Demographic and lifestyle characteristics associated with non-willingness to participate in health promotion programmes among adults of a lower socioeconomic status in Singapore

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Abstract: *Introduction/Objective*. Lower socioeconomic groups have been found to have poorer health outcomes and engage in fewer health promoting behaviours. Understanding the reasons behind adverse lifestyle habits and non-willingness to participate in health promotion programmes among lower socioeconomic groups will enable administrators to modify the programmes and increase participation in this population. This study aimed to determine reasons for non-exercise, smoking and non-willingness to participate, and characteristics associated with non-willingness to participate in health promotion programmes among residents in Singapore.
Method. A cross-sectional survey was conducted on a purposive sample of residents living in four housing developments of one- and two-room households in Singapore from June to October 2009. The patterns of exercise and smoking, receptiveness towards health promotion programmes and the reasons for non-willingness to participate were elicited. Chi-square tests and logistic regression analysis were performed to identify differences between groups.
Results. Seven hundred and seventy-eight responses were analysed. Only 36.1% of respondents were willing to participate in at least one health promotion programme (health screening, talk or workshop). Older respondents aged 45–64 years and more than 65 years were less likely to participate than their younger counterparts (18–44 years). Malays were more likely than Chinese to participate, and respondents who do not exercise were less likely to participate than respondents who exercise (regularly/occasionally). Reasons for non-willingness to participate were 'not interested' and 'no time'.
Conclusion. Health promotion messages should adapt to the needs and situation of the disadvantaged, to increase participation. (Global Health Promotion, 2012; 19(4): 9–19)

Keywords: health promotion, health behaviour, socioeconomic status, participation

Introduction

Reaching and attracting all groups in society for health promotion programmes can be a challenge. Health promotion, as defined by the World Health Organization, is a process of enabling people to increase control over their health and its determinants, and thereby improve their health (1). A guiding principle behind health promotion is to empower individuals and communities to take responsibility over their own health (1). Therefore, the success of any health promotion

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effort is highly dependent on the individual's and community's participation.

Studies that looked at participation in health promotion or disease prevention programmes have found that lower socioeconomic groups engage in fewer health promoting behaviours. In a study on colorectal cancer screening utilisation and perceived barriers, respondents with lower income, less education or who lacked health insurance were more unwilling to undergo an endoscopy and reported more barriers than their higher socioeconomic status counterparts (2). Another study in Japan found that individuals with lower income were significantly less likely to attend health check-ups (3). A recent article also reported that middle-aged and older adults with lower education and income were less likely to seek and obtain health information about a medical concern or mention the acquired health information to a physician (4).

Much research has corroborated that lower socioeconomic status is associated with poorer health outcomes and higher prevalence of chronic diseases and levels of risk factors (5–10). A study on the effects of socioeconomic status on exercise and smoking suggested that lower socioeconomic groups display poorer health characteristics because they have fewer individual resources to maintain good health (i.e. nutrition, housing, etc.) and often fewer community resources to facilitate health behaviour (11). The underprivileged populations were also more likely to indulge in unhealthy behaviours, such as smoking, heavy drinking and not exercising regularly, as a result of experiencing greater levels of stress (3,12,13).

In Singapore, a month-long National Healthy Lifestyle Campaign held annually serves to remind Singaporeans of the importance of a healthy lifestyle (14). Started in 1992, this multiple-strategy programme comprises media and communication activities, involvement of government agencies, community organisations, workplaces and schools to provide information, skills training, and the social and physical environments necessary to encourage healthy living by Singaporeans (15).

A National Health Survey is conducted every six years to evaluate the effectiveness of the National Healthy Lifestyle Campaign. Results from the 2004 National Health Survey (NHS 04) suggest that the National Healthy Lifestyle Campaign has significantly decreased daily smoking, high blood cholesterol and hypertension, and increased regular exercise over 1998 levels (15). However, a separate study found that the prevalence of physical inactivity, daily smoking and regular alcohol consumption was highest among Singaporeans with either no formal or primary education (12). Given that education is often used as an indicator for socioeconomic status (2,4–6,8–12), this suggested the need to improve the uptake of healthy lifestyles and behaviours among the lower socioeconomic group.

Understanding the reasons behind adverse lifestyle habits and non-willingness to participate in the lower socioeconomic group will help towards planning health promotion programmes to improve participation. This study aimed to determine reasons for non-exercise, smoking and non-willingness to participate, and characteristics associated with non-willingness to participate in health promotion programmes.

Method

Sample

This study was part of a larger cross-sectional community-based survey on self-empowerment and health service utilisation for chronic diseases among residents living in Toa Payoh, a mature high-rise housing estate in Singapore. As data on education, income and occupation of residents – frequent markers of socioeconomic status – were not available, housing type was used as a proxy in this study (15).

The selected housing type comprised one- and two-room apartments provided by the government's Housing and Development Board (HDB) to residents or families with a gross household income of below S$ 2,000 (US$ 1,553) for purchase, or below S$ 1,500 (US$ 1,165) for rent (16). Of the one- and two-room resident population in Singapore, 9.4% reside in Toa Payoh (17). A convenience sample of four housing developments was selected from this housing estate.

Survey development

The survey questionnaire was developed with references to literature (18–20) and the National Health Survey 2004, conducted by the Ministry of

Health of Singapore to measure prevalence of major non-communicable diseases (21). The questions in the survey were subjected to cognitive testing, and were translated and back-translated from English to Mandarin and Malay.

The close-ended questionnaire elicited information on demographic characteristics, lifestyle (smoking and exercise) and other risk factors, and receptiveness towards health programmes (health screening, talk and workshop).

Respondents were asked their frequency of exercise – regularly, occasionally or not at all and reasons for not doing so. For smoking, respondents were asked if they had ever smoked, reasons for smoking, what was stopping them from quitting and their plans about quitting smoking. Residents who have stopped smoking were asked to provide reasons for their decision. In both groups, residents could give more than one reason for not adopting healthy practices. Residents who were willing to participate in health programmes were asked about their willingness to pay and their choice of location for each of the programmes. If residents were unwilling to participate, the reasons were solicited.

Data collection

Data collection by face-to-face interviews was carried out from June to October 2009 by a team of trained interviewers. All 931 households in the four housing developments were informed of the upcoming interviews through letters mailed to them. All Singapore citizens and permanent residents aged 18 years and above were eligible for the survey. The survey consisted of two stages: a household survey to enumerate all residents in the household and to derive eligible respondents; and an individual survey for each consenting eligible respondent. Eligible respondents with no response after three attempts on three different days were deemed non-responders and excluded from the analysis.

Data analysis

Data was analysed using the PASW® Statistics 18 for Windows package (SPSS, Inc.). Chi-square tests were performed to examine the relationship between willingness to participate in at least one health promotion programme and the demographic and lifestyle characteristics. Significance was determined if $p < 0.05$. A logistic regression analysis was then performed, using a forward selection procedure based on the likelihood ratio test using $p < 0.05$ as entry criterion and $p < 0.10$ as exit criterion.

Ethical approval to conduct the survey was obtained from the National Healthcare Group Domain Specific Review Board (DSRB), Singapore.

Results

There were a total of 931 households from the four housing developments, of which 39 were unoccupied. Of the 892 households visited, 168 were non-contactable after three visits and 166 refused to participate, yielding a household response rate of 62.6% (558 households).

Of the 558 households, a total of 974 residents were eligible for the survey. Among these, 87 were not contactable and 109 refused participation, giving an individual response rate of 79.9% (778 respondents). Overall response rate was 50.0% (household response rate [62.6%] × individual response rate [79.9%]).

Demographic profile

In Table 1, the demographic profile of the 778 respondents is similar to that of the one- and two-room resident population in Singapore. However, compared with the general Singapore population, the survey sample had a higher representation of Malays, was significantly older, less educated with no formal or primary education, unemployed and earning less than S$ 1,000 (US$ 777) a month.

Patterns of exercise and smoking

Of the respondents, 35.3% (275) exercised – defined as any form of sports for ≥ 20 minutes per occasion, either regularly (≥ 3 days a week) or occasionally (< 3 days a week). The reasons for not exercising for the remaining 64.7% (503) differed with age (Table 2). For those aged below 65 years, the reasons were 'lack of time', 'feeling tired due to work' or 'family commitments', 'having enough exercise at work/home' or simply 'too lazy'. Those aged 65 years and above felt they were too old, had poor health or had enough exercise at home.

Table 1. Comparison of demographic characteristics of survey respondents against one- and two-room population and Singapore general population

	Survey respondents (N = 778)		*One- and two-room population*	*Singapore population*
	N	*% (95% CI)*	*%**	*%***
Gender				
Male	390	50.1 (45.1–55.1)	50.5	49.5
Female	388	49.9 (44.9–54.9)	49.5	50.5
Age				
< 15 years	0	–	9.4	18.4
15–24 years	53	6.8 (0.0–13.8)		13.4
25–34 years	63	8.1 (1.1–15.1)		15.2
35–44 years	69	8.9 (1.9–15.9)	62.1	17.1
45–54 years	161	20.7 (14.7–26.7)		16.7
55–64 years	140	18.0 (12.0–24.0)		10.5
65–74 years	161	20.7 (14.7–26.7)		5.4
75–84 years	97	12.5 (5.5–19.5)	28.5	2.6
≥ 85 years	34	4.3 (0.0–11.3)		0.7
Ethnic group				
Chinese	496	63.8 (59.8–67.8)	63.6	74.7
Malay	176	22.6 (16.6–28.6)	24.0	13.6
Indian	76	9.8 (2.8–16.8)	10.9	8.9
Others	30	3.9 (0.0–10.9)	1.5	2.8
Highest education level				
No formal education	374	48.1 (43.1–53.1)	–	16.4
Primary	231	29.7 (23.7–35.7)	–	22.0
Secondary and higher	173	22.2 (16.2–28.2)	–	61.6
Employment status (persons aged 15 years and above)				
Employed (full-time/ part-time)	335	43.1 (38.1–48.1)	–	96.0
Unemployed	157	20.2 (14.2–26.2)	–	4.0
Personal monthly income (persons aged 15 years and above)				
< S$ 500 (US$ 388)	521	67.0 (63.0–71.0)	–	3.7
S$ 500 (US$ 388) – S$ 999 (US$ 776)	178	22.9 (16.9–28.9)	–	9.5
≥ S$ 1000 (US$ 777)	79	10.1 (3.1–17.1)	–	86.8

*Source: Public Housing in Singapore: Residents' Profile, Housing Satisfaction and Preferences (HDB Sample Household Survey 2008)
**Sources: Yearbook of Statistics 2009 and General Household Survey 2005 (http://www.singstat.gov.sg/pubn/popn/ghsr1/chap2.pdf and http://www.singstat.gov.sg/pubn/popn/ghsr1/t54-61.pdf)
CI = confidence interval

Among respondents, 33.8% (263) were current smokers. The key reasons for smoking were to feel relaxed or relieve stress/cope with problems, and boredom (Table 3). All current smokers did not consider quitting smoking because they found it difficult to resist the urge. The majority (49.1% to

Table 2. Reasons* for not exercising, by age.

	18–44 years (N = 104)		*45–64 years (N = 199)*		*≥ 65 years (N = 200)*	
	No.	*%*	*No.*	*%*	*No.*	*%*
No time due to work/family commitments	61	58.7	101	50.8	31	15.5
Too tired because of work/ family commitments	47	45.2	62	31.2	20	10.0
Have enough physical activity at work/home	30	28.8	30	15.1	40	20.0
Too lazy	29	27.9	34	17.1	24	12.0
Too old	0	0.0	5	2.5	77	38.5
Poor health	10	9.6	32	16.1	70	35.0
Weather is too hot/humid	11	10.6	2	1.0	3	1.5
No companion to exercise with	6	5.8	10	5.0	5	2.5
Lack of facilities	6	5.8	3	1.5	4	2.0
Doctor advised not to exercise	3	2.9	7	3.5	7	3.5
Don't know any exercises	3	2.9	11	5.5	13	6.5

*Respondents could give more than one reason.

59.1%) also did not plan to quit smoking at all but were willing to consider reducing the number of cigarettes smoked.

Willingness to participate in health promotion programmes

A total of 36.1% (281) respondents were willing to participate in at least one health promotion programme. Of the three proposed programmes, 96.5% (272) were most receptive to participate in a health screening, 65.6% (185) a talk and 51.6% (145) a workshop.

For each of the three health promotion programmes, half (49.7% to 56.3%) were not willing to pay, while others (32.7% to 37.9%) were willing to pay not more than S$ 5 (US$ 3.88) (Table 4). The HDB void deck (ground level of housing developments in Singapore) or a nearby community centre, were the top choice locations for the programmes to be conducted. Main reasons for non-willingness were 'not interested' and 'no time' (Table 5).

The chi-square tests showed that respondents unwilling to participate in comparison with those willing to participate were likely to be older, of Chinese and Indian ethnicity, have no formal or primary education, earn a monthly personal income of < S$ 1,000 (US$ 777) and not do exercise (Table 6). In the logistic regression analysis, age, ethnicity and exercise were associated with non-willingness to participate in health promotion programmes (Table 7). Personal income and education were not significant. Respondents aged 45–64 years and 65 years and older were 0.5 times and 0.4 times, respectively, less likely to be willing to participate than their younger counterparts (18–44 years). Malays were 1.8 times more likely than Chinese to be willing to participate, and respondents who do not exercise were 0.5 times less likely to be willing to participate than respondents who exercise (regularly/occasionally).

Discussion

The findings of the study provides good insights into the factors and reasons for the lack of interest in health promotion programmes.

The results supported prior research that lower socioeconomic individuals tend to have poorer exercise and smoking habits, with 64.7% not exercising at all and 33.8% currently smoking. This is significantly higher than the corresponding 50.2% and 15.2% found in the National Health Surveillance Survey 2007 (NHSS2007) conducted by the Ministry

Table 3. Reasons for smoking and plans to quit smoking, by age

	18–44 years (N = 74)		*45–64 years (N = 132)*		*≥ 65 years (N = 57)*	
	No	*%*	*No*	*%*	*No*	*%*
Reasons for smoking						
To feel relaxed/relieve stress/help cope with problems	50	67.6	73	55.3	23	40.4
Boredom	18	24.3	43	32.6	17	29.8
Smoking is enjoyable	16	21.6	39	29.5	12	21.1
To help me concentrate	16	21.6	27	20.5	10	17.5
Would feel unbearable if I do not smoke	13	17.6	28	21.2	12	21.1
To entertain clients/friends	6	8.1	2	1.5	7	12.3
To feel confident/grown up/important	1	1.4	3	2.3	1	1.8
To be like my family members/relatives	0	0.0	4	3.0	1	1.8
To impress my boyfriend/girlfriend/friends/ colleagues	0	0.0	2	1.5	1	1.8
Habitual smoker since young	0	0.0	0	0.0	13	22.8
Reasons for not quitting smoking						
Difficult to resist the urge	42	56.8	84	63.6	27	47.4
I believe I can stop anytime I want to	22	29.7	22	16.7	15	26.3
No urgent need to stop	14	18.9	32	24.2	13	22.8
Plan about smoking						
I plan to quit smoking sometime in the future	19	25.7	18	13.6	10	17.5
– within the next six months	3	4.1	1	0.8	0	0.0
– within the next twelve months	2	2.7	2	1.5	1	1.8
– within the next five years	3	4.1	2	1.5	0	0.0
I do not plan to quit smoking at all but plan to cut down on the number of cigarettes smoked	39	52.7	78	59.1	28	49.1
I do not plan to quit smoking at all and do not plan to cut down on the number of cigarettes smoked	8	10.8	31	23.5	18	31.6

of Health of Singapore (22). The higher rates could be due to elderly residents 65 years and above who constituted almost 40% of the sample. Older adults may not perceive exercise as beneficial as younger age groups (23,24) and their attitudes about the hazards of smoking are often very different (25,26).

The finding that elderly respondents were unwilling to participate in health promotion programmes corroborated with other studies which found that older adults were more reluctant to participate than their younger counterparts in community health promotion programmes (27–29). Elderly respondents may have different values and beliefs. Some may not be health conscious or motivated to be involved in health-related matters (29,30), while others may doubt the usefulness of health screenings, since all risk factors revealed by a screening may not necessarily develop into a disease (31). Others may be aware of their predisposition to disease because of their lifestyles but feel healthy and do not wish to disrupt their quality of life because of undesirable results revealed through health screenings (31).

Fatalism can also inhibit individuals from engaging in preventive health behaviours. In a study on attitudes towards breast cancer screening, Chinese women were more likely to display fatalistic attitudes than Malay women (32). The belief in

Table 4. Willingness to participate, willingness to pay and location of health promotion programmes

	Screening (N = 272)		*Talk (N = 185)*		*Workshop (N = 145)*	
	No	*%*	*No*	*%*	*No*	*%*
Age						
18–44 years	93	34.2	71	38.3	63	43.4
45–64 years	99	36.4	68	36.8	50	34.5
≥ 65 years	80	29.4	46	24.9	32	22.1
Programme fee						
S$ 0 (free of charge)	153	56.3	98	53.0	72	49.7
S$ 1 (US$ 0.78)– < S$5 (US$ 3.88)	89	32.7	67	36.2	55	37.9
S$ 5 (US$ 3.88)– < S$ 10 (US$ 7.77)	23	8.5	15	8.1	11	7.6
≥ S$ 10 (US$ 7.77)	7	2.6	5	2.7	7	4.8
Location of programme						
HDB* void deck	191	67.7	125	67.6	93	64.1
Community centres	148	54.4	114	61.6	89	61.4
Mobile bus	122	43.3	75	40.5	55	37.9
Polyclinics	93	33.0	73	39.5	60	41.4
Residential Committee centres	75	26.6	64	34.6	50	34.5
Atriums of neighbourhood shopping malls	32	11.3	23	12.4	18	12.4

*HDB = Housing and Development Board

Table 5. Reasons for non-willingness to participate in health promotion programmes

	Screening (N = 497)		*Talk (N = 497)*		*Workshop (N = 497)*	
	No	*%*	*No*	*%*	*No*	*%*
Reasons						
No time	169	34.0	170	34.2	170	34.2
Not interested	61	12.3	58	11.7	58	11.7
No one to bring me for it	18	3.6	18	3.6	18	3.6
Unwilling to travel	26	5.2	26	5.2	25	5.0
Anxiety about the procedure in the screening	9	1.8	–	–	–	–
Others	56	11.3	49	9.9	50	10.1

luck, fate and predestination are pivotal in the Chinese culture, and some Chinese respondents believe that certain things in life, including the onset of illnesses, would occur regardless of the actions taken (32,33).

Individuals who seek health information and adhere to screening guidelines were more likely to exercise or have high physical activity levels (34–37). Similarly, this study showed that individuals willing to participate in at least one health promotion programme were more likely to exercise regularly or occasionally.

The main reasons for non-willingness to participate were a lack of interest and of time. A study that assessed non-participants' willingness to participate in a health examination in future found that non-participants, especially those who gave lack of time or hindrances at work as the main

Table 6. Demographic and lifestyle characteristics of survey respondents willing and unwilling to participate in at least one health promotion programme

	N	*Willing to participate*		*Unwilling to participate*		*p value*
		No	*%*	*No*	*%*	
Age						< 0.001
18–44 years	185	97	52.4	88	47.6	
45–64 years	301	101	33.6	200	66.4	
≥ 65 years	292	83	28.4	209	71.6	
Ethnicity						< 0.001
Chinese	496	153	30.8	343	69.2	
Malay	176	90	51.1	86	48.9	
Indian	76	25	32.9	51	67.1	
Others	30	13	43.3	17	56.7	
Gender						NS
Male	390	130	33.3	260	66.7	
Female	388	151	38.9	237	61.1	
Education						0.039
No formal qualifications and primary	605	207	34.2	398	65.8	
Above primary	173	74	42.8	99	57.2	
Monthly personal income						0.005
< S$1000 (US$777)	699	241	34.5	458	65.5	
≥ S$1000 (US$777)	79	40	50.6	39	49.4	
Working status						NS
Employed	335	137	40.9	198	59.1	
Unemployed	157	51	32.5	106	67.5	
Not employed*	286	93	32.5	193	67.5	
Smoking status						NS
Current smoker	263	95	36.1	168	63.9	
Former smoker	36	12	33.3	24	66.7	
Non-smoker	479	174	36.3	305	63.7	
Exercise status						< 0.001
Regularly/occasionally	275	126	45.8	149	54.2	
No exercise at all	503	155	30.8	348	69.2	

*Refers to students, National Service men, housewives and retirees
NS: not significant

reason for not participating, were willing to reconsider participating in the future (38). As such, efforts can still be made to attract non-willing respondents. Future studies could consider qualitative interviews with respondents to provide further insights into the reasons behind non-participation.

Implications for health promotion programmes

Existing health promotion strategies may not be effective for residents with lower socioeconomic status because of the bigger challenges to meet their basic needs (39). Health care is often not a priority for

Table 7. Logistic regression analysis* for non-willingness to participate in health promotion programmes (N = 778)

	Odds Ratio	*95% CI*	*p value*
Age			
[18–44 years]			
45–64 years	0.515	0.35–0.76	0.001
≥ 65 years	0.436	0.29–0.66	< 0.001
Ethnicity			
[Chinese]			
Malay	1.844	1.27–2.68	0.001
Indian	0.827	0.48–1.42	0.491
Others	1.355	0.63–2.93	0.440
Exercise status			
[Regularly/occasionally]			
No exercise at all	0.567	0.42–0.78	< 0.001

*Using forward selection (likelihood ratio) method.
[ ] Reference group
CI: confidence interval

this group, as they are more concerned about having more income, food, shelter and clothing for themselves and their family members (39). These individuals also tend to live by the day and rarely think about the long-term future (40). In a review on the effectiveness of interventions targeting low-income groups, it was suggested that behaviour change interventions with fewer techniques, specifically providing information, facilitating goal setting and prompting barrier identification, may be helpful for low-income groups (41). Health administrators should consider reformulating health promotion programmes to appeal to disadvantaged individuals.

Conclusion

Respondents who were unwilling to participate were more likely to be older, of Chinese ethnicity and not taking exercise. Reasons for non-willingness to participate were lack of interest and no time. Health planners, agencies and community people should take into account these findings and reconceptualise health promotion programme content and recruitment strategies to increase participation among lower socioeconomic groups.

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Conflict of interest

None declared.

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