

Effectiveness of smoking cessation methods among Chinese smokers: a systematic review and meta-analysis of randomized controlled trials

Shi Hongying¹, Yang Xinjun^{1*}, Huang Chenping¹, Liu Ziwei¹, Xu Xinyun¹, Lin Chong¹, Weitkunat Rolf², Baker Gizelle², Sponsiello-Wang Zheng²
¹ Department of Preventive Medicine, School of Environmental Science and Public Health, Wenzhou Medical College, Wenzhou 325035, China
² Philip Morris Products S.A, Research & Development, Quai Jeanrenaud 5, 2000 Neuchatel, Switzerland
 Corresponding author: Yang Xinjun (Email: xyang@wzmc.edu.cn)

Introduction and Objectives

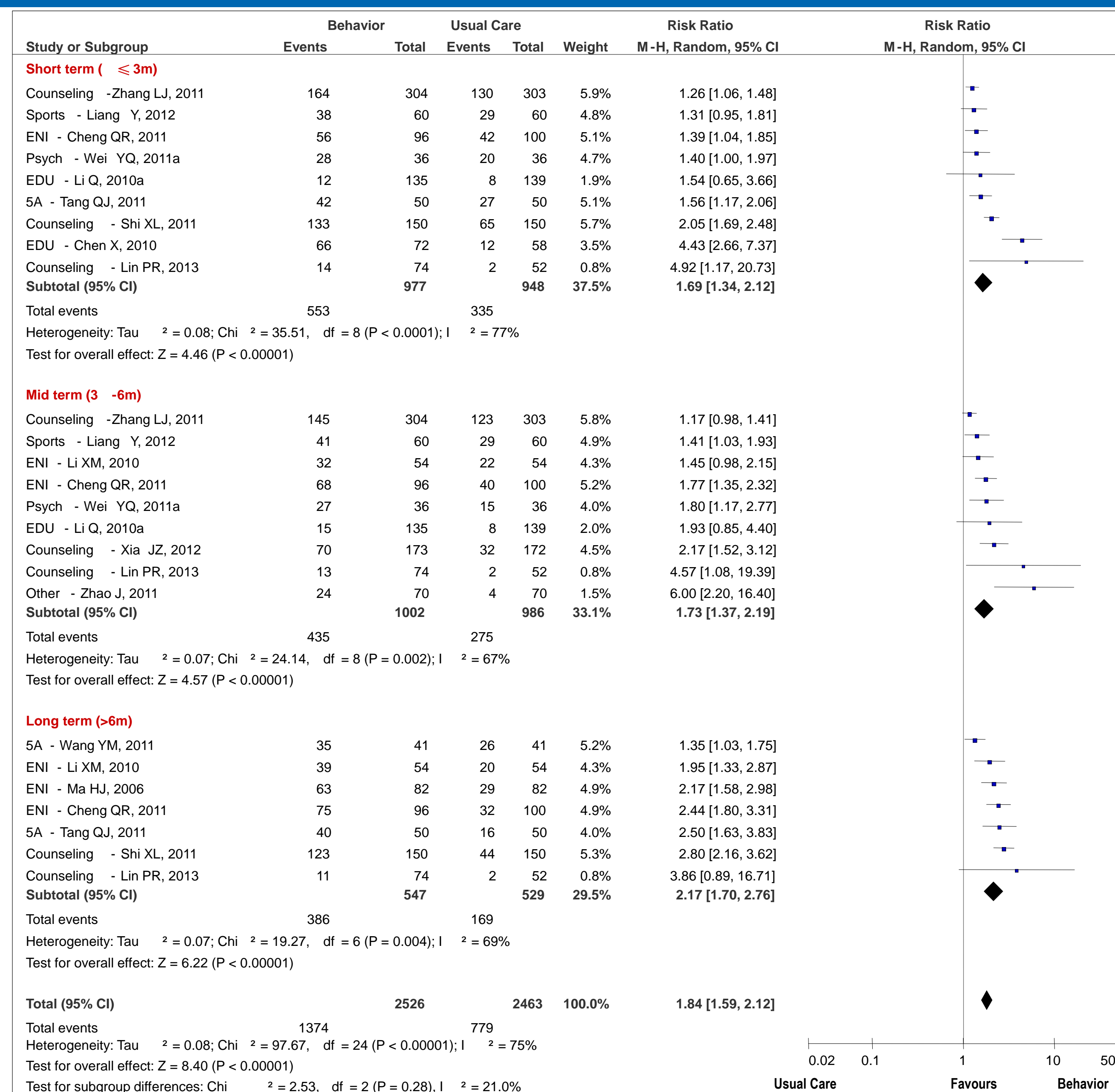
The World Health Organization (WHO) reports tobacco use as the leading cause of death and one of the main risk factors for a number of chronic diseases. China is the largest producer and consumer of tobacco products in the world. Approximately 49–67% of men and 2–5% of women are smokers, constituting one-third of the world's smokers. The successful cessation rate is extremely low in China. The majority of smoking cessation occurs without using evidence-based cessation treatments. Understanding the current situation of smoking cessation interventions in China will be very important in order to plan further cessation intervention studies, and to provide evidence-based information for smokers, tobacco control experts, health care professionals, and policy makers in China, thus promoting Chinese smokers to quit smoking and to reduce tobacco-related diseases. The aim of this systematic review is to understand: (1) what kind of cessation interventions have been used in China, and (2) the effectiveness of pharmacotherapies and behavior interventions on abstinence over time after cessation among Chinese patient and non-patient smokers.

Materials and Methods

PUBMED, Chinese BioMedical Literature Database (CBM), China National Knowledge Infrastructures (CNKI) databases and the Cochrane Library were searched in December 2012 using MESH and keywords to identify randomized controlled studies comparing different smoking cessation methods conducted in mainland China. All included studies were assessed for methodological quality. Primary outcome was prevalence of abstinence by duration of follow-up. In total, 2286 articles were identified through systematic database and manual searches. After screening and additional searches, 28 articles were included in this systematic review. The information that was extracted from each study includes: 1) age, gender, health condition, smoking status, willingness to quit of study participants; 2) methods of smoking intervention, treatment dosages and follow-up frequencies; 3) the specific measurement of abstinence (continuous or point prevalence), and the methods of biochemical confirmation of smoking abstinence; 4) settings, sample size, language of publications, duration of follow-up; 5) primary results, including the treatment effects at different time points; and 6) risk of bias and methodological details. Meta-analysis was performed where possible to evaluate the effectiveness of different interventions at short-term (≤3 months), mid-term (3-6 months) and long-term (>6 months) follow-ups. The analyses were conducted with Rev Man 5.

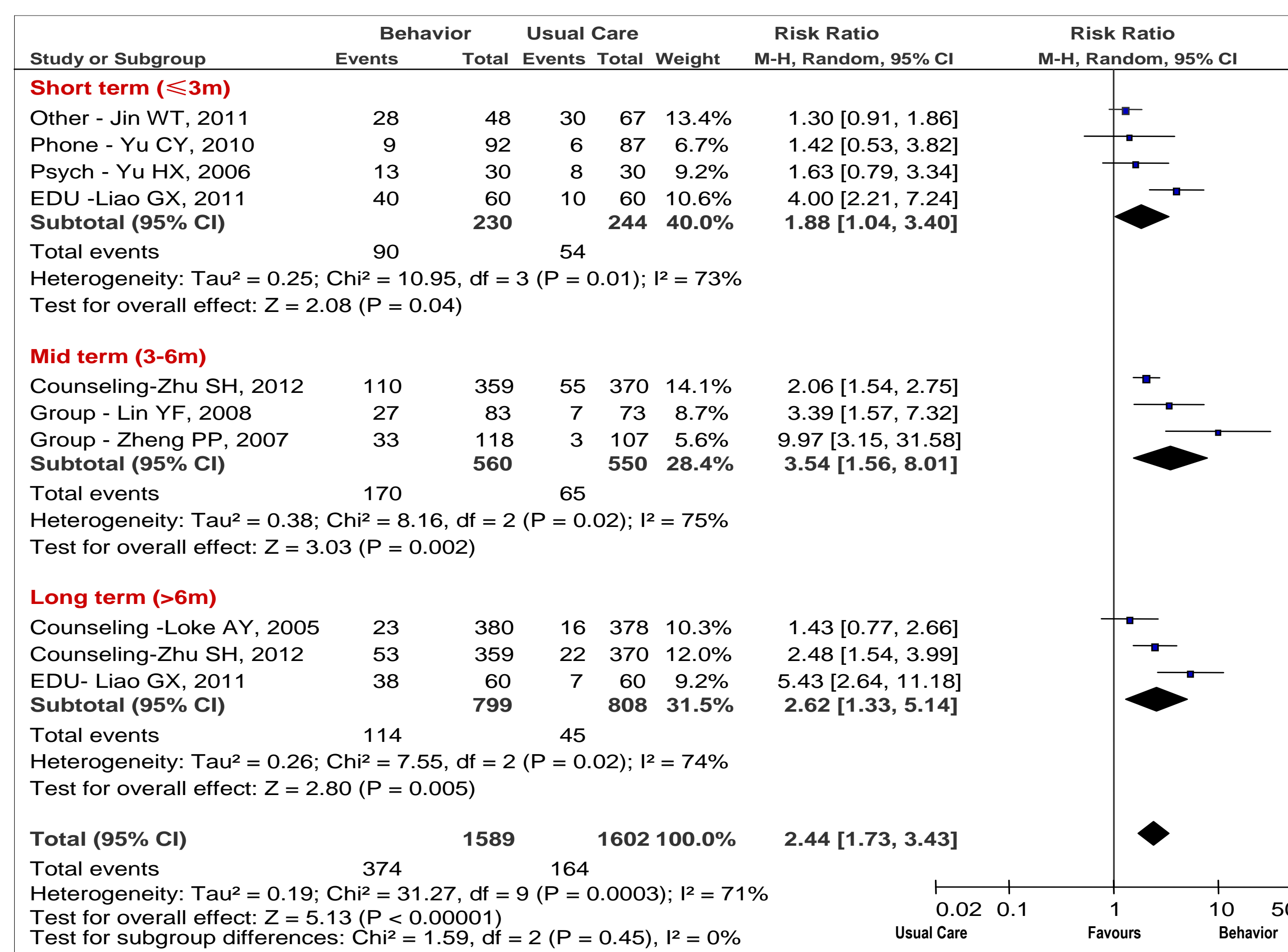
Results

Twenty-eight randomized controlled studies (involving 6099 participants) were identified with at least one cessation outcome (sustained abstinence or point prevalence abstinence). Six studies were published in English journals, while 22 studies were published in Chinese journals. Twenty studies were published during 2010-2013. Fifteen studies (53.6%) were hospital-based and focused on patients, while the other 13 studies focused on non-patients. Eight studies (28.6%) evaluated the effects of pharmacotherapies, while the others focused on different non-pharmacotherapy interventions (i.e., behavior interventions). The cessation rates of pharmacotherapy and non-pharmacotherapy among patient and non-patient smokers were analyzed separately, stratified for follow-up duration. The number of behavior intervention studies at short-term, mid-term and long-term were 13, 12 and 10, respectively. The number of pharmacotherapy intervention studies at short term, mid term and long term were 8, 4, and 1, respectively.



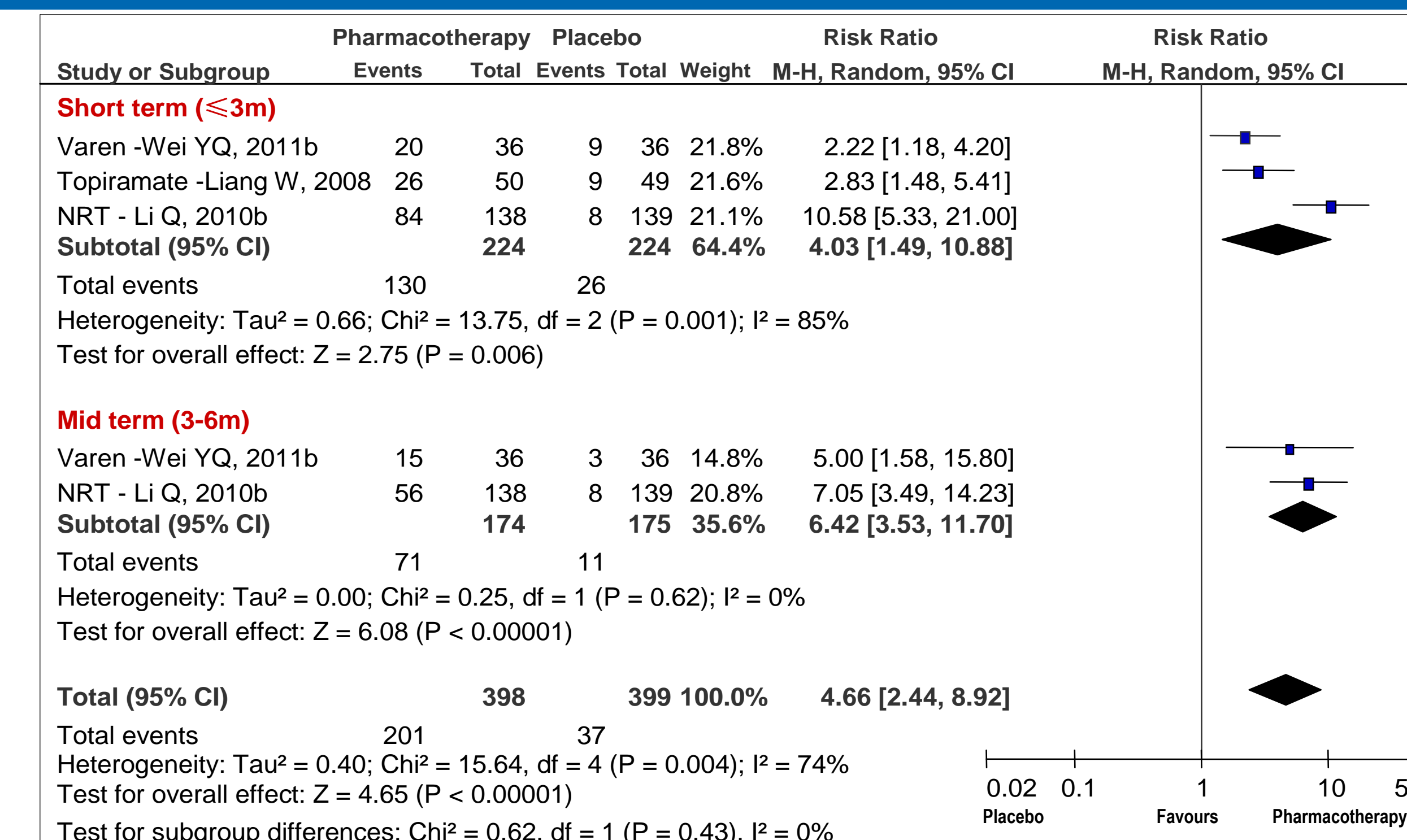
ENI: Extended Nursing Intervention; EDU: Education intervention; SA: ask, advice, assess, assist, arrange follow-up; Psych: Psychological intervention

Figure 1. Effects of behavioral intervention for Chinese patient smokers.



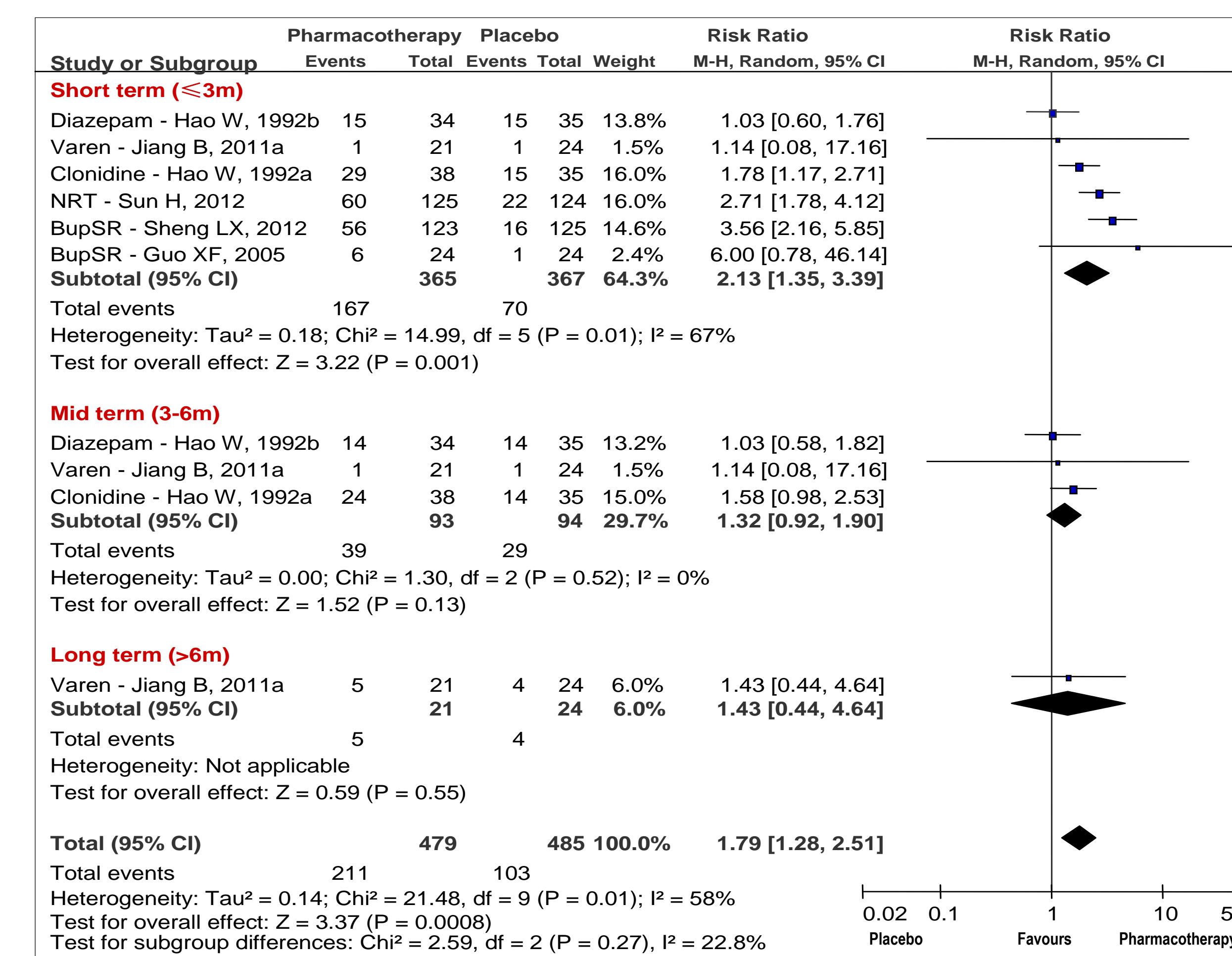
EDU: Education intervention; Psych: Psychological intervention

Figure 2. Effects of behavioral intervention for Chinese non-patient smokers.



NRT: Nicotine replacement therapy; Bup SR: Bupropion Sustained-release; Varen: Varenicline

Figure 3. Effects of pharmacotherapy intervention for Chinese patient smokers.



NRT: Nicotine replacement therapy; Bup SR: Bupropion Sustained-release; Varen: Varenicline

Figure 4. Effects of pharmacotherapy intervention for Chinese non-patient smokers.

Summary and Conclusions

Smoking cessation interventions, including pharmacotherapy and behavioral intervention, increased smoking cessation among both Chinese patient smokers and non-patient smokers. However, effects were different for different interventions among different populations and at different follow-up periods. Most studies on pharmacotherapy intervention had shorter follow-up periods (up to 6 months), while studies on behavioral intervention had relatively longer follow-up durations.

Behavioral interventions increased reported abstinence rates among Chinese smokers at short-term, mid-term, and long-term follow up period. Pharmacotherapy was clearly effective only at short-term, while the mid-term and long-term effects could not be definitively demonstrated.

Acknowledgment: The research described in this poster was funded and supported by Philip Morris International