Prospective Cohort Study of Thai Children

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

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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 examine the association between SHS during pregnancy and 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

- 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
- Generalized estimating equation (GEE)
- Stata SE 12.0

p-value < .05

RESULTS – Study sites

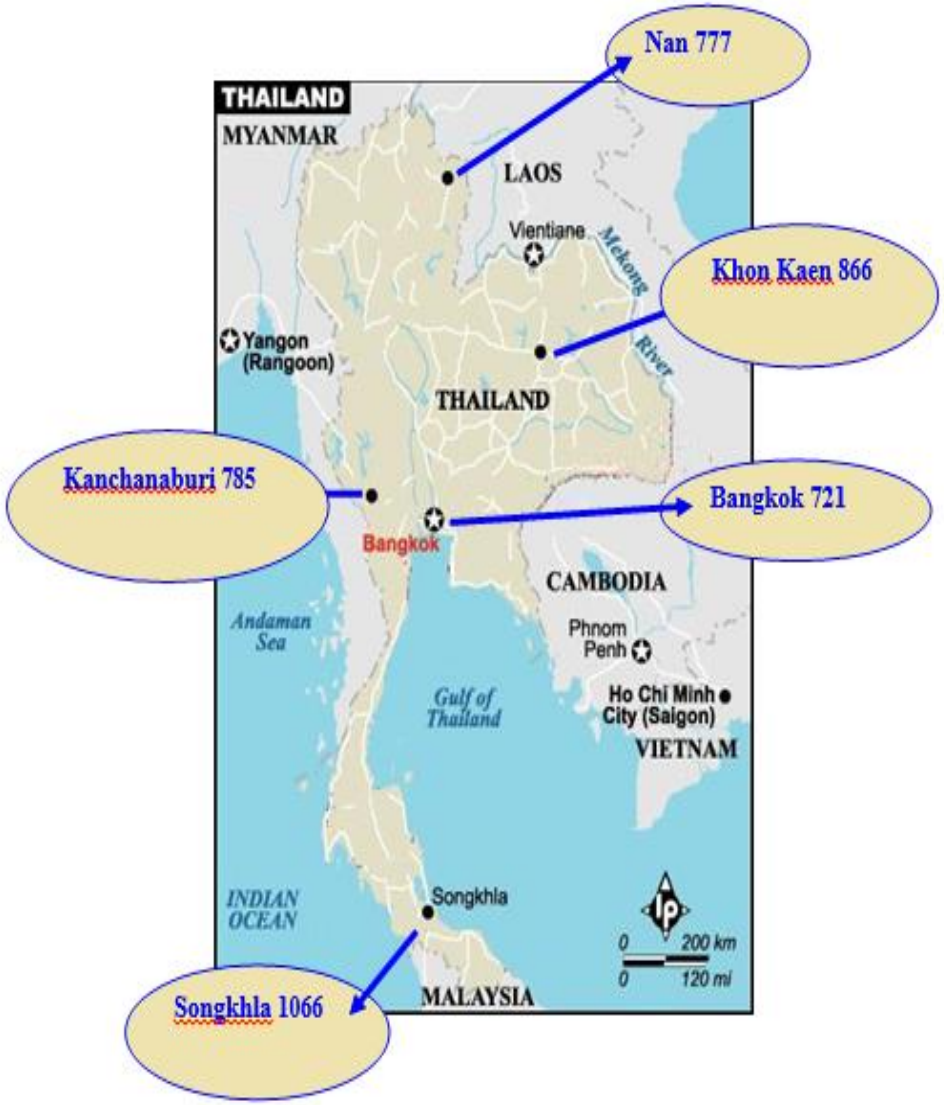
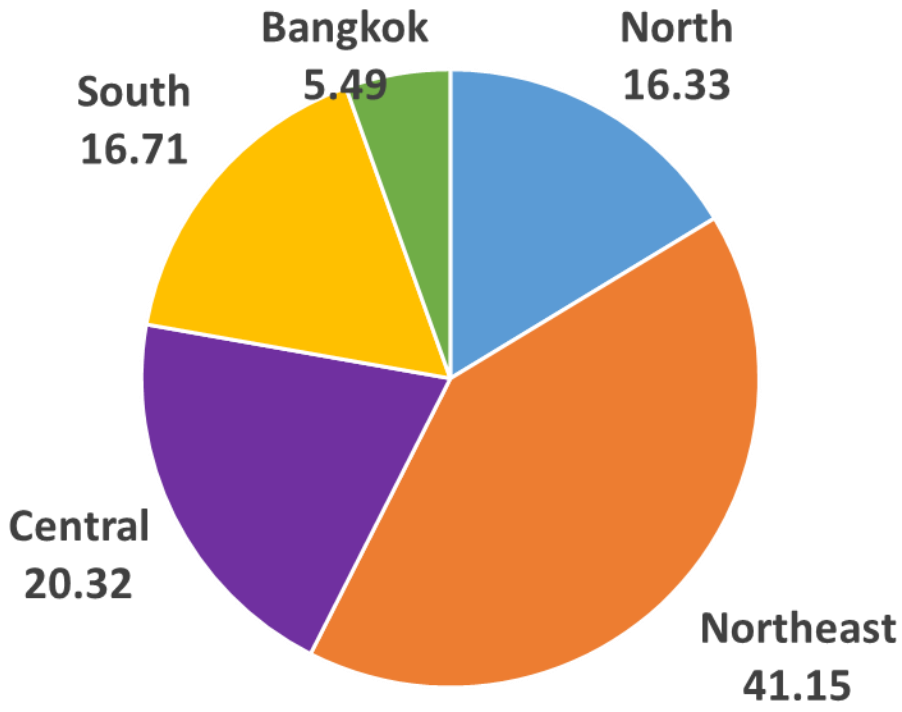


Figure 1. Number of study members and location of PCTC sites in Thailand

RESULTS – Demographic Characteristics

Low Birthweight



Preterm birth

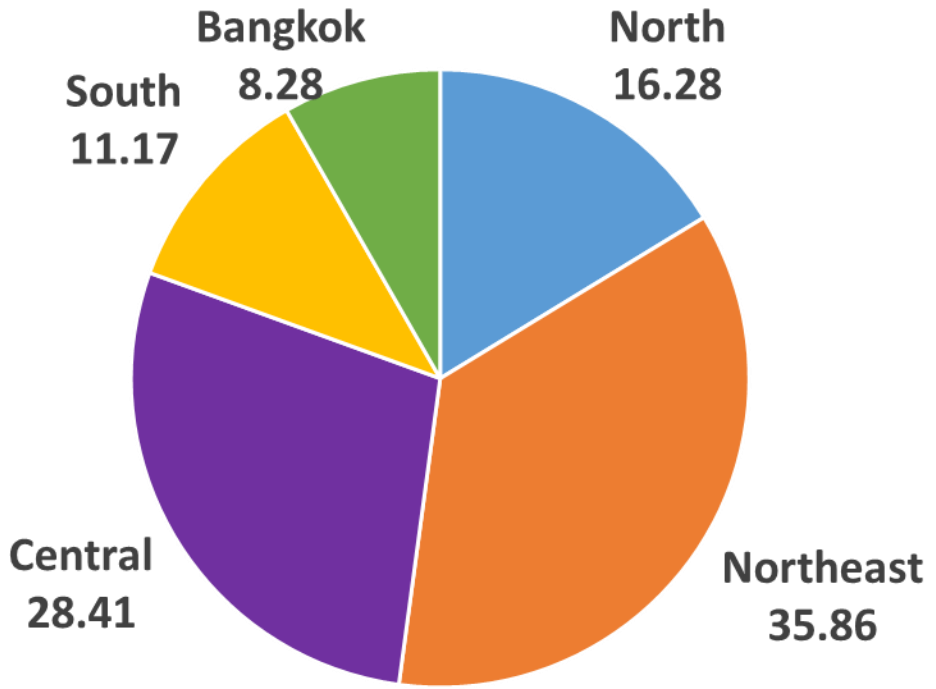


Figure 2. Demographic characteristics in five study sites

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
Education (Primary School)	2,315 (51%)	25.40	32.35	27.21	10.41	4.62
Alcohol drinking	179 (3.9%)	13.97	7.26	20.67	18.44	39.66
Infant's gender (females)	2,276 (50%)	19.73	26.19	20.52	18.37	15.20

Table 1. Demographic characteristics in five study sites

RESULTS

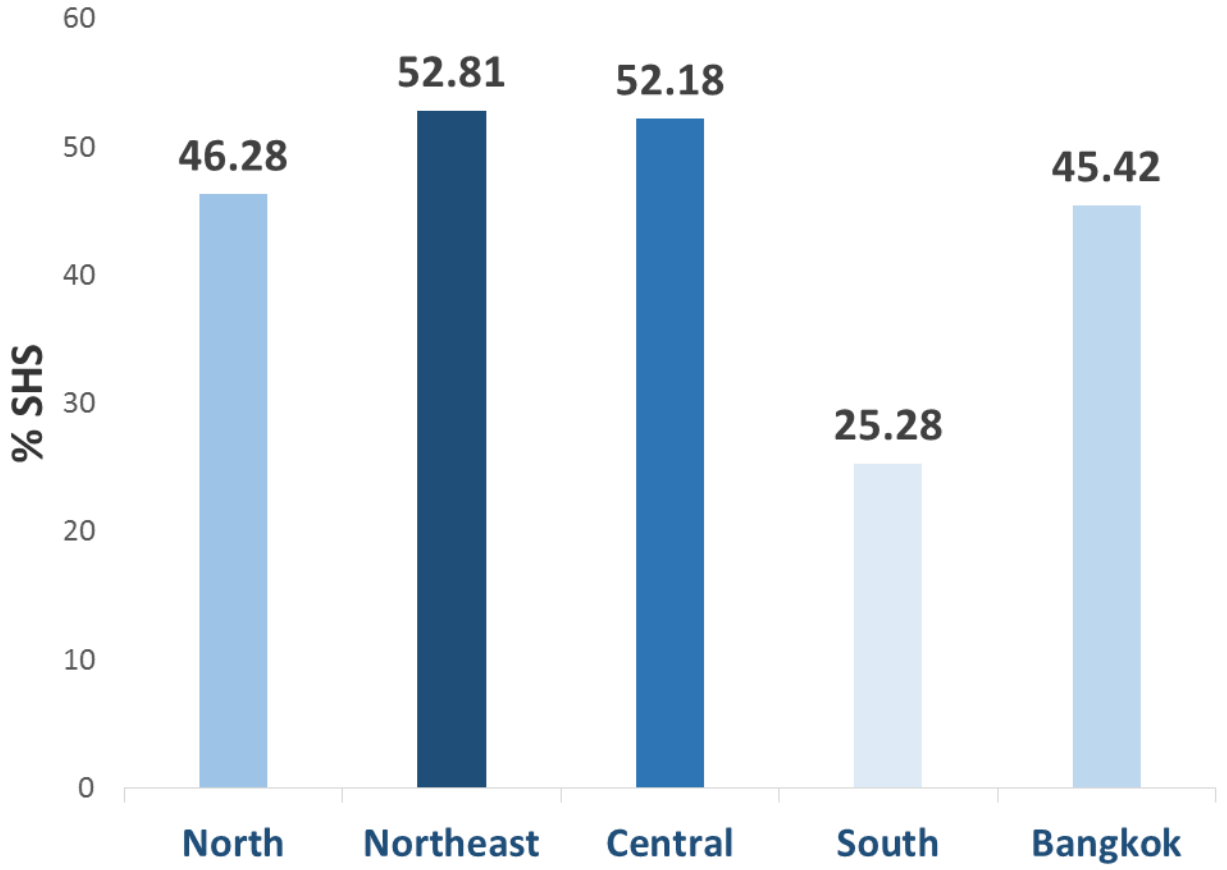


Figure 3. Percentage of SHS in pregnant women in each study site

RESULTS

Term birth

SHS status	Crude HR (95% CI)	Adjusted HR* (95% CI)
Non-SHS	1.00	1.00
SHS	0.81* (0.69 – 0.95)	0.75* (0.65 – 0.88)

Preterm birth

SHS status	Crude HR (95% CI)	Adjusted HR* (95% CI)
Non-SHS	1.00	1.00
SHS	1.07 (1.00 – 1.15)	1.05 (0.99 – 1.13)

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

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

RESULTS

Factors	Crude HR (95% CI)		Adjusted HR* (95% CI)	
Gender				
Female	1.00	< 0.001	1.00	< 0.001
Male	1.12* (1.13 – 1.27)		1.18* (1.12 – 1.26)	
BW				
Normal BW	1.00	<0.001	1.00	0.002
Low BW	1.17* (1.08 – 1.26)		1.14* (1.05 – 1.24)	
Alcohol drinking				
No	1.00	0.940	1.00	0.613
Yes	1.01 (0.87 – 1.16)		1.04 (0.88 – 1.24)	

** Statistically significant results*

Table 3. Crude and adjusted HR of not having first tooth eruption

RESULTS

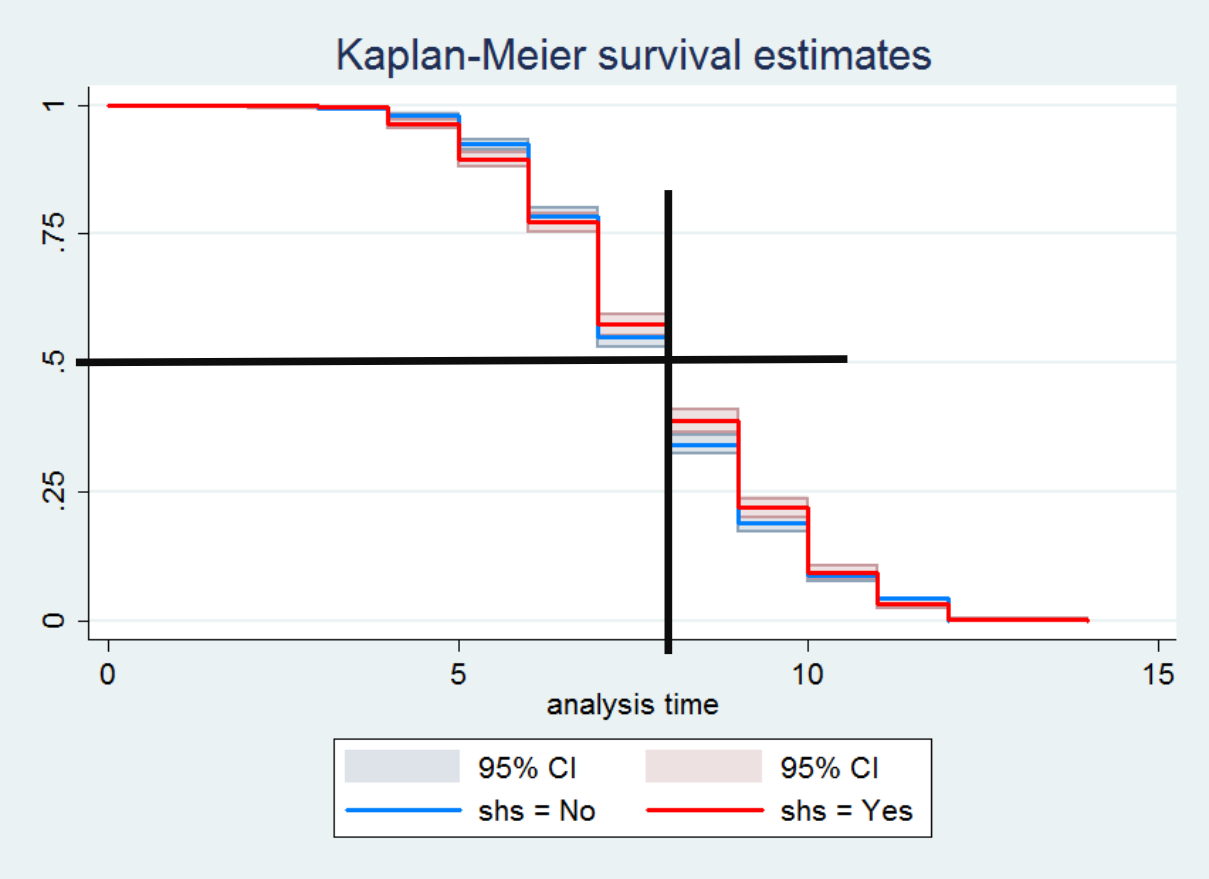


Figure 4. Difference in the probability of not having erupted tooth between SHS group and non-SHS group

RESULTS

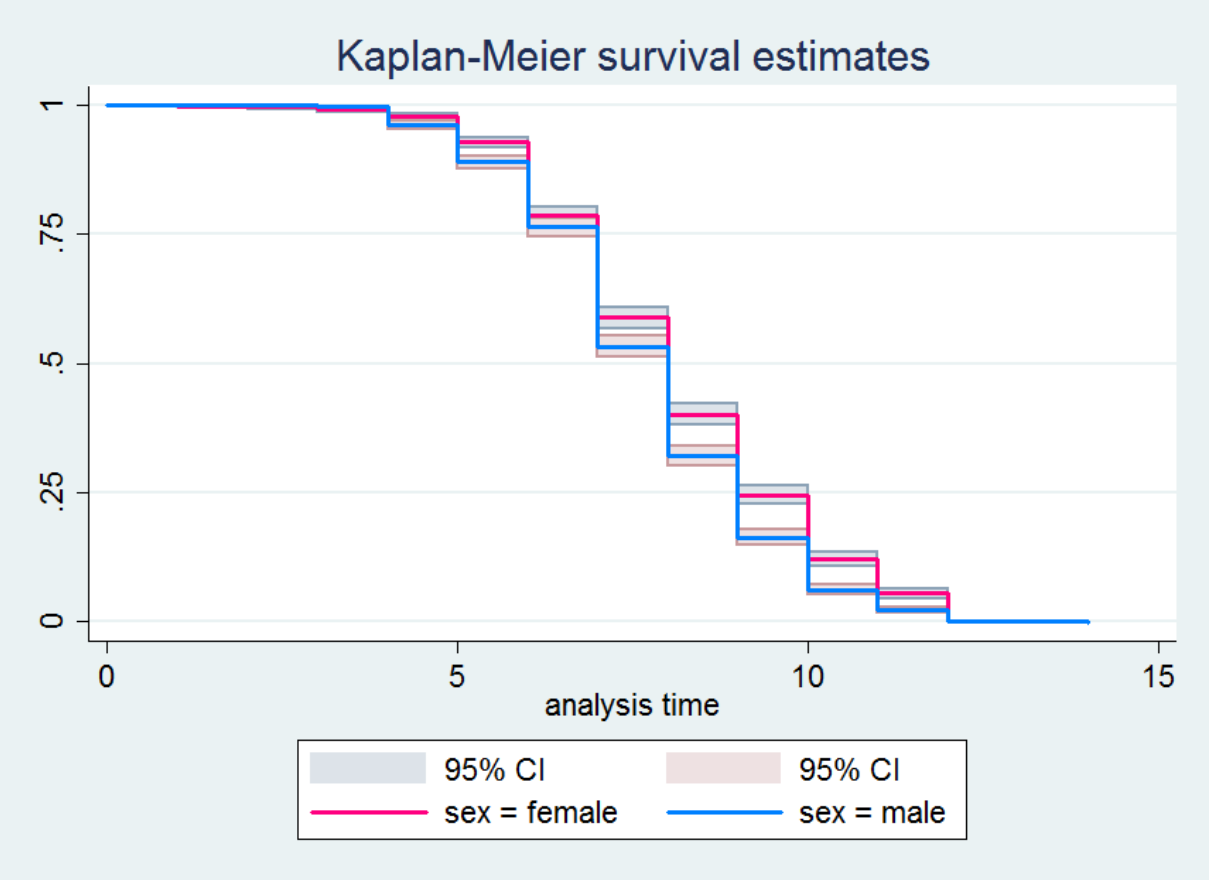


Figure 5. Difference in the probability of not having erupted tooth between females and males

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

- PCTC project supported by the National Ethics Committee of the Ministry of Public Health of Thailand and Khon Kaen University

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Professor Bandit Thinkhamrop
Professor Cameron Hurst
My family and Classmates

thank you . . .