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Mixed-method evaluation of a community-wide physical activity program in Launceston, Australia

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CONFLICT OF INTEREST STATEMENT

The authors declare that there are no conflicts of interest in connection with this article.

ABSTRACT

Issue addressed

Physical inactivity is a leading risk factor for disease burden and premature mortality. Interventions to increase physical activity are common, though few examples of multi-strategy, wide-scale community programs exist.

Active Launceston is a community-wide program aimed at improving health and well-being through physical activity. We report on the process evaluation of Active Launceston and changes in community physical activity participation between 2008 and 2015, as a measure of program effectiveness.

Methods

Mixed-method evaluation of Active Launceston combined process evaluation - consisting of participant numbers, socio-demographic characteristics, campaign awareness, focus groups and stakeholder interviews - with impact evaluation consisting of a random-sample cross-sectional serial telephone survey.

Results

Active Launceston attracted 11,887 attendees, participating in 30,342 sessions, amounting to 38,088 hours of physical activity between 2008 and 2015. Participant focus groups highlighted benefits including increased engagement in exercise, better health, and social connectedness.

While telephone surveys found the proportion of people participating in any physical activity in the last 12 months to be similar between the three years (2008, 77.7%; 2012, 77.1%; 2015, 73.6%), a higher proportion participated in vigorous physical activity in 2012 and 2015 compared to 2008 ($p<0.01$), when adjusting for age and gender differences. A higher proportion also achieved sufficient activity for health in 2015 compared to 2008 ($p=0.01$).

Conclusion

Mixed-method evaluation suggests Active Launceston is an effective community-wide program supporting community members to engage in regular physical activity and increase levels of social engagement.

So what?

This work provides a model for implementing high-reach, community-wide interventions that improve physical activity outcomes.

SUMMARY

Active Launceston is a community-wide program using a multi-strategy approach to promote physical activity. Evaluation found 11,887 attendees took part between 2008 and 2015, with qualitative data indicating an increased engagement in exercise, better health and social connectedness. Although overall community physical activity participation rates remained similar over time, a higher proportion participated in vigorous and sufficient activity since the program commenced. Our findings provide further evidence for implementing community-wide interventions that encourage and support people to engage in physical activity and increase physical activity levels in the community.

KEY WORDS

Community based intervention, health behaviours, health equity, local government, mass media

INTRODUCTION

The World Health Organisation identifies physical inactivity as a major risk factor for morbidity and premature mortality.[1] Approximately 5.3 million deaths per year could be avoided if all inactive people become at least moderately active.[2] Interventions to increase physical activity levels are common; however, much of the research has focused on the impact of structured programs that target small groups of individuals with specific illnesses.[3] Fewer examples exist of community-wide programs that use multi-strategy and wide-scale approaches to promote physical activity. Baker and colleagues recently reviewed 33 community-wide, multi-strategy interventions for increasing physical activity.[4] The review found some program level effects but no overall increase in population physical activity levels. This was attributed to under-resourcing, limitations in the measures used to detect an effect, limited duration of the program and/or lack of long-term follow-up.[4]

Despite all studies demonstrating an intent to comprehensively reach their respective target communities, the absence of process evaluation and reporting by subgroups made the assessment of reach difficult.[4] The authors recommended that in addition to impact evaluation, future studies conduct and publish process evaluations to provide information on reach, potential facilitators and barriers, and give an indication of how successfully an intervention has been implemented.

Effectively evaluating community engagement programs has been shown to be problematic. Bazzano and colleagues suggest there is a hiatus between the research on physical activity interventions and the 'real life' delivery of evidence-based initiatives in practice.[3] Mittelmark and colleagues discuss the need for service-oriented programs (as opposed to research-oriented) to be realistic in the data that is collected, with process evaluation being at least as, if not more, important than assessing risk factor change, and recommends using participation rates as a primary outcome measure.[5]

The current program was launched in June 2008 through a partnership between the University of Tasmania, Launceston City Council and the Tasmanian State Government.

Active Launceston is located in the regional municipality of Launceston in Tasmania, Australia, where only 41.5% of Tasmania's population participate in sufficient physical activity[6] to meet the Australian Physical Activity Guidelines,[7] which is lower than the majority of other Australian states.[8]

Active Launceston adopted a service-oriented population-based approach[5] with a goal to mobilise community members to increase their participation in physical activity by filling gaps in provision, reducing barriers and targeting those with the highest need. This was achieved through utilising mass media to promote Active Launceston, creating environments within the community that support and promote active transport, and providing diverse free physical activity programs and events for the local community along with professional support to ensure safe participation in activities. This paper reports on the process evaluation of Active Launceston from 2008 to 2015, and the changes in community physical activity participation over this period.

METHODS

Active Launceston Program

Active Launceston is a partnership between a State University, Local Government and State Government, with funding provided by all three partners to support the program from 2008 to 2015. Active Launceston staff included a full-time manager, 2 project staff, 1 part-time administration staff and 1 part-time research officer.

Active Launceston delivers a suite of free community-based physical activity programs and events for people of all ages and abilities (Table 1). Programs are provided for specific age-groups, low socioeconomic communities, culturally and linguistically diverse communities, youth at risk, those with a chronic condition or disability, and those recovering from illness or

injury. Active Launceston activities include diverse programs such as walking, running, cycling, dancing, hydrotherapy, archery, orienteering, yoga, tai chi, rock climbing, sailing and laser tag.

[Insert Table 1]

Active Launceston contracts industry personnel (including yoga instructors and personal trainers), sports clubs and university students to deliver programs. The duration of each program and session is typically eight weeks and 60 minutes respectively (Table 1).

Active Launceston is supported by an extensive marketing campaign utilising radio, print, television, web and social media to promote programs and events. Through an endorsement process, Active Launceston also supports and promotes other physical activity providers across the community that reflect the goal and objectives of the program. Endorsement allows organisations to use Active Launceston branding in the promotion of their event or initiative, recognizing they are involved in a broader physical activity network that contributes to achieving the goal of Active Launceston. More than sixty organisations have been endorsed including cycling groups, sporting clubs, dance schools, councils and gyms.

Evaluation design

The evaluation adopts a mixed-methods research design combining both quantitative and qualitative data.[9]

Quantiative methods were used to determine the impact of the program on the community, as well as participation statistics. Qualitative methods were used to explore the experiences and personal benefits of participants and the beliefs of stakeholders regarding the strengths and limitations of the program.

Process evaluation

Process evaluation of Active Launceston was conducted via a random-sample cross-sectional telephone survey to measure program awareness; participant focus groups and stakeholder interviews to determine barriers, facilitators and benefits of the program; and participant numbers and sociodemographic characteristics to determine program reach.

Socio-demographic information was collected from participants prior to the commencement of each physical activity session along with the number of participants in attendance. Data collected included participant age, suburb of residence, gender, chronic condition status, health care card status and program name. The latter was used as an indicator of specific

target groups including disadvantaged/disengaged young people (youth at risk), adults and children with a disability, and migrant refugees.

Focus groups were facilitated by one of the authors (KO) who had no other involvement in the administration of the program. Focus-group interviews were semi-structured with all discussions audio recorded and transcribed verbatim. Questions related to: involvement and participation in Active Launceston, how it influenced their physical activity and other aspects of their lives, and what they saw as the strengths and challenges of the program.

In 2012, six participant focus groups were conducted following the final session of six Active Launceston programs: 'Growing Older Living Dangerously', 'Active Bike', 'Active and Inclusive', 'Stretch and Strengthen', 'Gentle Exercise' and 'Active Kids'. In 2015 three participant focus groups were conducted following the final session of three Active Launceston programs: 'Active Swim' (for migrants and refugees), 'Active Sports' and 'Active Bike'. A purposive sample of Active Launceston participants who had engaged fully in programs was assembled by inviting all participants at the final session of these programs to attend a focus group. Invitations to all Active Launceston participants to attend these groups was promoted via email, social media and the Active Launceston website.

A final focus group was held in a low socioeconomic community with an open invitation to the general public. Purposive sampling of information-rich cases was justified given the aim of this aspect of the evaluation was to investigate the experiences and benefits for those who were engaged.

Semi-structured interviews were conducted with key stakeholders representing funding bodies, project partners, service providers, and the community. All relevant stakeholder representatives were invited to be interviewed; 13 of 18 participated (72% response rate). The interviews were conducted via telephone or face-to-face and were facilitated by one of the authors (KO). Questions related to: stakeholders' involvement with Active Launceston, perceived benefits to individuals and the community, and perceived strengths and potential improvements.

An inductive thematic approach[10,11] was used to analyse qualitative data from participant focus groups and stakeholder interviews. Identified themes were organised according to the four overarching process evaluation questions:

1. Did Active Launceston reach a broad demographic across age ranges and economic backgrounds?

2. What were the perceived personal benefits to participants?

3. What were the perceived facilitators of participation?

4. What were the perceived barriers to participation?

The analysis was conducted using the NVivo 10 (QSR International) software program by an independent researcher.

Impact evaluation

Community-wide engagement in physical activity was measured using random-sample cross-sectional serial telephone surveys of community members prior to commencement of the program in 2008, after the program had been running for four and a half years in 2012 and a further three years in November 2015. These surveys were administered by an independent contracted researcher. Quota sampling was deployed to achieve minimum age and gender quotas. Interviewers requested the youngest person in the household aged 15 years and over to respond to the survey. Sample size was determined based on a population of 85,591 residing in Greater Launceston aged 15 years or over,[12] providing a maximum margin of error for the total sample of +/- 3.25% at the 95% confidence level. The survey was conducted using Computer Assisted Telephone Interviewing Survey System software. Survey respondents were selected using a randomised land-line telephone-number generator.

The survey included questions regarding the type, amount, regularity and intensity of physical activity, allowing for the calculation of sufficient activity for health. Questions were combined from the Exercise Recreation and Sport Survey (questions 1 and 3),[13] and the National Health Survey 2007-2008, (EXER_Q1, 3, 6, 8, 11, 13).[14] In addition respondents were asked if they were aware of Active Launceston and if they had ever participated in any Active Launceston activities.

Sufficient weekly activity was calculated by combining the time spent walking, participating in moderate activity and twice the time spent in vigorous activity over the last two weeks, divided by two.[15] The time spent doing vigorous activity is doubled because it is considered to confer greater health benefits than moderate activity.[16] The total activity time was divided by two to obtain a weekly average. Sufficient physical activity for health benefits was classified as participation in at least 150 minutes of activity per week.[15]

Results were entered into Microsoft Excel (Microsoft, Redmond, USA) and then imported into Stata 13 (StataCorp, College Station, Texas) for analysis. All data was statistically analysed with Poisson regression (Incidence Rate Ratio; 95% confidence interval), to assess

the differences in physical activity participation between the different years. Post estimation Holm test analysis was used to adjust p values for multiple comparisons.

Impact evaluation aimed to address the following questions:

1. Did participation in physical activity increase between 2008 and 2015
2. Were there any changes in the intensity of physical activity participation?
3. Was the level of physical activity participation sufficient for health?
4. Did the nature of physical activity participation (structured, unstructured) change between 2008 and 2015?
5. Did the awareness of Active Launceston improve throughout the duration of the program?

Ethics

This evaluation was approved by the Tasmanian Human Research Ethics Committee (Social Science) Reference Nos. H0010054, H0013292, H0012334.

RESULTS

Process evaluation

Between mid-2008 and the end of 2015, Active Launceston coordinated 190 community programs that attracted 11,887 attendees who attended 30,342 sessions, amounting to approximately 38,088 hours of physical activity. Of the attendees who provided information on suburb or town of residence (n = 2168), 98.5% lived in Greater Launceston (consisting of Launceston, George Town, Meander Valley, Northern Midlands and West Tamar local government areas) and 75.6% lived in Launceston itself. Assuming these proportions are representative of all Active Launceston community program attendees, population reach is estimated to be 9.1% for Greater Launceston and 13.4% for Launceston, based on 2011 census population data (www.abs.gov.au). Typically 1000 new individuals joined Active Launceston annually.

In 2012, forty-one community members attended six participant focus groups and 13 stakeholders were interviewed. In 2015, thirty-three community members attended four focus groups and 10 stakeholders were interviewed.

Demographic characteristics from enrolment data

Demographic information was provided at enrolment by 6,077 Active Launceston participants. The difference in the number of participants whose demographic data was collected compared with the total participation rate (n=11,887) is due to data collection limitations including incomplete forms and demographic data unable to be collected at major events. Active Launceston initiatives engaged community members ranging in age from 1 to 87 years. Over one third of participants (35.1%) were aged under 15, while 14.5% were aged over 55. Two thirds of participants were female (65.8%), and over one-third (37.7%) were health care card holders. Forty-three percent of Active City participants resided in suburbs representing the five lowest deciles of socio-economic indexes for areas (SEIFA); with. 19.3% of participants in the lowest decile.

In 2012 the program participation rate for targeted populations, including specific age-groups, culturally and linguistically diverse communities, youth at risk, those with a chronic condition or disability and those recovering from illness or injury accounted for 31.6% of the total Active Launceston participation. In 2015, the program participation rate for these targeted populations was 42.2%

Personal benefits

There were four ways in which participants perceived Active Launceston had benefited them directly: increased engagement in exercise and activities, health benefits, personal development and social connectedness.

Participants described becoming more involved in exercise and activity, with participation leading to other activities. Active Launceston programs were often reported as the impetus to becoming more active, and were useful in overcoming barriers to taking that 'initial step.' Active Launceston provided a chance to rediscover activities that the participants had previously enjoyed and to try new activities and forms of exercise.

A female participant who had spoken of her recent depression talked of how her involvement gave her the confidence to re-engage in activities she had previously enjoyed.

> One of the things I wanted to do … was to go back to bushwalking, so I started thinking that I've actually got some strength back and feeling a bit stronger. Yeah, so I've gone back to that.

Participants identified direct health benefits including improved mental and physical health, improved cognition and behaviours (in the case of participants with disabilities), increased strength and fitness, and weight loss. One participant who had diabetes noted:

> My fitness levels have improved and my sugar levels have dropped… I have become fitter and my doctor is happy and I don't get told off.

Social connectedness was perceived as a sometimes unexpected benefit, achieved by being part of a group and sharing experiences in a social setting. Participants also identified improvement in confidence, self-esteem, knowledge, skills and motivation, and some found that Active Launceston provided routine and filled a void in their life.

> I lost a lot of weight, over 20 kgs, and was very sick and had clinical depression and I saw this [as] something that wasn't going to be too intense, and this has been fantastic because it has just been a lovely group, friendly as well as being able to feel that it wasn't really super hard to get started on something physical. It's been great.

Facilitators of participation

The features of Active Launceston that participants perceived facilitated their participation were the accessibility and no-cost nature of programs, the friendly and non-threatening environments, the capacity of programs to cater for people with different abilities and needs, the focus on complementing existing community programs, and the enthusiasm of facilitators. Furthermore, participants described the enjoyment they gained from involvement as a feature which facilitated ongoing engagement.

Stakeholders also recognised the accessible, non-threatening nature of programs within a supportive and structured environment, in addition to providing diverse opportunities that cater broadly for differing abilities, and the smart use of community facilities as important facilitators.

> I think the level of social connectiveness that's achieved is remarkable and often just getting people out of their homes and improving their level of social contact and social activity. I think they are certainly improving the health and wellbeing of their community in that way.

Twenty one of 23 stakeholders identified management-related aspects that contributed to the success of Active Launceston with: strong consultation, good marketing and promotional efforts, positive relationships with other providers, and committed personnel and good organisational processes facilitating its success. There was a perception that this also allowed Active Launceston to contribute to the overall development and coordination of the activities landscape in Launceston, with 19 stakeholders identifying one of the benefits being the partnerships that are developed which facilitate the marketing of other commercial, physical

activity programs and fill gaps in the market. A stakeholder from a partnering organisation observed:

> When those programs finish I think Active Launceston is very adamant about recommending … working with stakeholders [to promote their programs] around the community. I see Active Launceston as a bit of a feeder to a number of stakeholders and providers.

Participants often spoke of the enjoyment that their participation brought them through the opportunity to try something new:

> It's been great for me and one of the things that I liked was Zumba, it made me realise just how uncoordinated I am. It's just trying to bring your left arm up with your left leg, but you go home laughing and talking about it for days.

The opportunity to try new things sometimes led to ongoing engagement in activity.

> Well I couldn't even ride a bike until I started [the] group … and it just gave me the ability [to] go faster and on better tracks and longer rides and then I've taken it from the class into my own life where I am riding six days a week now.

Barriers to participation

Participants and stakeholders identified potential barriers to greater participation. The challenges of balancing an 'open door' policy with either over or under attendance at sessions, and difficulties in maintaining effective reach into marginalised and at-risk groups was identified.

Despite the predominant view from participants and stakeholders that providing free programs was important for success, the challenge of sustainability was acknowledged. Some focus group participants were willing to pay a small price for the activity, but others would not participate if payment was required. Two stakeholders commented that by providing free activities, an expectation for this is raised, potentially defeating the objective of providing taster programs that lead to engagement in commercial opportunities.

It was identified by one stakeholder that Active Launceston potentially took participants away from commercial operations, thereby not always increasing participation but rather affecting a transfer from commercial operators to the free program. This finding is in contrast to the alternative view that Active Launceston aids the private sector by providing taster programs which lead to participation in commercial programs:

> For people like us [Fitness Instructors], the flow on effects of having providers involved in programs is great as we might pick up new clients and it also provides work for us.
>
> We have had lots of new people come to us as a fee-paying service after trying the free [Active Launceston] program.

The overarching impression of Active Launceston from interviews and focus groups was that it was viewed as a unique model that complements existing models and successfully carries the additional responsibility of providing advocacy for sections of the community less able to access these types of activities. The manager of a partnering organisation noted:

> Some of the cohorts that they bring out are very socially isolated, often people with disabilities, mental health issues. The benefits of reducing isolation and getting people out are well beyond how we might define health. There are the social determinant benefits of getting people together.

Impact Evaluation

The community telephone survey was completed by 2,679 respondents with 879 taking part in 2008, 900 in 2012 and another 900 in 2015 (Table 2). The response rate to the survey was 40.6% (2008), 24.4% (2012) and 18.5% (2015). Gender distribution was similar between the three years (overall p=0.95). The age distribution shifted to the right with higher numbers of 'older' people responding to the survey over the three years (overall p<0.001). All analyses on physical activity participation were adjusted to account for the age distribution.

[Insert Table 2]

Physical activity participation

A similar proportion of respondents reported participating in any physical activity for exercise, recreation or sport (excluding work, gardening and household chores) in the past 12 months, between the three years of data collection (77.7%, 95%CI 72.0% to 83.8%; 77.1%, 95%CI 71.5% to 83.1%; and 73.6%, 95%CI 68.1% to 79.4% for 2008, 2013 and 2015 respectively, overall p=0.91). Participation in physical activity reduced with increasing age of the respondents (overall p=0.005).

Intensity of participation

Respondents who reported undertaking any physical activity in the last 12 months were subsequently asked about the intensity of their participation in physical activity in the past 2 weeks.

Table 3 shows the time (in minutes) people spent participating in each intensity-level of physical activity (walking, moderate, vigorous) during the previous 2 weeks. The 75th and 95th percentiles were included because the distribution of activity was found to be skewed; caution is therefore needed when interpreting the mean values. The results show that most time was spent walking, followed by moderate-intensity activity and vigorous-intensity activity.

There was no significant difference in the proportion of people walking in 2012 and 2015 compared to 2008 (overall p=0.37) (Table 3). Although more women reported walking than men (IRR 1.13, 95%CI 1.02 to 1.25, p=0.02), the interaction analysis for gender and year of survey did not show any change in walking pattern between the three time periods. Moderate physical activity was significantly lower in 2012 (IRR 0.81, 95%CI: 0.71 to 0.94, p=0.004) and 2015 (IRR 0.74, 95%CI: 0.64 to 0.86, p<0.001)) compared to 2008 (overall p= 0.001) (Table 3) and this result did not change after adjusting for gender and age distribution (overall p=0.01). Although a higher proportion of respondents reported participating in vigorous physical activity in 2012 (IRR 1.65, 95%CI: 1.35 to 2.01, p<0.001) and 2015 (IRR 1.19, 95%CI: 0.96 to 1.48, p=0.1) compared to 2008, the results were significant only for 2012 versus 2008. However it was noted that women were less likely (IRR 0.75, 95%CI: 0.64 to 0.88, p<0.001) to take part in vigorous physical activity than men and the level of participation in vigorous activity decreased with increasing age. Adjusting for these age and gender differences resulted in significantly higher vigorous physical activity in both 2012 and 2015 (all p<0.01) compared to 2008.

Sufficiently active for health

There was a gradual increase in the proportion of respondents who were sufficiently active for health over the three years (2008: 36.0%, n = 879; 2012: 38.7%, n = 900; 2015: 39.3%, n = 900) with a significantly higher proportion achieving sufficient activity in 2015 compared to 2008 (IRR 1.16, 95%CI 1.04 to 1.30 p = 0.01). When adjusted for age and gender, results for comparison between 2008 and 2012 showed a slight but non-significant increase (p=0.1).

Nature of physical activity participation

The proportion of people who took part in organised activities (43.1%, 95%CI 38.3% to 48.4%; 47.3%, 95%CI 42.3% to 52.7%, and 42.0%, 95%CI 37.2% to 47.2% for 2008, 2012

and 2015 respectively) was similar (2008 vs 2012: IRR 1.10, 95%CI 0.93 to 1.29, p= 0.49; 2008 vs 2015: IRR 0.97, 95%CI 0.82 to 1.15, p=0.76) between the three time periods (overall p=0.3). There were no gender differences; however, younger people (15-24 year) were more inclined to be involved in organised activity than older (25 and above) individuals (overall p<0.001).

Awareness of Active Launceston

The proportion of respondents who were aware of Active Launceston increased over time (overall p<0.001). Only 31.8 (95%CI 28.2 to 35.8) percent of respondents said they were aware of Active Launceston in 2008 compared to 61.3 (95%CI 56.3 to 66.7) percent and 65.1 (95%CI 59.9 to 70.6) percent in 2012 and 2015, respectively. More women than men (IRR 1.43, 95%CI 1.28 to 1.59, p<0.001) were aware of Active Launceston. Respondents aged 15-24 and those above 75 years of age were less aware of the initiative than other age groups. Adjusting the analyses for gender and age distribution did not affect these results.

The proportion of respondents who were aware of Active Launceston, and were sufficiently active for health, increased gradually over time (50.4%, 95% CI 41.71 to 60.4%; 53.7%, 95% CI 47.1 to 60.9% and 57.5%, 95%CI 50.7 to 65.0% for 2008, 2012 and 2015, respectively); however, this increase was not significantly different between the three years (overall p=0.10). The proportion of people who were unaware of Active Launceston and sufficiently active for health remained the same over the period of data collection (overall p=0.09, 44.1%, 95% CI 38.2 to 50.7%; 43.6%, 95% CI 35.7 to 52.8% and 45.1%, 95%CI 36.6 to 55.0% for 2008, 2012 and 2015, respectively). Comparison of respondents who were aware or unaware of Active Launceston revealed no difference in the proportion who were sufficiently active in 2008. In contrast, a significant difference was observed for both 2012 and 2015, with a higher proportion of respondents who were aware of Active Launceston being sufficiently active for health in both years ($p \leq 0.01$).

Respondents, from the 2015 survey, who were aware of Active Launceston were also asked whether they had taken part in one or more Active Launceston programs. Ninety two out of 586 (15.7%; 95%CI 12.7 to 19.3%) respondents indicated they had participated in one or more programs. Of these respondents, 58.7% were sufficiently active for health. For people who had never participated in an Active Launceston program, only 40.9% were sufficiently active for health. The sample size was too small to infer any statistical differences.

DISCUSSION

Across the globe, physical inactivity is recognised as a major determinant of chronic conditions.[1] Research suggests there is an urgent need for global action to address physical inactivity as a public health priority.[18]

The value of implementing physical activity programs for specific populations has been established. For instance, a targeted initiative designed to reduce childhood obesity has been successful in demonstrating the value of 'a multi-strategy, multi-setting community development approach'.[19] Pardo *et al*. (2018) demonstrated that participating in regular physical activity produces multiple benefits for adolescents in Spain.[20] Peterson demonstrated that adults with disabilities can improve their lifestyles through a community-based program.[21] Similarly, a community-based project targeting women demonstrated that developing a program for a specific population can succeed in increasing physical activity participation.[22] These studies demonstrate that strategies to increase physical activity are apparent, but the effect sizes are often small and are not widely adopted.[23] The Active Launceston model appears to be unique through engagement of a large number of different cohorts within the community under one umbrella.

In a systematic review of initiatives that attempt to increase physical activity, Kahn *et al.* concluded that informational interventions such as community-wide education campaigns could be effective if they are delivered along with behavioural change and supportive social interventions.[24] Hillsdon and colleagues[25] also suggest that some short and mid-term participation increases can come from large interventions, although programs that also offer professional guidance and ongoing care will produce better outcomes. Bauman, Finegood and Matsudo[26] have argued that to facilitate community-wide increases in physical activity, there are three essential elements: supportive physical environments (e.g. trails, sports fields), mass media educational campaigns and community-wide interventions. Therefore, the benefit of community-wide multi-strategy interventions such as Active Launceston is evident.

Active Launceston is a population-based approach to increasing physical activity. This aligns with Eaton and colleagues' research that highlights the importance of population-based interventions, suggesting that a wide range of individuals should be involved.[27]

The Ottawa Charter defines health promotion as "the process of enabling people to increase control over, and to improve, their health"[28] and universities are recognised as having an important role in promoting community health. The Okanagan Charter for Health Promoting Universities suggests that responsibility should be accepted by higher education institutions for the potential influence and leadership role in improving societal health and well-being through collaborations and networking within their communities.[29] Our research shows that

through a level of ownership from the community and its leaders, the Active Launceston partnership managed by the University of Tasmania, leveraged resources and reached target audiences, including those from disadvantaged backgrounds who are traditionally difficult to engage.[30, 31]

Based on the 2011 ABS Census (www.atlas.id.com.au/Launceston), the socio-economic indexes for areas (SEIFA) ranking for Launceston is 961 and nationally is considered an area of relative disadvantage. A recent study shows the gap between physical activity participation in disadvantaged and advantaged populations has increased, so the need for intensive interventions for these subgroups is warranted.[23] 43.2% of Active Launceston participants resided in suburbs representing the state's five lowest deciles of socio-economic indexes for areas (SEIFA) (most disadvantaged); with 19.3% in the lowest decile, thereby addressing this gap.

The evaluation of Active Launceston supports claims that health-promoting interventions that are community-focussed have the potential not only to target behavioural risk factors for disease, but also to improve health outcomes by contributing to social capital of the community. Hawe and Shiell provide a commentary on the relationship between social capital and health promotion, and attempt to understand how communities, environments and relationships can improve health and well-being.[32] They identify the following as being crucial to successfully harnessing social capital: careful interpretation of power and empowerment, building relational ties, capacity building of communities and individuals, and creating healthy public places and policies. Qualitatively we have identified the potential of Active Launceston to contribute to this objective by empowering participants to make changes to their lifestyle, building relationships with other community members around the shared goal of increasing physical activity, supporting the broader physical activity industry and promoting Launceston as a city that encourages and values a physically active lifestyle.

Effectively measuring the outcomes of community engagement programs can be problematic. In a systematic review, Baker and colleagues found no evidence that community-wide initiatives increase population-based physical activity levels.[4] However, this may be due to a dearth of evidence. Baker and colleagues concluded that this result may be due to serious methodological issues with studies rather than the success or failure of the intervention. In their survey of community-based projects for preventing obesity in Australia, Nichols et al. similarly concluded that while these programs represent a large investment by both government and non-government sectors, they often go unrecognised due to lack of effective evaluation, essential to assess their future contribution to public health and policy development.[33]

Our contribution is an evaluation that shares the difficulties of reliably measuring and interpreting population outcomes in an uncontrolled environment.[34,35,36] However the mixed-method evaluation of Active Launceston allows for some triangulation of data. This provides qualitative evidence for the perceived positive impact on individuals, as observed by individuals themselves and key stakeholders such as program instructors, theoretically leading to community-wide benefit relevant to the health promotion sector. We have shown qualitatively that Active Launceston can impact on a sizeable proportion of the whole population of Greater Launceston resulting in some changes in physical activity, and potentially aiding improvements in physical and mental health and social engagement. Quantitatively, results demonstrate that community participation levels in walking remained constant over the years, while the proportion of people participating in moderate physical activity gradually declined. In contrast, levels of participation in vigorous physical activity were found to be significantly greater in 2012 and 2015 compared to 2008. Rates of meeting public health guidelines for physical activity also increased over time. When combined with the observation that those who were aware of the Active Launceston initiative were significantly more likely to be sufficiently active for health in 2012 and 2015 than those who were unaware of Active Launceston, a possible relationship can be inferred. Alternatively, an association between awareness and increased activity levels could be related to those already active being more sensitive to marketing about physical activity. Future longitudinal and comparative research is required to confirm a causal relationship.

From a health promotion perspective, Active Launceston works to develop personal skills, strengthen community action, and create supportive environments that make it easy for people of all ages, abilities and backgrounds to be physically active. The program moves beyond a focus on individual behaviour, towards a social ecological model of health, acknowledging the reciprocal relationship between health-related behaviors and the environment in which people live, work and play.[37]

As a ‘real life’ program, evaluation of Active Launceston has demonstrated that a community-wide, multi-strategy approach can be used to effectively encourage and enable a broad target group of individuals to be physically active. Testament to the program’s value, longevity, and sustainability, Active Launceston continues to deliver services to the community with funding secured until June 2021, and has been effectively replicated in other cities and communities in Tasmania.

LIMITATIONS

Measuring and interpreting outcomes at a community level is challenging, and inherent limitations apply to this evaluation.

As per all non-observatory research, this evaluation draws on self-reported responses and our telephone survey had a declining response rate through the evaluation period. The issue of declining response rates, and the potential effect of non-response bias is acknowledged as a limitation of the study.

Although sampling for the telephone survey was random, bias towards those individuals who had a landline, and declining prevalence of landline phones among younger adults, likely resulted in the increasing proportion of older participants over the three time points. Results were therefore adjusted for age to accommodate this.

The telephone survey design also meant that data on physical activity intensity levels were only collected from a subset of respondents who reported being physically active in the past 12 months. It could be argued that one possible interpretation of the results is that the program was most effective for those people who were already active. Although the proportion of people participating in any physical activity over the previous 12 months was similar for each year, collecting information from all participants would have reduced any potential bias in the results.

The lack of a controlled environment and no parallel control group make attributing a causal relationship between the initiative and the population survey results challenging.[32] However this is not unusual in multi-component community-wide intervention evaluations which also used mixed-methods to triangulate results as much as possible in a similar uncontrolled community program evaluation.[38]

CONCLUSION

Initiatives such as Active Launceston provide an opportunity to explore the elements of community-wide physical activity interventions that contribute to success.[34] The population level outcomes of participants and the development of social capital can also be explored through interventions such as Active Launceston. While they are not without challenges, establishing multi-faceted partnerships to improve participation in physical activity is an effective option for governments, universities and the community sector. Our findings provide further evidence for implementing community-wide interventions that encourage and support people to engage in physical activity and increase sufficient physical activity levels in the community.

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Table 1: Examples of Active Launceston programs, events and point-of-decision marketing 2008 – 2015[17]

Program name	Program description	Target Group	Year	Program Frequency	Program Duration	Number of sessions	Duration of sessions
Active Parks	Free outdoor physical activities (e.g. Tai Chi) that aim to improve fitness, flexibility and muscle strength, while breaking down social and geographic barriers and encouraging multiple uses of outdoor spaces.	Adults	2008-2015	Biannual	8 weeks	3/week	60 minutes
GOLD	Designed to engage older adults in physical activity in a fun and social environment (e.g. rock climbing, horse riding). Helps build participant's confidence and allows them to try new activities.	Older Adults (55+)	2008-2015	Annual	10 months	1/month	60 minutes
Active Bike	Designed to support participants to discover the recreational trail networks of Launceston and improve their skills and confidence in riding safely on the road.	Adults	2009-2013	Biannual	10 weeks	1/week	60 minutes
			2014	Annual	10 weeks	1/week	60 minutes
			2015	Annual	8 weeks	1/week	60 minutes
Active Aquatics: Active Swim Active Hydro Active Aqua	Active Swim targets those from culturally and linguistically diverse backgrounds, supporting them to develop basic swimming skills and water safety knowledge, while providing connections to the community.	Active Swim: migrant refugees	2009-2015	Annual	9 weeks	1/week	60 minutes
	Active Hydro provides hydrotherapy sessions for those recovering from a physical injury or illness. Designed to help improve the participant's health, so they are able to participate in mainstream swimming and other physical activity programs.	Active Hydro: people recovering from injury or illness	2010-2014	Annual	8 weeks	1/week	60 minutes
	Active Aqua is a fitness program aimed at the general community, enabling participants to realise the benefits of aqua fitness and gain the confidence to continue with aqua fitness providers in the community.	Active Aqua: adults	2010-2013	Annual	8 weeks	1/week	60 minutes
Active Workplace	Active Workplaces promotes the importance of workplace physical activity through educational and practical sessions.	Employers and Employees	2010-2012	Annual	9 weeks	3/week	60 minutes
Ride 2 Work Day	Annual event to encourage new riders and infrequent riders to commute to work by bike.	Adults	2009-2015	Annual	1 day	1/year	N/A
Walk to Work Day	An annual, national event encouraging people to walk to work. The event is an initiative of the Pedestrian Council of Australia.	Adults	2009-2015	Annual	1 day	1/year	N/A
Active Sports	Developed to support local traditional sporting clubs by encouraging community members to re-engage with a variety of sports.	Families & individuals	2014-2015	Annual	8 weeks	2/week	60 minutes
Active Winter	Held indoors, providing a supportive environment for adults to participate in physical activity during winter.	Adults	2014-2015	Annual	12 weeks	2/week	60 minutes
Active Blokes	Designed for males who would like to get active and don't know where to start, the program caters for all fitness levels and is held indoors	Men	2014-2015	Annual	8 weeks	1/week	60 minutes
Active Garden	Community-focussed conservation activities, enabling people of all ages to get involved in regular physical activity in a garden environment.	All ages	2009-2011	Annual	13 weeks	1/week	120 minutes

GAP Activate Your Life	Based on Womensport and Recreation Tasmania, the program supports sedentary adults to overcome barriers to participation in physical activity.	Those living with or at risk of chronic conditions	2009-2012 & 2015	Annual	7 weeks	1/week	120 minutes
			2013	Biannual	7 weeks	1/week	120 minutes
			2014	Triannual	7 weeks	1/week	120 minutes
Active & Inclusive	A program to encourage adults and children with a disability to be physically active through a variety of adapted activities.	Children and adults with a disability	2011-2015	Annual	8 weeks	2/week	45 minutes
Active Walk Run	Walking, jogging and running program designed to keep community members active during winter. Provides a safe environment to exercise after dark and also provides training for upcoming community fun runs.	Sedentary adults & families	2009-2012	Annual	12 weeks	1/week	60 minutes
			2013-2014	Annual	10 weeks	1/week	60 minutes
Active and Alive	This program includes one positive risk-taking activity per month including sessions such as rock climbing, judo, mountain biking and caving.	Disadvantaged/ disengaged young people	2009-2011 2013-2015	Annual	8 months	1/month	60 minutes
			2012	Annual	8 months	2/month	60 minutes
Active Dance	Motivates participants to move using of a variety of dancing disciplines. Designed to support positive social interactions and improve participant's health and wellbeing in a fun, social environment.	Adults	2012-2015	Annual	9 weeks	1/week	60 minutes
Active Kids	Active play sessions that utilise everyday equipment found in most homes and day care centres, Active Kids provides teachers, carers and parents with ideas of how to keep their children active every day. Sessions are self-paced, fun and cater for a range of ages and abilities.	Children 0-4 and 5-12 years; Teachers; Families; Carers	2010-2015	Annual	8 weeks	2/week	45 minutes
Active TNT	Active TNT (Try New Things) is aimed at children seven to twelve years who experience difficulties in physical activity and therefore tend to avoid it. Active TNT gives the participants confidence, encouragement, self-esteem and the ability to try 'other' new things.	7 to 12-year-old children with coordination difficulties.	2011	Annual	5 weeks	1/week	90 minutes
			2012	Quarterly	5 weeks	1/week	90 minutes
Active NICS	A program located in the Northern Integrated Care Service targeted at patients and clients of the service and of the Launceston General Hospital along with staff and general community.	Adults	2012	Annual	12 weeks	2/week	60 minutes
			2013	Annual	8 weeks	1/week	60 minutes
Active Gyms	Designed to introduce adults to physical activity opportunities provided at different gyms/fitness organisations within the community to determine what suits their needs in a less intimidating environment.	Adults	2014-2015	Annual	8 weeks	2/week	60 minutes
Inveresk Park and Walk	Free secure parking: a 15-minute fully-lit walk from the city centre	Adults	2008-2015	7am-7pm daily	NA	NA	NA
Colour Me Active	Colour Fun Run	All	2013	One-off event	NA	NA	NA
Suburban walking maps	Designed by community members to promote walking within a suburb. Large signs depict trail routes installed in prominent community spaces.	All	2008-2015	NA	NA	NA	NA
'Up the stairs' signage	Installation of signage to encourage stair use in all City multistorey buildings including hospitals, car parks and other health centres.	All	2008-2015	NA	NA	NA	NA

Table 2. Gender and age distribution of telephone survey respondents by year

	Year		
	2008 (n=879)	**2012 (n=900)**	**2015 (n=900)**
Gender (number and percentage of respondents)			
Male	420 (47.8)	413 (45.9)	425 (47.2)
Female	459 (52.2)	487 (54.1)	475 (52.8)
Year (number and percentage of respondents)			
15 – 19 years	81 (9.2)	70 (7.8)	30 (3.3)
20 – 24 years	55 (6.3)	36 (4.0)	35 (3.9)
25 – 34 years	136 (15.5)	123 (13.7)	36 (4.0)
35 – 44 years	158 (18.0)	175 (19.4)	147 (16.3)
45 – 54 years	158 (18.0)	164 (18.2)	183 (20.3)
55 – 64 years	151 (17.2)	169 (18.8)	218 (24.2)
65 – 74 years	90 (10.2)	101 (11.2)	156 (17.3)
75 + years	50 (5.7)	62 (6.9)	95 (10.6)

Table 3: Proportion of telephone survey respondents physically active in the previous 2 weeks, and their mean time spent being physical activity, by intensity level; 2008, 2012, 2015

Physical activity level	Year	N	Proportion physically active in past two weeks (%)	Mean time ± SD (minutes)	Median	75th percentile	95th percentile
Walking	2008	879	61.7	155 ± 214	60	240	600
	2012	900	56.2	147 ± 245	30	210	600
	2015	900	57.4	172 ± 232	60	280	700
Moderate intensity	2008	879	48.2	67 ± 155	0	45	420
	2012	900	39.2*	81 ± 168	0	90	450
	2015	900	35.8*	73 ± 168	0	60	360
Vigorous intensity	2008	879	17.4	35 ± 115	0	0	240
	2012	900	28.8*	58 ± 150	0	20	400
	2015	900	20.8*	44 ± 127	0	0	300

The 75th and 95th percentiles were included because the distribution of activity was found to be skewed; caution is therefore needed when interpreting the mean values.

* Significantly different from 2008 ($p \leq 0.01$) when adjusted for age and gender