

Relation between Smoking Habits and Self-Rated Health of Older Persons in the Philippines: Evidence-Based Tobacco Policy Advocacy

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Abstract

Tobacco is one of the risk factors for non-communicable disease. The Philippines's smoking rate of aged 15 years and older is 23.8%, which is high in Asian countries. This study aimed to investigate whether older persons' smoking habits are associated with lower self-rated health (SRH) and advocate for policy amendment in the Philippines. This research conducted a cross-sectional study on 300 eligible Filipinos aged 60 and over living in Metro Manila, Quezon City, from November 2012 to March 2013. The number of effective answers was 300. Demographic and SRH data were collected. Binary regression analyses and logistic regression models were used for this analysis after testing for "multicollinearity". In total, 40.33% of older persons perceived higher self-rated health; 14.00% of them had a smoking habit, and 24.67% of them drank alcohol. A multivariable analysis showed that the factors associated with better SRH among older persons in this study were more total education years, fewer total number of symptoms, longer sleep hours, more cigarettes per day, more alcohol consumption per day, having friends and having medical insurance. In agreement with previous studies, education, symptoms, sleep, alcohol, social networks, and insurance were associated with SRH. Regarding the relation between tobacco and SRH, there were two different outcomes. This research showed a positive association between tobacco and SRH. Not having universal coverage of medical insurance to address health concerns and a social custom of selling tobacco were associated with a positive relation between tobacco and SRH. Amendment of tobacco policies to expand health insurance and to limit selling tobacco in the street might help modify the SRH of older persons in the Philippines.

Keywords

Self-Rated Health, Older Persons, Philippines, Tobacco

1. Introduction

The number of people who lost their lives due to non-communicable diseases (NCDs) was 38 million of the world's 56 million deaths in 2012. Approximately 70% of the world's deaths were caused by NCDs (WHO, 2014). NCDs can be prevented by improvement of lifestyle habits. Tobacco use, physical inactivity, harmful use of alcohol and diets high in salt are considered as causative risk factors of NCDs. There are four major types of NCDs: cardiovascular diseases, cancer, chronic respiratory diseases and diabetes. Only tobacco use is a causative risk factor for all four diseases and causes the highest number of total deaths—6.3 million in the four causative risk factors (WHO, 2013).

To continually reduce the prevalence of tobacco use and to protect present and future generations from the devastating health, social, environmental and economic consequences of tobacco consumption, the Framework Convention on Tobacco Control (FCTC) was adopted by the WHO Assembly in 2003 (FCTC, 2003). Despite the WHO's initiative on global tobacco control, according to Ng et al. (Ng, 2014), who researched smoking prevalence and cigarette consumption in 187 countries from 1980 to 2012, China, Japan, Korea, Italy, Switzerland, Ireland, Greece, Kuwait, Uruguay, and the Philippines are the countries with the greatest health risks and highest consumption.

There are number of studies regarding the effects of tobacco on those countries. Jay found a co-relationship between parent's smoking and child smoking in China (Jay, 2017). Ikeda clarified that tobacco smoking and high blood pressure were two major risk factors for adult mortality in Japan (Ikeda, 2012). Green researched Korean tobacco smoker's belief that light cigarettes were less harmful for their health than regular ones (Green, 2015). Buonanno investigated the influence of the smoking ban on tobacco use reduction in Italy (Buonanno, 2013). Boes reported on the smoking ban's influence in Switzerland (Boes, 2015). Currie evaluated smoking cessation in Ireland (Currie, 2010). Margaritis conducted a cross-sectional survey in Greece and clarified that nicotine dependence of adult people was significant and called for policies to reduce tobacco consumption (Margaritis, 2010). Hamid researched the health effects of shisha smoking and concluded that it was not safer than cigarette smoking (Hamid, 2016). Nazar showed a relationship between employees in a smoke-free work-place and their residence environment in low- and middle-income countries, including Uruguay (Nazar, 2014).

To the best of our knowledge, there is no evidence-based research regarding the association between tobacco and SRH of older persons in the Philippines. This study aimed to clarify the association between smoking and a person's

health sense by conducting cross-national survey focusing on older people in the Philippines.

2. Methods

This research conducted a cross-sectional study on 300 eligible Filipinos aged 60 and over living in Metro Manila, Quezon City, from November 2012 to March 2013, using a questionnaire (Appendix). Face-to-face interview with each individual was used in this research. Quezon City was selected in this research was that it had the largest population and the most populous city in the Philippines. This research selected older persons living there because their backgrounds and careers were various.

The first page of our questionnaire included an introduction detailing the objectives of the study and guaranteeing anonymity and confidentiality of data. Our dependent variable was SRH. In our survey, respondents were asked to rate their health in general as 5 levels (from 0: “very bad” to 4: “very good”). The median was 2. Therefore, the responses were dichotomized into very bad/bad/fair (0) versus good/very good (1).

In referring to previous studies regarding SRH, independent variables were categorized in five sections: socio-demographic characteristics, mental and physical condition, lifestyle, social capital, and subjective well-being. Socio-demographic characteristics included age, sex (male/female), partner (not alive/ alive), dependents number, total years of education, employment (no/yes), and log of per capita monthly household expenditures, and medical insurance (yes/ no). Physical and mental condition included body mass index (BMI), number of symptoms, feeling depressed (no/yes), and experience of daily life difficulty due to health problems (no/yes). Lifestyle included physical activities (no/yes), number of cigarettes per day, alcohol consumption per day, average sleeping hours, and book reading (no/yes). Social capital included contact with friends (no/yes), community activity participation (no/yes), and taking care of grandchildren (no/yes). Subjective well-being consisted of feeling happiness (not happy/happy) and satisfaction.

To lower the risk of NCD, the WHO recommends at least 150 minutes of moderated-intensity physical activity throughout the week for adults aged 65 years and above. This study categorized our participants into two groups: one was the group that habitually followed the WHO’s recommendation (1) and the other group that did not follow it (2).

In our survey, respondents were asked to rate their subjective consideration about happiness and life satisfaction using 5 levels (from 1: “completely unhappy” to 5: “completely happy” and from 1: “completely dissatisfied” to 5: “completely satisfied”). The median was 3 for both variables. Therefore, the responses were categorized as completely not happy and happy neutral (0) versus happy and completely happy (1) and also completely dissatisfied, dissatisfied, and neutral (0) versus satisfied and completely satisfied (1).

A chi-square test and Fisher's exact test for categorical variables and a t-test for continuous variables were used to examine the bivariate relationship between an independent variable and older persons' SRH. First, this research dropped variables that contained too small an expected frequency for logistic regression and then selected a variable ($p < 0.2$). The significant variables were entered into a logistic regression after examining multicollinearity. The odds ratios (OR) with a 95% confidence interval (CI) were reported as statistically significant. The data were analyzed using Stata version 13.1 (Stata Corp., College Station, TX, USA; 2013).

3. Results

Table 1 describes the older persons' characteristics. With respect to socio-

Table 1. Social demographic of the older persons (n = 300).

Age[Mean \pm SD]			[68.68 \pm 6.33]
Sex	Male	150	(50.00)
	Female	150	(50.00)
Partner	Not alive	78	(26.00)
	Alive	222	(74.00)
Dependents number [Mean \pm SD]			[5.14 \pm 1.85]
Total years of education [Mean \pm SD]			[9.46 \pm 3.69]
Employment	No	222	(74.00)
	Yes	78	(26.00)
Log of per capita monthly household expenditures [Mean \pm SD]			[8.46 \pm 0.64]
Medical insurance	Yes	151	(50.33)
	No	149	(49.67)
BMI[Mean \pm SD]			[23.32 \pm 2.61]
Number of symptoms [Mean \pm SD]			[7.70 \pm 0.61]
Feeling depressed	No	282	(94.00)
	Yes	18	(6.00)
Experience of daily life difficulty due to health problems			
	No	23	(7.67)
	Yes	277	(92.33)
Physical activities	No	202	(67.33)
	Yes	98	(32.67)
Smoking	No	258	(86.00)
	Yes	42	(14.00)
Number of cigarette sticks per day [Mean \pm SD]			[1.06 \pm 4.35]
Drinking Alcohol	No	226	(75.33)

Continued

	Yes	74	(24.67)
Alcohol consumption per day [Mean \pm SD]			[64.83 \pm 120.15]
Average sleeping hours [Mean \pm SD]			[6.51 \pm 0.63]
Book reading	No	273	(91.00)
	Yes	27	(9.00)
Contact with friends	No	192	(64.00)
	Yes	108	(36.00)
Community activity participation			
	No	290	(96.67)
	Yes	10	(3.33)
Take care grandchildren	No	157	(52.33)
	Yes	143	(47.67)
Feeling happiness	Not happy	236	(78.67)
	Happy	64	(21.33)
Satisfaction	No	160	(53.33)
	Yes	140	(46.67)
Self-rated health	Low	179	(59.67)
	High	121	(40.33)

demographic characteristics, older persons in our sample had a mean age of 68.68 years. Half were male (50.00%). In total, 74.00% of the older persons' partners were alive. The mean number of dependents number was 5.14. The mean number of total years of education was 9.46 years. In total, 26.00% were employed. The mean log of per capita monthly household expenditures was 8.46. The mean BMI was 23.32. Older persons presenting themselves as depressed was 6.00%. More than 90% experienced difficulty in their daily life due to their health problems. In total, 67.33% of older persons did not have a habit of doing activities according to the recommendations of the WHO. In total, 14.00% of older persons had smoking experience. The mean number of cigarettes 1.06 a day. In total, 24.67% of older persons drank alcohol. The mean amount per day was 64.83 ml. The mean number of sleeping hours was 6.51 hours. More than 90% of older persons didn't have habit of book reading. In total, 64.00% of older persons did not have contact with friends. In total, 3.33% of older person participated in community activity. About half of older person took care grandchildren. About 80% of older persons did not feel happiness. About half of older persons did not feel satisfaction of their life. In total, 40.33% of older persons perceived higher self-rated health.

As shown in **Table 2**, this research determined that sex, total years of education, log of per capita monthly household expenditures, medical insurance, number of symptoms, feeling depressed, experiencing daily life difficulty due to

Table 2. Bivariate analysis of sociodemographic characteristics and SRH.

Item		SRH very bad/bad/fair		SRH good/very good		p-value
		n(%)		n(%)		
		179(59.67)		121(40.33)		
characteristics						
Age [Mean ± SD]		[68.55 ± 6.93]		[68.87 ± 5.35]		0.67 [†]
Sex	Male	80	53.33	70	46.67	0.02
	Female	99	66	51	34	
Partner	Not alive	48	61.54	30	38.46	0.69
	alive	131	59.01	91	40.99	
Dependents number		[5.28 ± 1.92]		[4.94 ± 1.74]		0.11 [†]
Total years of education [Mean ± SD]		[8.59 ± 3.04]		[10.75 ± 4.16]		<0.001 [†]
Employment	No	132	59.46	90	40.54	0.90
	Yes	47	60.26	31	39.74	
Log of per capita monthly household expenditures [Mean ± SD]		[7.85 ± 0.54]		[8.08 ± 0.35]		<0.001 [†]
Medical insurance	Yes	78	51.66	73	48.34	<0.001
	No	101	67.79	48	32.21	
BMI [Mean ± SD]		[23.40 ± 2.51]		[23.19 ± 2.76]		0.48 [†]
Number of symptoms [Mean ± SD]		[7.93 ± 0.31]		[7.36 ± 0.77]		<0.001 [†]
Feeling depressed	No	163	57.80	119	42.20	<0.001 ^{††}
	Yes	16	88.89	2	11.11	
Experience of daily life difficulty due to health problems	No	3	13.04	20	86.96	<0.001 ^{††}
	Yes	176	63.54	101	36.46	
Physical activities	No	176	87.13	26	12.87	<0.001 ^{††}
	Yes	3	3.06	95	96.94	
Number of cigarette sticks per day		[0.22 ± 1.48]		[2.31 ± 6.42]		<0.001 [†]
Alcohol consumption per day (ml)		[50.00 ± 122.13]		[86.77 ± 114.15]		0.01 [†]
Average sleeping hours [Mean ± SD]		[6.63 ± 0.78]		[6.49 ± 0.50]		0.01 [†]
Book reading	No	174	63.74	99	36.26	<0.001 ^{††}
	Yes	5	18.52	22	81.48	
Contact with friends	No	139	72.40	53	27.60	<0.001
	Yes	40	37.04	68	62.96	
Community activity participation	No	179	61.72	111	38.28	<0.001 ^{††}
	Yes	0	0.00	10	100.00	
Taking care of grandchildren	No	89	56.69	68	43.31	0.27
	Yes	90	62.94	53	37.06	
Feeling happiness	not happy	141	59.75	95	40.25	0.95 ^{††}
	happy	38	59.38	26	40.63	
Satisfaction	No	94	58.75	66	41.25	0.72
	Yes	85	60.71	55	39.29	

chi2, [†]t test, ^{††}Fisher's exact.

health problems, physical activities, average sleeping hours, number of cigarettes per day, alcohol consumption per day, book reading, contact with friends, and community activity participation were associated with SRH with a statistical significance of 0.05.

As shown in **Table 3**, the logistic regression analysis revealed that independent factors for SRH were the following seven characteristics: total years of education (OR: 1.26; 95% CI, 1.10 - 1.44), number of symptoms (OR: 0.02; 95% CI, 0.01 - 0.23), sleep hours (OR: 2.72; 95% CI, 1.11 - 6.64), number of cigarettes per day (OR: 1.20; 95% CI, 1.08 - 1.35), alcohol consumption per day (OR: 1.00; 95% CI, 1.00 - 1.02), friend contacts (OR: 0.21; 95% CI, 0.07 - 0.64), and medical insurance (OR: 0.020; 95% CI, 0.005 - 0.072).

4. Discussion

The factors associated with good and very good SRH among older persons in our study were more total education years, fewer total number of symptoms, longer sleep hours, more cigarettes per day, more alcohol consumption per day, having friend contacts and having medical insurance.

Compared to previous research regarding SRH, a longer educational career (Kim, 2011), fewer symptoms (Jarbøl, 2017), better qualitative sleep customs (Darviri, 2011), deeper social capital (Vankova, 2016), moderate alcohol consumption (Badawi, 2012) and having medical insurance (Kim, 2011) were the same factors associated with better SRH. Regarding smoking, previous studies showed the opposite outcome. Berglund and Wang clarified the association between poor SRH and smoking habits (Berglund et al., 2016; Wang, 2012). On the other hand, Park noted smokers in Korea had good SRH, though Koreans had been warned of the effect of tobacco on the human body (Park, 2015).

Regarding smoking, 14.00% of older persons in Quezon City reported current

Table 3. Logistic regression of older persons' socio-graphic characteristics and SRH good/very.

	OR	95%CI
Sex (ref. Male)	2.438	0.952 - 6.244
Dependents number	1.281	0.885 - 1.855
Total years of education	1.264	1.106 - 1.444**
Log per capita monthly expenditure	4.023	0.711 - 22.758
Number of symptoms	0.029	0.007 - 0.122**
Sleep hours	2.720	1.113 - 6.645*
Number of stick cigarettes per day	1.209	1.080 - 1.354**
Alcohol consumption per day	1.008	1.003 - 1.012**
Friends contact	3.550	1.138 - 11.110*
Medical insurance (ref. having insurance)	0.020	0.005 - 0.072**

*p < 0.05, **p < 0.01.

tobacco use in our research. According to the global adult tobacco survey (GATS) in the Philippines, 23.80% of all adults aged 15 years and older answered that they used tobacco. Additionally, 17.00% of Filipinos aged 55 years and older were smokers (WHO, 2015). The smoking percentage of older persons in our survey and the GATS in the Philippines were similar, and similar to Korean research, older persons who had a smoking habit in our study also reported better SRH (Park, 2015).

According to the report from the WHO, among Filipino adults, 95.0% knew that smoking causes serious illnesses (WHO, 2015). From this percentage, it might be presumed that older persons who had smoking habits also got information that smoking is harmful to their health. It might be considered that their answer regarding their health in this study did not come from lack of health knowledge.

Judging from the mean number of cigarettes of older smokers per day, it might be guessed that older persons had a custom of one or two cigarettes a day to change their feeling or relax. As a result, even if older persons have smoking customs, it was possible to believe it might not be causing very serious health problems.

There was also the possibility that the outcome resulted from the older person's desire that they were healthy even if they had a smoking habit. Older persons aged 60 years and older in the Philippines can get free medical services and diagnostic and laboratory services, such as X-rays, computerized tomography scans and blood tests in all government facilities as designated by The Republic Act (R.A.) 9994 called the "Expanded Senior Citizens Act of 2010". Even though diagnosis and laboratory services are free, older persons need to pay medical treatment fees and hospitalization fees when necessary. One result from this survey was that 49.66% of older persons had medical insurance. The rest of the older persons needed to pay for medical treatment or hospitalization themselves, and it is expensive to get these treatments in the Philippines. Therefore, older persons who had smoking habits tended to answer that they were healthy.

5. Conclusion

For tobacco control policy in the Philippines, the government signed the WHO FCTC in 2003, and the treaty was ratified in 2005. R.A. 9211, known as the "Tobacco Regulation Act of 2003", mandated a warning label on 30% of the fronts of tobacco product packages in English or Filipino. However, some Filipinos have a custom of buying individual cigarettes from street vendors and not purchasing a box. Compared to other countries, smoking cessation rates in the Philippines are lower (WHO, 2011). The social custom of street vendors selling individual cigarettes might be helpful in keeping people as light smokers. In addition to the FCTC policies, modifying this custom might lower the percentage of the smoking population in the Philippines and assist in the establishment of correct self-rated health among older Filipinos.

Social security, especially medical insurance, might also be needed in the Philippine society so that people could fully confront their health problems. If social security supported personal medical treatment and hospitalization fees enough, people would not give up receiving medical treatment, and then smokers could admit their health condition easily.

There are some limitations in our research. First, it is impossible for us to infer a causal relationship between some factors and SRF due to our use of cross-sectional analyses. Second, this study analyzed factors associated with SRH of older persons focusing on risk factors of NCD, though this research could not survey salt intake per day. Thus, future research should consider including the input of family caregivers. Third, our sample was too small to compare gender differences in this survey. However, men have a higher percentage of smoking in the Philippines. It might be an important survey to compare gender difference of this SRH factor in future research.

Main contribution of this research is to find out the fact that the older persons who have smoking habit in the Philippines had better SRF. The persons having smoking habit and higher SRH tend to refuse to recognize their health problems, and have belief "I'm OK". Because having such belief may delay the disease of discovery, it might be important to create accessible medical treatment environment in the Philippines.

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Appendix

Questionnaire

- No. 1 Age: _____
- No. 2 (0) Male (1) Female
- No. 3 Is your partner still alive? (0) No (1) Yes
- No. 4 Number of dependents/members of the household. Please exclude yourself. (_____ members)
- No. 5 How long had you received educational training (count from primary school) and what is your highest educational attainment?
Total years of educational training: _____ years
- No. 6 Are you currently employed? (0) No (1) Yes
- No. 7 How much does your family spend in a month on the average?

No		total (peso/month)
1	food budget	
2	electric bill	
3	water and sewerage	
4	house rent	
5	medical expenditure	
6	educational fee	
7	miscellaneous expenses	
8	others ()	
	Total	

- No. 8 Do you have an active medical insurance? (0) Yes (1) No
- No. 9 Weight (in pounds): _____
- No. 10 Height (in feet): _____
- No. 11 Please answer the following questions based on your health condition during the past 6 months.

		No	Yes
1	Have you caught a cold?	0	1
2	Have you felt headache?	0	1
3	Have you had sore throat?	0	1
4	Have you had runny nose or sinus congestion?	0	1
5	Have you had a cough?	0	1
6	Have you had stomachache?	0	1
7	Have you had diarrhea?	0	1
8	Have you felt pain in any parts of your body?	0	1

- No. 12 In the past 12 months, have you ever felt sad/depressed for two or

more consecutive weeks?

(0) No (1) Yes

No. 13 Do you experience difficulty in your daily life because of your health problems (i.e. difficulty in walking across the room, taking a shower, eating meals, cleaning the rooms, wearing clothes, etc)?

(0) No (1) Yes

No. 14 How long do you continue a moderate physical activity once you start on the average?

_____ minutes/activity

No. 15 Are you currently smoking cigarettes? (0) No (1) Yes

No. 16 About how many sticks of cigarettes do you consume in a day on the average? _____ sticks/day

No. 17 Do you drink alcohol? (0) No (1) Yes

No. 18 How much do you usually consume in a day? ml/day

No. 19 What time do you usually get up and go to the bed?

wake-up time: _____AM, sleeping time: _____PM, average sleep time: _____hours/nigh

No. 20 Do you read magazines or books?

(0) No (1) Yes

No. 21 Do you contact your friends in a week?

(0) No (1) Yes

No. 22 In the past 12 months, have you ever participated in any events in your communities or barangay?

(0) No (1) Yes

No. 23 Do you take care of your grandsons/granddaughters? (0) No (1) Yes

(0) No (1) Yes

No. 24 Generally speaking, would you consider yourself happy?

(1—completely not happy, 5—completely happy)

Completely not happy Neutral Completely happy

1 2 3 4 5

No. 25 Would you say you are satisfied with your life these days?

(1—completely dissatisfied, 5—completely satisfied)

Completely Dissatisfied Neutral Completely Satisfied

1 2 3 4 5

No. 26 What can you say about your health in general?

1) Very bad

2) Poor

3) Fair

4) Good

5) Very good