



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

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## **Paper 1:**

### **Awareness of the 10,000 Steps Program across Queensland**

Kelly Joyner  
Research Associate

W. Kerry Mummary PhD  
Director

Centre for Social Science Research  
Central Queensland University

For information on physical activity and 10,000 Steps programs contact:

10,000 Steps Project Office  
Building 18  
Central Queensland University  
Rockhampton QLD 4702

Phone: +61 7 4930 6751  
Fax: +61 7 4930 9820  
Email: [10000steps@cqu.edu.au](mailto:10000steps@cqu.edu.au)  
Visit our website: [www.10000steps.org.au](http://www.10000steps.org.au)

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# 1. Introduction

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## Background

Funded by Queensland Health, 10,000 Steps Rockhampton was Australia's first 'whole of community' health promotion physical activity project. In 2001, the Rockhampton region was chosen for a two year trial of the project as the residents showed 'typical' levels of inactivity. During these two years, the 10,000 Steps Rockhampton Project was an exemplary model of an effective multi-strategy, multi-sector physical activity project. The project has been successful in motivating local communities, workplaces and individuals to increase their physical activity levels. As a result of the success in Rockhampton, Queensland Health has extended their funding and 2004 saw the rollout of the project as a sustainable statewide and beyond initiative.

10,000 Steps is committed to ongoing research, development, distribution and support of new and existing 10,000 Steps support materials at the local, state and national level, all with web-based support. The aim of this project is to increase participation in physical activity through the state and nation, with a particular focus on sedentary people.

## Purpose of study

With the rollout of the 10,000 Steps project across Queensland and beyond, it is important to determine the extent to which the Queensland population is aware of the project. The purpose of this study was to report awareness of the 10,000 Steps program across Queensland, and secondly to determine if demographic variables (i.e. location, age, gender, education levels and household income), activity levels and body mass index were associated with awareness.

## Survey Method

A section of the Queensland Social Survey (QSS) was sponsored by the 10,000 Steps project to investigate awareness. Conducted by the Population Research Laboratory at Central Queensland University, the QSS is the first 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, activity levels and social capital), socio-demographic questions and a series of sponsored questions (e.g. 10,000 Steps). This survey allows researchers and community organisations to access a credible, reliable and relatively low-cost data-collection vehicle.

The QSS was administered through a ten station Computer-Assisted Telephone Interviewing (CATI) system from July 15th 2005 until August 15th 2005. 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-dialed land-based telephone service. This population was divided into two sub-samples, 1) South-East Queensland (Brisbane and Moreton districts) 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.

## Data Quality

Approximately 43% of the potential participants responded to the survey. A random sample of 1208 participants is considered accurate within +/- 2.8 percentage points, 19 times out of 20.

A sample is considered representative of the population from which it is selected if the samples' aggregate characteristics closely approximate those same characteristics in the population. For this study, representativeness was examined by determining the index of dissimilarity for age distributions. The comparison of sample data and Queensland data from the Office of Economic and Statistical Research<sup>1</sup> produced an index of dissimilarity of 9.94. Indexes of 10 or less indicate that the distributions of the sample and population are similar (Duncan & Duncan, 1955). Therefore the sample is determined to be representative of the Queensland population.

<sup>1</sup>Retrieved October 17, 2005, from [http://www.oesr.qld.gov.au/queensland\\_by\\_theme/demography/population/index.shtml](http://www.oesr.qld.gov.au/queensland_by_theme/demography/population/index.shtml)

### **Data Treatment**

10,000 Steps awareness was analysed by geographical location, gender, age, years of education, household income, leisure time physical activity (LTPA) levels and body mass index (BMI). Each variable was divided categorically to assist in the analyses.

### **Leisure Time Physical Activity Levels**

Leisure time physical activity (LTPA) data was collected using the Active Australia Survey instrument (Australian Institute of Health and Welfare, 2003). Following the Active Australia guidelines levels of physical activity were categorised 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)



## **2. Results**

### **The Sample**

Approximately two-thirds of the participants were from the Brisbane and Moreton area, which is reflective of the population distribution in the state of Queensland. Almost 40% of respondents received 15 years of education or more and 35% earned an annual household income equal to or greater than \$52,000. Over 50% of the participants were determined to be overweight or obese and less than half of the sample reported sufficient physical activity for good health. Demographics of the sample are presented in Table 1 (see Appendix).

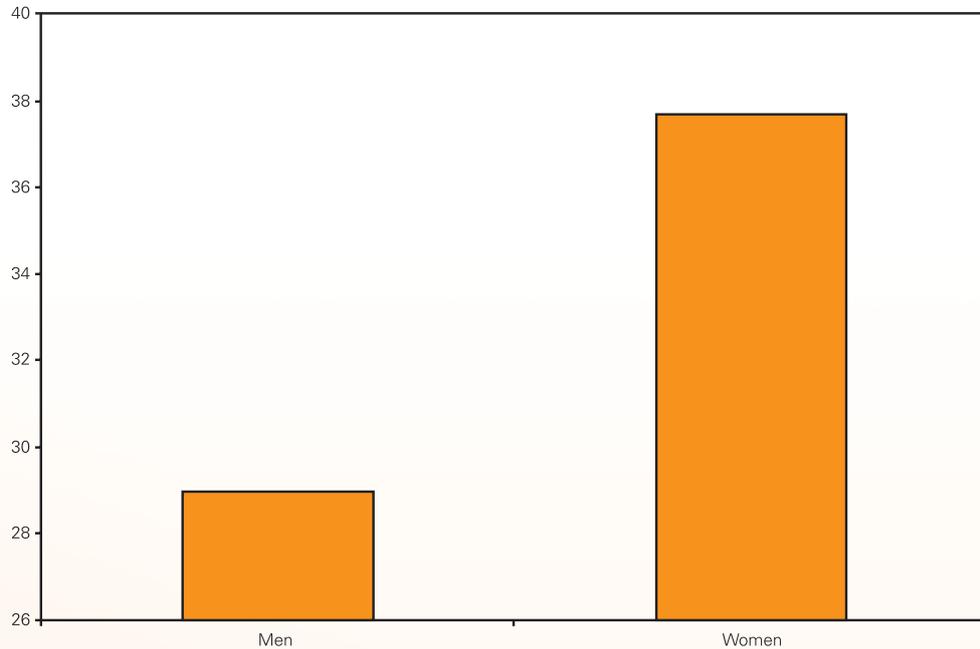
### **Awareness of the 10,000 Steps Program**

Awareness of the 10,000 Steps program was elicited through one main research question; 'Have you heard of the 10,000 Steps program?' Across the total sample of Queenslanders, 33.5% of residents were aware of the 10,000 Steps program. Awareness across the different characteristics can be seen in Table 2 (see Appendix). To determine if participants' characteristics influenced awareness crude and adjusted odds ratios were calculated. The results of the logistic regression analyses investigating the associations between demographic variables, activity levels, BMI categories and awareness are also presented in Table 2 (see Appendix). Significant associations with awareness were found for gender, location and years of education. When adjusting for all other variables in the model, significant associations remained for gender, location and years of education and a significant association emerged for age.

## Gender

Women (37.7%) were more likely to be aware of 10,000 Steps than men (29.0%; Figure 1). When adjusting for all other variables the odds ratios revealed that women were 1.59 times more likely than men to have heard of the 10,000 Steps program.

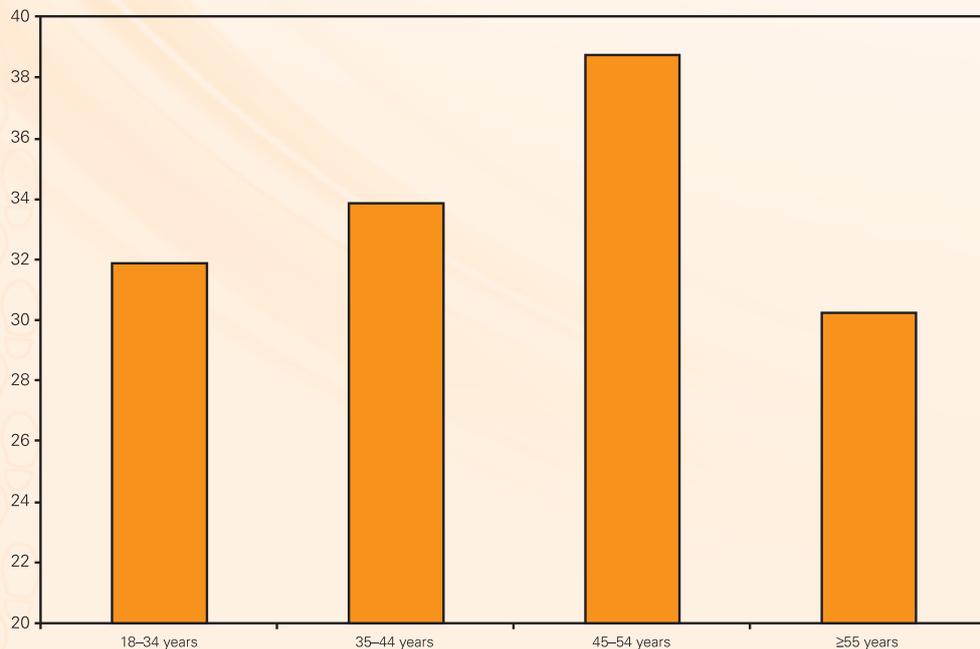
Figure 1. Percentage of respondents aware of 10,000 Steps by gender.



## Age Group

Participants aged 45–54 years were the age group with the highest awareness of the 10,000 Steps program (38.8%). This was followed by residents aged 35–44 years (33.9%) and 18–34 years (31.9%). Only 30.3% of participants over 55 years had heard of the 10,000 Steps program (Figure 2). Adjusted odds ratios revealed that residents aged 45–54 years are 1.36 times more likely to be aware of the program than 18–34 year olds. However, there was no difference in awareness between 18–34 year olds and the other two age groups.

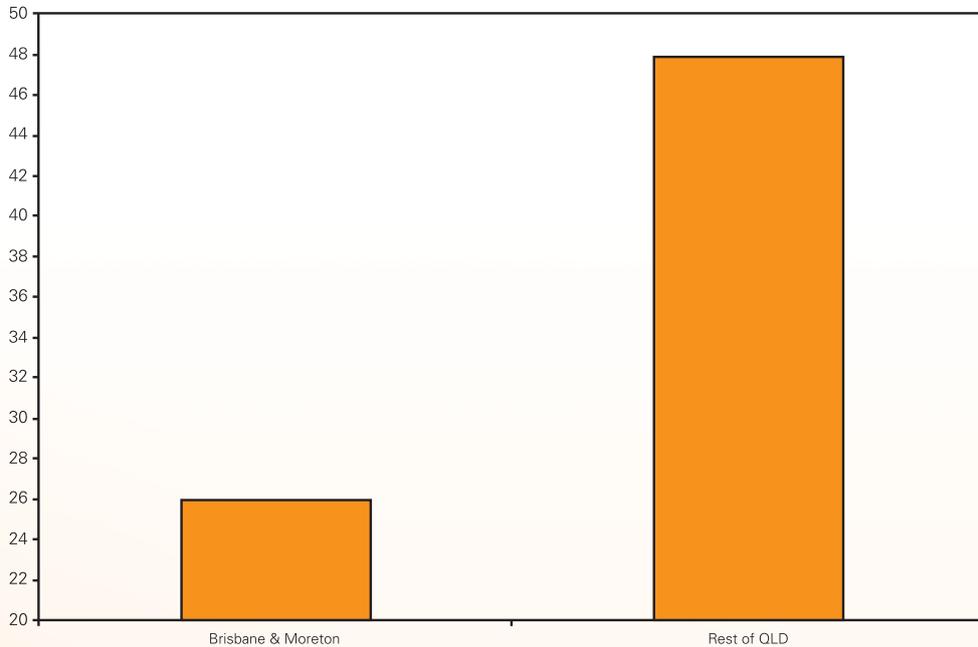
Figure 2. Percentage of respondents aware of 10,000 Steps by age.



### Location

Brisbane and Moreton residents (26.0%) were less aware of the 10,000 Steps program than residents living in the rest of Queensland (47.9%; Figure 3). Residents not living in Brisbane and Moreton are over three times more likely to be aware of 10,000 Steps than residents living in Brisbane and Moreton districts when adjusting for all other variables.

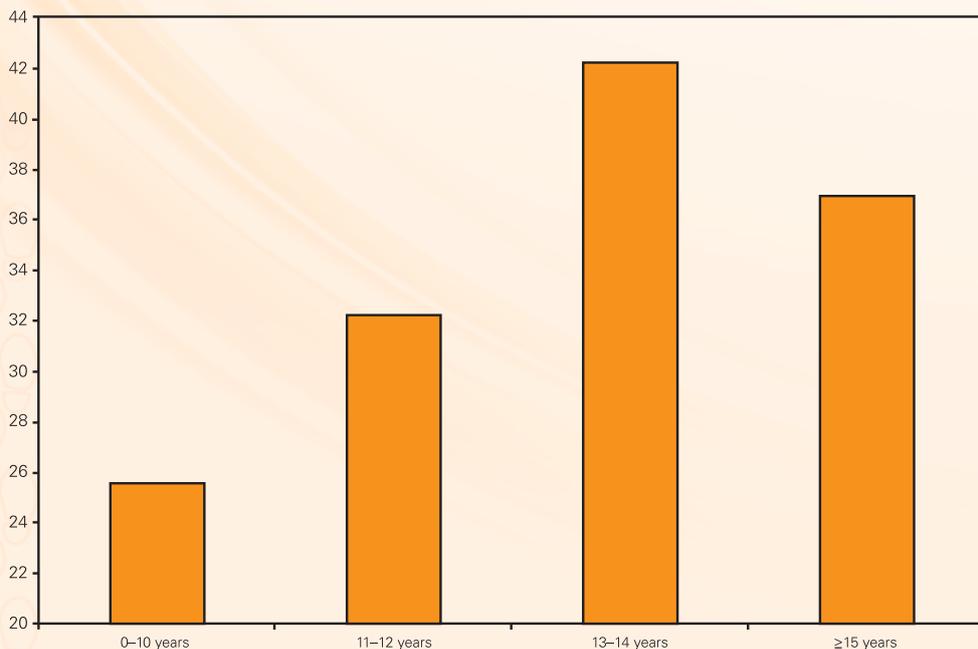
Figure 3. Percentage of respondents aware of 10,000 Steps by location.



### Years of Education

Participants with 13–14 years of education showed the highest awareness (42.3%), followed by participants with over 15 years (37.0%), 11–12 years (32.3%) and finally 0–10 years of education (25.6%; Figure 4). Residents with more than 10 years of education were between 1.80 and 3.12 times more likely to have heard of 10,000 Steps than residents with 10 years of education or less.

Figure 4. Percentage of respondents aware of 10,000 Steps by years of education



### **Household Income**

Amongst the household income categories, the highest percentage of awareness was observed in participants earning over \$100 000 per annum (40.4%). Participants earning \$26 001–\$52 000 had the least awareness of 10,000 Steps (29.4%), followed by participants earning less than \$26 000 (30.2%) and participants earning between \$52 001–\$100 000 (35.8%). Participants earning over \$100 000 per annum were over 1.50 times more likely to be aware of the program than participants earning less than \$26 000. However, when adjusting for all other variables, no significant association was observed.

### **Leisure Time Physical Activity Levels**

No significant associations between leisure time physical activity levels and awareness were found. Sedentary, insufficiently active and sufficiently active participants all reported similar levels of awareness (31.8%, 34.4% and 33.5% respectively).

### **BMI Category**

Participants who were overweight or obese (34.4%) had similar awareness of 10,000 Steps to participants of a healthy weight (32.7%). There was no significant association between BMI categories and awareness.

## **3. Conclusions and Recommendations**

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With the dissemination of the 10,000 Steps program across Queensland it is important to investigate the extent to which the population is aware of the program. Across the total sample of Queensland residents, approximately a third of residents were found to be aware of the 10,000 Steps program. Awareness was found to be a function of geographical location, gender, age and years of education, with certain demographic groups more likely to be aware of the program than others.

The geographical location of residents was significantly associated with 10,000 Steps awareness. Residents living in Brisbane and Moreton districts were significantly less likely to be aware of the 10,000 Steps program than residents living in the rest of Queensland. A difference in awareness levels between these two sub-samples was expected as the 10,000 Steps program was initially based in Central Queensland (part of the rest of Queensland sub-sample). Therefore, the project has been promoted in this region with more focused intensity and over a longer period of time. This would lead to higher awareness levels in the Central Queensland region.

Furthermore, 10,000 Steps has not been actively promoted in the Brisbane community due to the possibility of a large scale 10,000 Steps Brisbane project. In order to reduce potential confounding effects of the future Brisbane project, 10,000 Steps has not been actively promoted in the Brisbane area to date. In accordance with this, only two community ventures have been instigated in the Brisbane and Moreton districts (Gold Coast and Sunshine Coast). A greater number of 10,000 Steps community initiatives have been launched outside the Brisbane and Moreton districts (e.g. Bauhinia shire, Bowen, Burdekin Shire, Cairns, Mackay, Mt Isa, Rockhampton and Townsville). These projects initiated outside the Brisbane and Moreton districts would elevate residents' awareness of the 10,000 Steps program and therefore, would contribute to the increased awareness observed in the rest of Queensland sub-sample. As the 10,000 Steps Brisbane project is now being conducted in selected suburbs of Brisbane, it is anticipated that new and current 10,000 Steps resources will be distributed and promoted in South-East Queensland to raise awareness.

During the study of previous health promotion campaigns, awareness was found to be a function of demographic variables, such as age and ethnicity (Morrow, Jackson, Bazzarre, Milne and Blair, 1999), gender (Spence, Plotnikoff & Mummery, 2002) and education (Morrow et al, 1999; Spence et al, 2002). This study also revealed that awareness was a function of gender, age and education. These findings highlight that certain demographic groups within the population are less aware of the 10,000 Steps program. More specifically it was shown that males, less educated people and

people aged 18–34 or over 55 were the least aware of the 10,000 Steps program. The implication of these findings is that a unified health promotion approach may not be suitable to reach all segments of the population. Specific health promotion campaigns may need to be developed to appeal to the intended target group (Morrow et al, 1999). Therefore 10,000 Steps may need to specifically target males, 18-34 and over 55 year olds, and less educated individuals in further promotion of their programs and resources.

The main objective of the 10,000 Steps project is to increase participation in physical activity across Queensland and furthermore Australia, with a particular focus on sedentary people. The 2001 Queensland Omnibus Survey revealed that women were more sedentary than men and that sedentariness increased with age and decreased with education level (Queensland Health & Australian Institute of Health and Welfare, 2003). It has also been shown that capital cities in Australia have higher participation rates in physical activity than the rest of the state (Australian Sports Commission, 2005). Therefore, when focusing on the sedentary population in Queensland, it would be suggested that 10,000 Steps should aim towards women, the older population, less educated residents and regions away from capital cities. This study has revealed that 10,000 Steps has been successful in creating awareness in most of these sedentary target groups. Women were more aware of the 10,000 Steps program than men, and the rest of Queensland had higher awareness of 10,000 Steps than its capital city and surrounding districts (Brisbane and Moreton districts). In general, awareness of the 10,000 Steps program increased with age, suggesting that the project is reaching the older population. However, the over 55 age bracket reported the least awareness of the program. To date, the project has not been as successful in reaching less educated participants, as increased awareness was seen in participants with higher educational attainment. In total, almost a third of Queensland's sedentary residents have been made aware of the program. Therefore the 10,000 Steps project has been successful in creating awareness in a large portion of the sedentary target groups in Queensland. Further dissemination is still needed to continue raising awareness of the program in the sedentary population. To ensure that all sedentary groups are made aware of the 10,000 Steps program some dissemination should be directed towards less educated individuals and those over 55 years of age in the future.

Overall it is difficult to evaluate how effective the dissemination of the 10,000 Steps program across Queensland is because little information exists on population based physical activity promotions. After the release of Canada's Physical Activity Guide to Healthy Active Living, Spence et al. (2002) found that 20.7% of Alberta residents were aware of the guide. While in the United States, a one-year follow-up of the release of the Surgeon General's report on physical activity and health determined that approximately 32% of the population was aware of the report (Morrow et al., 1999). In Australia, following a mass media physical activity campaign in New South Wales during 1998, an increase in the prompted recall of the physical activity campaign theme was observed from 12.9% pre-intervention to 50.7% post-intervention (Bauman, Bellew & Owen, 2001). Thus, the extent of awareness of the 10,000 Steps program is comparable to other physical activity promotions and the differences observed between this current program and the 1998 physical activity mass media campaign can most likely be attributed to the mass media coverage included in the 1998 campaign. It appears that the 10,000 Steps program has been relatively successful in raising population awareness with approximately a third of Queensland residents having heard of the program. However it is still necessary to continue distributing the resources to further increase awareness and positively influence physical activity levels in the population.



## **Future Recommendations**

Based on the findings in this study, it is recommended that certain demographic groups in Queensland be targeted in the future dissemination of the 10,000 Steps program due to their lower awareness levels. To reach more sedentary populations, 10,000 Steps needs to be promoted to less educated individuals as well as individuals over the age of 55. These are the identified sedentary groups in Queensland with lower awareness of the 10,000 Steps program. As awareness has been found to be associated with location, gender, age and education level, 10,000 Steps should also target males, residents from the Brisbane and Moreton districts, people with lower education levels and people aged between 18–34 years and over 55 years in future dissemination of the program. Special campaigns may need to be developed to ensure that the 10,000 Steps message is received by all subgroups of the population with particular focus on those groups identified here.

It is recommended that further follow up surveys be conducted to determine if there is an increase in awareness across Queensland (in particular Brisbane and Moreton districts) as the 10,000 Steps project continues to disseminate resources. As the roll-out of the project is not limited to Queensland, it would also be of interest to investigate the extent of awareness on a national level. Finally, it is recommended that future studies go beyond examining awareness and investigate the use of the 10,000 Steps resources and programs. This would be done by including questions pertaining to the current and previous use of the 10,000 Steps Online Step Log, workplace challenges and community initiatives.

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## Appendix: Tables

Table 1. Demographic characteristics of the total sample of participants (n = 1208)

Characteristic	n	%
<b>Gender</b>		
Male	588	48.7
Female	620	51.3
<b>Age Group</b>		
18–34 years	271	22.4
35–44 years	274	22.7
45–54 years	282	23.3
≥55 years	381	31.5
<b>Location</b>		
Brisbane & Moreton	798	66.1
Rest of Queensland	410	33.9
<b>Years of Education</b>		
0–10	324	26.8
11–12	287	23.8
13–14	149	12.3
≥15	448	37.1
<b>Household Income (per annum)</b>		
Nil–\$26 000	172	14.2
\$26 001–\$52 000	228	18.9
\$52 001–\$100 000	259	21.4
≥\$100 000	171	14.2
Missing	378	31.3
<b>LTPA Levels</b>		
Sedentary	201	16.6
Insufficient Activity	439	36.4
Sufficient Activity	547	45.3
Missing	21	1.7
<b>BMI Category</b>		
Healthy weight	542	44.9
Overweight & Obese	613	50.7
Missing	53	4.4
<b>Total</b>	<b>1208</b>	<b>100.0</b>

Table 2. Crude and adjusted odds ratios for awareness by demographic variables, activity levels and BMI categories.

Variable	% Sample	% Aware	Crude OR	95% CI	Adjusted OR <sup>a</sup>	95% CI
<b>Gender (n = 1208)</b>						
Male	48.7	29.0	1.00	Reference	1.00	Reference
Female	51.3	37.7	1.48	1.16–1.89	1.59	1.14–2.21
<b>Age Group (n = 1208)</b>						
18–34 years	22.4	31.9	1.00	Reference	1.00	Reference
35–44 years	22.7	33.9	1.10	0.77–1.57	1.26	0.78–2.01
45–54 years	23.3	38.8	1.36	0.96–1.93	1.60	1.01–2.56
≥55 years	31.5	30.3	0.93	0.66–1.31	1.25	0.76–2.03
<b>Location (n = 1208)</b>						
Brisbane & Moreton	66.1	26.0	1.00	Reference	1.00	Reference
Rest of QLD	33.9	47.9	2.61	2.04–3.36	3.25	2.33–4.55
<b>Years of Education (n = 1208)</b>						
0–10	26.8	25.6	1.00	Reference	1.00	Reference
11–12	23.8	32.3	1.38	0.97–1.97	1.80	1.12–2.89
13–14	12.3	42.3	2.13	1.41–3.20	3.12	1.78–5.46
≥15	37.1	37.0	1.71	1.24–2.34	2.09	1.34–3.26
<b>Household Income (n = 830)</b>						
Nil–\$26 000	20.7	30.2	1.00	Reference	1.00	Reference
\$26 001–\$52 000	27.5	29.4	0.96	0.62–1.48	0.98	0.61–1.58
\$52 001–\$100 000	31.2	35.8	1.29	0.85–1.95	1.41	0.87–2.28
≥\$100 000 per annum	20.6	40.4	1.56	1.00–2.44	1.54	0.91–2.61
<b>LTPA Levels (n = 1187)</b>						
Sedentary	16.9	31.8	1.00	Reference	1.00	Reference
Insufficient Activity	37.0	34.4	1.12	0.79–1.60	1.58	0.97–2.58
Sufficient Activity	46.1	33.5	1.08	0.76–1.53	1.48	0.92–2.37
<b>BMI Category (n = 1155)</b>						
Healthy weight	46.9	32.7	1.00	Reference	1.00	Reference
Overweight & Obese	53.1	34.4	1.08	0.85–1.38	0.97	0.69–1.35
<b>Total</b>	<b>100.0</b>	<b>33.5</b>				

<sup>a</sup> odds ratios mutually adjusted for all other variables in the table

<sup>b</sup> n = 782

**CI**, confidence intervals

**BMI**, body mass index



For information on physical activity & programs contact:

10,000 Steps

Ph: (07) 4930 6751 Fax: (07) 4930 9820

Email: 10000steps@cqu.edu.au

Website: www.10000steps.org.au