference with the relationship at $P = .002$. Families with tobacco used had a 1.63 chance of violence in Thai families as compared to nonsmoking families (Table 3).

Table 1.   Case-Control Data and Matched-Pairs

Case Pair-Member	Control Pair-Member	
	Exposed	Not Exposed
Exposed	A	B
Not Exposed	C	D

Table 2.   Control Factors of Demographic Characteristics (Age, Education, Economic Status, Housing Area, and Region) of 300 Families and 300 Without Domestic Families

Variable	No. (%)		P Value[*]
	Domestic Violence Family		
	Yes (n = 300)	No (n = 300)	
Age, y			
Mean ± SD (min - max)	51.3 ± 14.8 (15 - 80)	51.4 ± 14.7 (16 - 83)	.92
Education			
None	32 (10.7)	32 (10.7)	
Elementary	151 (50.3)	150 (50.0)	.85
Higher education	117 (39.0)	118 (39.3)	

Table 2. Control Factors of Demographic Characteristics (Age, Education, Economic Status, Housing Area, and Region) of 300 Families and 300 Without Domestic Families (Continued)

Variable	No. (%) Domestic Violence Family		P Value[*]
	Yes (n = 300)	No (n = 300)	
Economic status (sufficiency of monthly income)			
More income than expenditure	68 (22.7)	68 (22.7)	
Income is low, but not left	121 (40.3)	121 (40.3)	1.00
Income is not fair	111 (37.0)	111 (37.0)	
Housing			
Urban	162 (54.0)	155 (51.7)	
Rural	138 (46.0)	145 (48.3)	.61
Region			
Bangkok	78 (26.0)	94 (31.3)	
Central	99 (33.0)	89 (29.7)	
North	63 (21.0)	62 (20.7)	.53
Northeast	53 (17.7)	48 (16.0)	
South	7 (2.3)	7 (2.3)	

Abbreviation: SD, standard deviation.

[*] These were 4 variables (education, economic status, housing, and region) using chi-square test whereas age (continuous data) using *t* test with the significant level of .05.

Table 3. Association Between Tobacco Use and Domestic Violence by Logistic Regression Analysis

Smoking	No. (%) Domestic Violence		OR (95% CI)	P Value
	Yes (n = 300)	No (n = 300)		
Yes	167 (55.7)	126 (42.0)	1.63 (1.17 - 2.29)	.002
No	133 (44.3)	174 (58.0)		

Abbreviations: CI, confidence interval; OR, odds ratio.

Discussion

This study investigated the effects of domestic violence on smoking. Subjects used in the study were 300 domestic violence families compared with 300 families with no violence. Both groups had comparable background. With some limitations where factors associated with prior family violence such as personality, parenting, and substance abuse cannot be fully controlled, 5 important variables (ie, age, education, economic status, housing area, and region) were controlled by matching in order to find the relationship of our interests.

The results of the analysis of the relationship between domestic violence and smoking showed that rate of

tobacco use in domestic violence families was 55.7%. When analyzing the relationship between smoking and domestic violence, the relationship was statistically significant at $P = .002$, and the tobacco use had a 1.63 fold increase in family violence compared to nonsmokers.

Smoking is a cause of death for 5 million people per year. One fifth of male and one in twenty female died from tobacco use. From Thai fifth health surveillance in 2014, the rate of tobacco use in the population was 19.5%.[12] For the relationships in the family, domestic violence is not well studied, but previous studies showed that tobacco use was a first step to using other substances such as alcohol. Most of the studies were from the perspective of the victims of abuse which cause health-compromising behaviors: tobacco use, alcoholic drinking, and obesity.[13] These are consistent with the study from Cheng et al,[14] who showed that abused women were more likely to smoke during pregnancy than nonabused women 1.95 times. It is also consistent with previous studies showing that victims of intimate partner violence are more likely to run risks of smoking than nonvictims.[15, 16]

The results of this study can to publish among the population to raise awareness of the harm and problems of tobacco use on the domestic violence among family members, create campaign to reduce the rate of tobacco use which causes domestic violence, create campaign to reduce domestic violence creating understanding and love within families, promote health and support the peaceful society, and also implement policy on solving the problem of smoking and domestic violence in the country.

Conclusions

From the study on associations between tobacco use in 300 families with domestic violence and 300 families without, tobacco use was found in 55.7% of domestic violence family but only 42% in the non domestic violence family. There was a 1.63 chance of domestic violence when compared between tobacco use and non-tobacco use family.

Acknowledgments

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การสูบบุหรี่กับปัญหาความรุนแรงในครอบครัวไทย: การศึกษาเปรียบเทียบระหว่างกลุ่มศึกษาและกลุ่มควบคุมแบบจับคู่

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บทนำ: พฤติกรรมการสูบบุหรี่เป็นสาเหตุของการเกิดโรคที่สามารถป้องกันได้ และการสูบบุหรี่เป็นอบายมุขปฐมภูมิ เนื่องจากการสูบบุหรี่เป็นพฤติกรรมเสี่ยงที่นำไปสู่การใช้สารเสพติดตัวอื่น และพฤติกรรมการใช้ความรุนแรง

วัตถุประสงค์: เพื่อศึกษาความสัมพันธ์ของการสูบบุหรี่กับการเกิดความรุนแรงในครอบครัวไทย

วิธีการศึกษา: การศึกษาเปรียบเทียบระหว่างกลุ่มศึกษาและกลุ่มควบคุมแบบจับคู่ (Matching case-control study) กลุ่มตัวอย่างคือ สตรีจากครอบครัวที่มีความรุนแรง จำนวน 300 ครอบครัว เปรียบเทียบกับสตรีจากครอบครัวที่ไม่มีความรุนแรง จำนวน 300 ครอบครัว จากนั้นวิเคราะห์ความแตกต่างระหว่างกลุ่มโดยใช้สถิติ Chi-square test และ *t* test

ผลการศึกษา: ครอบครัวที่มีความรุนแรงมีการสูบบุหรี่คิดเป็นร้อยละ 55.7 ส่วนครอบครัวที่ไม่มีความรุนแรงมีการสูบบุหรี่ร้อยละ 42 เมื่อวิเคราะห์ความสัมพันธ์ระหว่างการสูบบุหรี่กับความรุนแรงในครอบครัวพบว่า การสูบบุหรี่มีโอกาสเสี่ยงต่อการเกิดความรุนแรงในครอบครัวเท่ากับ 1.63 เท่า (95% CI 1.17 – 2.29)

สรุป: การศึกษานี้แสดงให้เห็นถึงความสัมพันธ์ที่ชัดเจนของการสูบบุหรี่เป็นปัจจัยที่เกี่ยวข้องกับการเกิดความรุนแรงในครอบครัวไทย เมื่อเปรียบเทียบกับครอบครัวที่ไม่สูบบุหรี่ จึงควรตระหนักถึงปัญหาดังกล่าวและรณรงค์โครงการลดอัตราการสูบบุหรี่ซึ่งเป็นสาเหตุของความรุนแรงในครอบครัว

คำสำคัญ: บุหรี่ ความรุนแรงในครอบครัว สังคมไทย การศึกษาเปรียบเทียบระหว่างกลุ่มศึกษากับกลุ่มควบคุม

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