Prospective Cohort Study of Thai Children

SECONDHAND SMOKING IN PREGNANT WOMEN AND TIME OF THE FIRST TOOTH ERUPTION

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ABBREVIATION

- BW Birth Weight
- DTE Delayed first Tooth Eruption
- GA Gestational Age
- PCTC Prospective Cohort study of Thai Children
- SHS Secondhand Smoking

INTRODUCTION

- DTE: problems / dental development
  - hold space
  - align into correct position
  - chew and speak
- Influence factors

INTRODUCTION

- Secondhand smoking (SHS)
- Negative effect
- Common in Thai males
- High prevalence (29.8%) of SHS

OBJECTIVE

To determine whether SHS during pregnancy period delayed the time of first tooth eruption in Thai infants

METHODS – Study Design

- Part of PCTC
- Large birth cohort study: > 4,000 infants, 5 sites in Thailand
- October 15, 2000 and September 14, 2002

METHODS – Study Design

Inclusion criteria:

- accessible year-round
- 800 to 900 newborns on average each year
- intend to live 5 years
- long-term commitment with the project

METHODS – Study Design

- Informed consent
- The National Ethics Committee of the Ministry of Public Health of Thailand
- Khon Kaen University Ethics Committee for Human Research

METHODS – Independent variables and outcomes

- Family members
- In-person interview, diary records, medical records
- Secondary data – community and demographic variables

METHODS – Independent variables and outcomes

Independent variables

- SHS pregnancy: Yes/No
- Number of cigarettes

Outcomes

- DTE: Yes/No
- Time to eruption of the first tooth

METHODS – Potential bias

- Mother's age, education level, income
- Alcohol consumption
- Child's gender
- BW
- GA
- Study site

METHODS – Statistical Analysis

- Description analysis
- Cox proportional regression
- Multiple logistic regression
- Generalized estimating equation (GEE)
- Stata SE 12.0

p-value < .05

RESULTS – Study sites

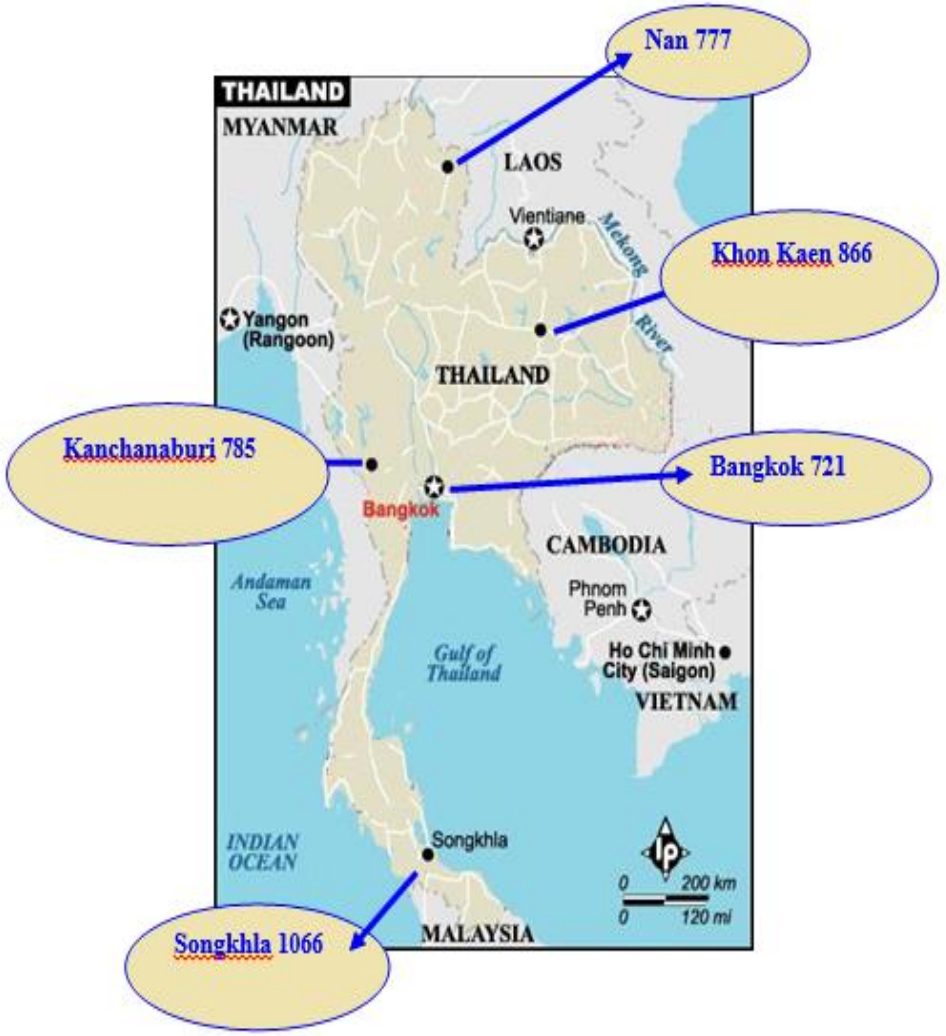
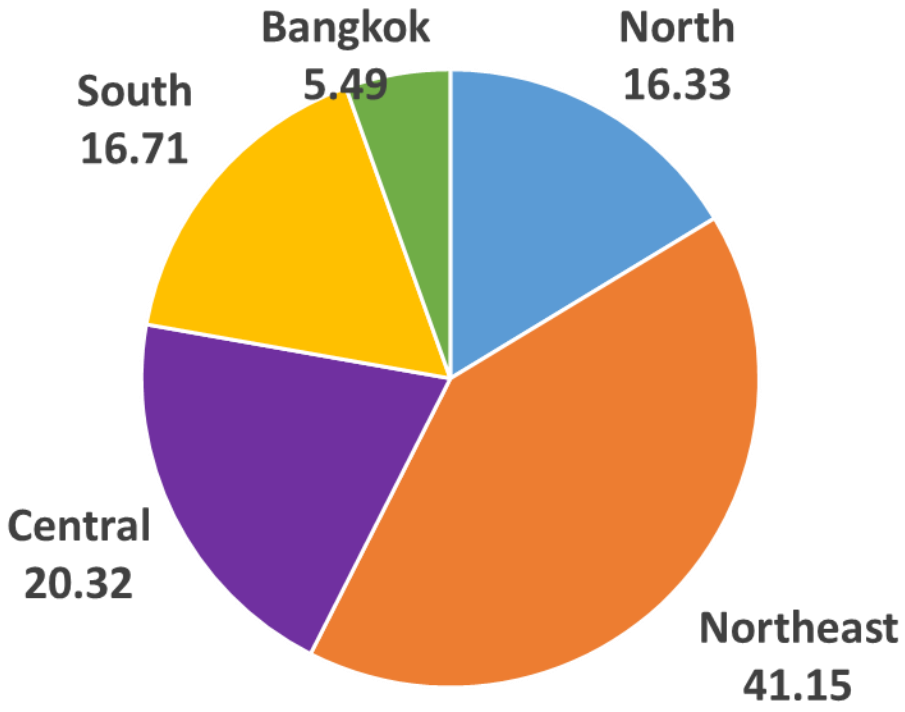


Figure 1. Number of study members and location of PCTC sites in Thailand

RESULTS – Demographic Characteristics

Low Birthweight



Preterm birth

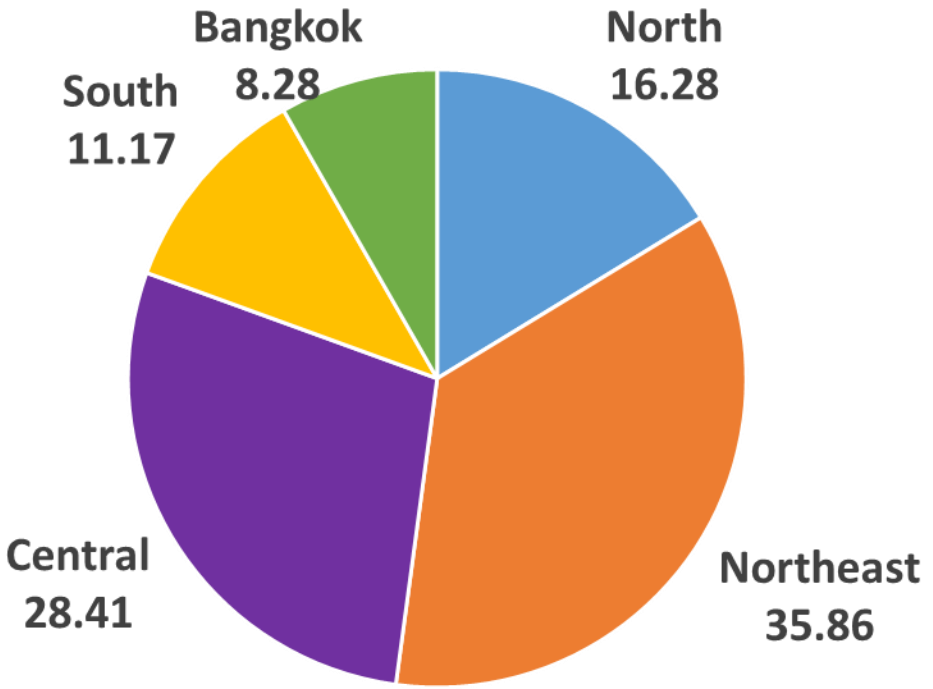


Figure 2. Demographic characteristics in five study sites

RESULTS – Demographic Characteristics

Characteristics	Total (n)	Sites (%)				
		North (n=xxx)	Northeast (n=xxx)	Central (n=xxx)	South (n=xxx)	Bangkok (n=xxx)
Mother's age (mean ± SD)	**27.1 ± 6.3**	26.8 ± 6.3	27.6 ± 6.5	24.8 ± 5.4	27.9 ± 6.5	29.5 ± 5.9
Alcohol drinking	179	13.97	7.26	20.67	18.44	39.66
Infant's gender (females)	2,276	19.73	26.19	20.52	18.37	15.20

Table 1. Demographic characteristics in five study sites

RESULTS

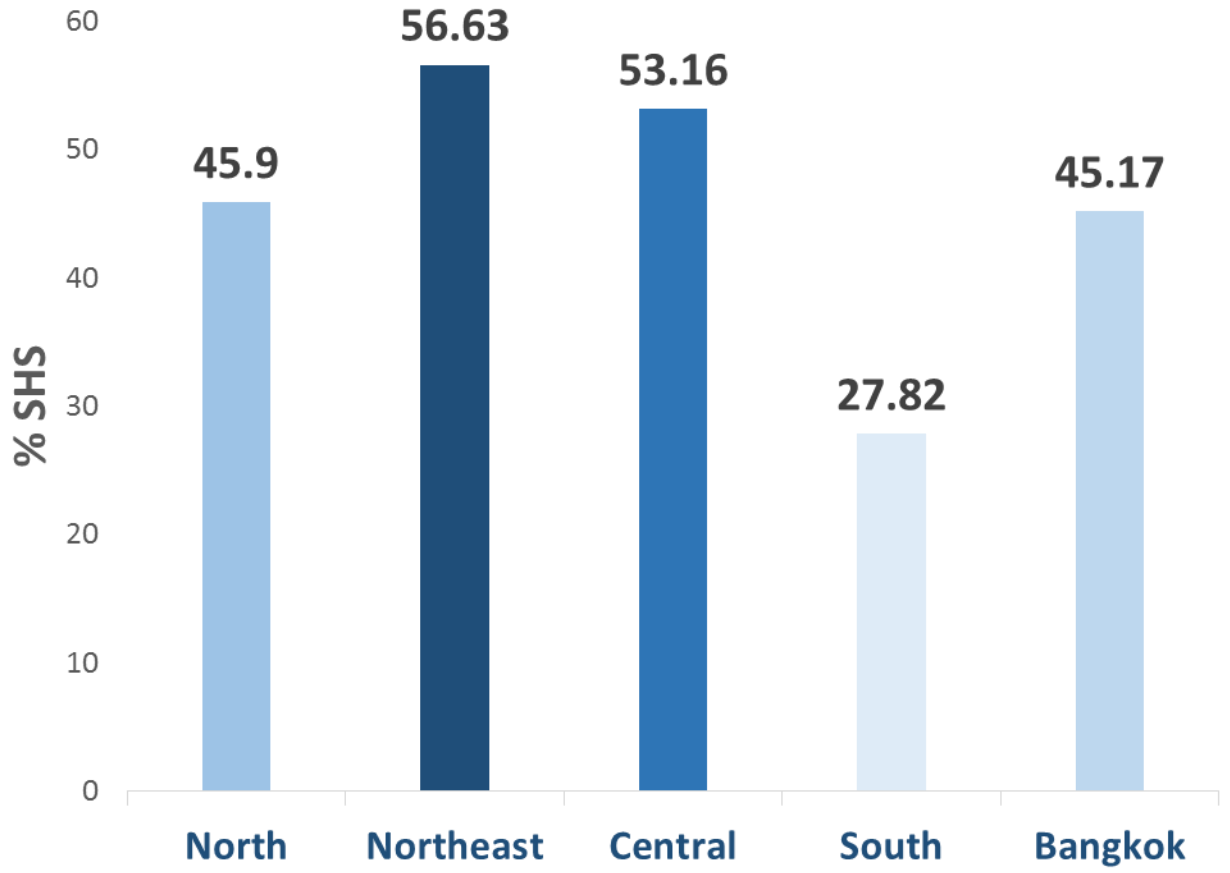


Figure 3. Percentage of SHS in pregnant women in each study site

RESULTS

SHS status	Crude HR (95% CI)		Adjusted HR* (95% CI)	
Non-SHS	1.00	Reference	1.00	Reference
SHS	0.94	0.89 – 1.00	0.98	0.89 – 1.08

**HR adjusted for child's gender, maternal age, parents' highest education level, income, BW, GA, and alcohol drinking during pregnancy, stratifying by study site.*

Table 2. Crude and adjusted HR of not having first tooth eruption

Factors	Crude HR (95% CI)		Adjusted HR* (95% CI)	
SHS				
Yes	1.22	1.05 – 1.42		
No	1.00		1.00	
Gender				
Female	0.67	0.58 – 0.78		
Male	1.00		1.00	
BW				
Normal BW	0.61	0.51 – 0.74		
Low BW	1.00		1.00	
GA				
Normal	0.79	0.64 – 0.96		
Preterm birth	1.00		1.00	

Table 3. Crude and adjusted OR of DTE

RESULTS

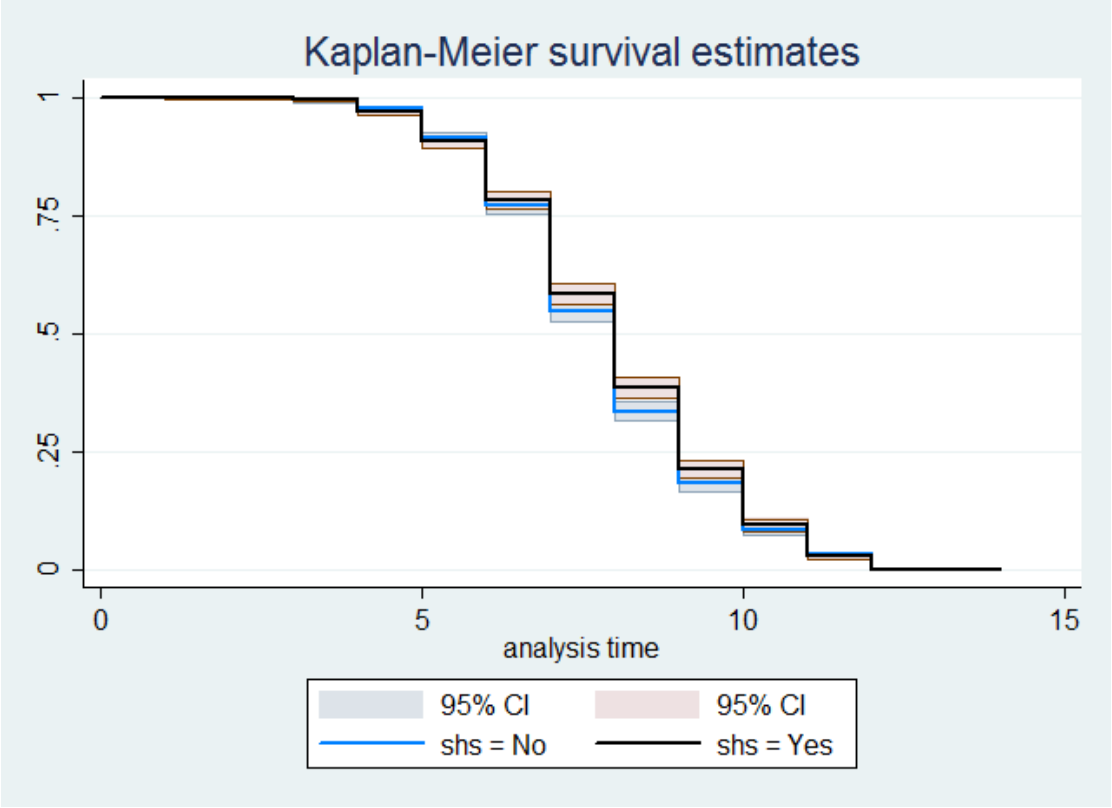


Figure 4. Difference in the probability of not having erupted tooth between SHS group and non-SHS group

RESULTS

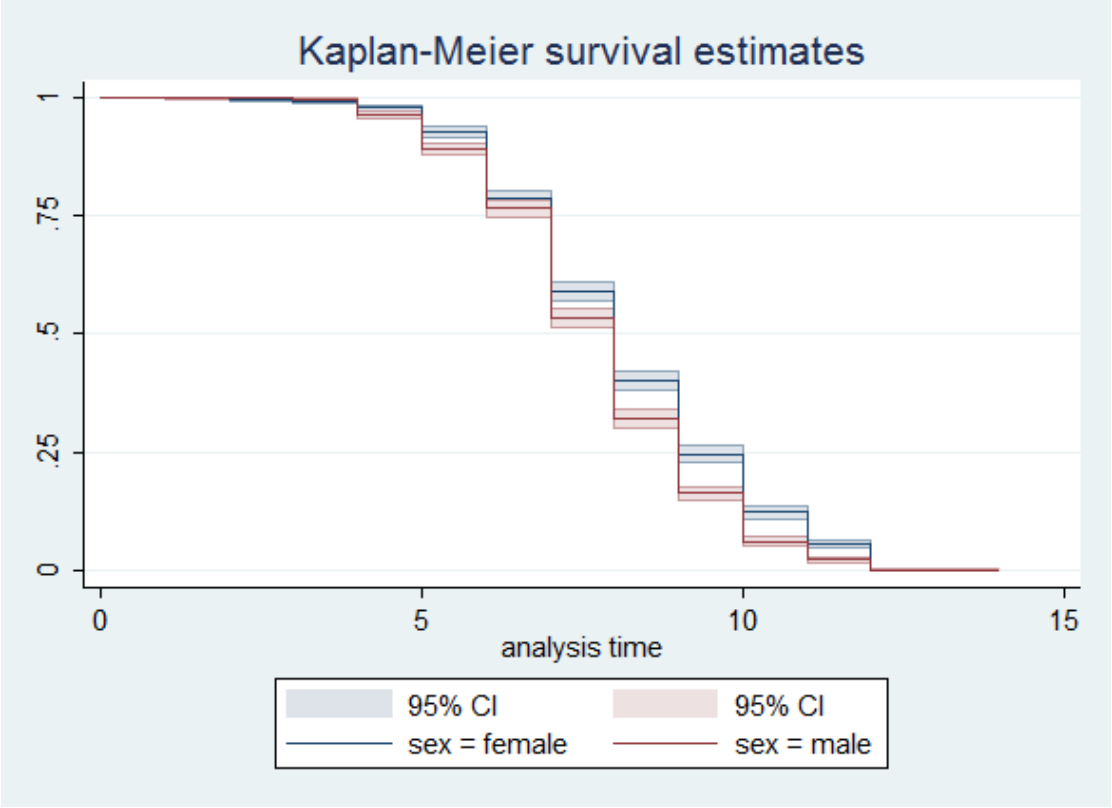


Figure 5. Difference in the probability of not having erupted tooth between females and males

DISCUSSION

- The time of first tooth eruption was delayed in SHS women
- Consistent with other previous studies

DISCUSSION

Low social economic status → insufficient nutrition

Young maternal age →
- lacking of physical maturity
- growing
- infant's development competing

DISCUSSION

Birth weight and preterm birth → lack of vitamin D absorption

Gender → differences in sexual maturity
embryologic timing

DISCUSSION – Strength

- Strongest observational design
- Multiple risk factors
- Large birth cohort study
- National representative
- Minimal loss to follow-up

DISCUSSION – Limitation

- Information bias – trained and calibrated the interviewers
- Potential confounding factors – adjusting
- Causal inferences – suspect
- Change of association over time?

CONCLUSION

- SHS in Thai pregnant women was associated with delayed time of the first tooth eruption in infants
- Many problems in the dental and nutritional development of infants
- Further studies

ACKNOWLEDGEMENTS

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thank you . . .