RESEARCH ARTICLE

Pattern of Tobacco Use and its Correlates among Older Adults in India

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Abstract

    <u>Purpose</u>: We examined tobacco use pattern and its correlates among older adults. <u>Materials and Methods</u>: We used data of 9,852 older adults (≥60 years) (men 47% mean age 68 years) collected by the United Nations Population Fund on Ageing from seven Indian states. Logistic regression analysis was used to assess the correlates of tobacco use. <u>Results</u>: Current use of any form of tobacco was reported by 27.8% (men 37.9%, women 18.8%); 9.2% reported only smoking tobacco, 16.9% smokeless tobacco only and 1.7% used both forms. Alcohol users (OR:5.20, 95% CI:4.06-6.66), men (OR:2.92, CI :2.71-3.47), those reporting lower income (OR:2.74, CI:2.16-3.46), rural residents (OR 1.34, CI 1.17-1.54) and lower castes (OR:1.29, CI:1.13-1.47) were more likely to use any form of tobacco compared to their counterparts. <u>Conclusions</u>: Tobacco cessation interventions are warranted in this population focusing on alcohol users, men, those from lower income, rural residents and those belonging to a lower caste.

Keywords: Tobacco use - older adults - India - socioeconomic risk factors

Introduction

    Tobacco use was reported as the primary preventable cause of disability and death in older adults (Cataldo 2003; Tait et al., 2007). Mortality rate was reported to be double among elderly who smoked tobacco compared to those who did not (Donze et al., 2007). A Chinese cohort study among elderly aged 70 years and above found significant association between current smoking and mortality (Ho et al., 1999). Tobacco use was a cause of significant morbidity and mortality, including cardiovascular disease, peripheral vascular disease, cerebro-vascular disease, cancer and chronic obstructive pulmonary disease among elderly population (Little, 2002). Smoking was associated with higher risk of cognitive impairment and dementia, muscular degeneration, cataract and hearing changes (Huadong et al., 2003; Anstey et al., 2007; Bernhard et al., 2007; Nicita-Mauro et al., 2008; Gons et al., 2011). Other factors like loss of function, mobility, independence and fire related fatalities were also associated with smoking among elderly (Schmitt et al., 2005). Smoking was the most important risk factor and squamous cell carcinoma, the most common histological type of lung cancer (Hajmanoochehri et al., 2014).

    Tobacco use among elderly was well studied in different settings (Liu et al., 2013; Lugo, et al., 2013; Yawson et al., 2013). In the year 2010 India was the second largest consumer of tobacco products, third largest producer of tobacco (IIPS, 2010) and had the second largest number of elderly people in the world. Global Adult Tobacco Survey India (IIPS, 2010), found that 49% of elderly (≥60 years) in India as a whole used some form of tobacco. Earlier research on tobacco use among elderly in India reported marked difference in socio-demographic differentials in tobacco prevalence (Goswami et al., 2005, Gupta et al., 1995; 2005). However limited data are available on correlates of tobacco use among older adults at the national or sub national level. The present study examined tobacco use pattern among older adults and its correlates in seven major states of India.

Materials and Methods

    This study used data from the United Nations Population Fund (UNFPA) survey on "Building Knowledge Base on Population Ageing in India" (BKPAI), conducted in seven major states in India in 2011. The survey used multistage random sampling. The total sample consisted of 9,852 adults aged 60 years and above (men 47%, mean age 68 years) who were usual residents of the selected households. Detailed methodology was published elsewhere (UNFPA, 2012). Seven states were selected based on share of elderly (Kerala (10.5%), Tamil Nadu (8.8%), Maharashtra (8.7%), Himachal Pradesh (9.0%), Punjab (9.0%), Orissa (8.3%) and West Bengal (7.1%)) and regional representation. Eighty Primary Sampling Units (PSU), were taken equally from rural and urban areas. From each PSU, sixteen households having at least
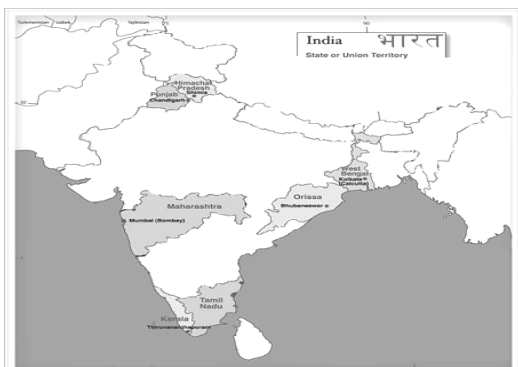
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Figure 1. Location of Seven Selected States in India

one elderly person were selected randomly. All the elderly in the household were approached for the interview. The total response rate was 92.9%.

We used details of demographics and socio-economic characteristics like age, sex, education, marital status, caste, location of residence, wealth index, living arrangement and subjective well being. Ever tobacco users were those who used any tobacco product at some point in one's lifetime; current tobacco users were those who used any tobacco product at least once in the past 30 days and never tobacco users were those who had never used any form of tobacco. Subjective well being was assessed by a question "How do you rate your general health condition?" in a five point scale; excellent, very good, good, fair and poor. The wealth index was calculated based on thirty characteristics of housing and assets (household electrification, drinking water source; type of toilet facility, type of house, cooking fuel, house ownership, ownership of a bank or post-office account, ownership of a mattress, a pressure cooker, a chair, a cot/bed, a table, an electric fan, a radio/transistor, a black and white television, a colour television, a sewing machine, a mobile telephone, any landline phone, a computer, internet facility, a refrigerator, a watch or clock, a bicycle, a motorcycle or scooter, an animal-drawn cart, a car, a water pump, a thresher and a tractor).

The sample was equally taken from rural and urban areas and almost same sample size from all the selected states. Since the sampling scheme was disproportionately distributed, analysis was performed applying sampling weights (Sampling weights were produced at the individual and household levels for rural and urban areas separately. After this, by adjusting for non-response at both the household and individual level design weight was calculated. The sample weights were further normalised at the state level to obtain standard state weights for each of the seven states so that the total number of weighted cases equaled the total number of un-weighted cases). The data were analyzed using SPSS version 17.0 (SPSS Inc, Chicago, IL). Association between tobacco use and socio-demographic and economic characteristics was analyzed using both bivariate and multiple logistic regression analysis.

Results

Mean age of the participants was 68 years. Forty seven percent were men and forty six percent has no formal

education. Six percent of the participants were living alone, 14.9% living with spouse, and 78.9% living with others. Pattern of tobacco use among men and women is presented in Table 1. Overall, 33.3% were ever tobacco users (men 45.7%; women 22.1%). Of them, 35% were exclusive smokers, 54.2% were exclusive smokeless tobacco users and 10.8% used both. Ever smoking was reported by 31% of men and 2% of women. Overall among elderly, 71.5% of ever smokers were current smokers at the time of the survey. Among men ever smokers, 72% were currently using it. Current smoking prevalence among elderly women was low (1.1%). Ever use of smokeless tobacco was reported by 22% of men and 21% of women. Eighty six percentage of men and 85% of women who were ever users of smokeless tobacco were using it currently. Men showed higher prevalence of both ever (men 46%, women 22%) and current use (men 38%, women 19%) of any form of tobacco compared to women. Exclusive current smokeless tobacco use was slightly higher among women compared to men (Table 1). Overall, 27.8% were current tobacco users. Smokers on an average used eight cigarettes/bidis per day and average smokeless tobacco use was five times per day. The average expenditure for smoking was rupees 360 and smokeless tobacco was rupees 240 per month. The payment for this was mainly made by themselves (76.0%) or by children (18.5%), spouse (3.6%) and others including relatives (11.9%).

Current use of any form of tobacco was 28.2% among elderly in the age group of 60-70 and 27.1% in 70 years and above. There was not much variation between education status and tobacco use. Those having no formal schooling had 27.5% tobacco use prevalence compared to 28.0% among elderly having formal schooling. Tobacco use prevalence was significantly higher among currently married (30.5%) persons compared to others (23.7%). Muslims (33.2%) had the highest prevalence of tobacco use followed by Hindus (30.5%), Christians (12.5%) and others (7.3%). Tobacco use was comparatively low among those who were living alone (21.7%) compared to those who were living with others (28.2%) and those who were living with spouse (27.9%). Among the selected states, Orissa showed (50.7%) the highest prevalence of any form of current tobacco use followed by West Bengal (40.5%), Maharashtra (38.4%), Himachal Pradesh (23.1%), Kerala (23.0%), Tamil Nadu (12.8%) and Punjab (5.5%).

Results from both bivariate and multivariate analysis on the association of socio-economic and demographic correlates of tobacco use are presented in Table 2. Significant association with tobacco use was found with sex, caste, location, wealth index and alcohol consumption. Alcohol users (OR 5.20, 95%CI: 4.06-

Table 1. Tobacco Use % Pattern among Older Adults

Current Use of Tobacco	Men N=4672	Women N=5180	Total N=9852
Smoking Only	18.5	0.9	9.2
Smokeless Only	16.1	17.7	16.9
Both form of tobacco	3.3	0.2	1.7
Any form of tobacco	37.9	18.8	27.8
Non-Users	62.1	81.2	72.2

Table 2. Socio-Demographic Predictors of any Type of Tobacco Use in Older Adults: Results of Bivariate and Multiple Logistic Regression Analysis

Predictors		%	OR*(95% CI**)
Sex	Men	37.9	2.92(2.71-3.47)
	Women	18.7	Reference
Caste	SC/ST	35.2	1.29(1.13-1.47)
	OBC	26.3	1.20(1.05-1.38)
	Others	24.2	Reference
Place of residence	Rural	30.9	1.34(1.17-1.54)
	Urban	19.0	Reference
Wealth index	Lowest	40.8	2.74(2.16-3.46)
	Second	34.4	2.98(2.40-3.70)
	Middle	25.2	2.29(1.86-2.83)
	Fourth	18.4	1.55(1.25-1.93)
	Highest	11.8	Reference
Current consumption of alcohol	Yes	64.9	5.20(4.06-6.66)
	No	26.3	Reference

Other variables considered in the model but not found significant were, age, education, living arrangement, subjective well being and state; *Odds Ratio, **Confidence Interval

6.66), men (OR 2.92, CI 2.71-3.47), those reporting lower income (OR 2.74, CI 2.16-3.46), rural residents (OR 1.34, CI 1.17-1.54) and lower caste (OR 1.29, CI 1.13-1.47) older adults were more likely to use any form of tobacco compared to their counterparts.

Discussion

Prevalence of current use of any form of tobacco among older adults (27.8%) in the present study was lower than that of older adults as a whole in India (49%) (IIPS, 2010), and higher than the older adults' tobacco use in Canada (11.93%) (Liu et al., 2013) and Ghana (10.2%) (Yawson et al., 2013). The lower tobacco use rates in our study compared to the whole India figure reported in GATS could be due to the representation of selected states in the study which had comparatively lower tobacco use prevalence. Current smoking prevalence in the present study (10.9%) was lower than that reported among rural elderly from the state of Haryana (56.5%) (Goswami et al., 2005) and almost similar to that found in European elderly (11.5%). Current smoking among men in our study (21.8%) was much lower than that reported from rural elderly men in India (71.8%) (Goswami et al., 2005).

Alcohol use was a major correlate of tobacco use in our study. Current alcohol use reported in this study (4%) was lower than that reported among rural elderly in Haryana (8.5%) and among Canadian elderly (48.1%) (Liu et al., 2013). Though combined use of alcohol and tobacco was reported to result in serious health problems (World Health Organization, 2002; Henley et al., 2004; Blazer and Wu, 2012), combined use of alcohol and tobacco among elderly was reported in other parts of the world (Jackson et al., 2003; Jensen et al., 2003; Yawson 2013) and in India (Gupta et al., 2005). Results from three South East Asian countries of Bangladesh, Thailand and India showed that the knowledge about smoking causing serious illness was least in India (Kishore et al., 2013).

Our study showed similar trend as that of Asian population on the male domination in tobacco use since women's smoking and alcohol consumption are considered to be a taboo in the Asian society. Being men, lower caste, rural residence, lower income and alcohol use increased the chance of tobacco use among elderly population. The higher prevalence of smoking among men than women was also reported from various studies (Goswami 2005; Liu et al., 2013; Yawson et al., 2013). Even though many tobacco control measures have the potential to achieve large reductions among lower income groups (Thakur et al., 2013), our study reported higher tobacco use among lower income elderly similar to that reported earlier (Liu et al., 2013).

Comparable to the earlier study finding (Yawson et al., 2013, Bhawna 2013), higher prevalence of tobacco use was seen among elderly residing in rural areas compared to their urban counterparts. The risk of getting exposed to second hand smoke at home and workplace was higher in the rural areas of India (Singh and Sahoo 2013). Higher prevalence of tobacco use in lower caste in the present study was in corroboration with the study results among people aged 15-49 years in India (Bhan et al., 2012).

Smokers with lung cancer have a more positive attitude and fewer symptoms compared to non-smokers with the disease (Niu et al., 2014). Emotional problems or stressful situations were often reported to be dealt with smoking and alcohol consumption among elderly (CAMH Healthy Aging Project, 2006; Public Health Agency of Canada, 2010; Alberta Health Services, 2010). Cessation is the only way to overcome this. However elderly smokers are less likely to get cessation advice (Salive et al., 1992; Maguire et al., 2000; Schmitt et al., 2005; Tait et al., 2006) who are more likely to be successful at quitting (Abdullah, et al., 2006; Donze et al., 2007). Education on cessation is needed for both health care professionals and elderly tobacco users on the benefit of quitting (Maguire et al., 2000; Schmitt et al., 2005; Sachs Ericsson et al., 2009).

Under reporting of self reports is the main limitation of the data we studied and possibility of recall bias among elderly cannot be ignored. The public smoking ban in the country might not have much impact on the elderly as they do on younger smokers (Prochaska et al., 2009) and smoking cessation programs are not reaching the elderly properly (Rapuri et al., 2007; Abdullah et al., 2008). This should be addressed urgently in India, the second largest consumer and third largest producer of tobacco in the world (IIPS, 2010) where it was reported that rigorous approaches for smoking cessation programmes can enhance quit rates in smoking in rural areas (Jayakrishnan et al., 2013).

Acknowledgements

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