Smoking Habits and its Effects to Health Among the Middle Aged and Elderly in Okinawa

Smoking Habits and its Effects to Health Among the Middle Aged and Elderly in Okinawa

Kazuhiko TAIRA[1,)], Naoki NAGAHAMA[2)], Toshihisa MATSUZAKI[2)], Fumihiko MAKIYAMA[2)], Mitsuo UENO[3)]

1)Department of Life long Health Promotion, College of Education, University of the Ryukyus
2)Department of Health Administration, School of Health Science, University of the Ryukyus
3)Department of Community Health, Tokyo Metropolitan Institute of Gerontology

Abstracts

The purpose of the present study is to examine the relationship of smoking habits to health status of elderly in a long life span area.

Ohgimi Village in Okinawa prefecture was selected as the study area because of long life expectancy. Interview were performed for 765 inhabitants aged 68 years and over.

The result obtained are as follows :

1) Current smokers were observed in 48.2% of males under 75 years and 33.6 % of 75 years and over.

2) Although current signs of respiratory tract disease were observed in around 10% of males and below 5% of females, no significant relationship was found between these signs and smoking habits.

3) The history of respiratory disease were observed in 19.4% of males. The rate was two times higher than that of females. These histories were more common in ex-smokers than in current and non-smokers.

4) The level of competence of removal decreased with advancing age. The decline was more common in ex-smokers.

5) The health status measured by self-rated reporting was better in current smoker, especially in females of 75 years and over.

1. Introduction

Our previous report, An Epidemiological Study on the Relationship of Smoking Habits to the Health Status of the Elderly in a Long Life Span Area, investigated the relationship between the cumulative effects of smoking and the health status of the elderly at Ohgimi Village in the northern part of the Okinawa Prefecture, Japan. The relationship between the capacity for physical activity (and other related factors) and smoking habits were also studied.

This report describes the results of our follow-up study, which investigated the relationship between smoking habits and respiratory organ condition, self-rated health and ADL (activity of daily living) among the elderly of Ohgimi. We also studied the effects of smoking habits on such status changes in the elderly as death and hospitalization that occurred in the first three years after the beginning of the study.

2. Methods

In 1987 we began our study with 815 elderly people at Ohgimi Village in the north of the Okinawa Prefecture. All our subjects were 65 and over as of January 1, 1987. For the current study, we first contacted those 815 subjects: 765 (263 males and 502 females) of them have responded to our request for the follow-up survey.

The survey was conducted, as a rule, in interview sessions that took place in community centers in 17 different locations. Some of the subjects, however, were interviewed at their homes.

The factors considered in our analysis were such things as smoking habits, current respiratory organ conditions, history of pulmonary disorders, ADL, and general sense of fitness. The subjects were divided into two age groups: younger than 75 and older than 75. The subjects were also divided into the following three categories: non-smokers, past smokers, and current smokers.

Those who have undergone some changes in health status over the first three years since 1987 have also been investigated in terms of the smoking habits they had at the time of the first study.

3. Results

1) Smoking Habit

Table 1 indicates smoking habits by age group and gender. Almost half of the males in the younger age group are currently smokers (48.2%). The percentage decreases to 33.6% in the older age group.

The percentage of non-smokers is quite high among the females in both age groups (88.8% for the younger, 73.7% for the older).

The percentage of current smokers is very low for both age groups but somewhat higher among the older group (5.8% for the younger group, 17.7% for the older group).

Table 1 Smoking Habit

	Male					Female				
	Younger		Older			Younger		Older		
	No.	%	No.	%		No.	%	No.	%	
Non-smoker	29	20.6	32	26.2		230	88.8	179	73.7	
Past smoker	44	31.2	49	40.2	n.s.	14	5.4	21	8.6	***
Current smoker	68	48.2	41	33.6		15	5.8	43	17.7	
Total	141	100.0	122	100.0		259	100.0	243	100.0	

n.s.: not significant ***: $p<0.001$

2) Respiratory Symptoms

Table 2, 3, and 4 indicate the subjectsユ respiratory symptoms at the time of the survey.

The percent of the men and as little as 3.4% — 4.3% of the female subjects report that they have symptoms of coughing, phlegm, and stridor. No statistically significant difference is observed between the different age groups for these symptoms.

Table 2 Coughing Symptoms

	Male					Female				
	Younger		Older			Younger		Older		
	No.	%	No.	%		No.	%	No.	%	
Symptoms(+)	13	9.3	9	7.4	n.s.	13	5.0	8	3.3	n.s.
Symptoms(−)	127	90.7	113	92.6		246	95.0	235	96.7	
Total	140	100.0	122	100.0		259	100.0	243	100.0	

n.s.: not significant

Table 3 Phlegm Symptoms

	Male					Female				
	Younger		Older			Younger		Older		
	No.	%	No.	%		No.	%	No.	%	
Symptoms(+)	15	10.7	12	9.8	n.s.	13	5.0	12	4.9	n.s.
Symptoms(−)	125	89.3	110	90.2		246	95.0	231	95.1	
Total	140	100.0	122	100.0		259	100.0	243	100.0	

n.s.: not significant

Table 4 Stridor Symptoms

	Male					Female				
	Younger		Older			Younger		Older		
	No.	%	No.	%		No.	%	No.	%	
Symptoms(+)	14	10.0	13	10.7	n.s.	12	4.6	10	4.1	n.s.
Symptoms(−)	126	90.0	109	89.3		247	95.4	233	95.9	
Total	140	100.0	122	100.0		259	100.0	243	100.0	

n.s.: not significant

Table 5 indicates the history of respiratory diseases. Among the males, 15.1% in the younger group and 23.8% in the older group have experienced some type of respiratory disorder. Among the females, the percentages are 10.0% and 7.0%, respectively; these percentages are significantly lower than those of the males. Males in the older group and females in the younger group report relatively more past history of disease. Among all the elderly of the village, 50 males (19.4%) and 43 females (8.6%) have a past history of respiratory diseases; the breakdown of these statistics is given in Table 6. This table shows that the most common respiratory disease among both males and females is pulmonary tuberculosis (50% of the males, 37.2% of the females), followed by bronchial asthma (20.0%) and chronic bronchitis (10.0%) in the males, and by chronic asthma (23.3%) and pneumonia (11.6%) in the females.

3) Smoking Habits and Respiratory Symptoms

Table 5 History of Respiratory Disorders

	Male					Female				
	Younger		Older			Younger		Older		
	No.	%	No.	%		No.	%	No.	%	
History(+)	21	15.1	29	23.8	n.s.	26	10.0	17	7.0	n.s.
History(−)	118	84.9	93	76.2		233	90.0	225	93.0	
Total	139	100.0	122	100.0		259	100.0	242	100.0	

n.s.: not significant

Table 6 History of Respiratory Disorders

	Male		Female	
	No.	%	No.	%
History of Disorder(+)	52	19.2	43	8.6
Type of Disorder				
Chronic bronchitis	5	10.0	2	4.7
Bronchiectasis	1	2.0	2	4.7
Pneumoconiosis, silicosis			1	2.3
Pulmonary tuberculosis	25	50.0	16	37.2
Bronchial asthma	10	20.0	10	23.3
Pneumonia	4	8.0	5	11.6
Others	7	14.0	7	16.3

Table 7 shows those with coughing symptoms grouped according to their smoking habits. Except for the females in the older age group, current smokers seem to report a greater number of such symptoms, but no statistically significant difference can be observed.

The percentages of those who report these symptoms seem to be greater among the males than among the females. This can also be seen in Table 8 for phlegm and Table 9 for stridor. However, no particular relationship between such symptoms and smoking habits has been found.

Table 10 shows the percentages of those who have a past history of respiratory diseases according to their smoking habits. A statistically significant number of male past smokers (27.3% in the younger group, 34.7% in the older) report a history of respiratory diseases. In addition, female past smokers seem to report more cases of past respiratory diseases than the females of other groups, but no statistically significant difference is apparent.

4) Smoking Habits and ADL

ADL (activity of daily living) refers to the overall capacity for physical movement, and consists of 6 stages: almost entirely bed-ridden, frequently bed-ridden, not bed-ridden but having some difficulty moving around, sometimes moving around the house to do household chores, having no problem moving around the house or going to neighbors without assistance, and going out by bus, taxi, or car (driven by him or herself). In our analysis, those who are able to go out by bus, taxi, or car are categorized as having high mobility, and the rest

Table 7 Smoking and Coughing

		Younger			Older		
		No.	cough(+)	(%)	No.	cough(+)	(%)
Male	Non-smoker	29	0	0.0	32	2	6.3
	Past smoker	44	5	11.4 n.s.	49	3	6.1 n.s.
	Current smoker	67	8	11.9	41	4	9.8
	Total	140	13	9.3	122	9	7.4
Female	Non-smoker	230	12	5.2	179	8	4.5
	Past smoker	14	0	0.0 n.s.	21	0	0.0 n.s.
	Current smoker	15	1	6.7	43	0	0.0
	Total	259	13	5.0	243	8	3.3

n.s.: not significant

Table 8 Smoking and Phlegm

		Younger			Older		
		No.	phlegm(+)	(%)	No.	phlegm(+)	(%)
Male	Non-smoker	29	0	0.0	32	3	9.4
	Past smoker	44	7	15.9 n.s.	49	3	6.1 n.s.
	Current smoker	67	8	11.9	41	6	14.6
	Total	140	15	10.7	122	12	9.8
Female	Non-smoker	230	11	4.8	179	7	3.9
	Past smoker	14	1	7.1 n.s.	21	2	9.5 n.s.
	Current smoker	15	1	6.7	433	7.0	
	Total	259	13	5.0	243	12	4.9

n.s.: not significant

Table 9 Smoking and Stridor

		Younger			Older		
		No.	stridor(+)	(%)	No.	stridor(+)	(%)
Male	Non-smoker	29	3	10.3	32	4	12.5
	Past smoker	44	4	9.1 n.s.	49	6	12.2 n.s.
	Current smoker	67	7	10.4	41	3	7.3
	Total	140	14	10.0	122	13	10.7
Female	Non-smoker	230	9	3.9	179	5	2.8
	Past smoker	14	2	14.3 n.s.	21	2	9.5 n.s.
	Current smoker	15	1	6.7	43	3	7.0
	Total	259	12	4.6	243	10	4.1

n.s.: not significant

Table 10 Smoking and History of Respiratory Disorders

		Younger			Older		
		No.	history(+)	(%)	No.	history(+)	(%)
Male	Non-smoker	29	2	6.9	32	8	25.0
	Past smoker	44	12	27.3 *	49	17	34.7 *
	Current smoker	66	7	10.6	41	4	9.8
	Total	139	21	15.1	122	29	23.8
Female	Non-smoker	230	23	10.0	179	13	7.3
	Past smoker	14	2	14.3 n.s.	20	3	15.0 n.s.
	Current smoker	15	1	6.7	43	1	2.3
	Total	259	26	10.0	243	17	7.0

*: $P<0.05$ n.s.: not significant

are categorized as having low mobility.

From the results of our survey , it can be seen that among the male subjects in the older age group, non-smokers exhibit the highest capacity for movement, followed by current smokers and then past smokers.

Conversely, among the females in the older age group, the highest capacity for movement is exhibited by current smokers, followed by non-smokers and then past smokers; this is statistically significant. However, different smoking habits do not show any fixed tendency in this area of the survey among the elderly in the younger group, both male and female.

Table 11 Smoking and Activity of Daily Living

		Younger						Older					
		Low	(%)	High	(%)	Total	(%)	Low	(%)	High	(%)	Total	(%)
Male	Non-smoker	3	10.3	26	89.7	29	100.0	47	20.3	185	79.7	232	100.0
	Past smoker	3	6.8	41	93.2	44	100.0 n.s.	9	50.0	9	50.0	18	100.0**
	Current smoker	6	9.0	61	91.0	67	100.0	7	35.0	13	65.0	20	100.0
Female	Non-smoker	10	33.3	20	66.7	30	100.0	98	54.7	81	45.3	179	100.0
	Past smoker	13	28.9	32	71.1	45	100.0 n.s.	16	76.2	5	23.8	21	100.0*
	Current smoker	12	33.3	24	66.7	36	100.0	18	41.9	25	58.1	43	100.0

*: P<0.05 **: P<0.01

5) Smoking Habits and Self-rated Health

Table 12 indicates the relationship between smoking habits and the self-rated health among the elderly. In other words, the self-rated health is a self-evaluation of how healthy one feels. This self rated health is divided into four categories: very healthy, fairly healthy, not very healthy, and not healthy. In our analysis, the former two groups are categorized as groups with a sense of good health and those in the latter two are categorized as having a sense of poor health.

Different smoking habits among males in the younger age group show no statistically significant difference in the percentages of those who evaluate themselves as "healthy." However, in the older age group, the highest percentage of "healthy" subjects is found in current smokers and the lowest is found among past smokers, with statistically significant differences. Among the female subjects in the younger age group, current smokers rate the

Table 12 Smoking and Self-rated Health

		Younger			Older		
		No.	Healthy	%	No.	Healthy	%
Male	Non-smoker	29	20	69.0	32	20	62.5
	Past smoker	44	32	72.7 n.s.	49	30	61.2 *
	Current smoker	67	49	73.1	41	31	75.6
	Total	140	101	72.1	122	71	58.2
Female	Non-smoker	230	163	70.9	179	115	64.2
	Past smoker	14	8	57.1 n.s.	21	14	66.7 n.s.
	Current smoker	15	13	86.7	43	27	62.8
	Total	259	184	71.0	243	156	64.2

n.s.: not significant *: P<0.05

highest among those who evaluate themselves as "healthy" and past smokers are the lowest. However, in the older age group, the percentage of the "healthy" shows no statistically significant difference according to smoking habits.

6) Smoking Habits and Life Prognosis

Three years have passed since the first study was conducted in April and July, 1987. Since then, some subjects have died or been hospitalized. They have been categorized as the negative prognosis group and studied in terms of their smoking habits. As is shown in Table 13, the number of those in the negative prognosis group increases among the older age group for both males and females. In particular, a statistically significant high percentage of female past smokers in the younger age group are categorized in the negative prognosis group.

Table 13 Smoking and Prognosis

		Younger				Older			
		No.	Healthy	(%)		No.	Healthy	(%)	
Male	Non-smoker	38	4	10.5		26	7	26.9	
	Past smoker	57	2	3.5	n.s.	26	6	23.1	n.s.
	Current smoker	59	2	3.4		31	7	22.6	
	Total	146	8	5.5		83	20	24.1	
Female	Non-smoker	184	5	2.7		140	36	25.7	
	Past smoker	17	3	17.6	**	34	9	26.5	n.s.
	Current smoker	29	1	3.4		30	4	13.3	
	Total	230	9	3.9		204	49	24.0	

Note: Prognosis (death, hospitalization) **: $P<0.01$ n.s.: not significant

4. Discussion

The rate of smokers among the general population in Ohgimi Village has no changed greatly since 1987. The tendency is commonly observed in other areas (Nangai Village in the Akita Prefecture and Koganei City in Tokyo) where we have conducted our studies. Also, as is commonly seen, the smoking rate decreases as the subjects ages advance. This is particularly characteristic of the male subjects. As for the females, the smoking rate is higher among the older age group, which is higher than that of Nangai Village and close to the level in Koganei City.

It is said that the rate of past smokers generally increases with an increase in age due to diseases and other health factors. This is true of the elderly males of Ohgimi, but among the females, there is a different tendency. This seems to be somewhat related to the effect of World War II and the long occupation by the U.S. afterward on the life patterns of the subjects of our study.

The most common respiratory disease found among cases of past history of respiratory disease is pulmonary tuberculosis for both males and females. This reflects a pattern of major past health hazards.

Although the current study fails to show the relationship of smoking habits to coughing,

phlegm and stridor, it reveals that the male past smokers exhibit more instances of a past history of respiratory diseases than those in the other categories. This may be easily explained by the fact that the rate of smokers is higher among men and that people usually stop smoking for a particular reason. This may also be indicative of the effect of smoking on general health.

Although some other reports indicate that many cases of cardiac infarction have been observed among past smokers, our study has not indicated such a relationship among the elderly of this village, as was mentioned in the last report.

As to the relationship between smoking habits and ADL, no significant pattern has been observed among the younger age groups of either males or females. But among the older age groups for both males and females, past smokers demonstrate a low degree of capability in ADL.

This also suggests the process in which deteriorating health leads to quitting smoking.

On the other hand, current smokers tend to view themselves as healthy; males in the older age group particularly demonstrate this tendency. This indicates that smoking has a certain positive effect on maintaining self-rated health and mental stability.

As to the relationship between smoking habits and prognosis, female past smokers in the younger age group exhibit more cases of negative prognoses. According to continuous follow-up surveys conducted among the 70-year-old population of Koganei City in Tokyo, the death rate is the highest among smokers. However, we have not been able to clarify the prognoses thoroughly because many of the elderly of this village are generally healthy and vigorous, and few have exhibited changes in negative prognosis over the past three years. The study on the relationship between smoking habits and health in this village requires more information collection through further follow-up studies.

This study was partially supported by research grants from Smoking Research Foundation.

Reference

1) Tokyo Metropolitan Institute of Gerontology: General Health Survey on the 70-year-old population of Koganei City, 1983(in Japanese)

2) Tokyo Metropolitan Institute of Gerontology: General Health Survey on the 70-year-old population of Koganei City (2nd Report), 1988(in Japanese)

3) Tokyo Metropolitan Institute of Gerontology: Health Survey on the Elderly at Ohgimi Village of the Okinawa Prefecture, 1988(in Japanese)

4) Tokyo Metropolitan Institute of Gerontology: Health Survey on the Elderly at Nangai Village of the Akita Prefecture, 1989(in Japanese)

5) Palmore, E.: Predictors of Longevity Difference; A 25-year Follow-up, The Gerontologist 22, 513—518, 1982

6) Harumi Nagai, Hiroshi Haga, et al.: The Relationship Between Changes in Serum-Albumin with Aging and Life Prognosis Among the Elderly at Home in a Local Community, Japanese Journal of Geriatrics,21,588-592, 1984(in Japanese)

7) Mitsuo Ueno, Toshihisa Matsuzaki, Kazuhiko Taira, et al.:Epidemiologic Study on Relationship between Smoking Behaviors and Health Indicators among the Aged in the Long Span Area,Jap.J.Prim.Care22(4):373-376,1989(in Japanese)