

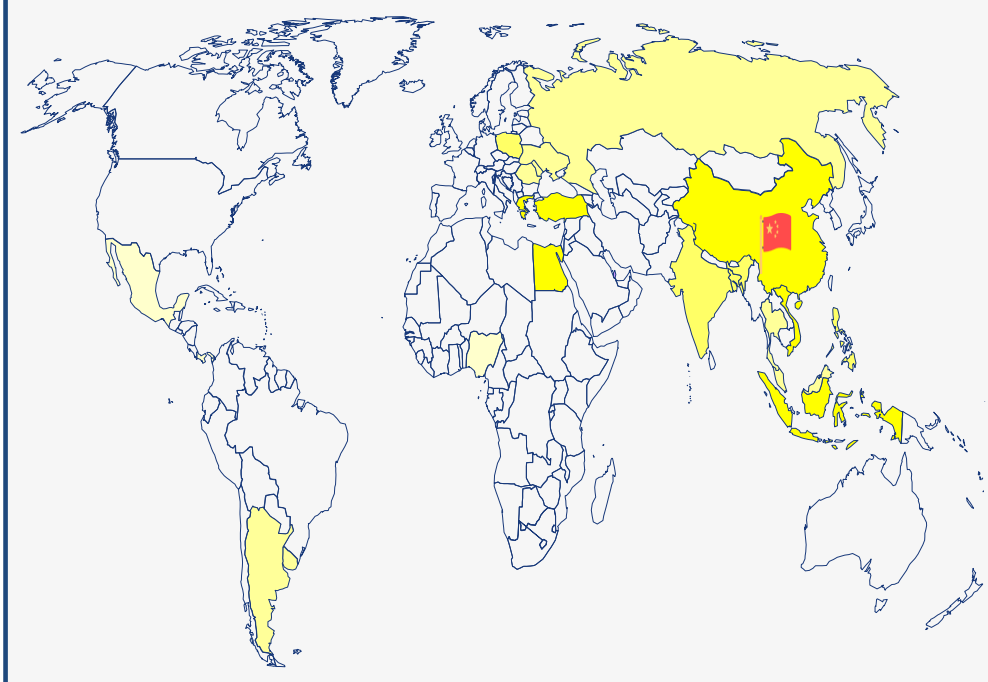
# Effectiveness of Interventions to Reduce Secondhand Smoke Exposure in the homes among Children in China: a Systematic Review

Y. H. ZHOU<sup>1</sup>and Y.W. MAK<sup>2</sup>

1. School of Nursing , Zhejiang Chinese Medical University Email: eva.yh.zhou@zcmu.edu.cn
2. School of Nursing, The Hong Kong Polytechnic University Email: yw.mak@polyu.edu.hk



## Introduction



- ◆ Children can be greatly protected from harm of secondhand smoke exposure if parents could stay smoke-free at homes.
- ◆ 253.9 million males and 14.4 million females smoke in China
- ◆ Successful quit rate among Chinese smokers was 12.6%
- ◆ **66.7% children exposed to secondhand smoke in the homes in China**

## Objective

To review the evidence on the effectiveness of all types of intervention for reducing exposure to secondhand smoke (SHS) at home among children living with their smoking parents in China.

## Methods

### Search terms:

- ✓ Secondhand smoke
  - ✓ Environmental tobacco smoke pollution
  - ✓ Passive smoke
  - ✓ Involuntary smoke
  - ✓ Third-hand smoke exposure
  - ✓ Tobacco smoke pollution
  - ✓ Child/infant/baby/newborn
  - ✓ Home/smoke-free home/family/household/ smoke- free household
  - ✓ China/Chinese/Hong Kong/Taiwan/Macau
- ❑ Full text in English or Chinese language
- ❑ Published from 1997 to 2017

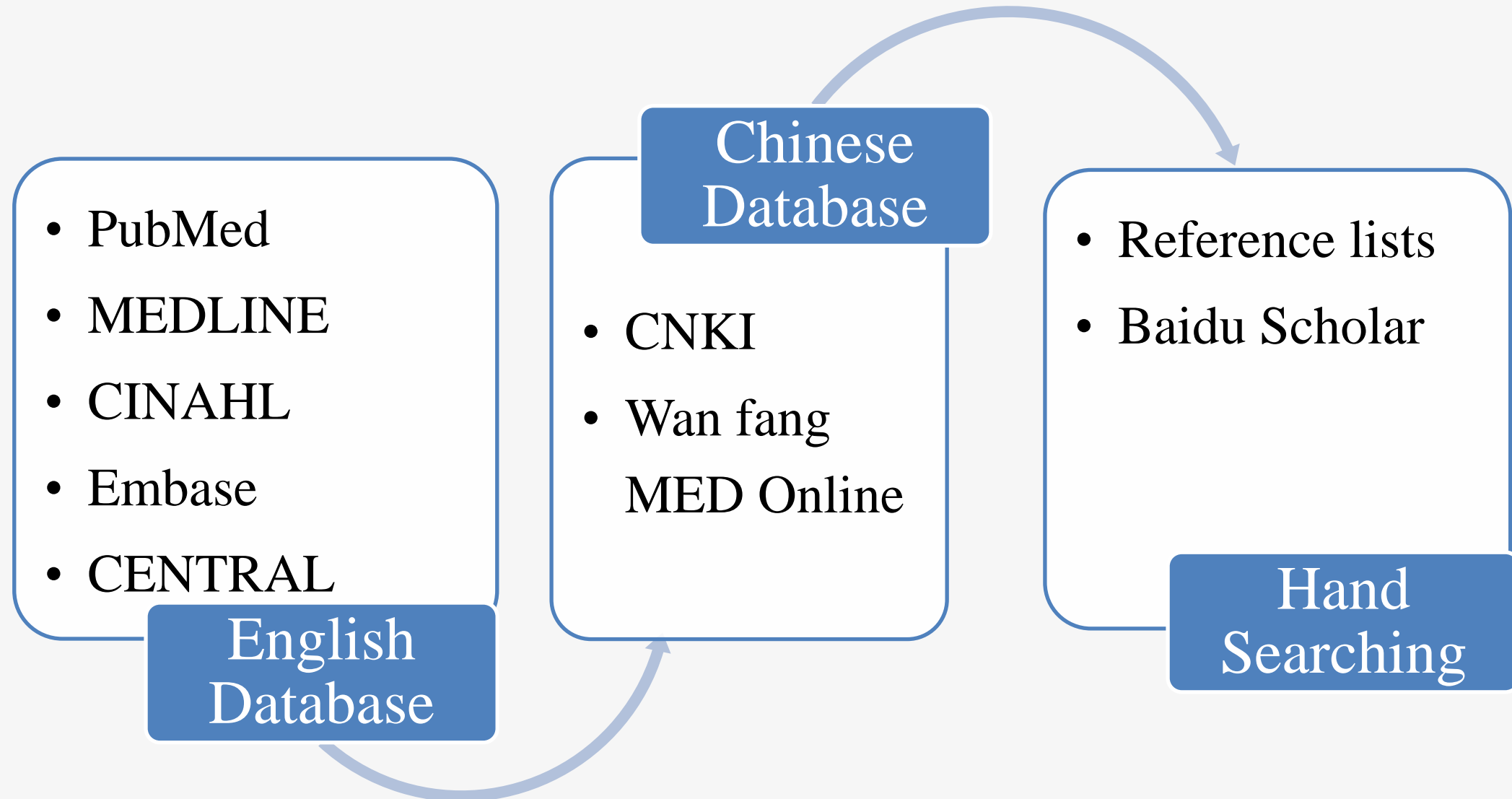


Figure 1: sources of relevant studies

## Results

1. Smoking parents were mostly fathers 72.2% of 5,722 children between ages of 0 to 14 years in all the 13 identified studies.
2. Majority of the children (72.2%) were recruited from well-child settings.
3. Common intervention strategies used in intervention groups were non-pharmacological, counseling plus self-help quitting materials.
4. Treatment as usual (TAU) or printed materials for smoking cessation were common interventions used in control groups.
5. Significant less SHS exposure was detected in two out of three studies that cotinine level was measured.

6. Near half of the interventions (n=6) successfully increased parental reported quit rates averaged 6.1% - 40.6% in the intervention group and 0% - 20% in the control group; only one study was confirmed such difference by biochemical test.
7. Positive outcome effects (higher quit rate and lower cotinine levels) mostly up till 3~6 months but not at the later follow-up.
8. Five studies reported positive outcomes of reduced tobacco consumption .

Table 1: summary of identified studies for SHS exposure reduction in the homes among Children in China (n=13)

Authors (Year)/Area	Study Design	Participants	Intervention				Comparison	Intervention outcomes (self-reported)			Study Quality
		S:study subject N: sample size A: age of the children R:recruitment setting	intervention components <sup>#</sup>	intervention intensity	provider	T: total contact time F: follow-up period		children's exposure <sup>@</sup>	quit rate*	tobacco consumption <sup>&amp;</sup>	
Yu et al.(2017)/Changchun	RCT	S: family units; N:342 A:1 month after birth R:MCHC	A,B,D,E	1 session; 1 session (optional)	trained health care workers	T:NR F:6, 12mo	standard care	NR	IG: 22.7% CG: 9.7%	NR	poor
Chen et al. (2016)/Taiwan	RCT	S: parent-child dyads; N:75; A: 8-12yrs R:primary school	A,B,C,E,F	5 session	specialized instructor	T:NR F:8, 20wk (6mo <sup>&amp;</sup> )	written materials	IC:43.2% CG:68.4%	NR	NR	fair
Abdullah et al. (2015)/Shanghai	RCT	S:household members; N:318; A:~5yrs R:community health center	A,B,C	6 sessions	trained community health workers	T:125~155mins F: 6mo	standard care	IC:0.030ng/ml CG:0.087ng/ml	IG: 6.1% CG: 8.5%	IG:11.02 CG:13.6	poor
Abdullah et al. (2005)/Hong Kong	RCT	S: smoking fathers or mothers N:952; A:NR; R:MCHC	A,C	3 sessions	trained nurse counselor	T:50~60mins F:6mo	self-help materials	NR	IG:15.3%/10.6% CG:7.4%/4.5%	IG:32.6% CG:18.1%	fair
Yau (2011)/Hong Kong	RCT	S: family units; N:1112 A:0-18months; R:MCHC	A, B, C, E	7 sessions	trained nurse counselor	T:~240mins F:6, 12mo	minimal advice on the SHS	IC:0.76ng/ml CG:0.75ng/ml	IG:13.7%/3.5% CG:8.0%/2.3%	IG:33.4% CG:23.9%	fair
Chan et al.(2007)/Hong Kong	RCT	S: family units; N:1483; A:NR; R:pediatric ward/ outpatient department	A, B, G	2 session	nurses	T:~10mins F:3, 12mo	NR	NR	IG:11.3% CG:9.3%	IG:23.8% CG:20.5%	poor
Huang et al.(2016)/Nangning	pre-post study	S:household members;N:107 A:under 3 yrs~ above 5 yrs R:pediatric ward	A, B, C	3 sessions	trained junior pediatricians	T:50~60minsF:3mo	no control group	NR	NR	NR	fair
Yang (2007)/ Tianjin	RCT	S:smoking fathers or mothers; N:360; A:0~3yrs R:community	A, C	6 sessions	a master level student	T:NR F:6mo	written materials and "smoking harms health" sign	NR	IG:40.6% CG:20.0%	NR	poor
Huang (2008)/Guangzhou	pre-post study	S: parent-child dads; N:298 A:9~12yrs; R: primary school	A, G	2 sessions	trained teachers or other trained staff	T:25~30mins F:1mo	no control group	NR	NR	Pre: 31.8%/24.2%/29.9%/14.2% Post:32.2%/25.4%/29.0%/13.4%	fair
Li et al.(2000)/Beijing	control trial	S:household members; N:146 A: 0~6mo; R:MCHC	A, G	5 sessions	trained health care workers	T:NR F:12mo	"smoking harms health" sign	NR	IG:11.1% CG:1.6%	IG:33.3% CG:30.7%	poor
Liang et al. (2001)/ Fenyang	control trial	S:household members; N:133 A:0~4mo; R:community	G	5 sessions	NR	T:NR F:6,12mo	NR	NR	IG:12.31% CG:0%	IG:40%/38.46%/9.23%/0% CG:20.59%/47.06%/23.53%/8.82%	poor
Liu et al.(2007)/Guangzhou	pre-post study	S:household members; N:312 A:NR; R:primary school	G	1 sessions	NR	T:NR F:21mo	no control group	Pre:56.7% Post:51.7%	NR	They reported no significant change, but the figures were not showed.	poor
Meng et al. (2004)/Beijing	pre-post study	S:household members; N:84 A:0~3yrs; R:MCHC	A, G	3 sessions	trained health care workers	T: 9~15mins F:0 mo	no control group	NR	Pre: 0% Post: 2%	Pre:11 Post:8.7	poor

#:A=self-help materials, B=prompts for warning no smoking at home, C=individual counseling, D=text message, E=group counseling, F=biochemical feedback, G=health education.

@:data are presented as self-reported prevalence of SHS exposure or biochemical validated SHS exposure (★)

\*: data are presented as self-reported quitting smoking (%) or self-reported quitting smoking (%) / biochemical validated quitting smoking (%)

&: data are presented as number of tobacco consumption or percentage of smokers who reduced tobacco consumption or percentage of smokers in four levels of tobacco consumption (less than 5/ 6~10/11~20/more than 20)

RCT: randomized control trial ; MCHC: maternal-child health center; SHS: secondhand smoke; NR: not reported; IG: intervention group; CG: control group; pre: pre intervention; post: post intervention

## Conclusions

1. Most studies were focused on smoking fathers, and interventions that target all smoking family members are warranted in the future, especially in Chinese society where grandparents commonly play an important role in taking care of their grandchildren.
2. Family interaction between smokers and their child or wife and follow-up counseling or text messages via phone could be helpful to successful quitting.
3. All studies demonstrated positive effects on promoting smoke-free home to some degree, but the effects in the long run is still lacking.
4. Study design using a longer follow-up period and biochemical validations of self reports quitting are recommended.

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