

91584R



NEW ZEALAND QUALIFICATIONS AUTHORITY  
MANA TOHU MĀTAURANGA O AOTEAROA

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## Level 3 Mathematics and Statistics (Statistics), 2018

### 91584 Evaluate statistically based reports

9.30 a.m. Thursday 22 November 2018  
Credits: Four

## RESOURCE BOOKLET

Refer to this booklet to answer the questions for Mathematics and Statistics (Statistics) 91584.

Check that this booklet has pages 2–4 in the correct order and that none of these pages is blank.

**YOU MAY KEEP THIS BOOKLET AT THE END OF THE EXAMINATION.**

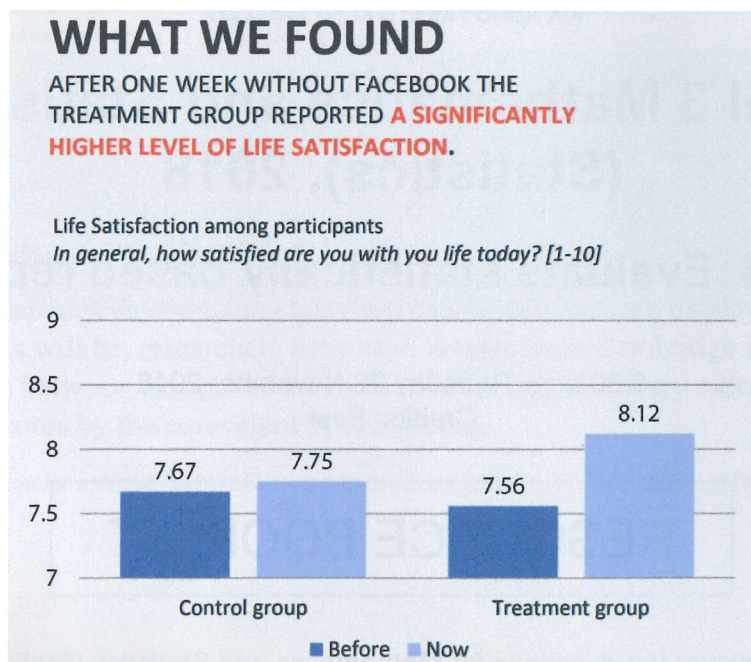
## REPORT 1

### A week off from Facebook? Participants in Danish experiment like this!

Researchers in Denmark who split 1095 daily Facebook users into two groups, half given access to the site as normal and the remainder forced to quit Facebook straight away, found that after a week those on a break from the social network felt 55% less stressed.

“We look at a lot of data on happiness, and one of the things that often comes up is that comparing ourselves to our peers can increase dissatisfaction,” said Meik Wiking, CEO of the Happiness Research Institute in Copenhagen. “Facebook is a constant bombardment of everyone else’s great news, but many of us look out of the window and see grey skies and rain (especially in Denmark!),” he said. “This makes the Facebook world, where everyone’s showing their best side, seem even more distortedly bright by contrast, so we wanted to see what happened when users took a break.”

Participants aged between 16 and 76 were quizzed before the experiment began on how satisfied they felt, how active their social life was, how much they compared themselves to others, and how easy they found it to concentrate. The group was then split, with half behaving as normal and half agreeing to not use Facebook for seven days – “a big ask for many,” according to Wiking.



A week later, the group who had not used Facebook reported higher levels of life satisfaction and better concentration, as well as feeling less lonely, less stressed, and more sociable. The next step for researchers is to assess how long the positive effects of a social media holiday last, and what happens when volunteers go without Facebook for extended periods. “I’d like to try for a year,” said Wiking, “but we’d have to see how many volunteers we get for that.”

Adapted from: <https://www.theguardian.com/media/2015/nov/10/week-off-facebook-denmark-likes-this-happiness-friends>  
(The Guardian, 10 Nov 2015).

Additional information sourced from: <http://socialsciences.ku.dk/news/facebook-makes-you-unhappy-and-lonely/the-facebook-experiment.pdf>.

## REPORT 2

### Kiwis more concerned about their sweet tooth – survey

Kiwis are more concerned about how they're satisfying their sweet tooth than how many calories they're consuming, a new survey has revealed. The national survey conducted by FreshChoice (a supermarket chain), completed by 2600 members from the social media platform Neighbourly, found that more than a quarter of respondents were concerned about how much sugar they were consuming.

Calories and salt were deemed lesser evils with more than 5% of respondents concerned with calorie count, and with 2% concerned with salt. Chocolate and sweets were the two most commonly identified items respondents would like to eat less of.

FreshChoice conducted the survey as part of their recent Health & Beauty Week, with questions ranging from exercise and dietary habits to make-up routines. FreshChoice marketing manager Kristy Abbott said the survey showed Kiwis are actively seeking a healthier lifestyle. The survey has a margin of error of 2%.

See more results from the survey in the infographic below.



Adapted from: <https://www.stuff.co.nz/life-style/well-good/teach-me/95099537/kiwis-more-concerned-about-their-sweet-tooth--survey> (Stuff, 28 Jul 2017).

## REPORT 3A

### **Every hour you spend in front of a screen is linked to poorer examination results**

By the time they are teenagers, more than two-thirds of young people are not doing enough physical activity. Teenagers spend an average of eight hours every day sitting, with 11- to 15-year-olds watching nearly three hours of television. Most of us are well aware that such behaviour risks damaging their physical health, but there's an additional problem.

We measured the physical activity and sitting time of 845 teenagers at 14.5 years old, using a sensor that measures movement and heart rate. We asked how much time they spent watching television, playing computer games, going online, doing homework, and reading. And at the end of Year 11, when these students were 16 years old, we collected their GCSE (examination) results.

We found that teenagers with higher screen time had lower GCSE grades, even when we took account of other factors. Television, computer games, and internet use were all associated with poorer academic performance, but television viewing was the most detrimental. For every hour that someone watched per day, they showed a drop of nine GCSE points in total – the equivalent of two whole grades in one subject (or, for example, one grade in each of two subjects).

Adapted from: <http://theconversation.com/every-hour-you-spend-in-front-of-a-screen-is-linked-to-poorer-exam-results-47056> (Kirsten Corder, Senior Investigator Scientist, University of Cambridge, 4 Sep 2015).

## REPORT 3B

### **Screen time affects grades**

The longer children spend each day watching television, using the internet, or playing video games, the worse their GCSE results will be, researchers have said. A team from Cambridge University tracked the progress of 845 students between the ages of 14 and 16, and found that every extra hour spent in front of a screen reduced their scores by the equivalent of two grades.

Adapted from: <http://www.bbc.com/news/av/uk-34149242/screen-time-affects-grades-says-study> (BBC, 4 Sep 2015).