



Examining the use of loyalty point incentives to encourage health and fitness centre participation

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ABSTRACT

A unique financial incentive intervention was conducted in Canada, where YMCA members were offered loyalty points (Air Miles Reward Miles) to encourage visits to YMCA Health and Fitness Centres. The purpose of this evaluation study was to determine if YMCA members would participate in a loyalty point incentive program and if the weekly YMCA visit rates differed between Air Miles collectors and non-collectors. YMCA swipe data were collected from 2012 to 2016, including 12 months pre-program (baseline data), 36 months during the intervention period, and 3 months post-program. The final analyses, conducted in 2017, included 459,146 participants from 13 YMCA locations. Quasi-Poisson regression models were used to compare the weekly visit rates between Air Miles collectors and non-collectors. Of the 459,146 participants, 6.4% ($n = 29,449$) registered their Air Miles card with their YMCA membership (Air Miles collectors). Average weekly visit rates over the entire study period were significantly higher (1.37 to 3.84 times) among the Air Miles collector group than those in the non-collector group, but there was no evidence that incentives were associated with increased YMCA visits when adjusting for the pre-program period. This research demonstrated that incentives are a practical and acceptable public health strategy in Canada. More research is needed into how to harness the reach of loyalty point providers such as Air Miles, and how incentive-based programs should be optimally designed and delivered (e.g., type, timing, and magnitude of incentive).

1. Introduction

Behavioural economic theory incorporates economic principles and psychology to help explain why people may not act rationally when it comes to their health. For example “present bias” refers to the tendency to act in favor of one’s immediate self-interest at the expense of one’s long-term well-being (Thaler and Sunstein, 2009). In the case of exercise, the “costs” are experienced in the present; whereas the benefits (e.g., health, more attractive appearance) are delayed, resulting in resolutions to “exercise more tomorrow” (Mitchell et al., 2013). According to behavioural economics, increasing the immediately rewarding aspects of exercise (e.g., by offering financial incentives such as cash or vouchers) may increase people’s intention to exercise. The incentives provide an immediate reward that makes the decision on performing a healthier behaviour more gratifying. The repetitive application of incentives for choosing a healthy behaviour may build self-regulation and ‘willpower’ for maintenance and lead to health habit formation (Charness and Gneezy, 2009).

Incentives have been shown to effectively change behaviour so long as the incentive is the right type, the right amount, and delivered at the

right time (Promberger and Marteau, 2013; Patel et al., 2016). Recent systematic reviews have shown financial incentives have improved simple behaviours such as vaccination and screening (Giles et al., 2014), as well as more complex behaviours including smoking cessation (Patel et al., 2016) and exercise adherence (Mitchell et al., 2013). Specifically, Mitchell and colleagues (Mitchell et al., 2013) found that use of financial incentives was associated with an 11.55% (95% CI = 5.61%, 17.50%; $z = 3.81$, $p < 0.0001$) increase in exercise session attendance at the end of intervention compared to control conditions, although evidence for long term benefits has not been established.

Financial incentives have also been used to reduce health care costs. In Germany, a large health insurance company provided financial incentives for participation in primary and secondary prevention programs, including immunization, check-ups and screening, and exercise (Stock et al., 2010). An analysis of the program found the intervention group ($N = 70,429$) had lower health care costs than the matched control group (Stock et al., 2010). Apart from Stock et al. (2010) there have been few evaluations of population wide, large scale financial incentive programs (Mitchell and Faulkner, 2014). The use of financial

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incentives to improve population health has appeared in government policy (Canada Revenue Agency, 2017; Volpp et al., 2011) despite the limited evidence base. A multi-sector partnership emerged in Canada between the Public Health Agency of Canada, YMCA Canada, and Air Miles for Social Change (Public Health Agency of Canada, 2013), providing an opportunity for evaluating the use of financial incentives to promote physical activity in a large-scale, real-world context.

Loyalty point incentives are popular in Canada, with approximately 90% of Canadians having at least one loyalty card (Yahoo Inc., 2015). An advantage of loyalty point incentives over cash is that they are often over-valued when compared to actual dollar amounts, making an incentive program less costly for the organization (Mitchell et al., 2017). The Air Miles Reward Program® (www.airmiles.ca), which began in 1992, is one of the most recognized loyalty-point reward programs in Canada. Air Miles can be collected from over 100 different retailers across Canada for a variety of purchases, and can be used to redeem instant discounts on purchases or used towards vacations, electronics, kitchen gadgets, movie tickets, etc. (Air Miles, 2017). The YMCA is one of the oldest and largest movements for youth in the world. In Canada, it is a well-known charitable organization with over 120 Health and Fitness Centres, reaching 1.2 million Canadians (Canada, 2017). The YMCA caters to all age groups and offers financial assistance for membership costs for those in need (Canada, 2017).

The partnership between Air Miles and YMCA allowed for a unique incentive intervention, where Air Miles Reward Miles were offered to encourage physical activity participation through increased visits to the YMCA Health and Fitness Centres (e.g. the gym, fitness class, or swimming pool). YMCA members could link their Air Miles Collector Card to their YMCA membership, allowing members to receive Air Miles upon registration and when they swiped-in at a participating YMCA Health and Fitness Centre. The role of the Public Health Agency of Canada was to provide additional funding, monitoring, and evaluation of the Air Miles-YMCA incentive intervention.

The purpose of this evaluation study was threefold: 1) to determine if YMCA members would participate in a loyalty point incentive program; 2) to determine if the weekly YMCA visit rates significantly differed between Air Miles collectors and non-collectors, and whether this varied by age-group; and 3) if the different Air Miles intervention periods/offers had unique effects on weekly YMCA visit rates when compared to the pre-program period.

2. Methods

The Air Miles-YMCA incentive intervention was offered from April 1, 2013 to December 31, 2015 at 13 locations in Alberta, New Brunswick and Ontario. During this period, the amount of Air Miles offered varied by location and by the program incentive period, as summarized in Table 1. The Air Miles incentive is further described using Adams' et al. framework of financial incentives for health behaviour change (Adams et al., 2014) in Appendix A.

Each participating YMCA location collected members' swipe data during the 12-month pre-program period to serve as baseline data and the 3-month post-program period to determine maintenance effects after the incentives were removed. Swipe data were collected each time an eligible member swiped their YMCA membership card to access the YMCA Health and Fitness Centre, which captured eligible member's participant anonymized identification number, the date the member joined the YMCA, the date(s) for each YMCA visit, the member's Air Miles Collector Card identification number (if linked to YMCA membership), and the date the Air Miles Collector Card was linked to YMCA membership. Individuals with several select membership types (e.g. guest pass, 1-day pass, 2-week trial pass, etc.) were excluded as they were not eligible to participate in the Air Miles intervention. Participant demographics collected included age and YMCA location.

The data were then de-identified and provided to the evaluation team to investigate the relationship between Air Miles incentives and

YMCA visits. Ethics approval for the evaluation was obtained from the University of British Columbia's Behavioural Research Ethics Board [H17-02814]. All YMCA members from 23 participating locations with valid swipe data were included in the analysis. Due to implementation issues, 10 participating locations did not collect valid swipe data and were excluded from the analyses. The final analyses included eligible YMCA members from 13 participating YMCA locations: five sites in Calgary, Alberta, one site each in New Brunswick and Ontario, and six sites in the Greater Toronto Area, Ontario. The total sample involved 459,146 YMCA members across the 13 sites with the number of participants per site ranging from 10,548 to 90,359. Data were analyzed in 2017.

2.1. Data processing and statistical analysis

We condensed the data for each YMCA member in two ways. Firstly, each member was described by the enrollment period when they joined the YMCA and if they were an Air Miles collector at any time during the study. A start date was set for each YMCA member to determine when the YMCA member enrolled. If there was more than one enrollment date for a member, then the earliest date was used. If the enrollment date was not available, the date of the first YMCA visit was used. An end date was set for each YMCA member 90 days after their last visit which was given by the latest swipe date. The three enrollment periods were: pre-program period (April 2012 to August 2013), welcome-incentive period (September 2013 to December 2014) and post welcome-incentive period (after December 2014).

Secondly, visit data per member were summarized by the total number of visits for each month from the member start date to the end date. Any totals for months outside of the study period were ignored. The total number of visits per month was then converted into weekly visit rates.

Given the heterogeneous nature of the incentives offered at each participating YMCA site as described in Table 1, we considered each location separately. To explore the relationship between Air Miles collector status (AMColl) and YMCA enrollment period (Enroll), a logistic regression model was fit to AMColl with Enroll as an independent variable. Thus, the model estimated the probability that an individual enrolling in the YMCA (in each period) was an Air Miles collector. These probabilities were compared using three pairwise odds ratios along with their 95% confidence intervals that included a Tukey adjustment for the multiple comparisons.

The monthly visit counts for each YMCA member were used for estimating and comparing the weekly visit rates for Air Miles collectors and non-collectors (AMColl). Additional rate comparisons were made within these two groups for the various Air Miles incentive periods (Bonus) and for the different age categories (Age). A quasi-Poisson regression model with a log link and an offset of the log of weeks per month (to consider that the weeks per month are slightly different between the months) was used to model the counts per month. This modelling approach is more flexible than Poisson regression as it allows for overdispersion in the visit count data (Agresti, 2002).

Three different models were fitted, model 1 with AMColl as the only predictor, model 2 with both AMColl and Bonus and their interactions included as predictors, and model 3 with both AMColl and Age and their interactions included as predictors. Each model also fit a time trend, represented by sine and cosine cycles, to consider that the counts per month have a systematic seasonal pattern within individuals. The choice of 6 cycles was used for every location and was selected prior to the model fitting based on their similar trends observed in the weekly visit rate estimates per month over the 48 months of the study (Appendix B), where quasi-Poisson regression was used to estimate the weekly visit rates per month. Weekly visit rates were compared using pairwise relative rates along with their 95% confidence intervals that include a Tukey adjustment for the multiple comparisons. Since the interaction terms were significant in all models, we presented the

Table 1
Descriptions of the six distinct incentive periods used for the evaluation.

| Incentive periods/offers | Date | Descriptions |
|--------------------------|----------------------------------|--|
| Pre-program (Pre) | April 2012–March 2013 | No incentive |
| Welcome | April 2013–October 2013 | 25 RM for registering Air Miles card with YMCA membership number |
| + Base (WB) | | 1 RM for every 2 visits within a calendar month |
| Welcome | November 2013–December 2014 | 25 RM for registering Air Miles card with YMCA membership number |
| + Base | | 1 RM for every 2 visits within a calendar month |
| + Frequency bonus (WBF) | | 10 RM/week when visit YMCA 2 times/week OR 20 RM/week when visit for ≥ 3 times/week |
| Base | GTA: January 2015–September 2015 | 1 RM for every 2 visits within a calendar month |
| + Frequency bonus (BF) | | 10 RM/week when visit YMCA 2 times/week OR 20 RM/week when visit for ≥ 3 times/week |
| | CAL: January 2015–June 2015 | 1 RM for every 2 visits within a calendar month |
| | | 20 RM/week when visit YMCA ≥ 3 times/week |
| | NB & ON: January 2015–June 2015 | 1 RM for every 2 visits within a calendar month |
| | | 5 RM/week when visit YMCA 2 times/week |
| Base only (Base) | GTA: October 2015–December 2015 | 1 RM for every 2 visits within a calendar month |
| | CAL: July 2015–December 2015 | 1 RM for every 2 visits within a calendar month |
| | NB & ON: July 2015–December 2015 | 1 RM for every 2 visits within a calendar month |
| Post-program (Post) | January 2016–March 2016 | No incentive |

RM: Air Miles Reward Miles (approximately 30 cents CDN each), CAL: Calgary, GTA: Greater Toronto Area, NB & ON: Two sites in New Brunswick and Ontario respectively.

results from model 2 and 3. Multi-level models were also conducted with the adjustment of the clustering of repeated measurements and sites; however, those models failed to satisfy the convergence criterion and are not presented here.

3. Results

Among the total sample of 459,146 participants, 6.4% ($n = 29,349$) registered their Air Miles card with their YMCA membership number by the end of the intervention period (Air Miles collectors) (Table 2). Of the Air Miles collectors who enrolled in the YMCA during the pre-program, approximately 47% then linked their membership to their Air Miles card when the Welcome incentive became available. Of the Air Miles collectors who enrolled in the YMCA during the Welcome period, nearly all (99.2%) immediately linked their membership to their Air Miles card (see Fig. 1).

The non-collector group were younger than the Air Miles collector group, as 55% ($n = 237,251$) of the non-collectors were ≤ 30 years old compared with 40% ($n = 11,627$) of the Air Miles collectors (see Appendix C for the age distribution of the study population).

The average weekly YMCA visit rates across sites ranged from 0.69 to 1.28 (mean = 0.91 ± 0.16) for the Air Miles collector group and 0.21 to 0.58 (mean = 0.44 ± 0.12) for the non-collector group. The average weekly visit rates over the entire intervention period were

Table 2
Number of participants who linked their Air Miles Collector Card to YMCA membership.

| Sites | Total sample | Air Miles non-collectors | Air Miles collectors |
|-------|--------------|--------------------------|----------------------|
| | n | n (%) | n (%) |
| CAL_1 | 61,590 | 58,325 (94.7) | 3265 (5.3) |
| CAL_2 | 28,143 | 26,225 (93.2) | 1918 (6.8) |
| CAL_3 | 35,852 | 34,610 (96.5) | 1242 (3.5) |
| CAL_4 | 40,954 | 38,203 (93.3) | 2751 (6.7) |
| CAL_5 | 10,548 | 9632 (91.3) | 916 (8.7) |
| NB | 21,177 | 20,280 (95.8) | 897 (4.2) |
| ON | 12,887 | 10,863 (84.3) | 2024 (15.7) |
| GTA_1 | 18,986 | 17,241 (90.8) | 1745 (9.2) |
| GTA_2 | 43,829 | 40,513 (92.4) | 3316 (7.6) |
| GTA_3 | 36,913 | 33,951 (92.0) | 2962 (8.0) |
| GTA_4 | 38,346 | 35,246 (91.9) | 3100 (8.1) |
| GTA_5 | 19,562 | 17,153 (87.7) | 2409 (12.3) |
| GTA_6 | 90,359 | 87,555 (96.9) | 2804 (3.1) |
| Total | 459,146 | 429,797 (93.6) | 29,349 (6.4) |

CAL: Calgary; NB: New Brunswick; ON: Ontario; GTA: Greater Toronto Area.

significantly higher (1.37 to 3.84 times) among participants in the Air Miles collector group than those in the non-collector group (see Table 3).

In general, the Air Miles collector group started with a higher weekly visit rate than the non-collectors in the pre-program period and this trend continued over the intervention and post-program period, indicating that the Air Miles collectors were more frequent YMCA visitors before, during, and after the intervention compared to the non-collectors. An upward trend in weekly visit rates over the total intervention period (and within each incentive period) was observed in both groups for all age categories, which can be seen in Appendix D.

Results from pairwise comparisons of the weekly visit relative rates between each incentive period and the pre-program period (no incentive) in Air Miles collectors relative to non Air Miles collectors are presented in Table 4. A relative rate ratio is the weekly visit rate ratio of two periods for the collectors divided by the relative rate for the same two periods for the non-collectors. Relative rate ratios > 1 indicate an increase in the weekly visit relative rate in Air Miles collectors compared to non Air Miles collectors. As shown in Table 4, most of the relative rate ratios are < 1 . Therefore, when adjusting for the pre-program period, overall there was no evidence that incentives were associated with increased YMCA visits among Air Miles collectors in comparison to non-collectors. In fact, many sites showed non-collectors had significantly higher weekly visit rates during the various intervention periods compared to the pre-program period, particularly when the welcome period was removed (i.e. base offer or post-program period vs pre-program period).

4. Discussion

Our evaluation showed that loyalty point collectors would link their cards in the context of a public health initiative, demonstrating the potential of multi-sectoral partnerships on a national scale and for harnessing the reach of private industry partners. The Air Miles collector group had significantly more visits to the YMCA per week than non-collectors throughout the assessment period; however, there was no evidence that the incentives were associated with the higher frequency of visits after adjusting for the Pre-program period (baseline).

Receiving loyalty points, especially the welcome offer (25 Air Miles Reward Miles), appeared to be effective in getting users to engage with a public health program. The welcome offer seemed to be particularly attractive when the incentive was offered at the appropriate time (when new members joined the YMCA during the Air Miles welcome period compared to the pre-program period). Other loyalty point interventions have also shown successful partnerships between private business and

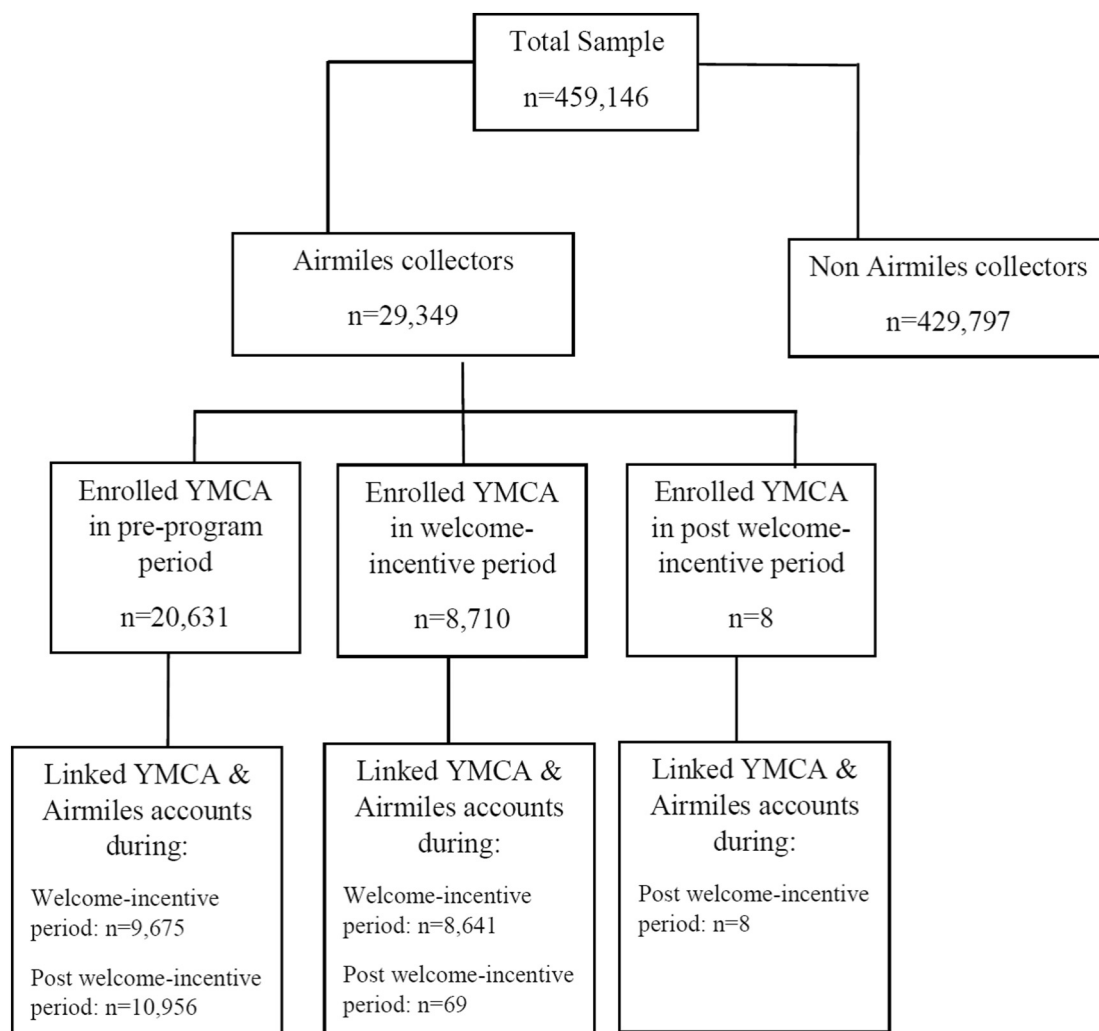


Fig. 1. Participant enrollment and registration flow chart.

Table 3

Comparisons of average weekly visit rate between Air Miles collectors and Air Miles non-collectors across study sites.

| Sites | Non-collectors rate (SE) | Air Miles collectors rate (SE) | Rate ratios | Z ratio | p-Value |
|-------|--------------------------|--------------------------------|--------------|---------|----------|
| CAL_1 | 0.27 (0.001) | 0.87 (0.004) | 3.22 (0.017) | 220.51 | < 0.0001 |
| CAL_2 | 0.54 (0.001) | 1.14 (0.006) | 2.13 (0.012) | 131.72 | < 0.0001 |
| CAL_3 | 0.44 (0.001) | 0.84 (0.008) | 1.93 (0.018) | 70.60 | < 0.0001 |
| CAL_4 | 0.44 (0.001) | 0.81 (0.004) | 1.85 (0.010) | 112.61 | < 0.0001 |
| CAL_5 | 0.32 (0.002) | 0.69 (0.007) | 2.14 (0.025) | 64.39 | < 0.0001 |
| NB | 0.34 (0.001) | 0.98 (0.009) | 2.92 (0.029) | 107.18 | < 0.0001 |
| ON | 0.52 (0.002) | 0.71 (0.006) | 1.37 (0.012) | 33.87 | < 0.0001 |
| GTA_1 | 0.45 (0.002) | 0.90 (0.006) | 2.00 (0.014) | 97.48 | < 0.0001 |
| GTA_2 | 0.58 (0.001) | 1.28 (0.005) | 2.21 (0.009) | 187.03 | < 0.0001 |
| GTA_3 | 0.58 (0.001) | 0.92 (0.005) | 1.60 (0.009) | 85.47 | < 0.0001 |
| GTA_4 | 0.56 (0.001) | 0.99 (0.004) | 1.78 (0.009) | 115.32 | < 0.0001 |
| GTA_5 | 0.49 (0.002) | 0.85 (0.005) | 1.74 (0.011) | 86.56 | < 0.0001 |
| GTA_6 | 0.21 (0.0004) | 0.81 (0.004) | 3.84 (0.021) | 240.72 | < 0.0001 |

CAL: Calgary; NB: New Brunswick; ON: Ontario; GTA: Greater Toronto Area. Note: Significance levels set at p < 0.05.

public health, such as a physical activity workplace intervention in the United Kingdom (Hunter et al., 2013), and a large-scale mobile health application in Canada, where over 50,000 users received loyalty points for downloading and using an app (Mitchell et al., 2017). In the current study, nearly 30,000 YMCA members linked their Air Miles card to their

YMCA membership which represented 6.4% of the total sample, but we were unable to calculate the reach of the intervention. The data did not permit us to determine how many YMCA members, or Canadian households in general, actively collected Air Miles.

Our most intriguing finding was that while the Air Miles collector group had significantly more visits to the YMCA per week than non-collectors, the incentives were not associated with higher frequency of visits after adjusting for baseline. Similarly, Hunter et al. (2013) found no differences in physical activity over the short (12-weeks) or long term (6 months) between the loyalty point incentives group compared to the group who did not receive incentives. Contrary to these findings, a meta-analysis of randomized controlled trials found that financial incentives increased exercise adherence in the short term (< 6 months) and while the incentive was on-going (Giles et al., 2014). The lack of intervention effects for the current study could be attributed to the evaluation design and data available, as well as the design of the intervention itself.

This study was among the first to evaluate a large-scale incentive experiment in the “real-world,” a context that offers both strengths and limitations. We could determine that people would buy-in to a loyalty point incentive program, but how this affects behaviour change remains uncertain. The lack of random group assignment led to unequal group sizes with unequal baseline data. We also saw what appeared to be a natural upward trend in weekly visits for both groups over time, which also rendered significant testing more difficult. Due to convergence issues, the statistical models did not adjust for the clustering nature of the

Table 4

Comparisons of weekly visit relative rates between incentive periods in Air Mile collectors vs. non Air Miles collectors, relative rate ratios (SE).

| | WB vs. Pre | WBF vs. Pre | BF vs. Pre | Base vs. Pre | Post vs. Pre |
|-------|---------------------|----------------------|----------------------|----------------------|----------------------|
| CAL_1 | 1.01 (0.02) | 0.96 (0.01) | 0.89 (0.02)** | 0.78 (0.01)** | 0.63 (0.02)** |
| CAL_2 | 1.00 (0.02) | 0.89 (0.01)** | 0.85 (0.02)** | 0.74 (0.01)** | 0.67 (0.02)** |
| CAL_3 | 0.95 (0.03) | 0.92 (0.03)* | 0.95 (0.03) | 0.79 (0.03)** | 0.67 (0.03)** |
| CAL_4 | 1.03 (0.02) | 0.93 (0.01)** | 0.96 (0.02)** | 0.83 (0.02)** | 0.76 (0.02)** |
| CAL_5 | 0.92 (0.05) | 0.68 (0.03) | 0.61 (0.03)** | 0.49 (0.03)** | 0.44 (0.03)** |
| NB | 1.06 (0.04) | 0.96 (0.03) | 0.92 (0.03)* | 0.84 (0.03)** | 0.58 (0.03)** |
| ON | 1.07 (0.03)* | 1.05 (0.03) | 1.07 (0.03)* | 1.09 (0.03)* | 1.00 (0.04) |
| GTA_1 | 1.01 (0.02) | 0.89 (0.02)** | 0.77 (0.02)** | 0.74 (0.02)** | 0.66 (0.02)** |
| GTA_2 | 0.98 (0.01) | 0.91 (0.01)** | 0.83 (0.01)** | 0.79 (0.02)** | 0.68 (0.01)** |
| GTA_3 | 1.00 (0.02) | 0.96 (0.02)* | 0.89 (0.02)** | 0.85 (0.02)** | 0.82 (0.02)** |
| GTA_4 | 1.00 (0.02) | 0.95 (0.01)** | 0.91 (0.01)** | 0.88 (0.02)** | 0.78 (0.02)** |
| GTA_5 | 1.04 (0.02) | 0.93 (0.02)** | 0.90 (0.02)** | 0.89 (0.03)** | 0.78 (0.02)** |
| GTA_6 | 1.01 (0.02) | 0.97 (0.01)* | 0.82 (0.01)** | 0.57 (0.01)** | 0.44 (0.01)** |

Note: boldface indicates statistical significance (*p < 0.05, **p < 0.0001).

BF: base + frequency bonus offer; WB: welcome + base offer; WBF: welcome + base + frequency bonus offer. CAL: Calgary; NB: New Brunswick; ON: Ontario; GTA: Greater Toronto Area.

data.

We were unable to determine why the Air Miles collector group had significantly higher weekly visits than the non-collector group before, during, and after the intervention. Age and YMCA location were the only demographic data captured in this study and there may have been other participant or location characteristics that we could not adjust for. Notably, there was some indication that Air Miles collectors were more likely to be older. We were also unable to do a process evaluation, as there was no data on implementation of the program, such as the number of YMCA members exposed to recruitment/promotion strategies or other marketing campaigns which could account for the increase in weekly visits for the non-collector group over time. For example, it is not clear how aware Air Miles collectors were of the incentive structure. Market research has shown that the effect of a loyalty program decreases with the number of competitive loyalty program memberships (Leenheer et al., 2007) and perhaps our sample had too many loyalty point programs for one to be effective in changing physical activity behaviour. Future studies need a stronger experimental design and a more rigorous pre-planned process evaluation, such as incorporating the RE-AIM framework (Glasgow et al., 2006). RE-AIM collects information about Reach, Effectiveness, Adoption, Implementation, and Maintenance of an intervention in real-world conditions to determine which programs should be sustained (Glasgow et al., 2006).

A second explanation for the lack of effect could be due to the design of the intervention. The Air Miles collector group may have viewed the welcome offer as an additional external reward to attending the YMCA, which encouraged users to link their collector card to their YMCA membership, because it was the right amount delivered at the right time (upon enrollment). Unfortunately, the base incentive offer may have been too small to have an impact on weekly visit rates (1 Air Mile for every 2 YMCA visits). One air mile can be purchased on the Air Miles site for 30 cents CDN (www.airmiles.ca) although the true value likely varies on the basis of what the Air Miles are being redeemed for. If we assume this is the maximum value of an Air Mile then the maximum reward during certain times of the intervention was the equivalent of \$6 CDN per week (20 Air Miles for visiting 3/wk). Reviews have shown that for incentive programs to work, the incentive type and amount must be meaningful to the user (Mitchell and Faulkner, 2014).

Incentives are used to encourage “habit formation”, which has been shown to moderate the intention-behaviour relationship in physical activity (De Bruijn and Rhodes, 2011). The Air Miles collector group were already more frequent YMCA users than the non-collector group at baseline, indicating they were perhaps already in the habit of visiting the YMCA. Incentives may be more effective in creating habits in people who are in the early stages of behaviour change, where they have strong intentions but lack motivation.

4.1. Strengths and limitations

As mentioned, this study was among the first to evaluate a financial incentive intervention in a large, naturally occurring sample. We collected pre-program data to serve as a baseline, and accounted for this during our evaluation, as well as collected post-program data. Very few studies have examined the maintenance of intervention effects on behaviour once the incentive has been removed (Giles et al., 2014). There were numerous limitations of the study, including the study design and the quality of data captured as mentioned previously. We also assumed that swipe data meant the user was taking part in physical activity at the YMCA, but it is not known what type and intensity of physical activities took place, or if YMCA members were also active outside the gym setting.

4.2. Conclusion

This research demonstrated that deploying incentives for physical activity participation may be feasible at a population level. However, no associations were found between receiving incentives and a higher frequency of gym visits. More research is needed into how to harness the reach of loyalty point providers such as Air Miles, and how incentive-based programs should be optimally designed and delivered (e.g., type, timing, and magnitude of incentive).

Conflicts of interest

Leila Pfaeffli Dale and Erica Lau report no conflicts of interest. Guy Faulkner received consulting fees from LoyaltyOne, Co. for leading the evaluation. The study sponsor had a role in study design and collection but no role in data analysis, interpretation of data; or writing the report; nor the decision to submit the report for publication. Guy Faulkner holds a Canadian Institutes of Health Research-Public Health Agency of Canada (CIHR-PHAC) Chair in Applied Public Health.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.pmedr.2019.100831>.

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