



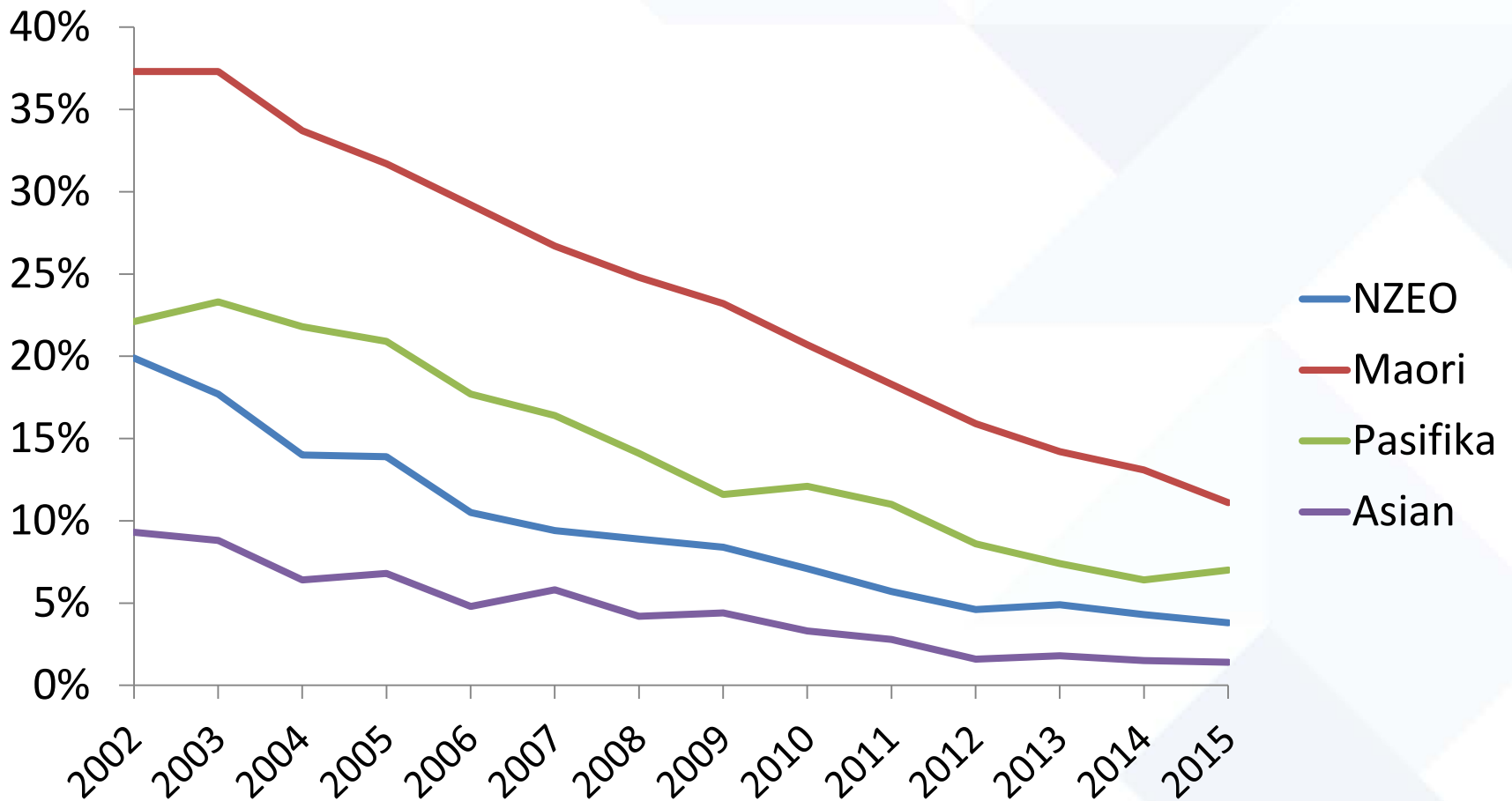
# Why is adolescent smoking declining?

Jude Ball, PhD Candidate

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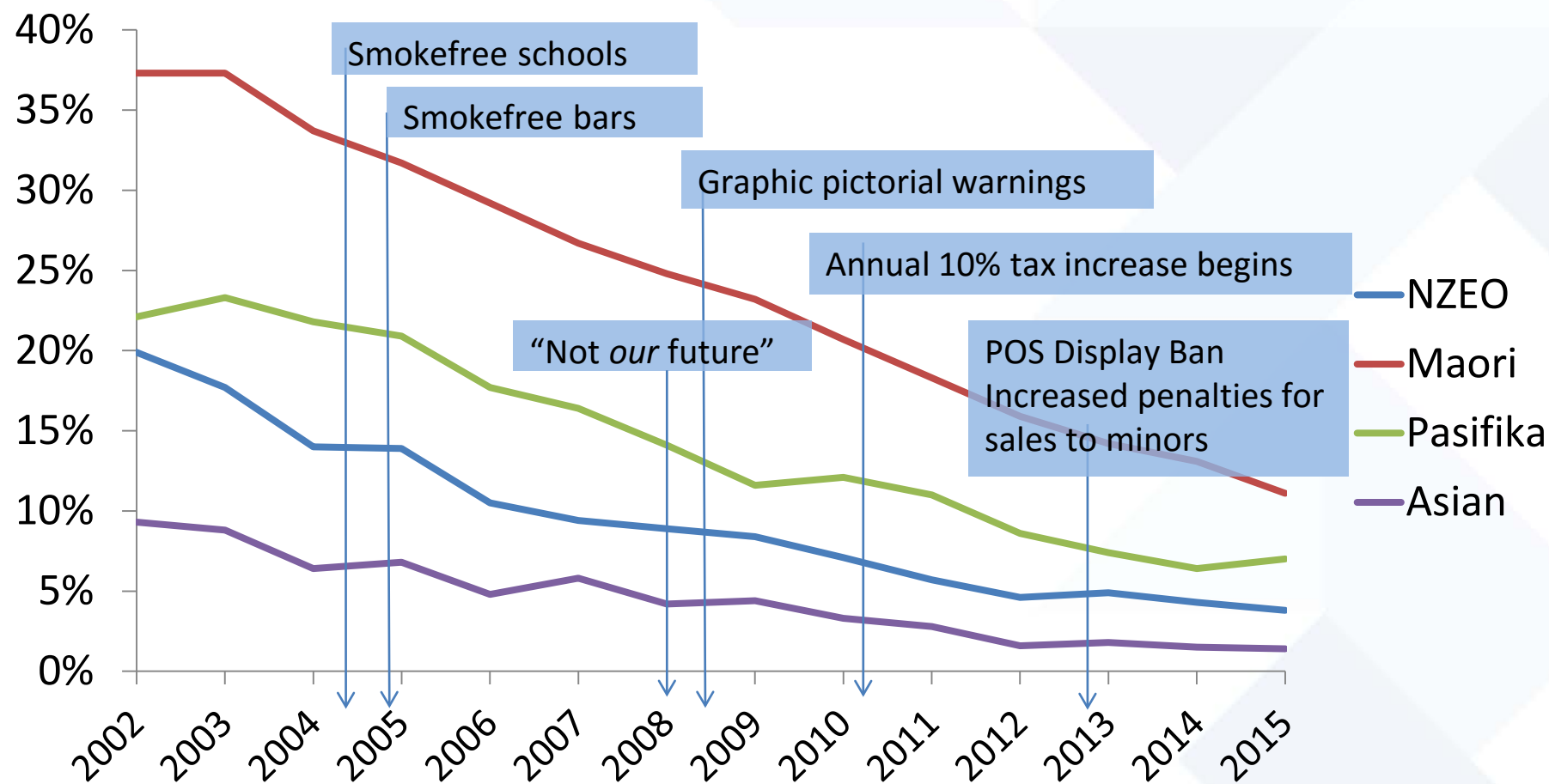


# Year 10 Regular smoking NZ 2002-15 by prioritised ethnicity



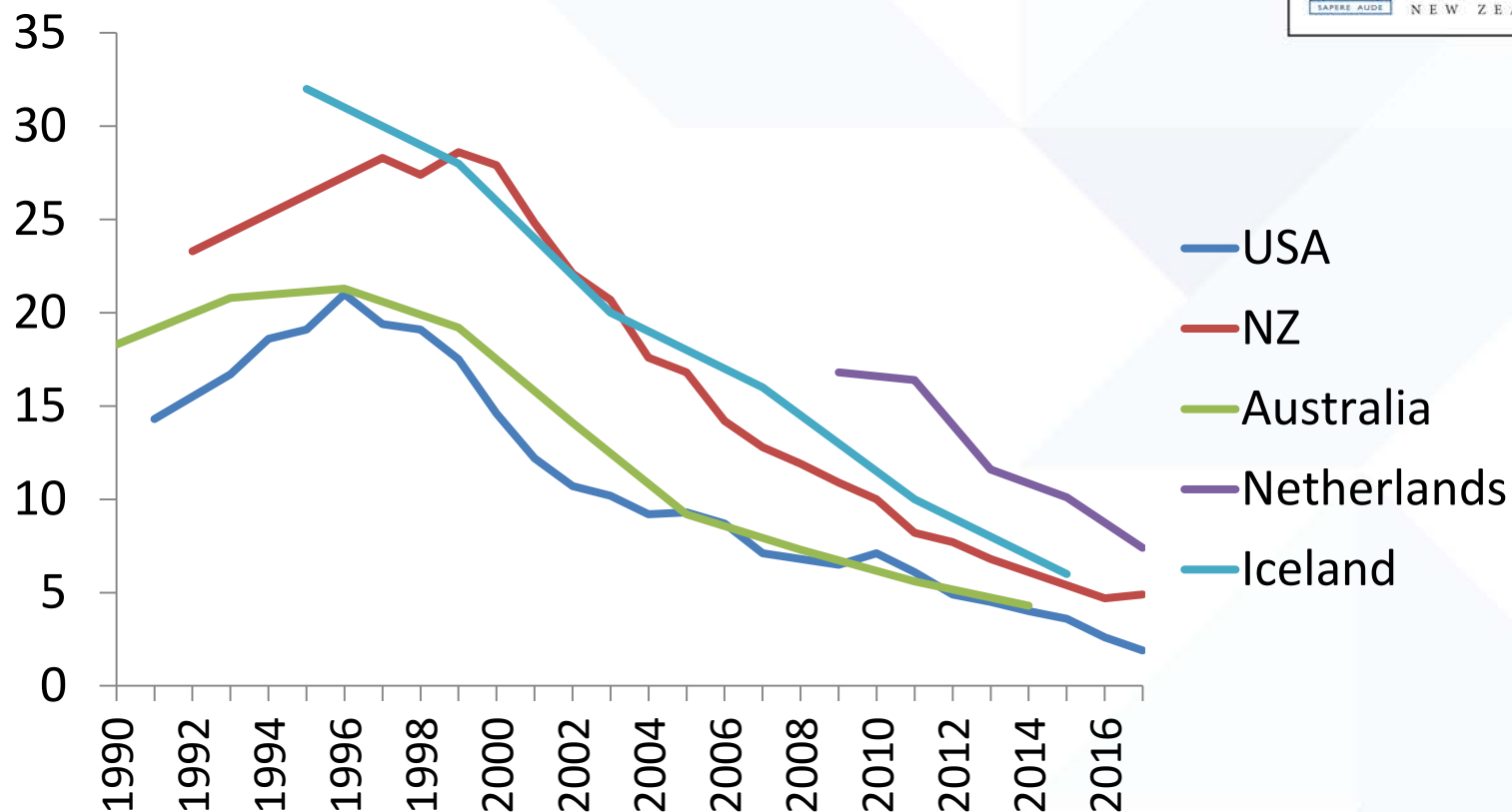
Data source: ASH Year 10 Snapshot Survey.

# Year 10 Regular smoking 2002-15 by prioritised ethnicity



Data source: ASH Year 10 Snapshot Survey.

# Prevalence of past month tobacco smoking, 1990-2017



**USA:** Monitoring the Future, Grade 8, 13-14 years, 30 day prevalence

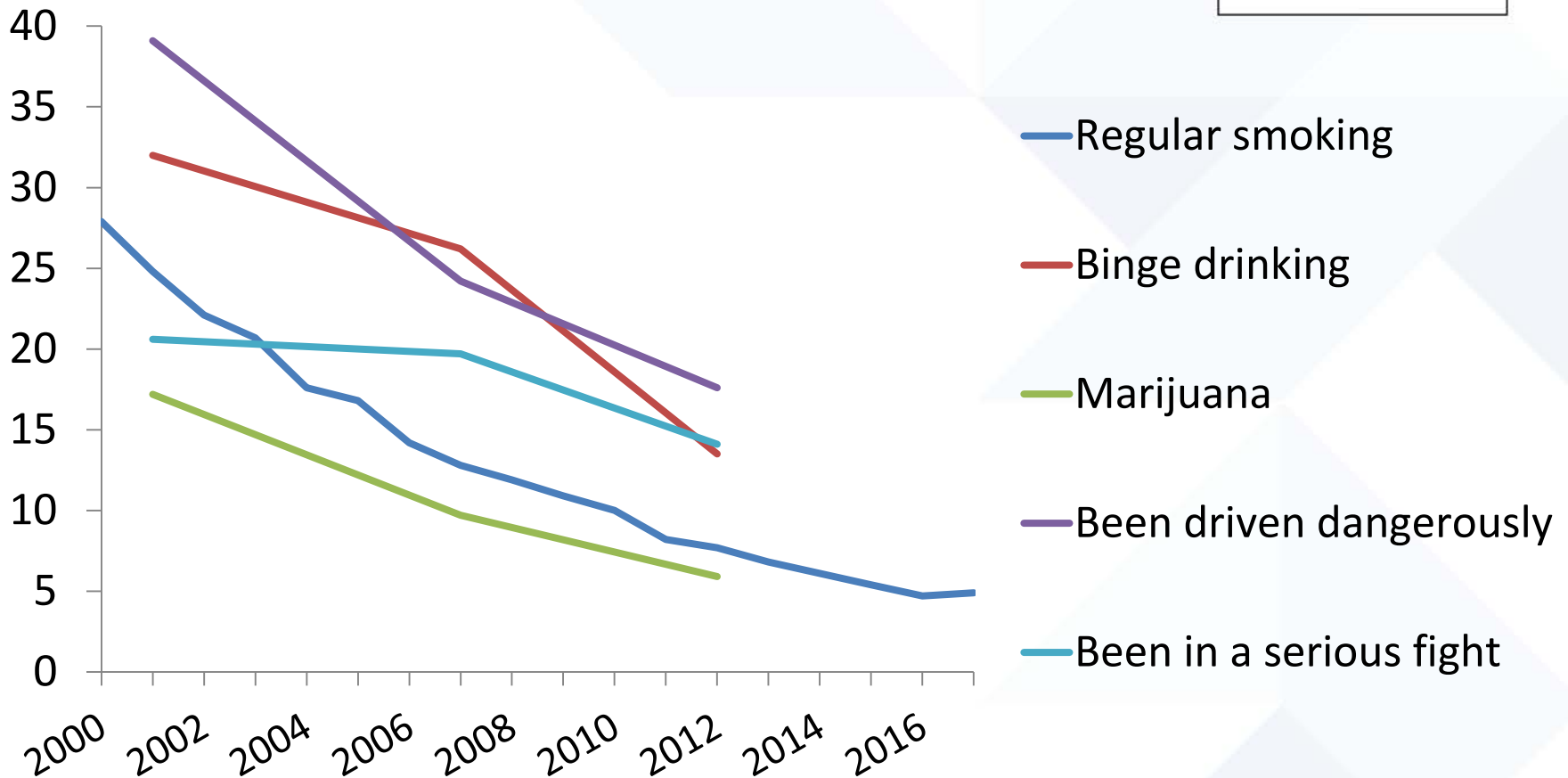
**NZ:** ASH Year 10 survey, 14-15 years, at least monthly

**Australia:** ASSAD, 12-15 year olds, past month

**Netherlands:** HBSC, 12-16 year olds, at least monthly

**Iceland:** ESPAD, 15-16 year olds, 30 day prevalence

# Adolescent risk behaviour trends, NZ, 2000-2017



**Regular smoking:** ASH Year 10, 14-15 year olds, at least monthly

**Binge drinking:** Youth 2000, 13-15 year olds, at least once in past month

**Marijuana:** Youth 2000, 13-15 year olds, at least once in past month

**Been driven dangerously:** Youth 2000, 13-18 years, past month

**Been in a serious fight:** Youth 2000, 13-18 year olds, past 12 months

# Why is adolescent smoking declining?



## Study 1. ASH Yr 10 data

- Have changes in known risk factors for teen smoking contributed?

## Study 2. Youth 2000 data

- Have shared risk/protective factors (e.g. school attachment) contributed?
- Have adolescent attitudes and behaviours re substance use contributed?

# Study 1. Changes in known risk factors for teen smoking



- **Co-authors:** Dalice Sim, Richard Edwards
- **Data:** ASH Yr10 Snapshot Survey, annual
- **Study period:** 2002 - 2015
- **N=** approx. 400,000 14-15 year olds
- **Outcome:** regular (at least monthly) smoking
- **Known risk factors:**
  - Parental smoking
  - Older sibling smoking
  - Best friend smoking
  - Past week exposure to smoking in the home

# Approach



- For each known risk factor:
  - Has prevalence of exposure changed?
  - Has association with teen smoking changed?
  - To what extent does it explain the trend in teen smoking?





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Original investigation

# Addressing Ethnic Disparities in Adolescent Smoking: Is Reducing Exposure to Smoking in the Home a Key?

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## Abstract

**Introduction:** Smoking among New Zealand (NZ) adolescents has declined since 2000, but ethnic disparities remain pronounced. To inform prevention efforts, we investigated exposure to and relative importance of known predictors of adolescent smoking and how these have changed over time, for Māori (NZ's indigenous population) and adolescents overall.

**Methods:** We used repeat cross-sectional data, 2003–2015, from a national survey of 14- to 15-year olds ( $N = 20\,443$ – $31\,696$  per year). For the overall sample and for Māori and non-Māori, we calculated adjusted odds ratios (aORs) to assess the association between regular smoking and risk factors each year: one or more parents smoke, best friend smokes, older sibling(s) smoke, and past week exposure to smoking in the home. We calculated population attributable risk (PAR) for risk

# BMJ Open Why has adolescent smoking declined dramatically? Trend analysis using repeat cross-sectional data from New Zealand 2002–2015

Jude Ball,<sup>1</sup> Dalice Sim,<sup>2</sup> Richard Edwards<sup>1</sup>

**To cite:** Ball J, Sim D, Edwards R. Why has adolescent smoking declined dramatically? Trend analysis using repeat cross-sectional data from New Zealand 2002–2015. *BMJ Open* 2018;**8**:e020320. doi:10.1136/bmjopen-2017-020320

► Prepublication history and additional material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2017-020320>).

## ABSTRACT

**Objectives** Adolescent smoking has declined in New Zealand and in many other countries since the late 1990s, yet the reasons for the decline are not well understood. We investigated the extent to which established risk factors for adolescent smoking (parental, sibling and peer smoking, and exposure to smoking in the home) explained the downward trend.

**Design** Trend analysis of repeat cross-sectional data from an annual nationally representative survey.

**Setting** New Zealand.

**Participants** Secondary school students aged 14–15 (n=398 221).

**Outcome measure** Regular (at least monthly) smoking.

**Methods** For each risk factor (parental smoking, best

## Strengths and limitations of this study

- The survey has a large sample size (n=20 443–31 833 per year), allowing precise population estimates based on individual-level data.
- Due to data limitations, the study only includes a small number of risk factors, however the risk factors included have consistently been found to be among the strongest and most important predictors of adolescent smoking.
- Our study design (using repeat cross sectional data) does not enable causal inferences to be drawn; rather our study draws on existing knowledge about the predictors of adolescent smoking initiation.

# Trend analysis



	Model 1: OR for Year Partially adjusted (95% CI)	Model 1 + Exposure to smoking in home (95% CI)	Model 1 + Parental smoking (95% CI)	Model 1 + Sibling smoking (95% CI)	Model 1 + Best Friend smokes (95% CI)	Model 1 + all risk factors combined (95% CI)
Linear trend (2003- 2015)	0.88 (0.88, 0.88)	0.88 (0.88, 0.88)	0.88 (0.88,0.89)	0.88 (0.88, 0.89)	0.91* (0.91,0.92)	0.91* (0.90, 0.91)

All models are adjusted for age, sex, ethnicity and school decile.

# Study 1: Conclusion



- Parental smoking, older sibling smoking and exposure to smoking in the home have NOT contributed to adolescent smoking decline.



## Study 2.

a. Shared risk/protective factors

b. Adolescent attitudes and behaviours

re: substance use



- **Data:** Youth 2000 national youth health and wellbeing survey
- **Data owners:** Adolescent Health Research Group, University of Auckland
- **Survey years:** 2001, 2007, 2012
- **N=8,500 – 10,000** per year
- **Participants:** secondary students aged 15 or under

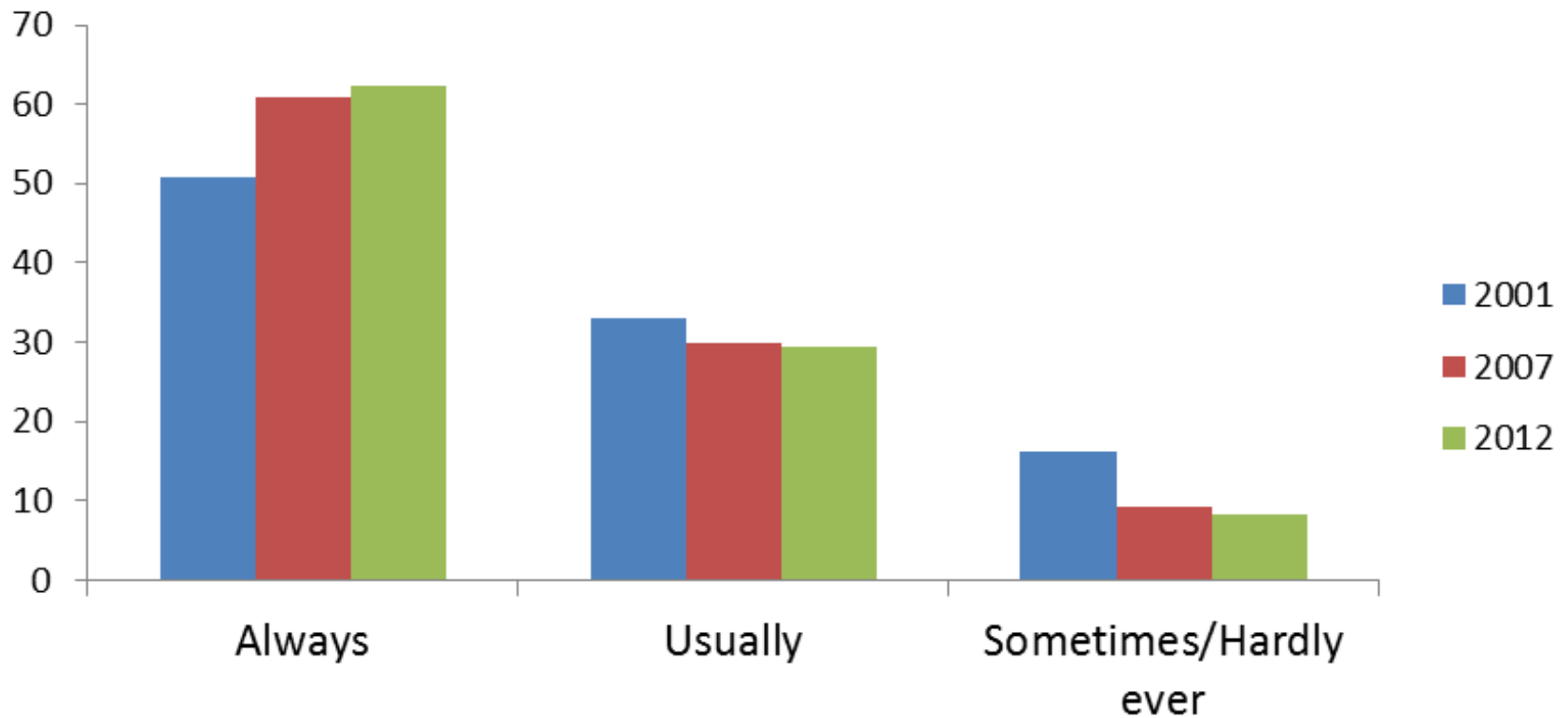
# Exposure variables & approach



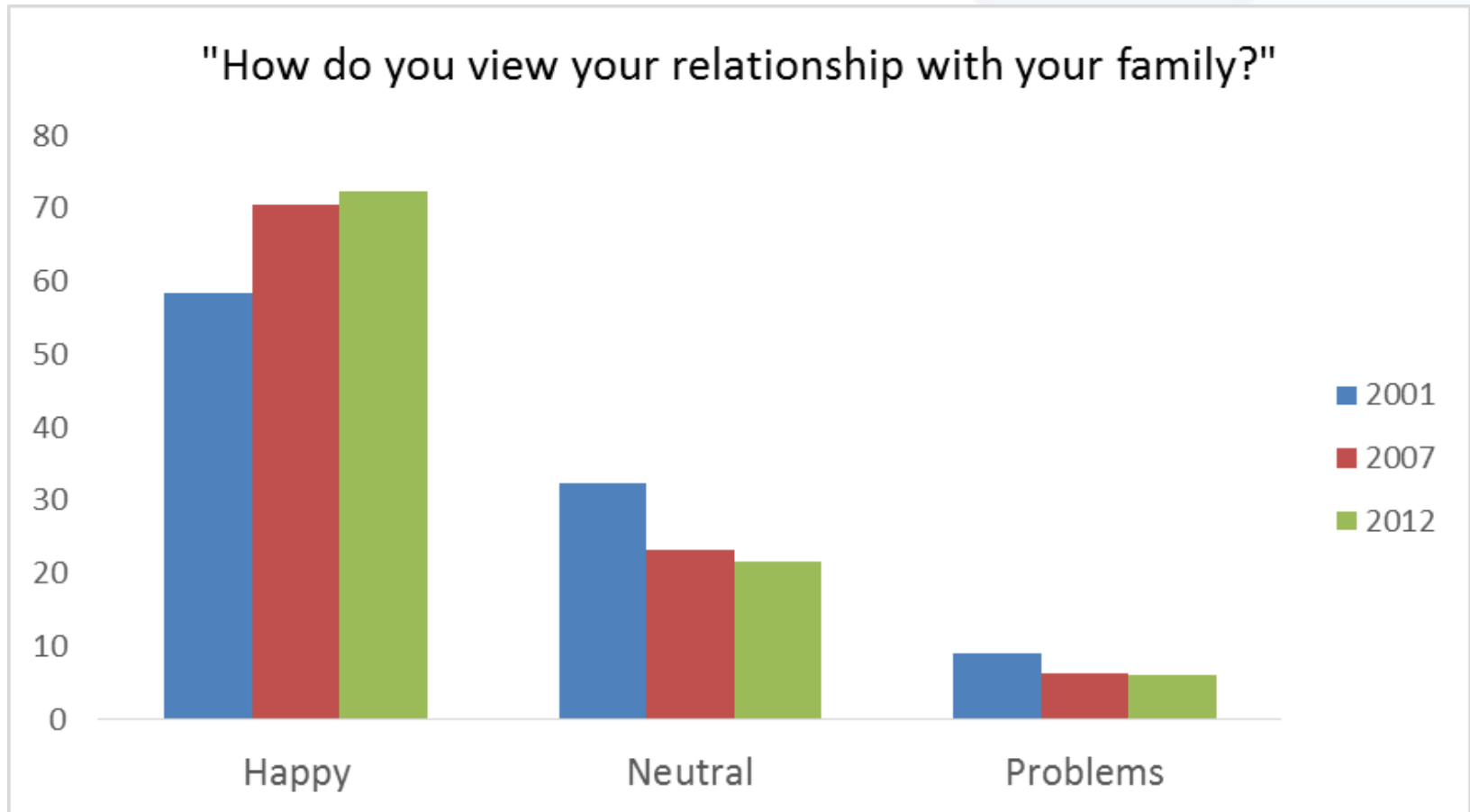
- Family factors: e.g. parental monitoring
- School factors: e.g. intention to complete
- Part time job
- Time spent hanging out with friends (2007 & 12 only)
- Teen attitudes to smoking, alcohol, marijuana
- Teen behaviour: Past month binge drinking, marijuana use, sexual activity
- Parental substance use

# Parental monitoring

"Does your family want to know who you are with and where you are?"

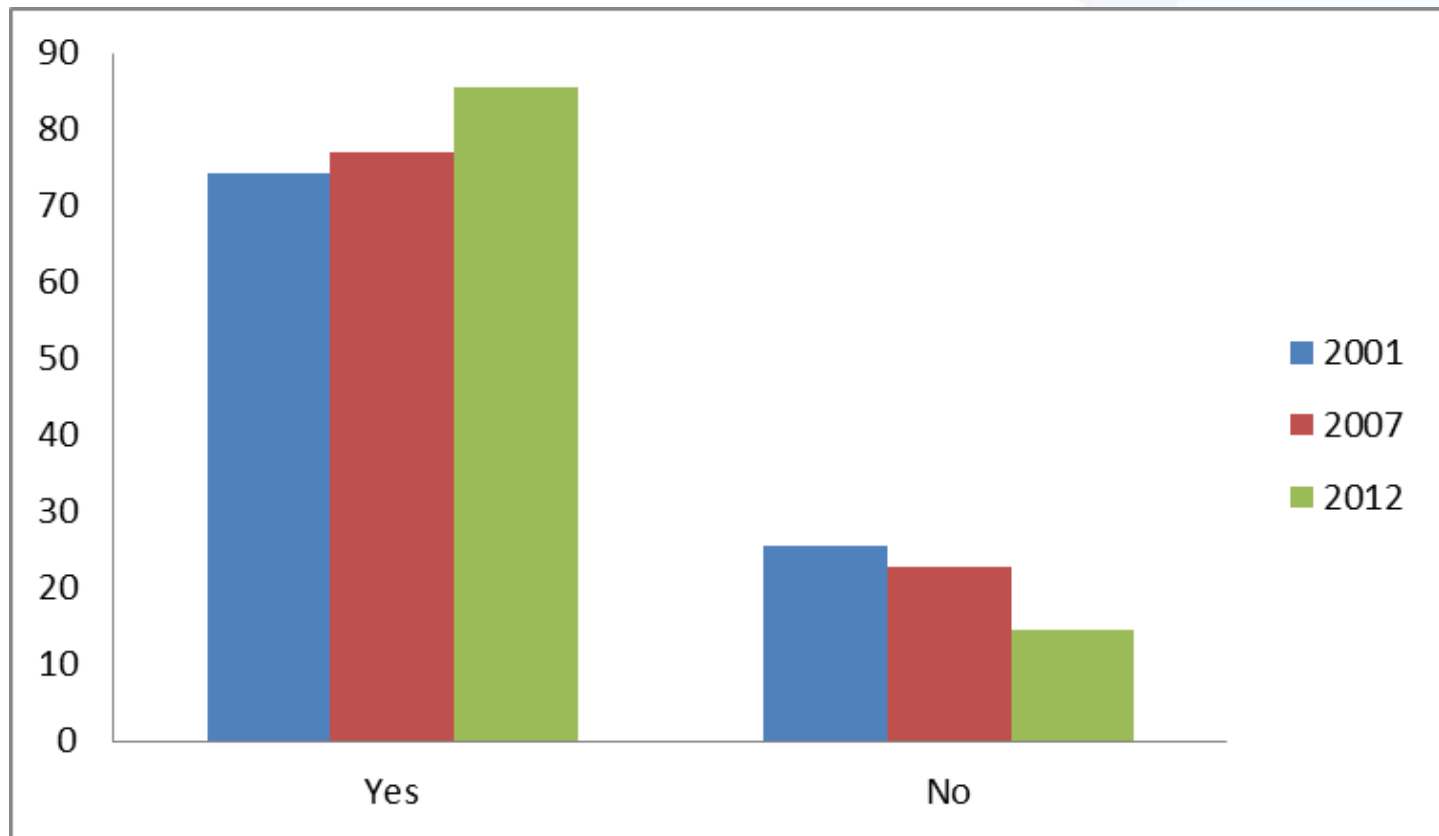


# Family relationship

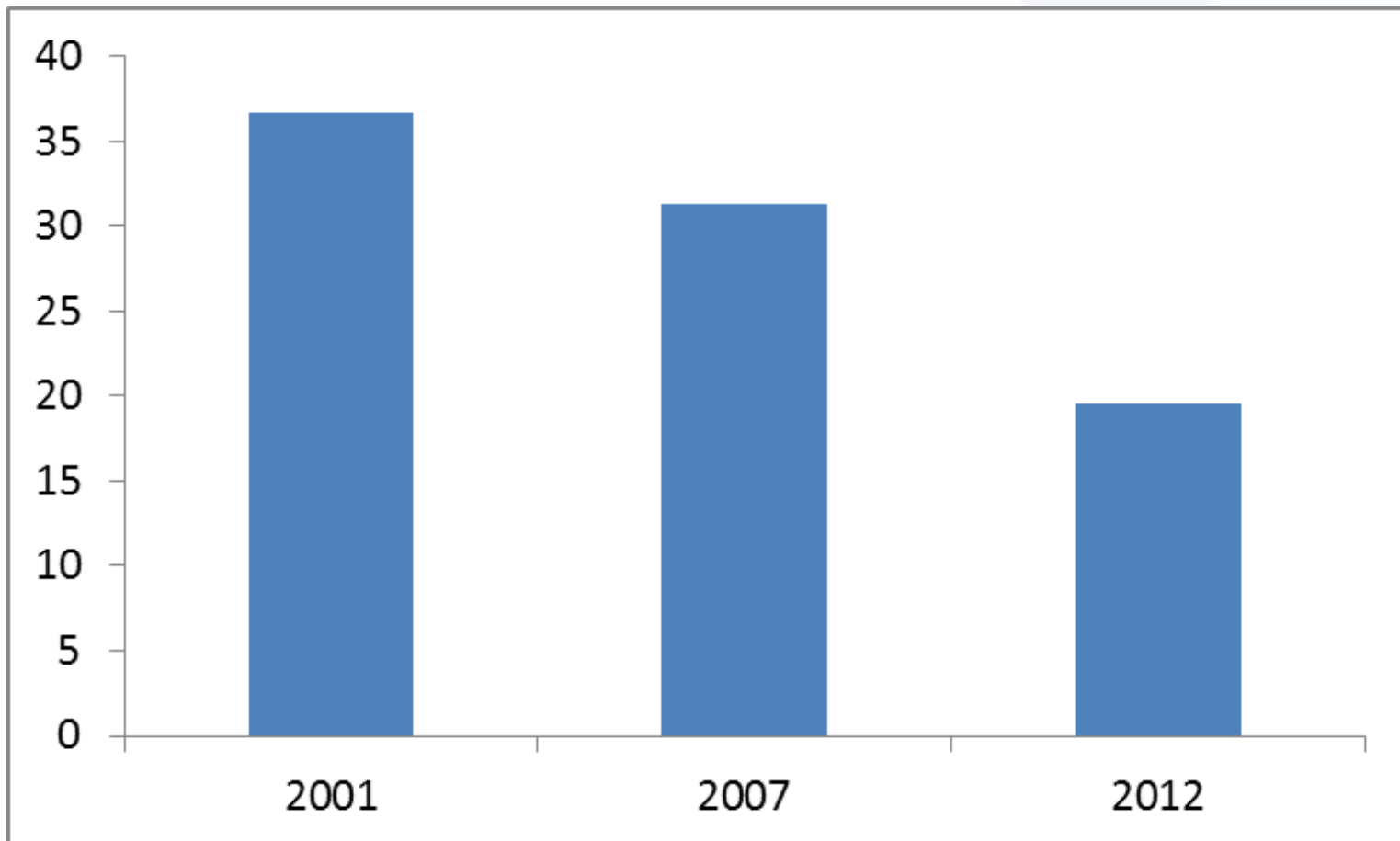




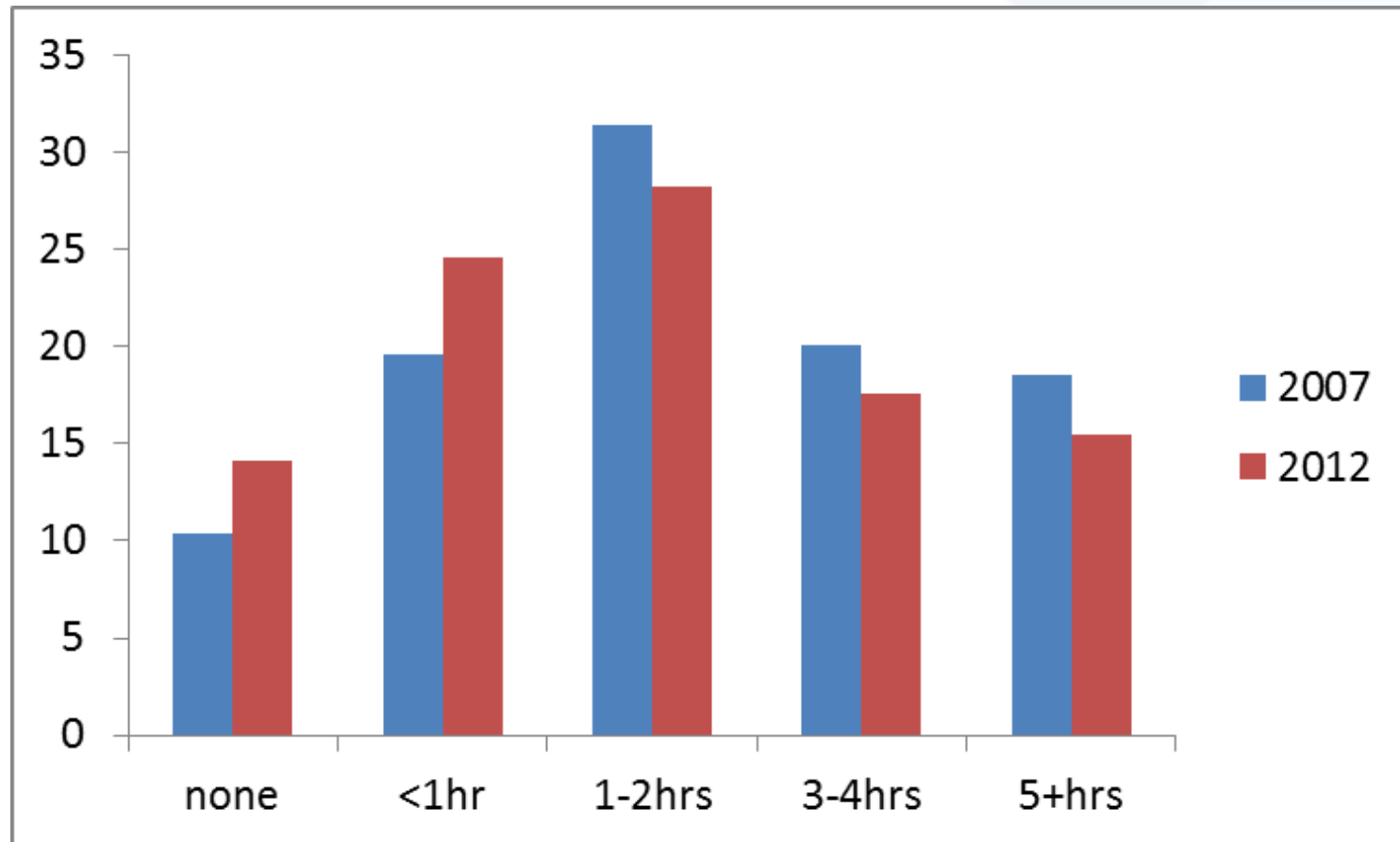
# Intention to complete school



# Part-time job before/after school



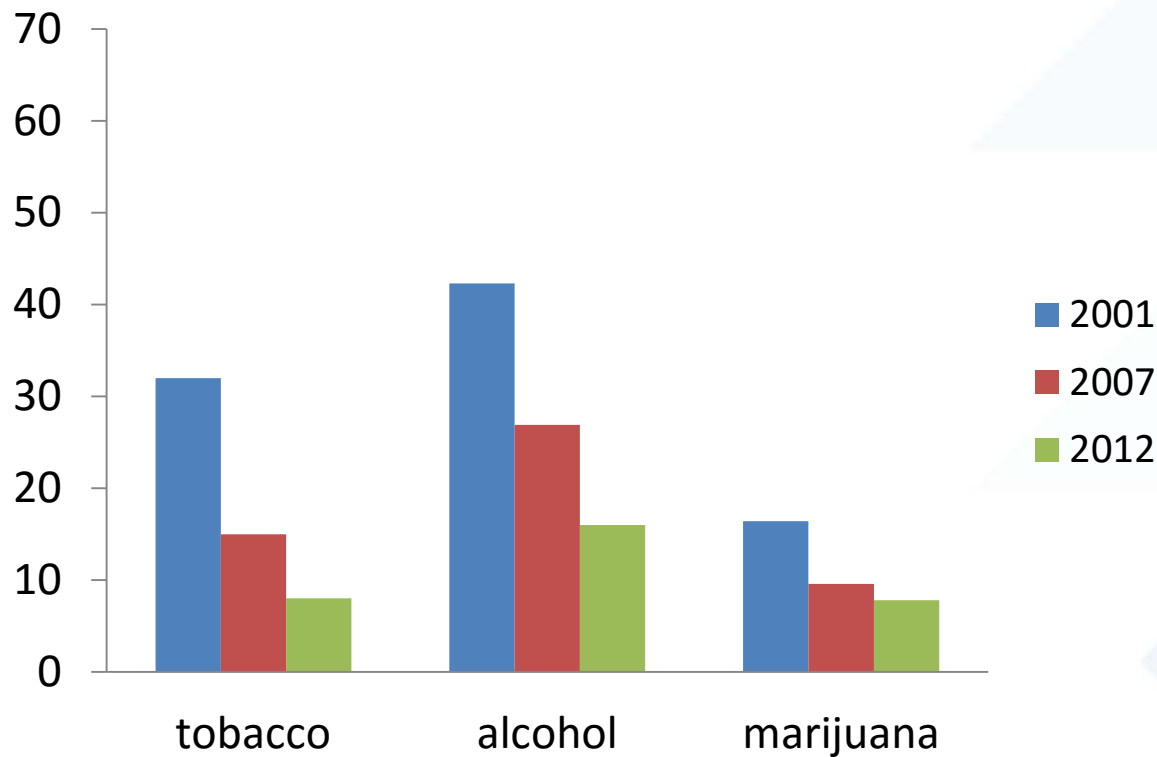
# Time hanging out with friends each day



# Attitudes to substance use



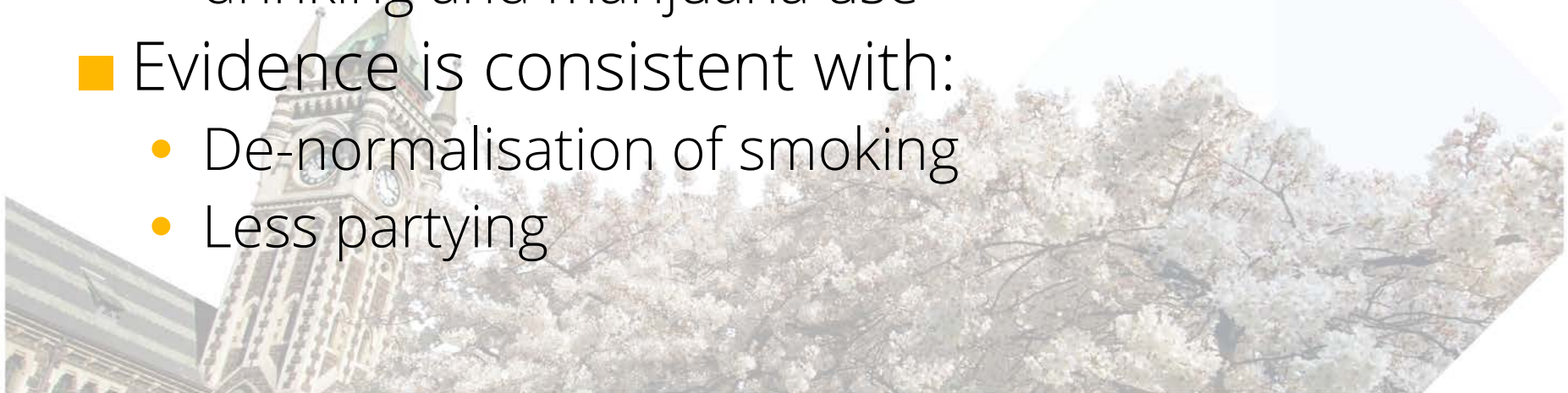
“Which of these do you think it is okay for people your age to use regularly?”

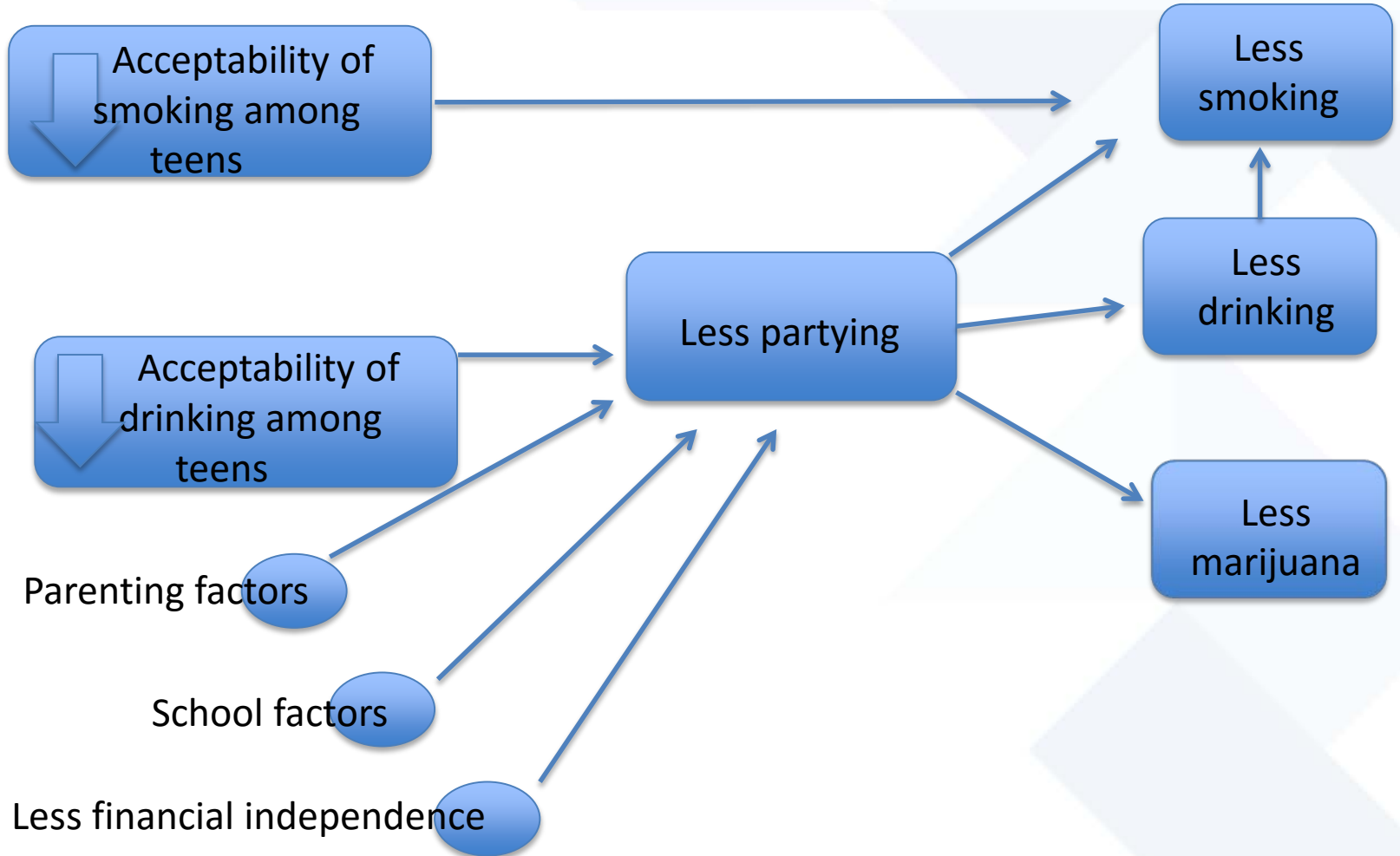


# Study 2: conclusion



- Most of the decline remains unexplained
- Trend analysis shows biggest contributors (after adjustment):
  - **Attitude change:** Big decline in % who think “It’s OK for people my age to smoke regularly”
  - **Behaviour change:** Decline in past month binge drinking and marijuana use
- Evidence is consistent with:
  - De-normalisation of smoking
  - Less partying





# Implications for prevention



- Continued focus on de-normalising tobacco is important
- Marijuana and alcohol trends/policies/interventions matter - a lot!
- We need to view marijuana and alcohol use as tobacco control issues