The health status of Japanese people living in the UK

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ABSTRACT Studies have shown that Japanese migrants to the US and Brazil have higher rate of diabetes than native Japanese, but little is known about migrants to the UK. We investigate the health status of Japanese migrants to the UK. We utilised the modified validated Behavioral Risk Factor Surveillance System State Questionnaire 2004. A UK computerised directory was searched for common Japanese names and 2192 anonymised postal questionnaires were dispatched. Data were compared to a nationwide survey of diabetes in Japan, the National Health and Nutrition Survey and the Health Survey for England. 589 replies were received and showed that the rates of obesity and overweight were lower than that of the native UK population. The prevalence of self-reported doctor-diagnosed diabetes, hypertension, hyperlipidaemia, heart-attack and stroke were 3.6%, 13.1%, 19.5%, 0.7% and 0.8% respectively. It appears that Japanese migrants adopt a lifestyle similar to the UK population, diverging from that of native Japanese. Rates of obesity are lower than the UK native population and smoking rates are lower than native Japanese. In conclusion, the migratory disease burden seen in Japanese migrants to the US and Brazil was not apparent in this sample population in the UK.

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Key words：**Japanese, UK, Health, Obesity, Diabetes**

INTRODUCTION

In common with many developed countries, rates of chronic diseases related to lifestyle are increasing rapidly in Japan. In an attempt to combat this, the Japanese government launched the National Health Promotion Movement in the 21st Century (Healthy Japan 21) in 2000. This concept was designed to promote healthy lifestyles and thus decrease premature death. A Ministry of Health Survey in 2002 reported that, "the number of people who were strongly suspected of suffering from diabetes" - on the basis of HbA_{1C} measurements ≥ 6.1% - was about 7.4 million (5.8% of total population), while the number of people with "the undeniable possibility of suffering from the disease" - on the basis of HbA_{1C} measurements between 5.6% and

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6.1% - was about 8.8 million (6.9%). The report estimated that there might be as many as 16.2 million people (12.7%) affected [1].

Recent expansion of global Japanese companies has resulted in an increase in the number of Japanese who live and work in western countries. Surveys of Japanese migrants to the US [2-5] and Brazil [6-8] have shown that the prevalence of diabetes appears to be higher than that found in Japan. The general health status of these migrants has not been systematically reported, with the exception of a survey of Japanese in Westchester County, NY [9]. A further small study by Japanese authors reports the mental health status of Japanese people living in the UK [10].

The Ministry of Foreign Affairs of Japan reported that 50,845 Japanese live in the UK and 9,713 of them were permanent residents in 2005 [11]. The study reported here was designed to investigate and report the health status of Japanese people living in the UK and compare this to Japanese and UK indigenous populations.

MATERIALS AND METHODS

Subjects

A commercially available computerised directory called "People Finder™" containing details of the electoral roll and telephone directory in the UK was used to identify Japanese names. A search was performed using the 3000 most common Japanese surnames and we identified a possible 2021 addresses in the UK. In addition, contact was made with two Japanese societies. One, a Japanese group based in Oxford, was asked to take part in the study by personal invitation. There were 51 members of this Japanese group. The other society is called "Naminokai", and represents Japanese women married to English men living in the UK. A questionnaire was sent to the 120 members of this group with their monthly newsletter.

Design

The questionnaire consisted of 4 pages of A4 size paper and included 41 questions modified from the validated Behavioral Risk Factor Surveillance System State Questionnaire 2004 [12]. We changed the wording slightly to avoid US usage, added some questions relating to lifestyle and translated it into Japanese. The survey included questions about general health status, exercise, tobacco use, alcohol consumption, family history of chronic disease, doctor-diagnosed diabetes, high blood pressure, high blood cholesterol, heart disease and stroke and asked for details of lifestyle change, health-related quality of life, health care access and demographics. The questionnaire was anonymised but residential areas were identified by the first half of the UK postcode. Questionnaires (two English versions and two Japanese versions) and pre-paid reply envelopes were sent to all subjects and two adults over the age of 18 in each household were invited to complete and return the questionnaire in the envelope provided. Questionnaires were sent out during May to August 2005.

Analysis

The data were compared to that found in the nationwide survey of diabetes in Japan, the National Health and Nutrition Survey in Japan in 2003 [13] and the Health Survey for England in 2003 [14].

Statistical analysis

We have generally reported our data as percentage of respondents and used nonparametric statistics (chi square) where appropriate. We have been circumspect in interpreting p values where we have not demonstrated more than a 10% difference in response rate.

RESULTS

A total of 2192 questionnaires were sent out. 473 envelopes were not delivered (unknown at

this address), 8 people were not Japanese and 2 respondents refused. Total replies were 589 (34.5%) completed assessable questionnaires from 1719 (Fig. 1). Residential areas are shown in Fig. 2. More than half of the respondents lived in London, but replies were received from all over the UK.

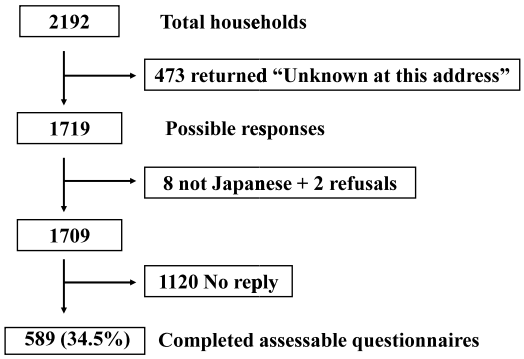

Fig. 1. Consort diagram of responses to questionnaire

Table 1 shows the characteristics of the study subjects. 82% of respondents replied in Japanese and first generation Japanese (born in Japan) comprised 94.7% of the sample. The mean age (SD) was 43.7(12.9) years, 41.4% were male and the mean residency was 14.5(11.9) years. The respondents were generally of high educational status, with 85.7% reporting that they had attended college or university. The mean BMI was 23.7(3.1) kg/m^2 in men and 20.9 (2.8) kg/m^2 in women. 81(34.8)% of the men and 27(8.3)% in women were overweight or obese (BMI $\geq$ $25kg/m^2$) by the WHO

Fig. 2. Map to show residential area of respondents

Table 1. Characteristics of respondents

Characteristics	All	Men	Women
Subject number	589	244	345
Age			
Mean (SD) year	43.7(12.9)	45.7(13.7)	42.4(12.1)
Resident duration in the UK			
Mean (SD) years	14.5(11.9)	16.3(13.1)	13.3(10.7)
Generation			
First	94.7%	92.6%	95.4%
Second	3.6%	4.9%	2.6%
Unknown	1.7%	2.5%	2.0%
Language version			
Japanese	82.0%	77.0%	85.2%
English	17.7%	22.5%	14.2%
Both of them	0.5%	0.4%	0.6%
Education			
Before left school at 18	13.7%	14.7%	12.8%
Attended college or university	85.5%	84.8%	86.1%
Height			
Mean (SD) cm		170.5(6.2)	158.4(5.6)
Body weight			
Mean (SD) kg		69.0(9.8)	52.3(7.4)
Body bass index (BMI)			
Mean (SD) kg/m^2		23.7(3.1)	20.9(2.8)
Waist circumference			
Mean (SD) cm		82.7(7.4)	65.8(6.6)
Japanese meals			
Mean (SD) days / a week	3.5(2.2)	3.6(2.3)	3.4(2.2)
Eating low fat foods (%)	58.4%	53.7%	61.7%
Making a conscious effort to eat more fruit and vegetables	86.1%	79.5%	90.7%
Making effort to be physically active	66.7%	63.1%	69.3%

Table 2. Prevalence of doctor-diagnosed chronic disease amongst Japanese people living in the UK

Diagnosed disease	Prevalence (%)
Diabetes	3.7
Hypertension	13.1
Hyperlipidamia	19.5
Myocardial infarction	0.7
Stroke	0.8

definition [15]. The Japanese definition of obesity is BMI $\geq$ $25kg/m^2$ [16]. According to Japanese definitions of central obesity (BMI $\geq$ $25kg/m^2$, waist circumference: men>85cm, women>90cm) [17] the prevalence was 53(27.2)% in men and 3(1.3)% in women. The prevalence of self-reported doctor-diagnosed diabetes, hypertension, hyperlipidaemia, heart attack and stroke was 3.6%, 13.1%, 19.5%, 0.7% and 0.8% respectively (Table 2).

Tables 3 and 4 show that about 40% subjects reported their general health to be "excellent/very good". 60.4% reported they exercise regularly or occasionally. The rates of smoking were 25.9% in men and 12.0% in women. 45.1% of men and 22.8% of women regularly consumed alcohol.

We compared our data reports with those available for the Japanese in Japan taken from the nationwide survey of diabetes in Japan [1], the National Health and Nutrition Survey in Japan in 2003 [13] and with the resident population of the UK from the Health Survey for England in 2003 [14]. Compared to the Japanese living in Japan, our respondents reported better health, more physical activity and less smoking in men, although they reported higher alcohol consumption. On the other hand, compared

Table 3. Responses to health status questionnaires in Japanese and UK populations

	Japanese in the UK (J in UK)		Japanese in Japan (J in J)*		UK population (UK)**		J in UK v J in J Chi squared	J in UK v UK Chi squared
	n	%	n	%	n	%	p	p
1. Would you say that in general your health is-								
Total subjects	583		9780		14833			
excellent/Very good	231	39.6	618	6.3	4959	33.4		
Good	237	40.6	2182	22.3	6217	42.0	p<0.0001	p<0.0001
Fair	100	17.2	5269	53.9	2718	18.3		
Poor/bad/very bad	15	2.6	1711	17.5	939	6.3		
2. During the past month, other than your regular job, did you participate in any physical activities or exercises such as walking for exercise or golf, running, gardening or swimming?								
Total subjects	583		6040		14836			
Regularly (more than 3 times a week)	135	23.2	1270	21.0	6166	41.5		
Occasionally (less than 3 times a week)	217	37.1	314	5.2	3231	21.8	p<0.0001	p<0.0001
Rarely (once a month)	93	16.0			1879	12.7		
Never	138	23.7	4456	73.8	3560	24.0		
3. Do you currently smoke any cigarettes, cigars or pipes?								
Total subjects	586		9110		14764			
Yes, currently smoke	104	17.7	2522	27.7	3745	25.4		
No, ex-smoker	167	28.5	1055	11.6	4396	29.8	p<0.0001	p<0.0001
No, never smoked	315	53.8	5533	60.7	6623	44.8		
4. How often do you have at least one drink of any alcoholic beverage ?								
Total subjects	586		9198		14750			
Regularly (more than 3 times a week)	188	32.1	2883	31.4	4885	33.1		
Occasionally (less than 3 times a week)	168	28.7	753	8.2	4408	29.9	p<0.0001	p<0.0001
Rarely (once a month or less)	105	17.9	970	10.5	3867	26.2		
Never	125	21.3	4592	49.9	1590	10.8		

* Data from the National Health and Nutrition Survey in Japan 2003 [13]
** Data from the Health Survey for England 2003 [14]

to the UK population, they reported similar health, physical activities, alcohol consumption and smoking in men but less smoking in women (Tables 3 and 4). Fig. 3 shows that overweight rates (BMI ≥ 25) are lower in the Japanese population compared to the UK population. Male Japanese in the UK report higher BMI than native Japanese, but females report lower BMI. The prevalence of self-reported doctor-diagnosed diabetes was similar among all groups. The prevalence of pre-diabetes or borderline diabetes in Japanese in the UK was low but the small numbers should be interpreted with caution (Table 5).

DISCUSSION

These data show the results a survey of Japanese people with respondents widely spread in the UK, and reflecting a demographic distribution concordant with UK population densities and immigrant population spread. We acknowledge that our data is subject to possible bias and differences relating to data ascertainment. Replies were received from 34.5% of those to whom requests were made, and we cannot be certain that this is a representative sample and we caution interpretation of the statistics where comparative percentages do not differ by more than 10%. There may be bias towards people interested in their own health as they may be more likely to reply to this questionnaire

Table 4. Responses to health status questionnaires in Japanese and UK populations by sex

	Men								Women							
	Japanese in the UK (J in UK)		Japanese in Japan (J in J)*		UK population (UK)**		J in UK v J in J Chi squared	J in UK v UK Chi squared	Japanese in the UK(J in UK)		Japanese in Japan (J in J)*		UK population (UK)**		J in UK v J in J Chi squared	J in UK v UK Chi squared
	n	%	n	%	n	%	p	p	n	%	n	%	n	%	p	p
1. Would you say that in general your health is-																
Total subjects	241		4556		6602				342		5223		8231			
excellent/Very good	96	39.8	310	6.8	2251	34.1			135	39.5	308	5.9	2708	32.9		
Good	100	41.5	1075	23.6	2760	41.8	<0.0001	0.0084	137	40.1	1107	21.2	3457	42.0	<0.0001	0.0022
Fair	39	16.2	2374	52.1	1162	17.6			61	17.8	2894	55.4	1556	18.9		
Poor/bad/very bad	6	2.5	797	17.5	429	6.5			9	2.6	914	17.5	510	6.2		
2. During the past month, other than your regular job, did you participate in any physical activities or exercises such as walking for exercise or golf, running, gardening or swimming?																
Total subjects	243		2473		6601				340		3566		8234			
Regularly (more than 3 times a week)	52	21.4	571	23.1	3169	48.0			83	24.4	699	19.6	2997	36.4		
Occasionally (less than 3 times a week)	86	35.4	153	6.2	1320	20.0	<0.0001	<0.0001	131	38.6	160	4.5	1910	23.2	<0.0001	0.4289
Rarely (once a month)	45	18.5	-	-	726	11.0			48	14.1	-	-	1153	14.0		
Never	60	24.7	1749	70.7	1386	21.0			78	22.9	2707	75.9	2174	26.4		
3. Do you currently smoke any cigarettes, cigars or pipes?																
Total subjects	243		4204		6563				343		4906		8201			
Yes, currently smoke	63	25.9	1967	46.8	1752	26.7			41	12.0	554	11.3	1993	24.3		
No, ex-smoker	89	36.7	879	20.9	2199	33.5	<0.0001	0.76	78	22.7	177	3.6	2198	26.8	<0.0001	<0.0001
No, never smoked	91	37.4	1358	32.3	2612	39.8			224	65.3	4175	85.1	4010	48.9		
4. How often do you have at least one drink of any alcoholic beverage ?																
Total subjects	244		4275		6559				342		4923		8191			
Regularly (more than 3 times a week)	110	45.1	2189	51.2	2755	42.0			78	22.8	694	14.1	2130	26.0		
Occasionally (less than 3 times a week)	68	27.8	389	9.1	2033	31.0	0.01	0.462	100	29.3	364	7.4	2375	29.0	<0.0001	0.0005
Rarely (once a month or less)	30	12.3	389	9.1	1246	19.0			75	21.9	581	11.8	2621	32.0		
Never	36	14.8	1308	30.6	525	8.0			89	26.0	3284	66.7	1065	13.0		

* Data from the National Health and Nutrition Survey in Japan 2003 [13]

** Data from the Health Survey for England 2003 [14]

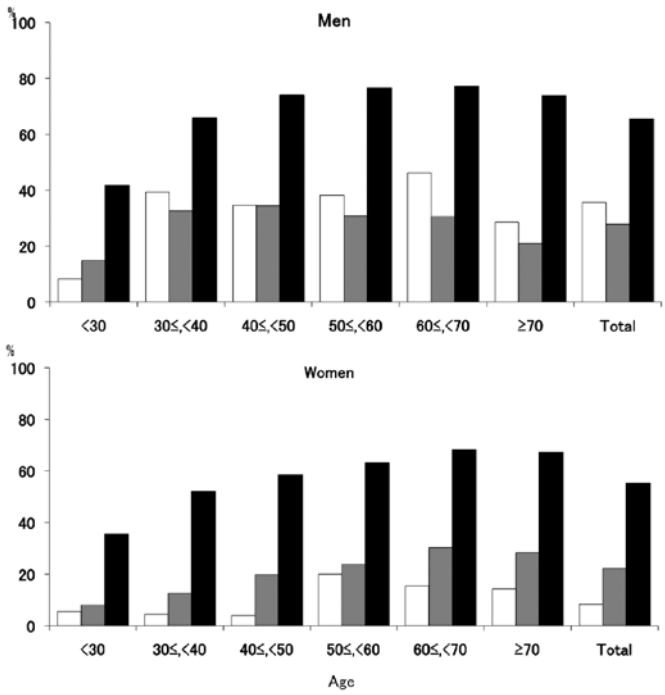

Fig. 3. Prevalence of overweight (BMI>25) by age and sex in Japanese and UK populations.
□ Japanese living in the UK
▒ Japanese living in Japan. Data from the National Health and Nutrition Survey in Japan 2003[13)]
■ UK population. Data from the Health Survey for England 2003[14)]

Table 5. Prevalence of self-reported diabetes amongst Japanese emigrants to the UK

variable	Japanese in the UK (%)	Japanese in Japan * (%)	UK population ** (%)
Men			
Diabetes	6.6	5.5	4.3
Pre-diabetes	2.8	11.7	-
Women			
Diabetes	1.4	2.4	3.4
Pre-diabetes	0.6	4.6	-
Total			
Diabetes	3.7	3.7	3.8
Pre-diabetes	1.5	7.1	-

*Data from the Report of the Nationwide survey of Diabetes Mellitus in Japan [1)]
**Data from the Health Survey for England 2003[14)]

but on the other hand, those with disease states may respond positively. Nevertheless, judging from the comparisons that we have used there is no evidence of the migratory chronic disease burden seen in those who moved to Hawaii, Los Angeles, Seattle and Sao Paulo. This may be because the majority of them were first generation, but Iunes *et al.* [8)] have reported that the prevalence of diabetes among first generation Japanese-Brazilians was high. There are some caveats related to language as well.

Japanese in Japan employ understatement (reporting good health in only 6.8% of cases) compared to the UK population. It is likely that this linguistic characteristic may be changed by living the UK - whereby reports of general health being 'excellent/ very good' converge to the UK norm.

Following migration to the West, the prevalence of diabetes among Japanese-Americans in those over 40 years of age is considerably higher than for indigenous Japanese, for example 18.9% in Hawaii, 13.7% in Los Angeles from 1978 to 1988 [4] and 16-20% in Seattle from 1983 to 1988 [2, 3] . Increasing rates over time have recently been reported in Japanese-Brazilians, from 22.6% in 1993 to 32.6% in 2000 [7] .

In marked contrast to those reports, the findings of our study show that Japanese people living in the UK have a profile that is generally healthy. Their lifestyle is similar to that found in the UK population and diverges from that reported by the Japanese in Japan, although this migrant population has a lower BMI than the native UK population. The average duration of residence in the UK is 15 years but 30% have been resident for more than 20 years. They typically eat Japanese foods three times weekly and 86% of them report making a conscious effort to eat more fruits and vegetables.

Our survey does not support the concept that migrant Japanese to the UK have high levels of chronic disease. Indeed the evidence from these data is that this population, in marked contrast to those of Brazil, Seattle, Hawaii and Los Angeles, is healthy. It is of interest that obesity has not become epidemic in this population. Overweight (BMI $\geq$ 25) rates are about half that of the UK population in men, and in women the rates are 8% compared with 55%. It is also pertinent that smoking rates have declined in the UK relative to Japan. 28% of our respondents reported giving up smoking. This implies that migration need not lead to the inevitability of poor lifestyle. In conclusion, the migratory disease burden seen in Japanese migrants to the US and Brazil was not apparent in this sample population in the UK.

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