

Summary

To Bergen on a Bike? Evaluation of the public health campaign 2017

TOI Report 1614/2018

Authors: Hanne Beate Sundfør and Aslak Fybri

Oslo 2018 73 pages Norwegian language

The goal of the public health campaign «To Bergen on a Bike», developed in cooperation with the Cycling World Championship in Bergen in 2017, was to motivate for more activity in the population. The campaign was built on an activity app where you could collect prizes at given GPS-locations. The app had over 25 000 downloads, and 36 per cent completed the registration of a user profile (most men). Between 57 and 65 per cent used the app to some degree, and approximately one third (28 per cent) collected at least one point with a prize. Those who used the app a lot during the campaign period show an increase in the number of kilometres cycled, compared to a control group - and women to a greater extent than men. However, this change, given the small sample size, is not large enough to conclude that the app is effective.

Aim - create activity in the population

The Cycling World Championship was arranged in Bergen in 2017. In cooperation with the event, the public health campaign «To Bergen on a Bike» was developed. The campaign was a collaboration with several stakeholders involved. The goal of the campaign was to motivate for more activity in the population, and to reveal potential socio-economic benefits from a public health campaign with cycling (and other activity). The campaign was built around an activity app (Sykle til VM) based on the concept of gamification (i.e. use of game principles and game elements in situations beyond play, in order to motivate the execution of tasks). The checkpoints were placed all around Norway, with the highest density around Oslo and Bergen.

The effect of physical activity

Physical activity, i.e. all body movement that results from muscle work which leads to increased energy consumption, is well documented as beneficial to health and has been shown to expose the outbreaks of lifestyle diseases. The connection between activity level and health gain is simply that the higher the intensity (or amount), the greater improvement (see Figure S.1). The intensity of activity is divided into three categories; light, medium and high intensity.

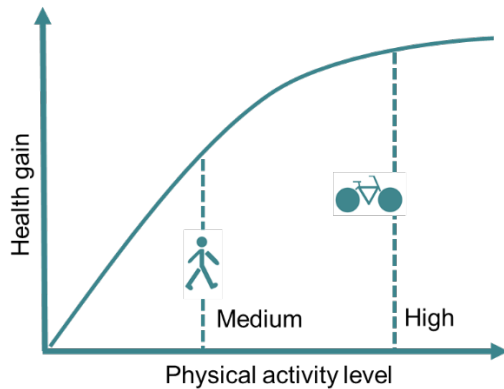


Figure S. 1 The relationship between amount of physical activity and health gain (version from Helsedirektoratet, 2014)

Cycling - a health policy goal

Of all trips undertaken (in Norway), almost five percent are on a bicycle. The seasonal variation is significant. There are significantly less cycling during the winter months (two percent of all travel) compared to up to seven percent in summer. An increase in active mobility (cycling and walking) is one of the main strategies for promoting public health in Norway. Cycling for transport purposes can potentially give a lot of individuals an adequate level of physical activity, as cycling on a bike (regular and electrically assisted) involves an effort sufficient to achieve training effect.

How to measure the impact of the campaign?

A quasi-experimental design was used in the project. This implies that data is collected for the group receiving the intervention (app) and compared to data from another (comparable) group (control group) in the same period. Under the condition that the correct data is collected, and at the right time, we can say that the change in cycling and physical activity is an effect of using the motivation app (Sykle til VM) and not from another outside factor.

The research questions we try to answer are the following:

- What changes do we see in bicycle use from a pre-event situation, among the users of the app and the control group?
- What are the changes in transport distribution from a pre-situation to a post-situation, among the users of the app and the control group?
- Are there any groups (types of people) that have a larger effect than others?
- How many active users had the activity app «Sykle til VM»?

Collection of data

In total, there were 25 910 who downloaded the app and 9394 (36%) who completed the registration of a user profile. This is an expected drop-out rate for this type of app. The users registered from March to September 2017, with a peak at the start and end of the period. The campaign lasted from 17th of April to 10th of September 2017, and it was free to participate. The user started and stopped the app for logging activity. Everyone who registered a user profile until the end of June was contacted with an invitation to participate in a survey. This represented 75 per cent of all those who registered a user. A selection

drawn from the Falck bicycle register constituted the control group and also received the survey.

Data on gender, age and general activity level were collected in the app upon registration. The app is built on the model IP and is owned by Vismox AS. It has previously been used in several leading tracking apps and it filters on speed, acceleration, compass, etc. Hence, the use of motorized vehicles in the database is eliminated. Only checkpoints with prizes (prize points) were stored in the database. We can therefore not state the total number of checkpoints visited during the period.

The questions in the survey included bicycle use, physical activity, intentions, competitiveness, travel behavior and how much they had used the app in the period.

There were both most men who registered (58 per cent) as users, and who responded to the questionnaire (65 per cent). The average age was 43,7 years for registered users and somewhat older (48,7) for those who also responded to the survey. Those who registered a user in the app stated a relatively high level of activity, where 70 per cent reported to have at least two training sessions a week. When asked about the physical activity level in the survey, 58 percent stated that they had done vigorous physical activity (with a duration of minimum 10 minutes) at least two days during the last week.

Results – app data

There were 9394 registered users. Of these, 6067 were registered in the database (65 per cent) either with duration, distance or checkpoint with a prize. In total, 28 percent of the users had registered at least one checkpoint with a prize. The total number of kilometres registered in the database was 252 852 km (app model). Based on the GPX-files, with a maximum of 50 km/h between the points, the adjusted figure is 217 260 km, i.e. 14 percent lower (Figure S.2).

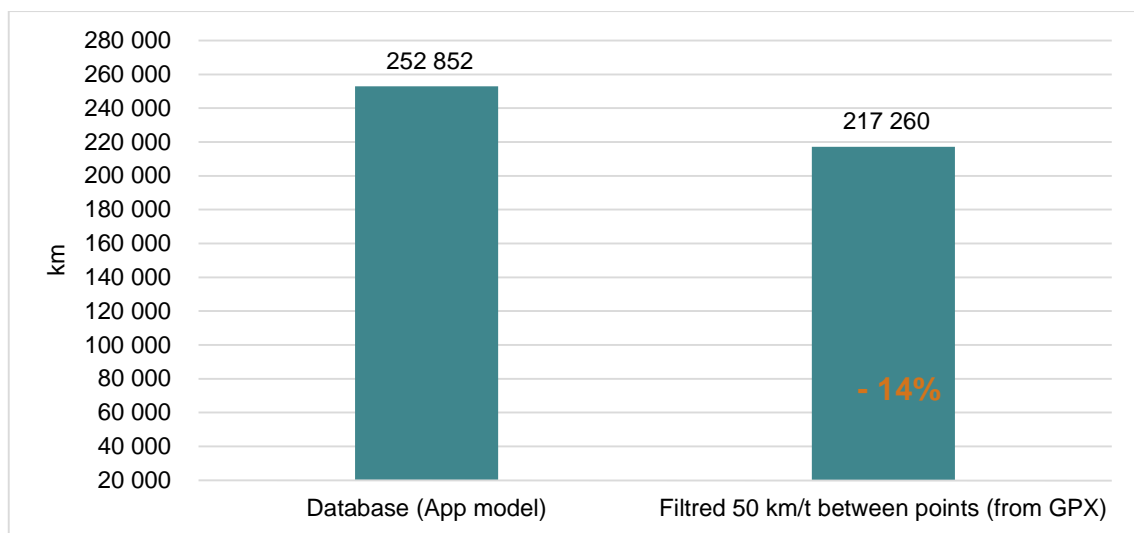


Figure S.2 Total km in the database and the filtered data (maximum 50 km/h between the points) based on GPX-files in the database. Number = 5381.

Changes in cycling

We collected survey data from 1291 users in the before situation, but only 369 of these responded to the post-intervention survey. In addition we have data from 214 participants in the control group, who responded to both surveys (374 in before-survey). The

participant responded to a web-based questionnaire about amount of cycling activity, daily transport behaviour, amount of other physical activity (IPAQ), amount of use of the app and some background information.

There were 78 of those who answered the survey before and after that reported to have used the app a lot (self-reported behavior), 161 had not used the app and the remaining 136 had used the app a little. Among those who report to have used the app a lot, 90 percent used a bicycle to reach the collecting points. The participants could be characterized as people who cycled a lot in the pre-trial situation. Nevertheless, we find that those who report using the app a lot have a greater change in mileage cycled (self-reported) than those who have used the app less, and the control group. Still, it is only when we divide the group by gender that we find that this difference becomes close to statistically significant. Thus, it may indicate that the app, to a greater extent, for women than men led to an increase in the number of km cycled. Figure S.3 shows the difference in bicycle km between the groups, divided by gender.

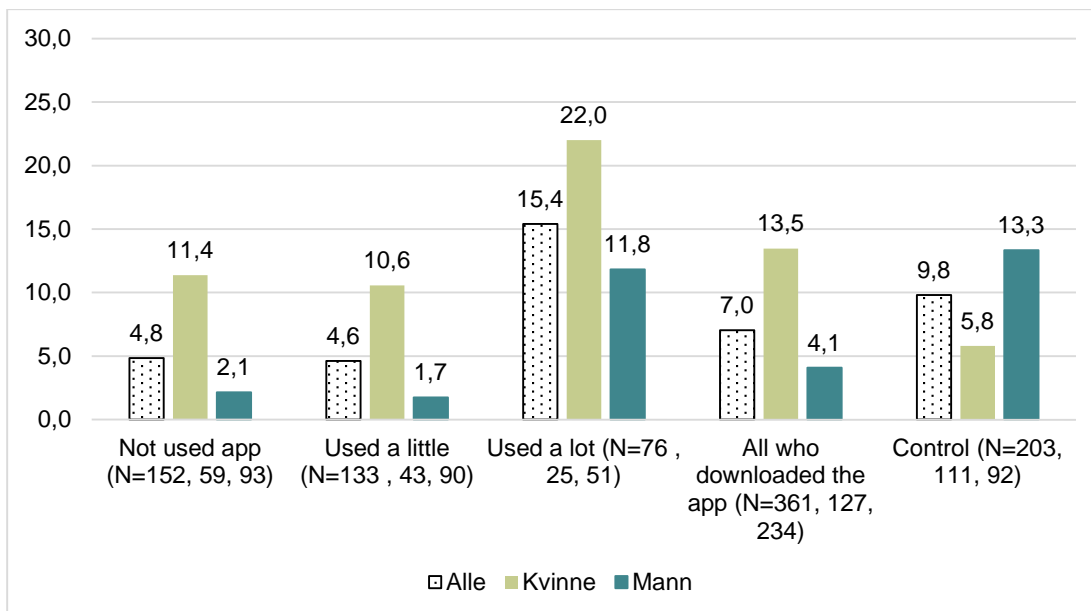


Figure S.3 Difference in the number of cycling kilometers reported in the before and after periods. All (dots), women (light green) and men (dark green).

Conclusions

- The app had above 25 000 downloads, and 36 per cent completed the registration of a user profile.
- Between 57-65 per cent had to some degree used the app, and 28 per cent collected at least one point with a prize.
- The total use of the app is difficult to estimate since only checkpoints with prizes were stored in the database. However, it is likely to assume that the most active users at least one time were at a checkpoint with prize. The number of prize points registered at least once (28 per cent) is in the same order of magnitude with those who report having used the app a lot (21 per cent).
- For both self-reported use of the app and the number of checkpoints with a prize collected in the app as an outcome measure, we find that those who have used the app a lot have a greater change in distance cycled (self-reported) than those who

have not used the app and control group. However, this difference is not large enough (given the sample size) to conclude that the app results in more cycling.

- The app seems to have appealed most to those who did not use other types of activity apps and those less competitive.
- For future campaigns, efforts must be made to integrate all data collection (surveys) into the app.