

**The point prevalence of
smoking and vaping in
Grey Street pocket
square, Wellington:**

**Report for the Wellington
City Council on
observations in Grey
Street, Wellington in
December
2018**

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Summary

Aim

To observe and report on the point prevalence of smoking and vaping in the proposed Grey Street pocket square, due for redevelopment by the Council. The study is to provide a benchmark on smoking and vaping prior to the planned redevelopment.¹

The pocket square refers to the pedestrian area between the Grey Street road and Lambton Quay. The area is mapped in Appendix 1 and shown in photographs in Appendix 3. The area includes public seating, trees, a fountain and a café seating area.

Methods

In December 2018, five-minute scans were used to count the number of smokers and vapers, those aged over 12 years, and those aged 12 years or under. Observations were carried out during non-rainy weekdays, in the part of Grey St nearest Lambton Quay.

Results

From 96 five-minute scans (24 for each of four observation sections), a total of 1976 people aged over 12 years were observed, with 223 smokers recorded. The point prevalence of smokers was 11.28% for a five-minute scan in Grey Street pocket square, compared to a 3.98% average for other four downtown locations in November 2018. The point prevalence for one observation section was over 20%.

The point prevalence of smoking for Grey Street pocket square in December 2018 was higher than the point prevalence of smoking for Te Aro Park (10%), Midland Park (4.12%), Chews Lane (2.59%) and Civic Square (2.37%) in November 2018. These results were statistically significant for Midland Park ($p=0.000$), Civic Square ($p=0.000$), and Chews Lane ($p=0.000$) but not significant for Te Aro Park ($p=0.4$).

The proportion of the population who were children aged 12 or under was 1.93% for Grey Street pocket square. The results were statistically different when compared to 3.16% ($p=0.005$) for an average of other four downtown locations in November 2018. The proportion of the population who were children aged 12 or under was 1.24% for Te Aro Park.

Discussion

Smoking in Grey Street pocket square appears to be significantly higher than Midland Park and Civic Square where there is an 'educational' smokefree policy².

Introduction

This report details the process and results of observations of smoking and vaping in Grey Street pocket square, Wellington. The observations were of the point prevalence of smoking and vaping, and a comparison is made with observations of smoking in four downtown locations in November 2018.

The point prevalence of smoking is the proportion of people smoking during a particular period of time. Similarly, point prevalence for vaping is the proportion of people vaping at a particular point of time. Observing the trends in the point prevalence of smoking and vaping

for a location will allow policymakers to compare the extent of smoking and vaping across locations, and to observe smoking and vaping trends over time. These observations also enable policymakers to focus on those areas where there is a higher prevalence of smoking.

Previous observational studies in Wellington city have found a wide range of smoking point prevalences, from one to 18%, depending on the location, type of place and time of day.^{3 4} However, in 2011-12 similar locations (shopping streets, pedestrian areas, parks and transport waiting areas) in Wellington and other New Zealand cities had a point prevalence of smoking of 3.5%.⁵ An observation study in November 2015 at three downtown locations (Midland Park, Civic Square and Te Aro Park) found a point prevalence of smokers of 3.1% (Te Aro Park at 3.9%, Midland Park at 3.3%, and Civic Square at 2.5%).⁶ A recent observational study in November 2018 at four downtown locations (Midland Park, Civic Square, Te Aro Park and Chews Lane) found a point prevalence of 3.98% (Te Aro Park at 10%, Midland Park at 4.12%, 2.59% for Chews Lane and 2.37% for Civic Square). There is no such baseline observation study conducted to observe the point prevalence of smoking at Grey Street.⁷

To further explore the extent of smoking in public outdoor places, the aims of this report were to (i) observe and report on the point prevalence of smoking and vaping in Grey Street pocket square, Wellington and (ii) to make a comparison with the point prevalence of smoking and vaping in four city center locations (Midland Park, Civic Square, Te Aro Park and Chews Lane) in November 2018.

Methods

Observations were made on two non-rainy weekdays in a largely pedestrianized part of Grey Street pocket square (see Appendix 1), Wellington. The location was divided into four sections for observation, according to the concentration of people, and the feasibility of scanning the areas accurately. Details of the sections were recorded for later mapping. See Appendices 1 and 3.

Observations were conducted by the same observer who did similar observations in four downtown locations in November 2018. Observations were trialled previously in November 2018 at the four downtown locations by two observers counting separately until the inter-observer variation was zero or near zero.

Each of the four observation sections was scanned at least 24 times by a single observer. A scan involved a five-minute period in which the number of ‘adults/teenagers’, children, smokers and vapers were counted. The data was recorded using the ‘Counterman’ app (published by Binary Arm (Pty) Ltd on App store) on an iPhone.

A child was defined as a person who subjectively looked 12 years old or under 12. A smoker was defined as a person who possessed a cigarette, whether in mouth or hand. A vaper was defined as a person who possessed an electronic cigarette, whether vaping (inhaling) or in their hands. We counted smokers rather than cigarettes. This meant that, if in a 5-minute scan, one person consumed from more than one cigarette, they were only counted as one smoker. If, for instance, two people shared the same cigarette, they were counted as two smokers. Observation scans were done from a stationary point or along a line of movement (see Appendix 1), as was necessary to have a good enough view of all people in the section.

The scans were done between 9:30 am and 4:00 pm, on two weekdays (December 3 and 7, 2018) with no rain.

Data was transferred from the smartphone onto an Excel spreadsheet. Numbers were collated for each location, and the point prevalences calculated, by dividing the number of smokers and vapers by the number of those over the age of 12.

Images of each of the locations were found on Google Maps and captured. The observation sections were mapped on to the images and the observation points marked (see Appendix 1). Weather data for observation days was obtained from the Metrological Service website (see Appendix 2). Some photos of the location were clicked (See Appendix 3).

Results

A total of 1976 people aged over 12 years were observed, with (i) 223 smokers recorded (point prevalence of smokers of 11.28% for a five-minute scan – Table 1) and (ii) 34 vapers (point prevalence of 1.72% - Table 1). A total of 39 children who appeared to be aged 12 and under were observed (Table 2).

The observation results were from 24 five-minute scans of each of the four observation sections – totalling 8 hours observation. Full details of the observations are in the accompanying Excel sheets. All observations were done in the absence of rain but in a variety of temperatures (ranging from 11 to 24 degrees Celsius), wind (ranging from 41 to 50 km/h) and cloud levels (from overcast to clear – see Appendix 2). The temperatures were similar to those for the observations in November 2018, but there was less wind in December 2018.

The point prevalence for smoking was highest in Section C (23.24%) followed by Section A (11.34%), Section D (10.81%) and Section B (8.22%) (See appendix 1 for sections). The point prevalence for vaping was highest in Section D (3.72%) followed by Section B (1.08%), Section C (1.08%) and Section A (0.68%). The point prevalence data for smoking and vaping at Grey Street pocket square are shown in Table 1.

Table 1: Point prevalence of smoking and vaping in Grey Street pocket square in December 2018

Sections	Point prevalence of smoking	Point prevalence of vaping
A	11.34% (66/582)	0.69% (4/582)
B	8.22% (53/645)	1.08% (7/645)
C (café area)	23.24% (43/185)	1.08% (2/185)
D	10.81% (61/564)	3.72% (21/564)
Overall	11.28% (223/1976)	1.72% (34/1976)
Overall excluding Section C	10.05% (180/1791)	1.79% (32/1791)

The proportion of all people who were children in Grey Street observed in December 2018, was 1.93%. The proportion of children was higher in Section B (2.71%) followed by section A (2.51%), Section D (0.88%) and Section C (0.53%).

Table 2: Proportion of all people who were aged less than 12 years in Grey Street, Wellington in December 2018.

Sections	The proportion of people aged less than 12 years during December 2018
A	2.51% (15/597)
B	2.71% (18/663)
C (café area)	0.53% (1/186)
D	0.88% (5/569)
Overall	1.93% (39/2015)

The point prevalence of smoking for Grey Street in December 2018 was higher than the point prevalence of smoking for Te Aro Park (10%), Midland Park (4.12%), Chews Lane (2.59%) and Civic Square (2.37%) in November 2018. These results were statistically significant for Midland Park ($p=0.000$), Civic Square ($p=0.000$), and Chews Lane ($p=0.000$) but not significant for Te Aro Park ($p=0.4$). The proportion of children at Grey Street (1.93%) was comparatively low when compared to the average proportion of children observed across four downtown locations (3.15%) in November 2018. The proportion of the population who were children aged 12 or under was 1.24% for Te Aro Park.

Other findings

In the Grey Street, the majority of people observed were walking across the street, but most smokers or vapers tend to sit and smoke or vape. Children observed were mostly walking across the street and playing near the water fountain in the street.

Discussion

The point prevalence of smoking at Grey Street was higher when compared to the average smoking prevalence in four downtown locations in Wellington in November 2018, but similar to that in Te Aro Park. Possible reasons for differences to the average for the other locations include: (i) There was a difference in the timings of the observations during the observation days; (ii) Slightly better weather (less wind) in December compared to November 2018 enabled or encouraged more smokers to be outside or to smoke in Grey Street pocket square.

There was higher prevalence of smoking and lower prevalence of children under 12 years in both Grey Street pocket square and Te Aro Park. The low proportion of children in Grey Street (Parts C and D) may have been due to the reluctance by parents to bring their children to a place where smoking prevalence is high. The highest prevalence of smoking was observed in café area in the Grey Street pocket square (Section C).

The differences in smoking prevalence in Grey Street pocket square in comparison to Midland Park and Civic Square may have been due to the introduction of the ‘smokefree’

policy for these locations.² Another possibility is that the increased proportion of the overall population who were children may have had an effect on the level of smoking in those locations.

Strengths and weaknesses

We have used simple and cost-effective methods to observe the prevalence of smoking and vaping at Grey Street. To ensure a high level of accuracy, these observations were conducted by the same observer who had conducted these observations in November 2018. These methods were trialled previously with two observers before starting the study observations. We have divided the locations into smaller observation sections to ensure the accuracy of pedestrians counted. In addition to the number of smokers and children, we also observed the number of people vaping.

The difficulty of judging if someone is 12 years old or younger simply by looking at them must be acknowledged. The point prevalences found are conservative as they would be different if a higher age for 'children' had been set than at 12 years or under, and the 'smoking population' denominator against which the number of smokers set was therefore smaller. For instance, if the denominator had been the population 15 years or over, the point prevalences found would be slightly higher.

The structure of some sections made them difficult to observe. For example, it was difficult to observe people seated facing towards the road who were smoking or vaping. This posed a challenge for observation from a stationary position and may have affected the results. Some movement in the observation point was allowed for in order to try and mitigate this.

Further research

In order to get more accurate results, further research could sample other Wellington locations and observe for longer periods (more five-minute observation scans). Further research could be done to study the effect of children on the prevalence of smoking by conducting such observation sessions in the areas with higher proportions of children, such as the Waterfront, Frank Kitts Park, outside Te Papa, at markets and at beaches or at times when there were more children in the city centre (such as weekends/school holidays).

Policy implications

With the higher concentrations of smokers in Grey Street pocket square when compared to other locations that have a smoke-free policy (Midland Park and Civic Square), the implementation of smoke-free policies in Grey Street should be considered. These efforts could include further work with the café and hotel management, and cessation work and incentives with City staff.

Acknowledgements

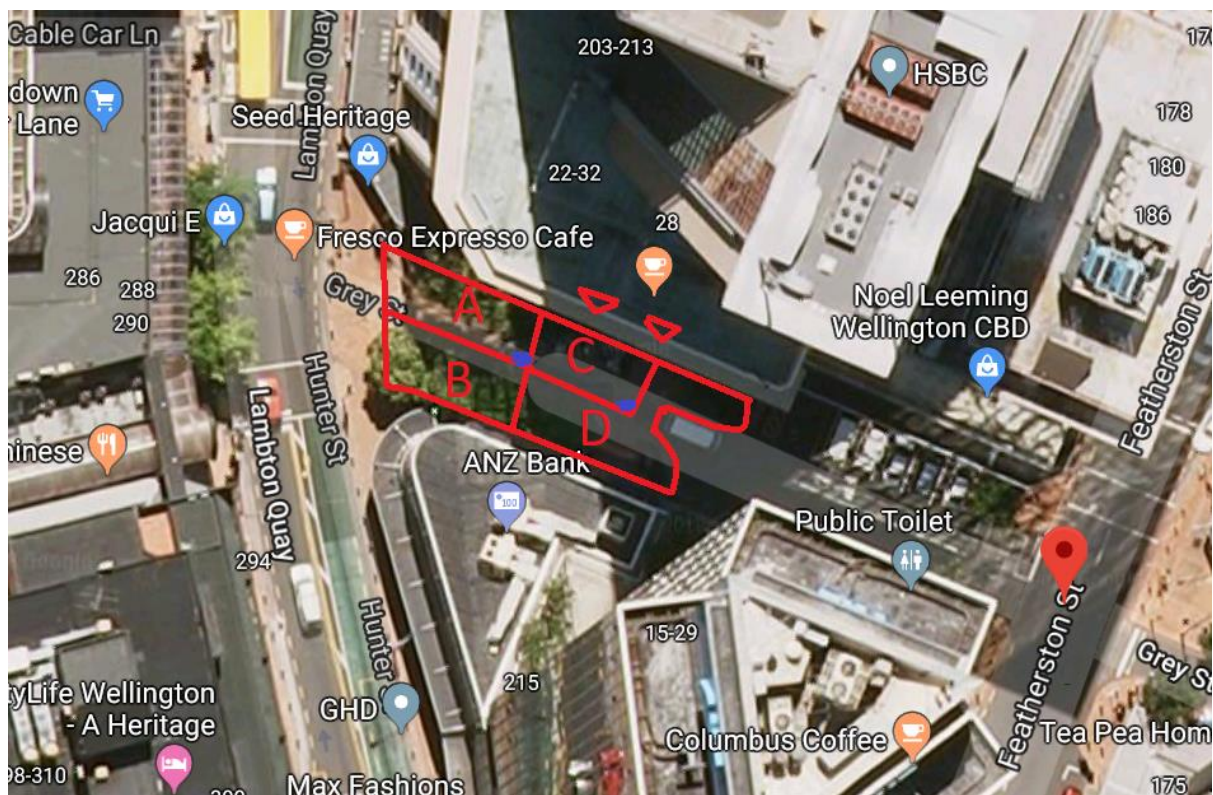
This report is closely based on that by Thomson and Pathmanathan in 2015, and shares some wording with that report. I warmly acknowledge the foundation work done by Nethran Pathmanathan on the 2015 project and report.

Appendix 1: Location map

The pocket square refers to the pedestrian area between the Grey Street road and Lambton Quay. The area includes public seating, trees, a fountain and a café seating area. The area was divided into four sections. Sections A and B were towards Lambton Quay road. Section A was towards the Doubletree Hotel and included three seats. Section B was towards the ANZ bank building and also covers three seats. Section C included the café seating area. It also includes triangular areas which are shown in the location map. Section D was the area towards carpark and included the rest of the area on both sides with benches present. These sections did not include any road area in the street.

None of these sections included pedestrians walking on the Lambton Quay footpaths and footpaths on both sides of the street.

The blue spots indicate observation points.



Appendix 2: Data collection dates and times and weather observations

For December 2018 Report

For Grey Street, observations occurred during 9:40 am- 4:00 pm on Monday 3rd December and 9:35 am- 3 pm on Friday 7th December. A total of six observation sessions (12 five-minute scans) were conducted before lunch and another six sessions (12 five-minute scans) were conducted after lunch. Total- 24 scans.

For November 2018 Report

For Civic Square, observations occurred during 10:20-11: 40 am on Monday 12th November, 2:10pm-3: 10 pm on Tuesday 13th November, 10:10am-11: 20 am on Wednesday 14th November and 1:15pm-2pm on Friday 16th November. Total- 8 scans.

For Midland Park, observations occurred during 10 am -12noon on Tuesday 13th November, 9:20am-11: 30 am on Thursday 15th November, 2:45pm-3: 55 pm on Friday 16th November and 10am-11: 05 am on Wednesday 28th November. Total- 8scans. Observation session on Wednesday 14th November was aborted due to lack of battery on smartphone. We did not include the data from this aborted session. So, we repeated the session on Wednesday 28th November.

For Te Aro Park, observations occurred during 12:10pm-12: 45 pm on Monday 12th November, 1:30pm-2pm on Tuesday 13th November, 1:35pm-2: 15 pm on Wednesday 14th November and 12:45pm-1: 10 pm on Friday 16th November. Total- 8 scans.

For Chews Lane, observations occurred during 11am-12noon on Tuesday 13th November, 1:40pm-2: 40 pm on Wednesday 14th November, 2:05pm-2: 40 pm on Friday 16th November and 11:10am-11: 45 am on Wednesday 28th November. Total- 8 scans. Observation session on Monday 12th November was aborted due to lack of battery on a smartphone. We did not include the data from this aborted session. So, we repeated the session on Wednesday 28th November.

All observations were done in the absence of rain but in a variety of temperatures (ranging from 11 to 24 degrees Celsius), wind (maximum ranging from 41 to 50 kmph) and cloud levels (from overcast to clear) (<https://www.metservice.com/towns-cities/wellington/wellington-city#!/your-weather>).

Weather observations on 3rd and 7th December 2018 for Grey Street, Wellington

From the Met Service Kelburn observations

Date	Temperature (degree Celsius)	Wind (kmph)
3 rd December 2018	16-24	41
7 th December 2018	11-19	50

Appendix 3: Some photos of Grey Street



Photo from Grey Street pocket square showing a part of section D.



Photo showing café seating area



Photo showing public seating area in section A.



Photo showing public seating area in Section B

References

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