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Smoking cessation and receipt of cessation advice from health professionals among older smokers in Taiwan☆

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ABSTRACT

Objectives. To examine the prevalence and correlates of smoking cessation and receiving professional cessation advice among older smokers in Taiwan.

Methods. Cross-sectional data from the 2008–2010 and 2012 Taiwan Adult Smoking Behavior Survey was used to form a sample of 4081 recent active smokers aged 50+, comprising current smokers and former smokers who quit smoking within the past 12 months. We examined three outcome variables: quit attempt in the past 12 months, successful cessation for at least 3 months, and receipt of health professional cessation advice. Multivariate logistic regressions were used to identify significant correlates.

Results. During the study period, the annual quit attempt rate was 41.4%, annual successful cessation rate was 4.7%, and prevalence of receiving cession advice among smokers who visited health professionals within the past 12 months was 72.3%. After controlling for other covariates, quit attempts were significantly higher in 2009 and positively associated with higher education, poorer health status, smoke-free homes, and receipt of cessation advice. Successful cessation was significantly higher in 2009, positively associated with older age, higher income, and smoke-free homes, and negatively associated with receiving cessation advice. Receipt of cessation advice was significantly lower in 2010 and 2012, positively associated with male gender, older age, and poorer health status, and negatively associated with higher education.

Conclusions. Our results suggest that targeting lower educated and lower income subgroups, adopting effective strategies to increase voluntary smoke-free home rules, and improving professional cessation advice will have great potential to further reduce smoking prevalence in older smokers.

1. Introduction

The Taiwanese government implemented the Tobacco Hazards Prevention Act in 1997 with amendments in 2002, 2006, and 2009 to stipulate multi-pronged tobacco control reforms (Tsai et al., 2015; Chang et al., 2014a). As a result, adult smoking prevalence decreased significantly from 29.2% in 1996 to 18.0% in 2013, albeit mainly due to decrease in male smoking from 55.1% to 32.5% while female smoking remained unchanged at 3.3% during the period (Health Promotion Administration, 2014). Yet, the detrimental health effects of smoking (World Health Organization, 2012; U.S. Department of Health and Human Services, 2014) contributed to 284,765 years of life lost and a huge financial loss of US$1.7 billion in direct and indirect costs in 2010 (Sung et al., 2014). Taiwan had a much lower rate of past-year quit attempts among adult smokers (33.0% in 2013) than the United States (52.9% in 2012) and other countries in Southeast Asia such as Vietnam (55.3% in 2010), Thailand (49.8% in 2009), and the Philippines (47.8% in 2009) (Health Promotion Administration, 2014; Agaku et al., 2014; World Health Organization, 2009–2010). Smoking cessation interventions to increase the quit rates in Taiwan to match those reported in the above-mentioned countries are necessary.

Evidence has shown that older smokers embody a different profile of nicotine addiction and social norms compared to younger smokers (Messer et al., 2008); thus, separate smoking cessation strategies targeting older smokers are needed. Promoting cessation among older smokers aged 50+ in Taiwan is particularly important because they accounted for 66.6% of smoking-attributable years of life lost in 2001 and 78.7% of smoking-attributable healthcare costs in 2010 (Sung et al., 2014; Yang et al., 2005). Smoking cessation can greatly reduce the risk of tobacco-caused morbidity and mortality at all ages even for older smokers (U.S. Department of Health and Human Services, 2014; Burns, 2000; LaCroix and Omenn, 1992; Gellert et al., 2012; Jha et al.,

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2013). A meta-analysis of 22 population-based cohorts concluded that among the elderly aged 60+, the excess risk of mortality for former smokers compared to never smokers decreases with time since quitting (Müezzinler et al., 2015). Among smokers aged 65+ in Taiwan, those who quit smoking over 5 years had similar risk of all-cause death compared to never smokers (Chang et al., 2014b).

Research on smoking cessation in old smokers has remained limited. Among smokers aged 65+ in the United States, predictors of smoking cessation included female gender (Whitson et al., 2006), higher education (Husten et al., 1997), higher income (Sachs-Ericsson et al., 2009), older age (Sachs-Ericsson et al., 2009), and having greater psychological distress and more health problems (Sachs-Ericsson et al., 2009). A Hong Kong study of smokers aged 65+ found that successful quitters were more likely to not live alone, need assistance in mobility, be a non-drinker, have shorter smoking history, and smoke more cigarettes per day (Abdullah et al., 2006). A study in Taiwan which focused on older men aged 50–66 found that quitters were more likely to have functional impairment, live with a spouse, and quit drinking alcohol, but less likely to have higher education, smoke more cigarettes per day, and have longer smoking history (Tsai et al., 2012). While the former cited studies found a positive association of cessation with higher education (Husten et al., 1997) and more cigarettes per day (Abdullah et al., 2006), the latter study on older males in Taiwan found opposite associations; however, the etiology of this discrepancy is unclear given the scarcity of research. No other study to date has explored sociodemographic correlates of smoking cessation among older smokers in Taiwan. Also, while it is well known that cessation advice by healthcare providers increases long-term abstinence and quit attempts (Fiore et al., 2008; Stead et al., 2013; Aveyard et al., 2012), little is known about the population-level impact of receiving cessation advice on smoking cessation behavior or the predictors of receiving cessation advice for older smokers in Taiwan.

This study aims to address these research gaps by examining the prevalence and correlates of smoking cessation and receiving professional cessation advice among older smokers aged 50+ in Taiwan. The ratio of people aged 50+ in Taiwan grew substantially from 20.7% in 2000 to 33.5% in 2014 (Directorate-General of Budget, Accounting and Statistics, 2015). In 2010, 31.5% of Taiwanese men aged 50–64 were current smokers (Sung et al., 2014). Given the high smoking prevalence in older adults, understanding the factors associated with smoking cessation among these seniors can help policymakers design targeted smoking intervention programs for them to reduce the health and economic burden of smoking in Taiwan.

2. Methods

2.1. Data source

We used population-based data from the 2008–2010 and 2012 Adult Smoking Behavior Survey, a telephone survey conducted by the Health Promotion Administration under the Ministry of Health and Welfare in Taiwan to collect information about individuals' smoking behaviors and attitudes. Data from the 2011 survey was not included because it did not ask when former smokers quit smoking. Random digit sampling was used to get a nationally representative sample of non-institutionalized adults aged 18+. The telephone interview was conducted from July to September each year to obtain approximately 16,000 respondents in the final sample.

2.2. Outcome variables

2.2.1. Smoking cessation measures

We examined quit attempts in the past 12 months and successful cessation among "recent active smokers", defined to include both current smokers and former smokers who quit smoking <12 months ago (Chang et al., 2014a). Current smokers are those who have smoked 100 cigarettes in their lifetime and currently smoke every day or some days. Former smokers are those who have smoked 100 cigarettes in their lifetime and currently do not smoke at all. Among recent active smokers, those who answered "yes" (vs. "no") to the question: "During the past 12 months, have you stopped smoking for one day or longer because you were trying to quit smoking?" were assigned the value 1 (vs. 0) to the quit attempt variable. Those who answered "unknown" or refused to answer were assigned a missing value. We defined successful cessation as having quit smoking for at least 3 months (Chang et al., 2014a; Burns et al., 2000; Levy et al., 2011). This criteria has been proven to be fairly stable for evaluating the success both in longitudinal and cross-sectional studies of smoking interventions (Gilpin et al., 1997). Annual successful cessation rate was defined as the proportion of recent active smokers with successful cessation in the past year (Chang et al., 2014a). Note that former smokers who quit <3 months ago were not included in the numerator of successful cessation rate but were included in the denominator (Chang et al., 2014a; Levy et al., 2011).

2.2.2. Receipt of health professionals' cessation advice

We examined this measure among recent active smokers who saw any health professionals such as physicians, dentists, nurses, or pharmacists in the past 12 months. Those who answered "yes" (vs. "no") to the question: "Did any health care professionals advise you to quit smoking?" were assigned the value 1 (vs. 0) to this variable. Those who answered "unknown" or refused to answer were assigned a missing value.

2.3. Covariates

Based on literature review, we included sociodemographic characteristics, health status, and survey year as covariates. Sociodemographic variables included gender (male and female), age (50–64 and 65+), educational attainment (elementary school degree or below, middle school diploma, high school diploma, and college degree or above), monthly household income (≤NT$20,000, NT$20,001–60,000, NT$60,001–100,000, >NT$100,000, and unknown), and marital status (not married and married). Those who did not report household income were not excluded from our analyses but were classified as a separate "unknown" group because 13.8% of recent active smokers aged 50+ fell into this category (Table 1). The "not married" group included those who were single, divorced, separated, widowed, or living with a partner. Health status was classified into three categories: very good, good or average (average/good), and not good or poor (poor/not good) based on respondent's self-report.

In the analyses that examined quit attempts and successful cessation, we also included presence of a smoke-free home, and receipt of health professionals' cessation advice as covariates. Presence of a smoke-free home was defined according to two survey questions: "Does anyone living at home smoke inside the home?" and "Have you had any secondhand smoke exposure at home within the past week?". This variable was assigned the value 1 for respondents who answered "no" to both questions, the value 0 for those who answered "yes" to either question, and a missing value for those who answered "unknown" or refused to answer either question. When receipt of cessation advice was used as a covariate, it was assigned the value 2 for respondents without health professional visits in the past 12 months.

2.4. Statistical analysis

We first estimated the prevalence of quit attempts and successful cessation rate among all recent active smokers, and prevalence of receiving health professionals' cessation advice among those recent active smokers who had health professional visits. The prevalence was estimated for each subgroup stratified by covariates. Multivariate logistic regression analyses were used to identify significant factors associated with each outcome variable. A subanalysis was conducted to estimate