



# **10,000 Steps Working Paper Series**

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## **Paper 5: Awareness of the 10,000 Steps Program across Queensland, 2007**

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## EXECUTIVE SUMMARY

This report details the awareness of the 10,000 Steps program across Queensland. This study examined the 2007 awareness levels; determined if demographic variables were associated with awareness; and finally compared the levels of awareness between 2005, 2006 and 2007.

- In 2007, it is estimated that 57% of the Queensland adult population (age 18 years and older) were aware of the 10,000 Steps program.
  - An estimated 53.1% of men and 60% of women were aware of the program.
  - An estimated 41.8% of 18-34 year olds, 63.5% of 35-44 year olds, 61% of 45-54 years olds and 57.1% of individuals aged 55 years and over were aware of the program.
  - An estimated 52.6% of residents from Brisbane and Moreton statistical subdivisions were aware of the program compared to 64.5% of residents from the rest of Queensland.
- In 2007, awareness was found to be significantly associated with location and annual household income.
  - Residents from the rest of Queensland were significantly more likely to be aware of the 10000 Steps program than residents from the Brisbane and Moreton district.
  - Individuals earning an annual household income greater than \$100 000 were significantly more likely to be aware of the 10,000 Steps program than those earning \$26 000 or less.
  - Awareness was not associated with gender, age group, years of education, occupation, BMI category or Leisure Time Physical Activity (LTPA) levels.
- From 2006 to 2007, the proportion of adult Queenslanders aware of the 10,000 Steps program has significantly increased from 42.5% to 56.6%, which represents an estimated increase of more than 345,000 individuals.
  - It was found that awareness significantly increased across all demographic populations except for the 18-34 year age group, individuals with 13-14 years of education and white collar workers.
- From 2005 to 2007, the proportion of individuals aware of the 10,000 Steps program across Queensland increased by 23%, or more than ½ million Queensland adults.
  - Awareness significantly increased across all demographic groups except individuals with 13-14 years of education, and white collar employees.

## **INTRODUCTION**

### **Background**

10,000 Steps Rockhampton was Australia's first 'whole of community' health promotion physical activity project. Funded by Queensland Health, the Rockhampton region was chosen for a two year trial of the project in 2001. During this period, the 10,000 Steps Rockhampton Project was an exemplary model of an effective multi-strategy, multi-sector physical activity project. [1] The project was successful in motivating local communities, workplaces and individuals to increase their physical activity levels. As a result of the success in Rockhampton, Queensland Health provided funding for 10,000 Steps to be developed as a sustainable state-wide and beyond initiative.

10,000 Steps now disseminates physical activity information, materials, resources and support via the interactive 10,000 Steps website ([www.10000steps.org.au](http://www.10000steps.org.au)). Since 2004, organisations and community groups have adopted and implemented the 10,000 Steps resources across Queensland and nation-wide to promote physical activity and raise awareness of the associated health benefits. Individuals are also involved in the program by using the interactive online Step Log to record and monitor their physical activity levels. As of November 2007, the 10,000 Steps program has over 51,000 individual members and over 2,000 Providers (organisations and community groups) registered with the 10,000 Steps website.

To examine the effectiveness and the dissemination of the 10,000 Steps program, awareness levels of the 10,000 Steps program across Queensland have been monitored annually. Awareness statistics of the 10,000 Steps program were first examined during the 2005 Queensland Social Survey (QSS). This study examined the awareness of 10,000 Steps across Queensland and determined if demographic variables were associated with awareness. [2] Awareness levels were again examined in the 2006 QSS with significant increases in awareness observed across the whole sample and in the majority of demographic groups. [3] This current report is a follow-up study of awareness statistics conducted in the 2007.

### **Purpose of Study**

The purpose of this study was to examine the awareness of the 10,000 Steps program across Queensland in 2007. Secondly, the study determined if demographic variables (i.e. gender, age, location, years of education, annual household income, occupation, BMI category and LTPA levels) were associated with program awareness. Finally, this study examined changes in the awareness of the 10,000 Steps program in Queensland from 2005 to 2007.

### **Survey Method**

A section of the 2007 QSS was sponsored by the 10,000 Steps project to investigate awareness of the program across Queensland. Conducted by the Population Research Laboratory (PRL) within the Centre for Social Science Research (CSSR) at Central Queensland University, the 2007 QSS is the third in a series of annual cost-shared, omnibus surveys aimed at obtaining public opinion on a range of topics held by a representative sample of Queensland residents. The QSS is comprised of core questions (e.g. publicity and social capital), demographic questions and a series of sponsored questions. This survey allows researchers and community organisations to access a credible, reliable and relatively low-cost data-collection vehicle.

The QSS was administered through the ten station Computer-Assisted-Telephone-Interview (CATI) system housed in the PRL, from July 23rd 2007 until August 31st 2007.

The target population was all individuals who were 18 years or older, living in a dwelling unit in Queensland and could be contacted by a direct-dialled land-based telephone service. This population was divided into two sub-samples, 1) South-East Queensland (Brisbane and Moreton statistical sub-divisions) and 2) the rest of Queensland. A random sample approach was undertaken to ensure that each member of the target population had an equal chance of selection. The survey received ethical clearance from the Human Research Ethics Committee at Central Queensland University.

## Data Quality

### *Response Rate*

The response rate calculation follows the recommended standard definitions of response rates based on the American Association for Public Opinion Research, Standard Definitions. [4] The response rate is a calculated percentage representing the number of people participating in the survey either with a completed or partially completed interview divided by the people selected in the sample.

RR6 is the maximum response rate. The calculations for RR6 are shown below.

$$RR6 = \frac{\text{Complete Interviews} + \text{Partial Interviews}}{(\text{Complete} + \text{Partial}) + (\text{Refusal} + \text{Non Contact} + \text{Other})}$$
$$RR6 = \frac{1212 + 44}{(1212 + 44) + (2182 + 34 + 148)}$$

The RR6 Response Rate for the 2006 QSS was 34.70%.

### *Estimated Sampling Error*

The sampling error is a measure of the validity of the descriptive statistics that are observed in a sample. The estimated sampling error, at the 95% confidence level, for the Rest of State area sample of 408 households and a 50/50 binomial percentage distribution is plus or minus 4.8 percentage points. The sampling error for Brisbane and Moreton statistical sub-divisions at the same level of confidence is plus or minus 3.5 percentage points. Survey estimates for the total sample of 1,212 are accurate within plus or minus 2.8 percentage points, 19 times out of 20. [5]

## Data Treatment

10,000 Steps awareness in 2007 was analysed by geographical location, gender, age, years of education, household income, occupation, body mass index (BMI) and leisure time physical activity (LTPA) levels.

### *Leisure Time Physical Activity Levels*

Leisure time physical activity data was collected using the Active Australia Survey instrument. [6] Following the Active Australia guidelines levels of physical activity were categorized as follows:

- 1) Sedentary (Reported no walking, moderate- or vigorous-intensity activity in the week prior to the survey);
- 2) Insufficient Activity (Reported less than 150 minutes of physical activity or reported more than 150 minutes of activity but in less than five sessions in the week prior);
- 3) Sufficient Activity (Reported a minimum of 150 minutes of activity conducted in five or more sessions in the week prior).

### *Statistical Analyses*

Prevalence estimates are presented as a percentage of the population. Logistical regression was used to describe the associations between awareness and the selected demographic measures assessed in the study. The association is presented as an odds ratio in comparison to a reference group and indicates the increased or decreased likelihood of a sub-group in the population to perform a specific behaviour. For example, a significant positive odds ratio indicates that the sub-group is more likely to perform the specified behaviour when compared to the reference group. A significant negative odds ratio indicates that the sub-group is less likely to perform the specified behaviour than the reference group.

To compare the prevalence of awareness between 2005, 2006 and 2007 data from the current QSS were combined with that from the two previous surveys. The resultant file was split by each demographic variable and a series of one-way analysis of variances (ANOVA) were conducted. Least significant difference (LSD) post hoc analyses were also performed to determine more specific changes in awareness across the years. The significance level was set at  $p < 0.05$  for all analyses.

## **RESULTS**

### **The Sample**

Two-thirds of the participants were from the Brisbane and Moreton area, which is reflective of the population distribution in the state of Queensland. Approximately 65% of the sample were 45 years or older and around 40% of the respondents earned an annual household income greater than \$52 000. Less than 50% of the sample were sufficiently active for health benefits and more than 50% of the participants were found to be overweight or obese as determined by self reported height and weight measurements. Further demographics of the sample are presented in Table 1 (see Appendix).

### **Awareness of the 10,000 Steps Program 2007**

Awareness of the 10,000 Steps program was determined through the following research question; 'Have you heard of the 10,000 Steps program?' Across the total sample of Queenslanders, 56.6% of the respondents were aware of the 10,000 Steps program. The prevalence of awareness across gender, age, location and household income variables are shown in Table 2 (see Appendix). To determine if participant characteristics influenced awareness, crude and adjusted odds ratios were calculated. The results of the logistical regression analysis investigating the associations between demographic variables and awareness are also presented in Table 2. The crude odds ratios revealed significant associations between awareness and gender, age group, location, years of education, household income, occupation, BMI category and LTPA levels. When adjusting for all other variables in the model, significant associations only remained for location and household income. Results are discussed in the following sections.

#### *Gender*

A higher percentage of women (60.0%) were aware of the 10,000 Steps program than men (53.1%). When adjusting for all of the other demographics variables the odds ratios revealed no significant difference in awareness between men and women.

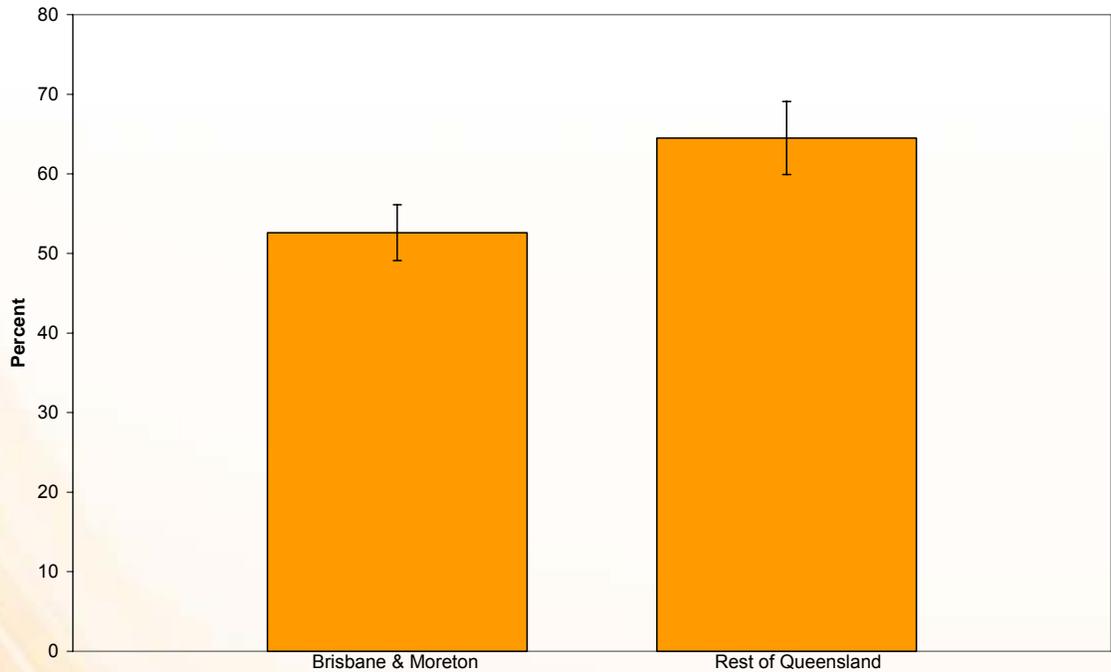
#### *Age Group*

Participants aged 35-44 years had the highest levels of awareness of the 10,000 Steps program (63.5%). This was followed by the 45-54 year age group (61.0%) and the over 55 years age group (57.1%). Participants aged 18-34 years had the lowest levels of awareness at 37.3%. The odds ratios revealed no significant difference in awareness across the age groups when adjusting for all other demographic variables.

### Location

Brisbane and Moreton districts (52.6%) were less aware of the 10,000 Steps program than residents living in the rest of Queensland (64.5%; Figure 1). Odds ratios, adjusted for all demographic variables, showed that residents from the rest of Queensland were significantly more likely to be aware of the 10,000 Steps program than Brisbane and Moreton residents.

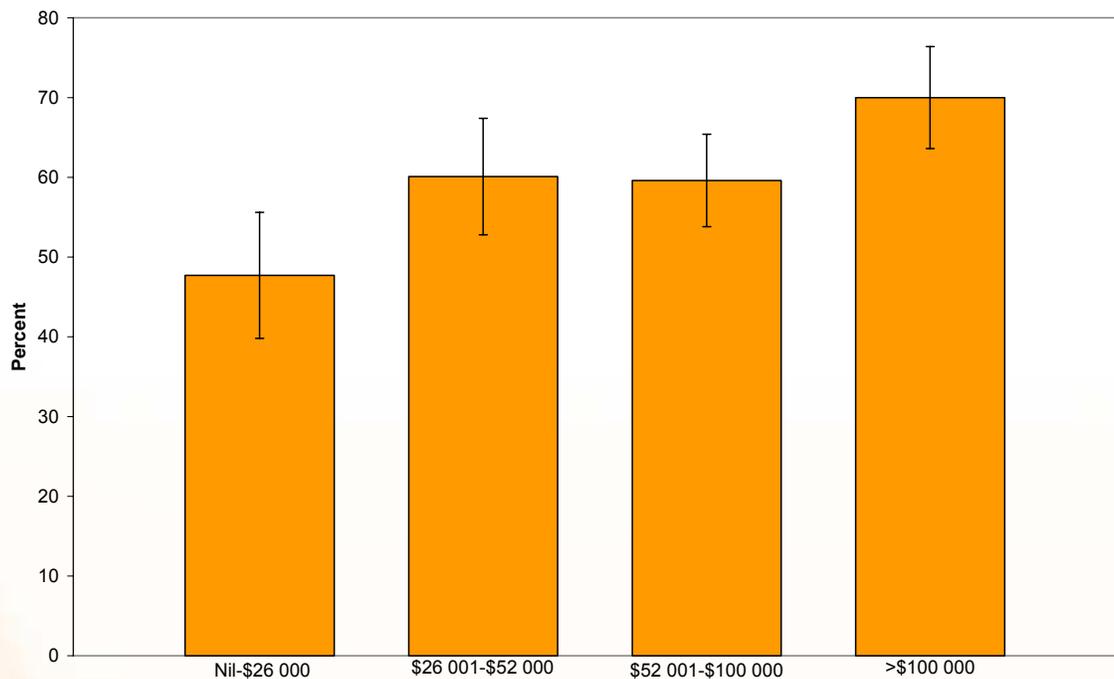
Figure 1. Percentage of respondents aware of 10,000 Steps by location.



### Household Income

Participants with an annual household income of over \$100 000 had the highest percentage awareness of the 10,000 Steps program (70.0%). This was followed by participants earning \$26 001-\$52 000 (60.1%) and those earning \$52 001-\$100 000 (59.65%). Participants earning \$26 000 or less had the lowest levels of awareness at 47.7% (Figure 2). Adjusted odds ratios revealed that those earning a household income greater \$100 000 were significantly more likely to be aware of 10,000 Steps than those earning \$26 000 or less.

Figure 2. Percentage of respondents aware of 10,000 Steps by household income.



#### *Years of Education, Occupation, BMI Category and LTPA Levels*

Initial crude odds ratios revealed that years of education, occupation, BMI category and LTPA levels were associated with awareness of the 10,000 Steps program. Individuals with 11-12 years of education and 15 years of education or more were more likely to be aware of 10,000 Steps than individuals with 0-10 years of education. Both blue collar workers and white collar workers were less likely to be aware of the 10,000 Steps program than professional workers. Respondents classified as overweight or obese were more likely to be aware of 10,000 Steps than those classified as a healthy weight. Finally, active individuals (insufficiently and sufficiently active) were more likely to be aware of the program than sedentary individuals. When adjusting for all demographic variables in the final logistical regression model, none of these variables were significantly associated with awareness.

#### **Awareness of the 10,000 Steps Program 2005, 2006 and 2007**

The awareness data from 2005, 2006 and 2007 was analysed to investigate trends in 10,000 Steps awareness over the past three years. The 2005, 2006 and 2007 awareness levels can be seen in Table 3 (see Appendix). To determine if the proportion of the Queenslanders aware of the 10,000 Steps program significantly changed across the years a series of one-way ANOVAs were conducted. The results of the ANOVAs can also be seen in Table 3.

Overall, the ANOVAs revealed a significant difference in total awareness of the 10,000 Steps program across the years, as well as significant differences in most demographic groups. Subsequent post hoc analysis revealed that the total awareness of the 10,000 Steps across Queensland significantly increased from 2005 to 2007, with an additional 23.1% of individuals now aware of the program. It was also revealed that total awareness significantly increased in the previous 12 months, from 42.5% in 2006 to 56.6% in 2007. Changes in awareness from 2005 to 2006 have been discussed previously. [3] The ANOVAs did not reveal a significant difference across the years in individuals with 13-14

years of education and white-collar workers. The lack of statistical difference should be interpreted with caution. Increases in awareness were observed in these demographic groups but significance was not obtained due to small samples sizes and lack of power in the statistical analyses.

Post hoc analysis revealed that from 2005 to 2007, the proportion of individuals aware of the 10,000 Steps program significantly increased across all demographic groups except those with 13-14 years of education, and white-collar workers. Significant increases in awareness were also observed from 2006 to 2007. Awareness significantly increased across all demographic groups except those aged 18-34 years, those with 13-14 years of education and white-collar workers. Again, increases in awareness were noted in those sub-groups where statistical significance was not obtained. However, small samples sizes and lack of statistical power in the analyses meant that significance was not achieved.

## **CONCLUSIONS AND RECOMMENDATIONS**

With the continued dissemination of the 10,000 Steps program across Queensland and beyond, it is important to investigate and monitor the awareness of the program in the general population. As the program has been purposefully disseminated since 2004, it is valuable to not only determine the awareness levels but also compare them in the Queensland population over the past years. Currently, over 55% of Queensland residents are now aware of the 10,000 Steps program. Furthermore, awareness has continued to significantly increase each year since state-wide awareness was first examined in 2005.

In 2007, awareness of 10,000 Steps was found to be associated with resident's geographical location, with residents from the rest of Queensland more likely to be aware of 10,000 Steps. This relationship was also seen in 2005 and 2006. [2, 3] It is thought that the lower levels of awareness observed in the Brisbane and Moreton districts are most likely due to less dissemination and promotion of the 10,000 Steps program in these regions. As 10,000 Steps began in regional Queensland, individuals from the rest of Queensland sub-sample have been exposed to the program for a longer duration of time which would result in a higher proportion of residents reporting awareness. Therefore, it is predicted that continued promotion and dissemination of the 10,000 Steps program in the Brisbane and Moreton district will continue to increase levels of awareness in this location. Initial evidence of this has already been shown with awareness levels significantly increasing in the region since Brisbane promotion began in 2005. The launch of major 10,000 Steps projects in Brisbane in 2006 would have also contributed to the increased awareness observed in this region from 2006 to 2007.

In the current study, household income was the only other demographic variable associated with awareness. Individuals from the highest income bracket were more likely to be aware of 10,000 Steps than those earning \$26 000 or less. Specific 10,000 Steps strategies, such as the 10,000 Steps Challenges for Workplaces may contribute to the increased awareness observed in high income respondents. Individuals from higher income households may also find the resources more easily accessible as 10,000 Steps is predominantly internet-based. This finding highlights that more targeted dissemination of the 10,000 Steps program to lower-income individuals is necessary. This is an important target group as research has consistently found a positive relationship between income/socioeconomic status and physical activity participation. [7, 8] The low income/low socioeconomic sub-group needs to be targeted for further physical activity promotion. [9]

Previous awareness studies found that awareness of the 10,000 Steps program was lower in males, less educated individuals, 18-34 year olds and the 55 years and over age

group. [2, 3] These findings were comparable to prior research investigating the awareness of health promotion campaigns. [10, 11] However, the current study has not found awareness to be associated with gender, years of education or age when adjusting for all demographic variables. It would appear that 10,000 Steps has successfully raised awareness in these low awareness sub-groups over the past 12 months. However, it is important that these results are considered cautiously as the cross-sectional nature of this research may mean that the some changes are due to the different sample of participants rather than representing a true change.

Most importantly, awareness of the 10,000 Steps program across Queensland has continually increased since 2005. This provides evidence that the internet has been a successful tool for disseminating the physical activity program both to individuals and to organisations and community groups. [12] Further promotion at the community level through workplaces, health service providers and community groups has also contributed to the increased awareness of the 10,000 Steps program observed across Queensland.

Overall, 10,000 Steps has been successfully disseminated and promoted across Queensland which has been evidenced by the significant increase in awareness from 2005 to 2007. Over this period, an additional 20% of Queensland respondents have become aware of the 10,000 Steps program. The sustained dissemination and promotion of the program across the state should continue to raise awareness of the 10,000 Steps program across Queensland.

#### **Future Recommendations**

Based on the findings in this study, it is recommended that certain demographic groups be targeted in the future dissemination of the 10,000 Steps program. The 2007 awareness statistics revealed that further promotion is needed in the Brisbane and Moreton Bay district and to individuals from low income households. These groups displayed lower awareness levels when compared with other demographic groups.

Continued examination of the awareness of 10,000 Steps across Queensland should be conducted to monitor dissemination of the project and to enable researchers to identify areas and target groups in which further promotion is needed. Additionally, as the 10,000 Steps program is now disseminated nationally, it would also be valuable to assess the awareness of the program within the Australian population. Investigating awareness levels across Australia could give a better understanding of the dissemination of 10,000 Steps across the country and determine the extent that it has been promoted in other regions.

## APPENDIX: TABLES

Table 1. Demographic characteristics of the total sample of participants (n=1212).

Characteristic	n	%	Valid %
<b>Gender</b>			
Male	607	50.1	50.1
Female	605	49.9	49.9
<b>Age Group</b>			
18-34 years	191	15.8	15.9
35-44 years	220	18.2	18.3
45-54 years	277	22.9	23.0
≥55 years	517	42.7	42.9
Missing	7	0.6	
<b>Location</b>			
Brisbane & Moreton	804	66.3	66.3
Rest of Queensland	408	33.7	33.7
<b>Years of Education</b>			
0-10	342	28.2	29.0
11-12	272	22.4	23.1
13-14	138	11.4	11.7
≥15	427	35.2	36.2
Missing	33	2.7	
<b>Household Income (per annum)</b>			
Nil-\$26 000	156	12.9	19.3
\$26 001-\$52 000	173	14.3	21.4
\$52 001-\$100 000	272	22.4	33.7
>\$100 000	207	17.1	25.6
Missing	404	33.3	
<b>Occupation</b>			
Professional	391	32.3	66.0
White Collar	85	7.0	14.4
Blue Collar	116	9.6	25.6
Missing	620	51.2	
<b>BMI Category</b>			
Healthy weight	480	39.6	42.6
Overweight or Obese	646	53.3	57.4
Missing	86	7.1	
<b>LTPA Levels</b>			
Sedentary	213	17.6	17.6
Insufficient Activity	419	34.6	34.6
Sufficient Activity	578	47.7	47.8
Missing	2	0.2	

Table 2. Crude and adjusted odds ratios for awareness by demographic variables.

Variable	n	% Aware	Crude OR	95% CI	Adjusted <sup>a</sup> OR <sup>b</sup>	95% CI
<b>Gender</b>						
Male	606	53.1	1.00	Reference	1.00	Reference
Female	603	60.0	<b>1.33</b>	<b>1.06-1.66</b>	1.57	0.97-2.53
<b>Age Group</b>						
18-34 years	189	41.8	1.00	Reference	1.00	Reference
35-44 years	219	63.5	<b>2.42</b>	<b>1.62-3.61</b>	1.43	0.78-2.62
45-54 years	277	61.0	<b>2.18</b>	<b>1.50-3.18</b>	1.26	0.69-2.29
≥55 years	517	57.1	<b>1.85</b>	<b>1.32-2.59</b>	1.86	0.91-3.78
<b>Location</b>						
Brisbane & Moreton	801	52.6	1.00	Reference	1.00	Reference
Rest of Queensland	408	64.5	<b>1.64</b>	<b>1.28-2.09</b>	<b>1.92</b>	<b>1.19-3.11</b>
<b>Household Income</b>						
Nil-\$26 000	155	47.7	1.00	Reference	1.00	Reference
\$26 001-\$52 000	173	60.1	<b>1.65</b>	<b>1.07-2.56</b>	1.34	0.46-3.86
\$52 001-\$100 000	272	59.6	<b>1.61</b>	<b>1.08-2.40</b>	2.45	0.94-6.42
>\$100 000	207	70.0	<b>2.56</b>	<b>1.66-3.95</b>	<b>3.57</b>	<b>1.33-9.59</b>

<sup>a</sup>Odds ratios adjusted for all variables in the table and years of education, occupation, BMI category and LTPA levels.

<sup>b</sup> n=407

Table 3. Awareness of the 10,000 Steps program 2005, 2006 and 2007.

Variable	% Aware 2005	% Aware 2006	% Aware 2007	ANOVA p
<b>Total</b>	33.5	42.5*	56.6 <sup>†‡</sup>	<0.001
<b>Gender</b>				
Male	29.0	36.5*	53.1 <sup>†‡</sup>	<0.001
Female	37.7	48.5*	60.0 <sup>†‡</sup>	<0.001
<b>Age Group</b>				
18-34 years	31.9	40.3*	41.8 <sup>†</sup>	=0.049
35-44 years	33.9	42.0	63.5 <sup>†‡</sup>	<0.001
45-54 years	38.8	52.0*	61.0 <sup>†‡</sup>	<0.001
≥55 years	30.3	37.3*	57.1 <sup>†‡</sup>	<0.001
<b>Location</b>				
Brisbane & Moreton	26.0	37.0*	52.6 <sup>†‡</sup>	<0.001
Rest of Queensland	47.9	53.3	64.5 <sup>†‡</sup>	<0.001
<b>Years of Education</b>				
0-10	25.6	35.4*	49.9 <sup>†‡</sup>	<0.001
11-12	32.3	38.0	58.1 <sup>†‡</sup>	<0.001
13-14	42.3	43.4	51.1	=0.265
≥15	37.0	49.5*	62.5 <sup>†‡</sup>	<0.001
<b>Household Income</b>				
Nil-\$26 000	30.2	36.4	47.7 <sup>†‡</sup>	=0.004
\$26 001-\$52 000	29.4	40.2*	60.1 <sup>†‡</sup>	<0.001
\$52 001-\$100 000	35.8	48.5*	59.6 <sup>†‡</sup>	<0.001
>\$100 000	40.4	49.7	70.0 <sup>†‡</sup>	<0.001
<b>Occupation</b>				
Professional	37.3	49.5*	64.5 <sup>†‡</sup>	<0.001
White Collar	38.1	43.8	52.4	=0.145
Blue Collar	31.4	34.6	50.0 <sup>†‡</sup>	=0.005
<b>BMI Category</b>				
Healthy weight	32.7	41.7*	52.9 <sup>†‡</sup>	<0.001
Overweight or Obese	34.4	42.8*	60.4 <sup>†‡</sup>	<0.001
				<b>t-test for proportions</b>
<b>LTPA Levels</b>				
Sedentary	31.8	-	43.2 <sup>†</sup>	=0.017
Insufficient Activity	34.4	-	60.4 <sup>†</sup>	<0.001
Sufficient Activity	33.5	-	58.8 <sup>†</sup>	<0.001

\* indicates a significant difference in awareness between 2005 and 2006 (p<0.05).

† indicates a significant difference in awareness between 2005 and 2007 (p<0.05).

‡ indicates a significant difference in awareness between 2006 and 2007 (p<0.05).

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For information on physical activity  
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