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OBSERVATION OF HEALTH AND DAILY LIFE IN SURABAJA CITY IN INDONESIA*

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Yoshiaki TODA, M. D., Hideki MORI, M. D., SABDOADI, M. D., M. P. H., HOEPOEDIONO, M. D., M.P.H., KOENTO R., M. D., M.P.H., SOEDARJO, M. D., KARTINI S., M. D. and LOLONG L. A., M. D. *Observation of Health and Daily Life in Surabaja City in Indonesia.* Kobe J. Med. Sci. 16, 119-130, December 1970—— Health conditions, past illness and daily life were observed in Surabaja City of Java Island in Indonesia in 1968 as the joint work between Kobe University team and Indonesian team.

INTRODUCTION

Habits of daily life play a very important part in the health of individuals, families, nations and so on, while these obviously differ by nations, climate, religions, education, social systems, economic conditions and so on. It should be the first choice to know exactly the present condition, in order to improve the habits of daily life practically and scientifically considering climate and other conditions. Observations

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were performed as the joint work of Kobe University and Indonesian team in 1968 at Surabaja City, Java Island, for the purpose of knowing the present situation of daily life.

METHODS

Oral questionary was made for the subjects gathered at two health centers i. e., Tambakredjo H. C. and Margojoso H. C. and answers were filled up in the form and arranged. Items of the questionary were as follows:

1) past history, malaria and tropical ulcer
2) feeling of health
3) medical care
4) water supply
5) habits of washing hands before meal and habits of brushing teeth
6) place of mandi (water bath)
7) place and cleaning method after defecation
8) sleeping
9) circumcision
10) smoking
11) taste of alcohol
12) kinds of food stuffs intaken a day in advance

RESULTS AND DISCUSSIONS

1) Past history, malaria and tropical ulcer.

Past history of malaria is shown in Table 1 by the age-group and sex. As given in Table 1, about one third of the people had had malaria in the past and among those aged under 19, the rate of past malaria was obviously smaller than that of aged over 20. The difference was significant statistically ($P<0.001$) in both sexes. The result indicates the success of the policy and of the practice of malaria eradication system in Java Island supported by WHO and UNICEFF.

Past illness of tropical ulcer is shown in Table 2. As given in the Table 2, more than one fifth of the people had had tropical ulcer in the past, and a signifi-

Table 1. Past illness: malaria

sex	male				female			
illness	+	−	unknown	total	+	−	unknown	total
age								
under 9	1	30	0	31	3	32	0	35
10 − 19	17	95	0	112	23	102	0	125
20 − 39	74	118	2	194	59	131	0	190
over 40	47	54	0	101	22	55	0	77
total	139	297	2	438	107	320	0	427

cant difference was found between two age-groups, i. e. under age 19 and over age 20 in male subjects ($P<0.01$), and the same tendency was recognized as the whole ($0.02>P>0.01$), although in female subjects the difference by age-group was not remarkable. It might be suggested that the tropical ulcer is decreasing slowly, although younger age generations will have a risk of contacting the disease.

Table 2. Past illness: tropical ulcer

sex	male				female			
illness	+	−	unknown	total	+	−	unknown	total
age								
under 9	7	24	0	31	8	27	0	35
10 − 9	16	96	0	112	22	103	0	125
20 − 39	44	147	3	194	41	149	0	190
over 40	36	65	0	101	17	60	0	77
total	103	332	3	438	88	339	0	427

There is a tendency that tropical ulcer was more prevalent in the male than in the female although the difference of both sexes was not significant.

Because the term "tropical ulcer" has been served as a waste-basket for nonspecific diagnosis and because the etiology of some kinds of the disease remains uncertain, the eradication of this disease might be more difficult than that of malaria. But the disease might be decreased by the improvement of environmental sanitation, nutrition and so on.

The situation of the people who has had both malaria and tropical ulcer is indicated in Table 3. As indicated in the table, about ten percent of the people (about fifteen percent of the total) had suffered from both diseases. A tendency towards higher frequency in the male than in the female was recognized.

Table 3. Past illness: malaria + tropical ulcer

	both illnesses		
sex	+	−	total
male	48	243	291
female	40	271	311
total	88	514	602

2) Feeling of health

The result about feeling of health is shown in Table 4. As given in the table, about 18 percent of all the subjects, about 14 percent of the male and 21 percent of the female had the feeling of weakness. The difference of the rate between both sexes was significant ($P<0.01$). As to the age-group, 20 percent of the subjects

aged over 20 and 13 percent of the subjects aged under 19 had the feeling of weakness. The difference of the rate between the two age-groups was significant ($P<0.02$). About 79 percent of the subjects had the feeling of excellence or normality, and the latter is about twice as much as of the former.

Table 4. Feeling of health by sex and age

sex	male					female				
feeling	excellent	normal	weak	unknown	total	excellent	normal	weak	unknown	total
age										
under 19	22	104	14	3	143	38	89	26	7	160
20 – 39	61	100	29	4	194	45	92	46	7	190
over 40	36	43	19	3	101	19	39	18	1	77
total	119	247	62	10	438	102	220	90	15	427

Most of the subjects were expected as healthy person and about one fifth of all had the feeling of weakness and the rate of the feeling of weakness was larger in the female than in the male, and also in the age group over 20 than under 19. The feeling of health is not objective but subjective and it is difficult to find out some data to be compared with this, however it might be suggested that in some cases the feeling of weakness shall be related to climate, nutrition, some kinds of diseases, economical and social conditions of living and so on.

3) Medical care

763 subjects (88.2%) among 865 were treated by medical doctors when they were taken ill, 17 (2.0%) by Dukun (unlicensed physician or quack doctor), and 61 (7.0%) by other means such as medical drugs, and 24 subjects (2.8%) were not taken medical treatment. Difference of the rate by age group or sex could not be found. Although the accuracy of the number above mentioned might be vague, Surabaja is one of the most advanced district in Indonesia in the field of the medical care.

4) Water supply

Sources of water supply were as follows;

Source	Number	Percent
city water supply	765	88.4
well	58	6.7
spring	4	0.5
river	1	0.1
others	3	0.3
unknown	35	4.0
total	865	100.0

Almost 90 percent of the subjects were supplied from the city water works. A few got water from well, spring and river.

Supply of sufficient amount of water of good quality is one of the most important condition for good health. Most of the subjects were supplied enough water from the city water works. But some of the subjects were getting water from spring, river etc. It is suggested that the people who could not have city water supply should have the supply in the future.

5) Habits of washing hands before meal and of brushing teeth

These data are shown in Table 5 (a and b). As given in the table, 69 persons (8%) among 865 did not wash hands before meal, and most of them belonged to the male of age group 10 to 19.

About 92 percent of the subjects cleaned teeth every day.

Generally speaking, the teeth cleaning was put into practice more widely in the female than in the male, and in under 39 years old age group than in over 40 years old age group in the female. The difference was significant statistically, $P<0.01$, $P<0.001$, respecively. As to the number of the teeth cleaning, twice a day was most popular (64%) and once and three times were next.

It is noteworthy that there were some people who did not wash their hands or did not clean their teeth. It is necessary that children are educated to cultivate a habit of cleaning hands before meal and of cleaning their mouths.

Table 5 (a). Washing hands before meal

sex	male				female			
washing	wash	not	unknown	total	wash	not	unknown	total
age								
under 9	26	2	3	31	32	2	1	35
10 – 19	62	48	2	112	119	2	4	125
over 20	268	11	16	295	251	4	12	267
total	356	61	21	438	402	8	17	427

Table 5 (b). Cleaning of the teeth

sex	male			female		
cleaning	clean	without	total	clean	without	total
age						
under19	130	13	143	153	7	160
20 – 39	182	12	194	186	4	190
over 40	76	24	100	66	11	77
total	388	49	437	405	22	427

6 Place of mandi

Mandi (water bath) places are indicated in Table 6. As shown in the table, about a half of the subjects (48.7%) had mandi places in their residences. Besides the residences, field (26.5%), common mandi place (16.6%), river and well were taken as mandi places. The situation differed from that in Lombok Island. It might be the difference between urban and rural district.

The number of people who had mandi places in their residences was more in the age group under 19 than that in the age group over 20, in both sexes, and the statistical difference was remarkably signifiicant in total ($P<0.001$). The significant difference was not found between both sexes.

Table 6. Place of mandi (water bath) by sex and age group

sex	age	place						total
		in the residence	field	common	river	well	unknown	
male	under 19	94	17	24	1	0	7	143
	20 – 39	79	74	20	5	2	14	194
	over 40	44	39	8	0	0	10	101
	total	217	130	52	6	2	31	438
female	under 19	102	10	30	9	0	9	160
	20 – 39	75	57	45	4	6	3	190
	over 40	27	32	16	0	0	1	76
	total	204	99	91	13	6	13	426
	total	421	229	143	19	8	44	864

7) Defecation place and cleaning after defecation

These data are given in Table 7 (a and b). As indicated in the table, water closet was most popular (61.4%) as the defecation place. Next to water closet, river (15.4%), garden (9.0%) and field (8.2%) were chosen. The use of water closet was popular among the female than among the male, and also among the younger generation (under 19 years old) than among the older generation (over 20 years old) ($P<0.001$).

It is a common sense that the water closet should be a most modernized water carriage system, but in fact, not only in Surabaja but also in most places in South East Asia, water closet without water carriage system, without cesspool or septic tank and without disinfection system are common. Modernized water carriage system or scientific treatment of human excreta is desiable in the future, in order to prevent the pollution of water and soil and in order to control communicable diseases. Washing with water was most common as to the cleaning of the local, as shown in the table.

Table 7 (a) Place of defecation by sex and age group.

sex	age	water closet	field	garden	common W.C.	river	unknown	total
male	under 19	111	5	7	3	9	8	143
	20 – 39	88	29	19	2	44	12	194
	over 40	40	12	15	2	26	6	101
	total	239	46	41	7	79	26	438
female	under 19	131	3	5	1	12	8	160
	20 – 39	111	14	27	1	31	6	190
	over 40	42	7	14	0	9	5	77
	total	284	24	46	2	52	19	427
total		523	70	87	9	131	45	865

Table 7. (b). Cleaning method after defecation

	method			
sex	water	paper	unknown	total
male	427	3	8	438
female	421	0	6	427
total	848	3	14	865

8) Sleeping

Average and standard deviation of sleeping time (hours) is indicated in Table 8 (a). Mean sleeping time was decreasing age by age until 50–59 age group in the male and 40–49 age group in the female. The tendency towards increase of sleeping time in older age group was recognized but it was not significant statistically. When comparing both sexes in older age groups, the sleeping time of female was a little longer (not significant).

The sleeping condition by sex and age is shown in Table 8 (b). The subjects answered subjectively "good" or "not". 17% of the all subjects complained of sleeplessness. Comparing under 19 and over 20 age group, the rate of complaint of sleeplessness was larger in the latter age group (statistically significant $P<0.01$).

9) Circumcision(Sunat)

This questionary was performed only to the male subjects. 352 subjects (80.4%) among 438 had been received the operation. 80 persons (18.3%) were not done yet, and 6 persons were unknown. The number of people operated by doctors were 108 (30.7% of the operated), on the other hand, those who were treated by unqualified doctors (so-called "Dukun") were 226 (64.2%) and 18 persons were unknown. Most of them were operated at 11–15 years old (76%), 6–9 years old and 16–20 years old were followed. Exceptionally, under 5 years old and over

Table 8 (a). Average number ($\bar{x}$) and standard deviation (s) of sleeping time in hours by sex and age

sex	male			female		
age	n	$\bar{x}$(hrs)	s(hrs)	n	$\bar{x}$(hrs)	s(hrs)
under 9	30	11.1	1.37	34	10.8	1.71
10 – 19	108	9.4	1.71	123	9.0	1.75
20 – 29	101	8.1	1.56	111	8.3	1.50
30 – 39	88	7.5	1.55	77	8.0	1.57
40 – 49	57	7.7	1.41	43	7.2	1.62
50 – 59	32	6.2	1.69	19	7.4	2.61
over 60	7	6.7	1.66	14	8.2	2.00
total (average)	423	(8.10)		421	(8.41)	

Table 8 (b). Sleeping condition by sex and age

sex	male				female			
spleeing	good	not	unknown	total	good	not	unknown	total
age								
under 9	30	1	0	31	31	3	1	35
10 – 19	99	12	1	112	108	14	3	125
20 – 39	155	38	1	194	152	35	3	190
over 40	76	25	0	101	57	19	1	77
total	360	76	2	438	348	71	8	427

30 years old males were received circumcision.

10) Smoking and taste of alcohol

The question about smoking was taken in order to know how many percent of subjects smoke heavily (over 20 cigarettes a day), so it was not clear whether those who answered "no" had smoking habits or not.

The results are shown in Table 9 (a). Generally speaking, it seems that heavy smokers were few (15% of the male smoke heavily).

The difference of the rate of heavy smoker between the age group over 20 years old and under 19 years old was significant with $P<0.001$ on both sexes. The difference between male and female was also recognized with $P<0.001$.

As to the taste of alcohol, because of Islamism, Indonesian people have not the custom of drinking. As shown in Table 9 (b), the tendency that Indonesian people did not like alcohol was obvious. Male subjects had habits of drinking a little more in comparison with female subjects ($P<0.001$). From this table we can guess a tendency that the male over 40 years old liked alcohol much more than the male, 20–39 years old age group ($0.01<P<0.05, X^2=3$).

Table 9 (a). Smoking

sex	male				female			
number of cigarettes	under 19	over 20	unknown	total	under 19	over 20	unknown	total
age								
under 9	30	0	1	31	35	0	0	35
10 – 19	106	4	2	112	123	0	2	125
20 – 39	161	29	4	194	178	3	9	190
over 40	70	31	0	101	68	3	5	76
total	367	64	7	438	404	6	16	426

Table 9 (b). Taste of alcohol

sex	male				female			
washing	wash	not	unknown	total	wash	not	unknown	total
age								
under 9	26	2	3	31	32	2	1	35
10 – 19	62	48	2	112	119	2	4	125
over 20	268	11	16	295	251	4	12	267
total	356	61	21	438	402	8	17	427

11) Kinds of food stuffs intaken a day in advance

The results are shown in Table 10. As given in the table, only rice and maize were taken as cereals. Rice was the staple food and most of the inhabitants (98%) live on rice. Maize was sometimes taken (6%).

Sweet potato (16%) and potato (7%) were also the important energy source. Population who took potatoes was remarkably less in the age group under 19 than over 20, and the difference was significant statistically ($P<0.001$).

Sugar (69%) and palm oil (63%) were common. Other kinds of oil could not be found.

As to pulses, soybean curd was most popular (62%), soybeans the next (44%) and others were greenpeas (16%) and red kidney beans (8%).

Concerning fish and shellfish, shrimp (13%) and fresh (7%), salted (6%) or dried fish (4%) were taken. The rate of the subjects who took fish or shellfish was rather low. The main cause might be the climate. In the tropical territory it is rather difficult to reserve fish or shellfish in fresh or safe condition until it was taken by the people. An institute and a transportation to serve fish or shellfish for the citizens are expected to provide enough amount of protein of good quality to the people.

As regards meat and poultry about a half of the subjects (48%) reported that he or she took beef on the day in advance. It is doubtful for those who have the common sense of practical habits of the inhabitants to believe that all of the answers

were exact. Almost the same tendency was pointed out by the authors on the study on Lombok Island.[1] Besides beef, chicken was taken (4%), as a poultry, others are pork (1%), mutton or frog (both 0.4%).

Regarding eggs and milk, hen's eggs (13%), duck's eggs (13%) and milk (10%) were taken and other kinds of eggs were taken sometimes (1%). In general, the kinds of animal food were poor.

As to vegitables tomatoes (31%), cabbages, (20%), beans sprouts (15%) and cucumbers (8%) were taken. The kinds of vegetables were limited. It might be come from the climate. The garden radish is one of the most popular vegatables in most regions of the temperate climate. In Indonesia a garden radish is cultivated in only a territory of highland and cool climate, and in a hot territory near sea level, so the growth of a radish might be too early to enjoy it for a pretty long period or might not be economical.

The device of the reservation and the distribution of fresh vegetables should be one of the most important policy to promote the health of inhabitants.

Concerning fruits, coconuts (21%), bananas (18%) and sometimes jack fruits (nangka) were taken. It is a little strange that both the kinds of fruits intaken and the number of the subjects who took fruits were limited notwithstanding there were many kinds and large amount of fruits, for example, sweet oranges, watermelons, papayas, mangosteens (Manggis), neesberries (sawo), durians etc, at a fruits shop, a grocery, and a food market found everywhere in Surabaja.

It might be suggested that a pretty large number of the subjects represent the population of a low standard and that some of the subjects forgot some kinds of food stuffs taken in an advanced day.

As regards beverages, tea and coffee were most popular, and as to seasoning, Cayenne pepper was used.

Excepting food stuffs groups above mentioned, some other kinds of food stuffs for example, sweetments, beverages and so on were taken by about one fourth of the subjects.

SUMMARY

Questionary on health and daily life was made for visitors to Tambakredjo and Margojoso health centers in Surabaja on August and September, 1968.

The results obtained were as follows;

1) About one third of the people had had malaria in the past, and among those aged under 19, the rate of past malaria was remarkably smaller than aged over 20. The difference was significant ($P<0.001$).

2) More than one fifth of the people had been suffered from tropical ulcer in the past and the suffering rate was lower in the age group under 19 than over 20 among the male. And also in total of the male and female, the rate was lower in under 19 age group.

3) About ten percent of the people had suffered from both diseases, malaria and tropical ulcer

4) About 18 percent of the people had the feeling of weakness. The rate

Table 10. Kind of stuffs taken in the day before the questionary by and age group.

sex	male				female				total	%
age	under 19	20 – 39	over 40	total	under 19	20 – 39	over 40	total		
number of people	141	190	97	428	154	180	71	405	833	
food stuff										
cereals										
rice	136	184	95	415	150	178	71	399	814	97.7
maize	8	8	6	22	5	15	1	21	43	5.2
potatoes										
potato	7	14	3	24	15	15	1	31	55	6.6
sweet potato	4	44	16	64	10	41	17	68	132	15.8
sugar	78	136	76	290	81	140	61	282	572	68.7
oils										
palm oil	72	118	60	250	94	128	51	273	523	62.8
pulses										
soybeans	43	84	51	178	50	96	46	192	370	44.4
red kidney beans	8	26	6	40	9	14	6	29	69	8.3
greenpeas	19	40	13	72	16	34	7	57	129	15.5
soybean curd	80	117	59	256	95	115	46	256	512	61.5
fish and shellfish										
salted fish	15	10	3	28	10	9	6	25	53	6.4
dried fish	5	5	3	13	4	6	2	12	25	3.0
fresh fish	12	12	5	29	15	16	1	32	61	7.3
shrimp	13	31	11	55	22	25	9	56	111	13.0
meat and poultry										
beef	62	98	38	198	72	93	33	198	396	47.5
pork	1	5	0	6	1	2	1	4	10	1.2
mutton	0	2	0	2	0	1	0	1	3	0.4
chicken	4	12	5	21	13	0	2	15	36	4.3
frog	1	2	0	3	0	0	0	0	3	0.4
eggs and milk										
hen's egg	13	25	13	51	12	28	17	57	108	13.0
duck's egg	18	15	13	46	27	23	10	60	106	12.7
other eggs	1	3	2	6	2	1	1	4	10	1.2
milk	15	24	6	45	11	18	10	39	84	10.1
vegetables										
cabbage	24	39	12	75	25	47	18	90	165	19.8
tomato	33	48	19	100	52	74	29	155	255	30.6
beans sprouts	18	35	12	65	18	30	15	63	128	15.4
cucumber	12	13	8	33	9	20	6	35	68	8.2
fruits										
banana	20	35	19	74	20	37	19	76	150	18.0
jackfruit	4	3	3	10	2	2	3	7	17	2.0
coconut	19	34	16	69	40	52	16	108	177	21.0
beverages										
tea	100	120	56	276	100	117	40	257	533	
coffee	37	127	76	240	26	91	54	171	411	
seasoning										
cayenne pepper	53	108	52	213	61	95	33	189	402	
others	37	22	10	69	58	52	13	123	192	

in female (21%) was higher than in male (14%) and the difference was significant ($P<0.01$). The rate in age group over 20 (20%) was higher than under 19 (13%) and the difference was significant ($P<0.05$).

5) The data showed that in most cases at the time of serious sickness medical care was done by medical doctors.

6) The sources of supplied water were in most cases municipal water supply, well the next and sometimes spring or river.

7) More than 90 percent of the people had the habits of washing hands before meal and of brushing teeth every day.

8) Common place of mandi was in a residence. Other places were field, common mandi place and sometimes river or near a well.

9) As a place of defecation, water closet was most popular (60%), river (15%) was the next and others were garden or field. Water closet was more popularly used by the female than the male ($P<0.001$) and by the age group under 19 than over 20 ($P<0.001$). Washing with water was most common as the cleaning method of the local.

10) The average number of sleeping time of all the age groups were 8.10 hours in the male and 8.41 hours in the female with great numbers of standard deviations. The average is shorter according to the older age group except age over 60.

About seventeen percent of all the subjects complained of sleeplessness. The rate was larger among the age groups over 20 than under 19 ($P<0.01$).

11) About eighty percent of all the male subject had finished circumcision. About two-thirds of the circumcised male were operated by Dukun (uncertificated medical doctor) and about thirty percent of them by medical doctors. The time of the circumcision was most common in the age group 11 to 15, and 6 to 9 was next.

12) Most of the women do not smoke.

About fifteen percent of the male smoked heavily (over 20 cigarettes a day) and in the age group over 20 the rate of heavy smoker was larger than under 19 in both sexes (both $P<0.001$).

13) The number of alcohol drinker was small, especially in the female and there was the tendency that in the male the rate of drinker was larger in the age group over 40 than under 39.

14) Most of the people live on rice.

The kind of food stuffs intaken a day in advance was limited.

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