Topical health issues in New Zealand

Findings from the New Zealand Attitudes and Values Study

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Topical health issues in New Zealand

- Euthanasia
- Vaccine confidence
- Antibiotic entitlement

Data from the **New Zealand Attitudes and Values Study**

- Planned 20-year longitudinal study
- Time 1 (2009) recruited from NZ electoral roll
- Nationally representative sample of over 15,000 NZ adults

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Euthanasia

- Administering of death-causing or hastening act on person suffering from a incurable or painful disease as a means of mercy (Black's Law dictionary, 2014)
- Controversy over legalisation of euthanasia
- Supporters: Human dignity; individuals should have the autonomy to make decisions regarding their own death
- Opponents: No different to murder, high potential for abuse, sanctity of human life, palliative care enough to control suffering

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End of Life Choice Bill

- "Death of Dignity Bill" in 1995 and 2003, "End of Life Choice Bill" in 2012

- "**Assisted dying** means the administration by a medical practitioner of a lethal dose of medication to a person to relieve his or her suffering by hastening death"
- First reading in December 2017
  - Conscience vote - 76 MPs voted in favour and 44 voted against
- Currently being reviewed by Justice select committee

A person wishing to end their own life must meet all of the following criteria:

- be 18 or older
- suffer from a terminal or grievous and irremediable illness
- or be in an advanced state of irreversible decline
- be in unbearable pain that can't be helped by medication
- be of sound mind to give consent

If those criteria are met, the applicant must be assessed by two doctors.

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New Zealand Polling data

- Polls indicate that the majority of New Zealanders support people's right to make end-of-life choices
  - Horizon Research (2012): 63% supported the right of patients to make end-of-life decisions (N=2,969)
  - Rae et al. (2015): 82% of respondents supported the legalisation of euthanasia (N=677)
  - Only patients suffering from severe pain, loss of dignity, and little hope of recovery should be given choice of hastening choice

Newshub (2018). Retrieved from https://www.newshub.co.nz/home/politics/2018/02/newshub-poll-most-new-zealanders-support-euthanasia.html

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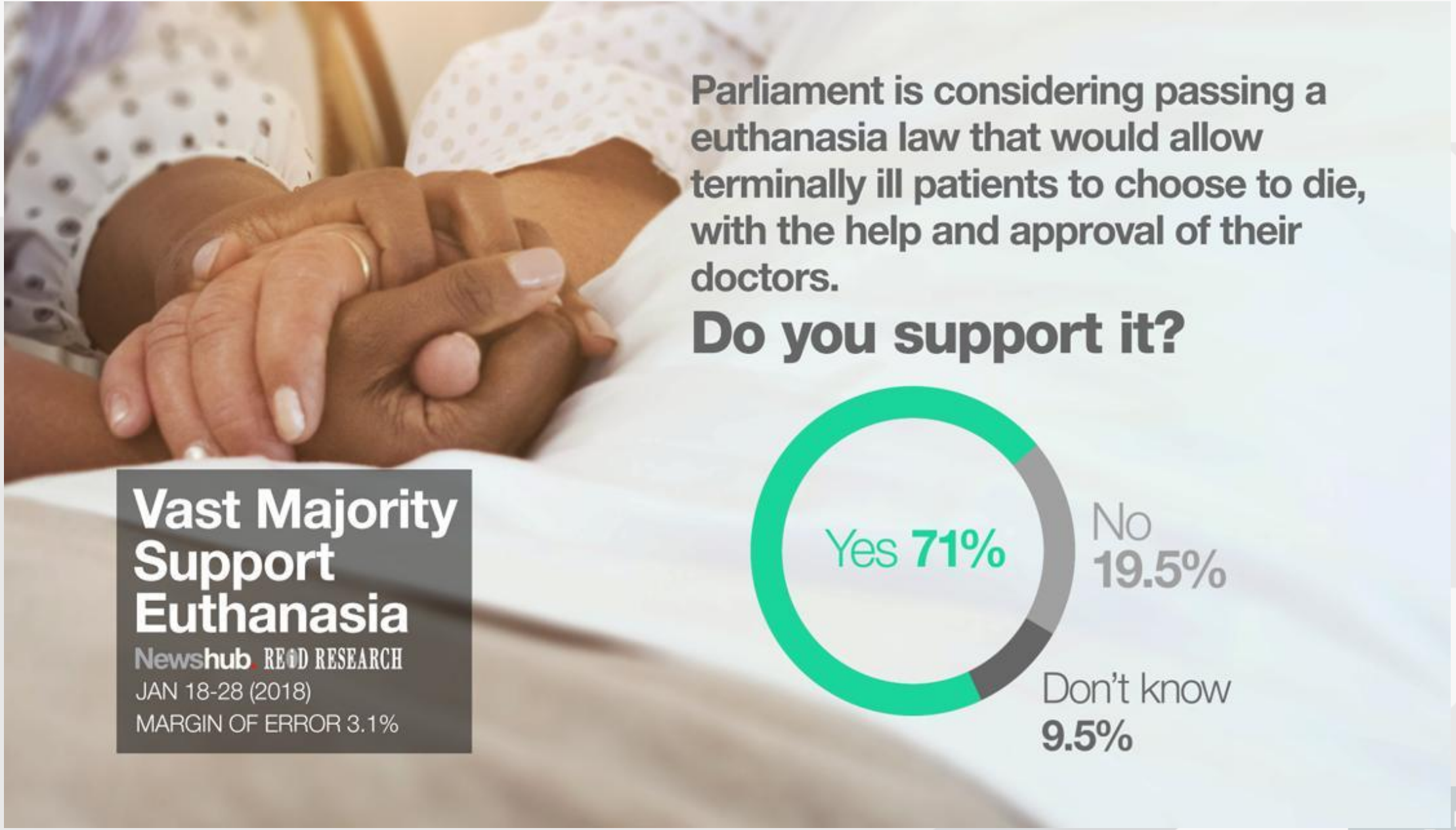

Newshub (2018). Retrieved from https://www.newshub.co.nz/home/politics/2018/02/newshub-poll-most-new-zealanders-support-euthanasia.html

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Our study

- Assess distribution of support for euthanasia using nationally representative NZ sample, and identify how broad range of demographic and psychological factors are associated with this support

Method

- Time 6 (2014/15): 15,822 participants
- British Social attitudes survey: "Suppose a person has a painful incurable disease. Do you think that doctors should be allowed by law to end the patient's life if the patient requests it"
  - Rated on scale of 1 (definitely no) to 7 (definitely yes).
- Demographics
- Big-Six Personality traits (Mini IPIP6; Sibley et al., 2011)

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Results

- "Suppose a person has a painful incurable disease. Do you think that doctors should be allowed by law to end the patient's life if the patient requests it" rated on a Likert scale from 1 (definitely no) to 7 (definitely yes).
- Pro-euthanasia (ratings 6–7): 66%
- Neutral/unsure (ratings 3–5): 21.7%
- Anti-euthanasia (ratings 1–2): 12.3%

Lee, C. H., Duck, I. M., & Sibley, C. G. (2017). Demographic and psychological correlates of New Zealanders' support for euthanasia. *NZ Med J*, *130*(1448), 9-17.

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Table 3: Regression coefficients, Standard Errors (SE) and t-values for demographic and psychological predictors of support for the legalisation of euthanasia in New Zealand.

	b	SE	Lower 95% CI	Upper 95% CI	Beta	t
Constant	7.177	.240	6.706	7.649		
Gender (0 women, 1 men)	-.026	.031	-.086	.035	-.007	-.829
Age	-.003	.001	-.006	-.001	-.025	-2.737**
Age squared	.00014	.000	.000	.000	-.020	-2.292*
Māori (0 no, 1 yes)	-.038	.045	-.127	.051	-.007	-.831
Pacific (0 no, 1 yes)	-.575	.099	-.769	-.380	-.055	-5.799**
Asian (0 no, 1 yes)	-.313	.077	-.463	-.163	-.034	-4.092**
Income (log)	.030	.015	.001	.058	.018	2.030*
NZ deprivation (0–10)	-.020	.006	-.031	-.010	-.030	-3.686**
Education (0 low to 10 high)	-.026	.006	-.039	-.014	-.040	-4.084**
Socio-economic status	-.006	.001	-.008	-.003	-.047	-4.931**
Employed (0 no, 1 yes)	.078	.040	.000	.157	.018	1.958*
Partnered (0 no, 1 yes)	.034	.036	-.037	.104	.008	.931
Parent (0 no, 1 yes)	-.106	.036	-.177	-.036	-.025	-2.961**
Religion (0 no, 1 yes)	-1.158	.032	-1.221	-1.095	-.306	-36.087**
Urban area (0 rural, 1 urban)	-.102	.031	-.163	-.042	-.026	-3.324**
Political orientation	- .235	.013	-.260	-.210	-.166	-18.319**
Extraversion	.035	.013	.010	.061	.022	2.702**
Agreeableness	-.043	.017	-.075	-.010	-.022	-2.566**
Conscientiousness	.096	.014	.068	.123	.052	6.768**
Neuroticism	.055	.013	.029	.081	.033	4.164**
Openness	.001	.014	-.027	.029	.000	.043
Honesty-humility	-.067	.013	-.092	-.043	-.044	-5.354**

Note: * $p < .05$, ** $p < .01$. Model fit statistics: $R^2 = .171$, AIC = 59414.27, BIC = 59597.51

Demographic factors

- Multiple Regression
  - Non-religious, liberal, employed, non-parents and those living in rural areas were more supportive.
  - Those of Pacific or Asian ethnicity, with lower income and high deprivation, high education and high socio-economic status were less supportive.
  - Age: negative curvilinear effect
- Link to previous studies
  - Being religious, having low income, high deprivation associated with less support
  - Unexpectedly, high education associated with less support
  - Horizon Research (2012): Pacific and Asian peoples less supportive

Personality factors

- Multiple regression
  - Those high on extraversion, conscientiousness and neuroticism showed more support, while those high on agreeableness and honesty-humility exhibited less support.
- Honesty-humility
  - characterised by morals linked to concern for the wellbeing of others, and has been associated with decreased support in previous international studies (Lee & Ashton, 2004)
- Other five personality traits: novel findings and unique to context of NZ

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Future directions

- Context, types of euthanasia, different illnesses
- Importance of Question wording
  - Parkinson et al. (2005): 'suffering', 'incurable disease', 'patient's request' versus 'kill', doctor deliberately bringing about patients' death
- Improved palliative care and pain management
  - Reasons for euthanasia now evolve around psycho-emotional and existential factors (Dees et al., 2011)

Proposed Research

- Included same item in Time 8 (2016) and 9 (2017) wave of NZAVS
- Longitudinal data: Latent growth model assessing changes in attitudes towards euthanasia over time
- Include health factors in model: e.g. chronic illness, disability, mental illness

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Vaccine Hesitancy

- Extensive scientific evidence on the safety of standard vaccinations (e.g. Plotkin et al., 2009; Velzquez et al., 2017) yet many still express vaccine safety concerns
  - Link between MMR vaccine and autism (Wakefield, 1998)
  - Distrust in government or pharmaceutical companies, fear of side effects

- Anti-vaxxers named by World Health Organization as threat to global health
- Recent **measles outbreak** over the globe

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WORLD

Anti-vaxxers face backlash as measles cases surge in US and Europe

26 Feb, 2019 2:30pm

8 minutes to read

Scientists are concerned measles could return even though it was 'eliminated' in the U.S. 20 years ago. Photo / File

Washington Post

NEW ZEALAND | Health

Measles cases: About 900 people could have been exposed Auckland

28 Mar, 2019 9:23am

2 minutes to read

There have been 61 confirmed measles cases nationwide. Photo / File

NZ Herald

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Vaccine confidence in NZ

- Time 5 (2013/14) NZAVS data (*N* = 16,642)
- Item: "It is safe to vaccinate children following the standard New Zealand immunisation schedule" (1=strongly disagree, 7= strongly agree)

1. Demographic and Personality correlates of vaccine confidence among the general NZ public
2. Level of vaccine confidence among different classes of health professionals (e.g. GP/doctors, pharmacists, dentists, nurses, physiotherapists, midwives, practitioners of alternative medicine)

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New Zealand Immunisation Schedule

The National Immunisation Schedule is the series of vaccines that are offered free to babies, children, adolescents and adults.

The schedule of vaccines listed below applies from 1 April 2018. For information about the changes that took effect in 2018, please see 2018 Immunisation Schedule Change.

The National Immunisation Schedule

Age	Diseases covered and vaccines
Pregnant women	**Influenza** 1 Injection annually, at any stage of pregnancy (Influvac Tetra® [PDF, 32 KB])
	Tetanus/Diphtheria/Pertussis (whooping cough) 1 injection, between 28 and 38 weeks of pregnancy (Boostrix® [PDF, 93 KB])
6 weeks	**Rotavirus** (start first dose before 15 weeks) 1 oral vaccine (Rotarix® [PDF, 223 KB])
	Diphtheria/Tetanus/Pertussis/Polio/Hepatitis B/Haemophilus influenzae type b 1 injection (Infanrix®-hexa [PDF, 138 KB])
	Pneumococcal 1 injection (Synflorix® [PDF, 42 KB])
3 months	**Rotavirus** (second dose must be given before 25 weeks) 1 oral vaccine (Rotarix® [PDF, 223 KB])
	Diphtheria/Tetanus/Pertussis/Polio/Hepatitis B/Haemophilus influenzae type b 1 injection (Infanrix®-hexa [PDF, 138 KB])
	Pneumococcal 1 injection (Synflorix® [PDF, 42 KB])
5 months	**Diphtheria/Tetanus/Pertussis/Polio/Hepatitis B/Haemophilus influenzae type b** 1 injection (Infanrix®-hexa [PDF, 138 KB])
	Pneumococcal 1 injection (Synflorix® [PDF, 42 KB])
15 months	**Haemophilus influenzae type b** 1 injection (Hiberix® [PDF, 132 KB])
	Measles/Mumps/Rubella 1 injection (Priorix® [PDF, 51 KB])
	Pneumococcal 1 injection (Synflorix® [PDF, 42 KB])
	Varicella (Chickenpox)

- Reference: Ministry of Health (2019). Retrieved from https://www.health.govt.nz/our-work/preventative-health-wellness/immunisation/new-zealand-immunisation-schedule

National immunisation coverage – 12 month reporting period ending 31 December 2018

Milestone Age	Number Eligible	Fully Immunised for age		Opt-Offs		Declines	
		No.	%	No.	%	No.	%
6 month	59,479	46,147	77.6%	348	0.6%	2862	4.8%
8 month	59,990	54,462	90.8%	370	0.6%	2819	4.7%
12 month (1 year)	60,464	56,043	92.7%	372	0.6%	2699	4.5%
18 month	61,036	50,120	82.1%	418	0.7%	3214	5.3%
24 month (2 years)	61,482	55,956	91.0%	394	0.6%	3138	5.1%
5 year	63,413	55,800	88.0%	489	0.8%	3160	5.0%

In the tables above:

- 'Number eligible' – the number of children who turned one of the milestone ages in the three-month or 12-month reporting period.
- 'Fully immunised for age' – the number of eligible children who have completed all of their age-appropriate immunisations by the time they turned the milestone age.
- 'Opt off' is a count of individuals who have opted off the NIR.
- 'Decline' is a count of individuals who have declined any one vaccination.

- Reference: Ministry of Health (2019). Retrieved from https://www.health.govt.nz/our-work/preventative-health-wellness/immunisation/immunisation-coverage/national-and-dhb-immunisation-data

General NZ public

- Majority show strong vaccine confidence
- 68.5% strongly agreed (6–7), 26% were sceptical (3–5), 5.5% (1–2) strongly opposed.

- Demographic correlates of low vaccine confidence:
  - Low income, low education, higher deprivation, living rurally, being Māori, single, and not a parent
- Psychological correlates of low vaccine confidence:
  - High health satisfaction and high Openness, low Agreeableness and low Conscientiousness

Lee CH, Duck IM, Sibley CG. (2017). Personality and demographic correlates of New Zealanders' confidence in the safety of childhood vaccinations. Vaccine. 35(45):6089-95.

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Table A.2a
Weighted regression coefficients, Standard Errors (SE) and *t*-values for demographic and psychological predictors of attitudes about the safety of the standard New Zealand immunisation schedule.

	b	*SE*	Lower 95% CI	Upper 95% CI	*β*	*t*	*P-value*
Constant	5.143	0.281					
Gender (0 women, 1 men)	0.120	0.029	0.063	0.177	0.039	4.106	0.000**
Age	−0.002	0.001	−0.005	0.000	−0.021	−1.774	0.076
Income (log)	0.052	0.020	0.013	0.091	0.037	2.625	0.009**
NZ deprivation (0–10)	−0.017	0.005	−0.027	−0.006	−0.031	−3.166	0.002**
Māori (0 no, 1 yes)	−0.288	0.046	−0.378	−0.198	−0.062	−6.276	0.000**
Pacific (0 no, 1 yes)	−0.041	0.077	−0.192	0.111	−0.006	−0.527	0.598
Asian (0 no, 1 yes)	0.052	0.062	−0.069	0.173	0.011	0.838	0.402
Born in NZ (0 no, 1 yes)	−0.029	0.036	−0.099	0.041	−0.008	−0.816	0.415
Religion (0 no, 1 yes)	−0.049	0.028	−0.104	0.007	−0.016	−1.724	0.085
Parent (0 no, 1 yes)	0.113	0.045	0.024	0.202	0.033	2.496	0.013*
Partnered (0 no, 1 yes)	0.137	0.035	0.068	0.206	0.040	3.875	0.000**
Employed (0 no, 1 yes)	−0.137	0.033	−0.202	−0.071	−0.038	−4.108	0.000**
Urban area (0 rural, 1 urban)	0.163	0.030	0.105	0.221	0.049	5.507	0.000**
Education (−2 low to 2 high)	0.080	0.012	0.056	0.103	0.065	6.753	0.000**
Child at home (0 no, 1 yes)	−0.066	0.036	−0.137	0.005	−0.021	−1.813	0.070
Health satisfaction	−0.031	0.013	−0.056	−0.006	−0.023	−2.424	0.015*
Extraversion	−0.012	0.012	−0.036	0.013	−0.009	−0.933	0.351
Agreeableness	0.063	0.017	0.030	0.095	0.039	3.775	0.000**
Conscientiousness	0.038	0.014	0.010	0.065	0.025	2.635	0.008**
Neuroticism	−0.021	0.014	−0.047	0.006	−0.015	−1.521	0.128
Openness	−0.042	0.012	−0.070	−0.014	−0.030	−2.984	0.003**
Honesty-Humility	−0.001	0.012	−0.025	0.022	−0.001	−0.111	0.912

Note: Model fit statistics: $R^2 = 0.026$, AIC = 61266.257, Sample-size adjusted BIC = 61375.259.

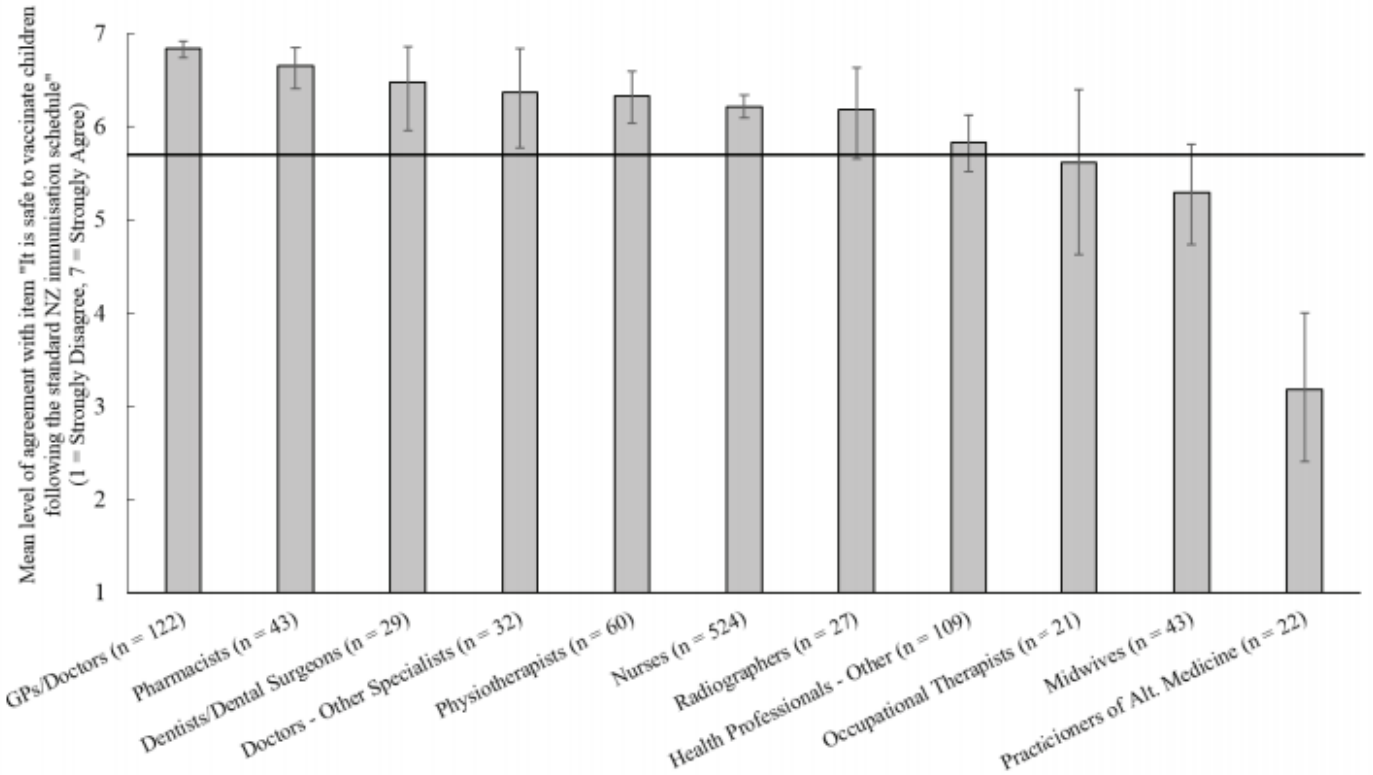
* $p < 0.05$.

** $p < 0.01$.

Health professionals

- Health professionals: 2013/14 NZAVS data (*N* = 1,302)

Figure 1: Mean level of agreement with the Likert item "It is safe to vaccinate children following the standard NZ immunisation schedule" for different classes of health professionals.



Lee, C., Duck, I., & Sibley, C. G. (2018). Confidence in the safety of standard childhood vaccinations among New Zealand health professionals. *The New Zealand medical journal*, *131*(1474), 60–68.

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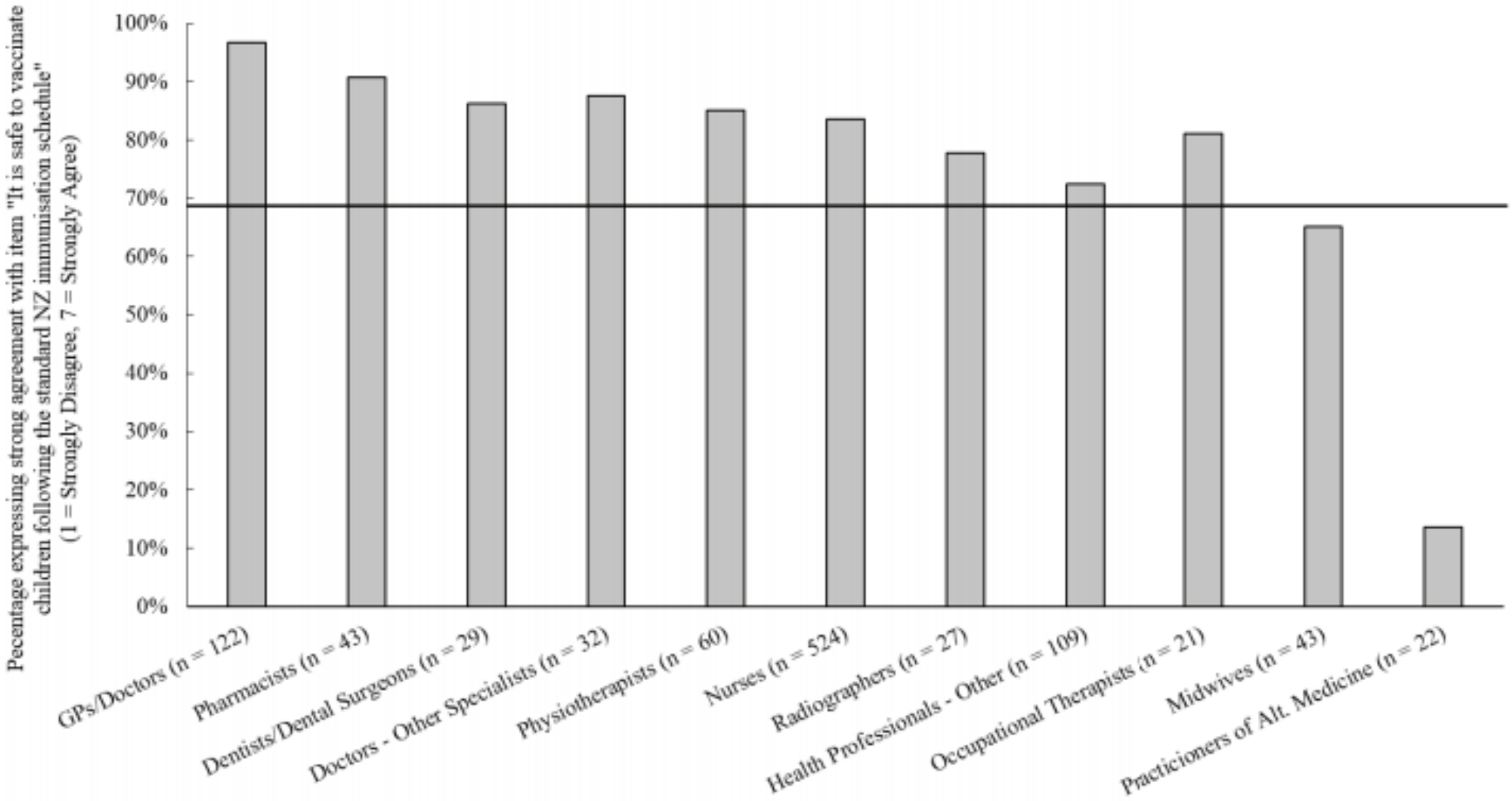
Figure 2: Percentage of different classes of health professionals expressing strong vaccine confidence.



Notes. Strong vaccine confidence indicated by ratings of 6 or 7 the Likert item "It is safe to vaccinate children following the standard NZ immunisation schedule." The bold horizontal line represents the estimated population mean level of vaccine confidence using the full sample (*N*=18,153) and applying NZAVS post-stratification sample weighting adjustment.

Implications

- GPs are trusted source of vaccine information (Freed et al., 2011)
- Consensus of belief in safety of immunisations among NZ GPs
  - Strong confidence: GPs/ doctors (96.7%) and pharmacists (90.7%)

- Midwives (65.1%) and practitioners of alternative medicine (13.6%) exhibited relatively lower levels of strong confidence
- Midwives chosen as lead maternity carer by most NZ women
- Further research needed

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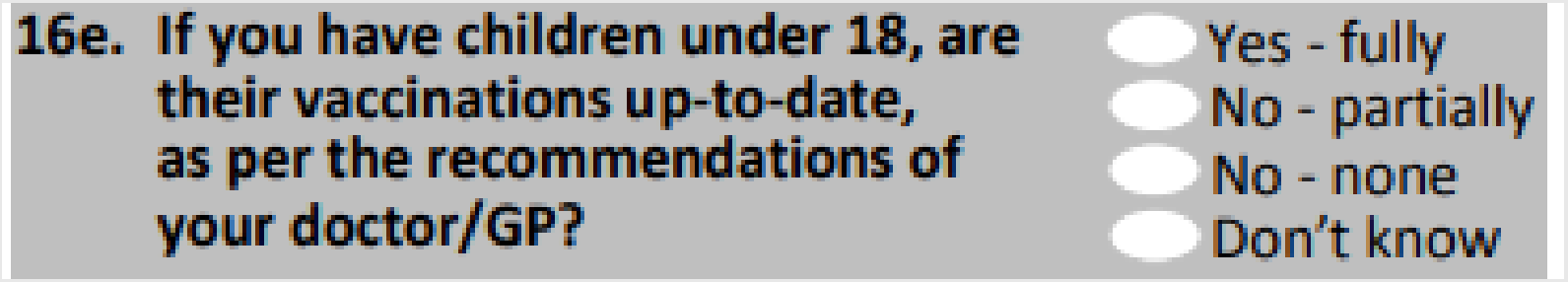
More to come!

- Item on vaccination confidence and status included in Time 8 (2016) and Time 9 (2017)



- Longitudinal analysis of changes in vaccine confidence across time
- Identify factors associated with increases vs decreases in confidence over time
- Health attitudes/beliefs may not always align with actual behaviour
- Examine link between vaccine confidence and actual vaccination status of child

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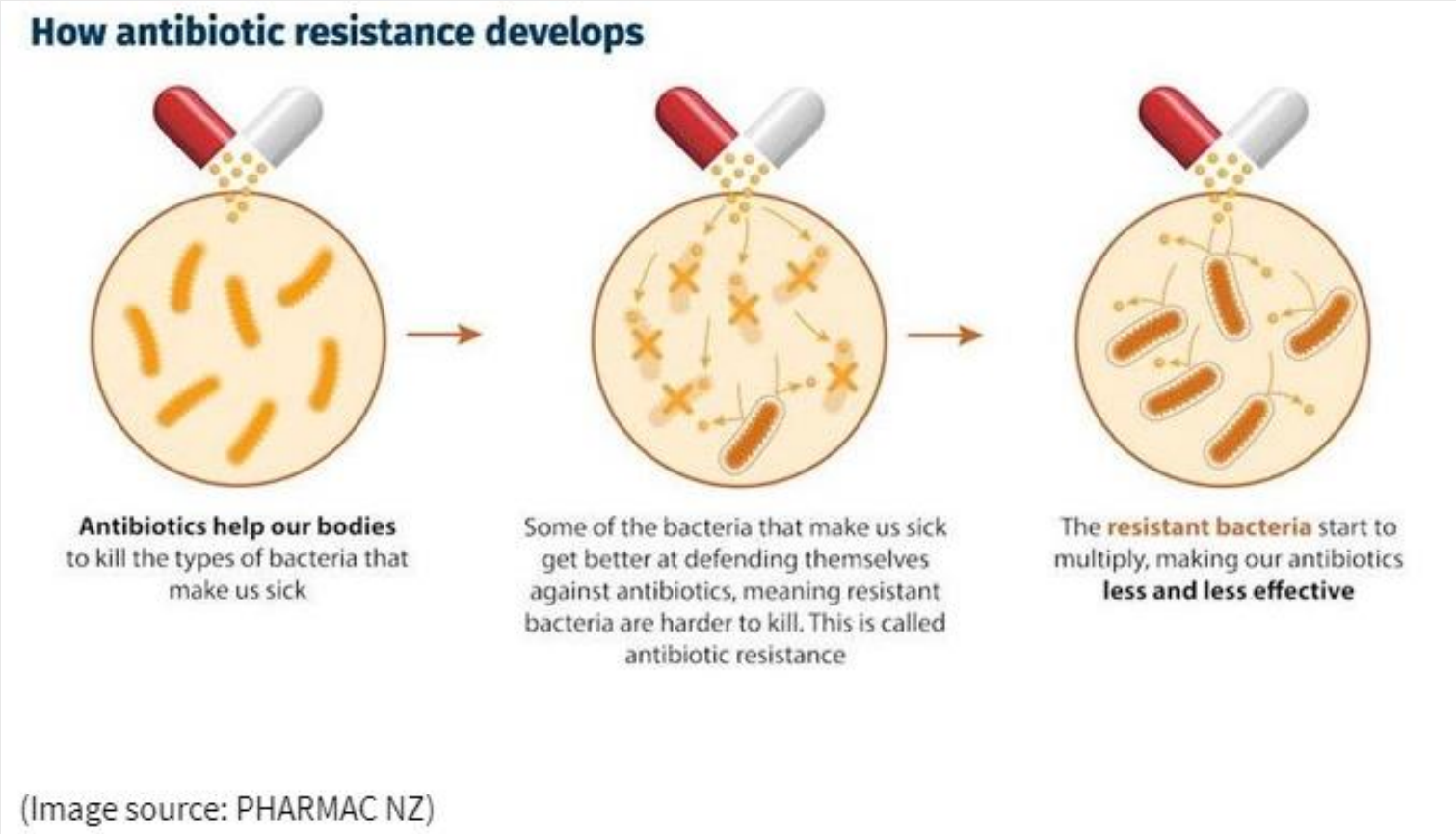
Antibiotic resistance



(Image source: PHARMAC NZ)

Antibiotic resistance

- Overuse and over-prescription of antibiotics (WHO, 2012)
- Lack of antibiotic knowledge among public (Napolitano et al., 2013; Gaarslev et al., 2016)
  - Many mistakenly believe that antibiotics can help treat viral infections
  - Expect/desire antibiotics for cold or flu symptoms
- Rise in antibiotic use and antibiotic-resistant infections in NZ (Ministry of Health, 2017)
  - DID has increased by around 49% from 2006 to 2014 (Williamson et al., 2016)
- Differences in need for antibiotics
  - High risk of rheumatic fever among Māori and Pacific populations, lower SES
  - Health conditions – risk of complications

Feelings of antibiotic entitlement

- Time 8 (2016) NZAVS (*N*=13,484)
- "If I go to my doctor/GP with a minor illness (e.g., sore throat, cough, runny nose, etc.), I think that I should be prescribed antibiotics by default." (1=strongly disagree, 7=strongly agree)

- Demographics
- Self-rated health
- Feelings of control over health outcomes
- Big-Six Personality traits

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Results

- Low (1–2): 77.9%
- Moderate (3–5): 18.5%
- High (6–7): 3.7%

- Māori and Pacific ethnicity, lower socio-economic status, diabetes linked with higher expectations
- higher risk of rheumatic fever and complications

Lee, C., Norris, P., Duck, I. and Sibley, C., 2018. Demographic and Psychological Factors Associated with Feelings of Antibiotic Entitlement in New Zealand. *Antibiotics*, *7*(3), p.82.

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Table 2. Regression predicting level of entitlement to receiving antibiotic prescriptions by default when visiting their doctor with a minor illness.

	b	*SE*	Lower 95% CI	Upper 95% CI	*β*	*t*	*p*-Value
Log (income)	−0.095	0.018	−0.131	−0.060	−0.074	−5.325	0.000 **
NZ Deprivation (0–10)	0.008	0.004	0.000	0.016	0.018	2.013	0.044 *
Socio-economic status	−0.004	0.001	−0.005	−0.002	−0.042	−4.267	0.000 **
Education (0 low to 10 high)	−0.037	0.005	−0.047	−0.028	−0.082	−7.801	0.000 **
Gender (0 women, 1 men)	0.171	0.023	0.125	0.217	0.065	7.276	0.000 **
Age	−0.002	0.001	−0.004	0.000	−0.018	−1.652	0.099
Māori (0 no, 1 yes)	0.173	0.038	0.099	0.247	0.044	4.587	0.000 **
Pacific (0 no, 1 yes)	0.542	0.084	0.377	0.706	0.074	6.461	0.000 **
Asian (0 no, 1 yes)	0.451	0.068	0.318	0.584	0.069	6.629	0.000 **
Religious (0 no, 1 yes)	0.149	0.021	0.107	0.191	0.058	6.965	0.000 **
Parent (0 no, 1 yes)	0.040	0.027	−0.013	0.094	0.014	1.481	0.139
Partnered (0 no, 1 yes)	−0.016	0.028	−0.071	0.039	−0.005	−0.564	0.573
Employed (0 no, 1 yes)	0.007	0.029	−0.050	0.064	0.002	0.236	0.813
Urban area (0 rural, 1 urban)	0.042	0.023	−0.003	0.086	0.016	1.841	0.066
Self-rated health	−0.088	0.013	−0.114	−0.062	−0.080	−6.643	0.000 **
Health locus of control	0.054	0.012	0.031	0.077	0.046	4.584	0.000 **
Healthcare access	−0.012	0.006	−0.023	0.000	−0.019	−1.939	0.052
BMI	0.010	0.002	0.006	0.014	0.048	4.753	0.000 **
Smoking status (0 no, 1 yes)	0.126	0.047	0.034	0.219	0.028	2.687	0.007 **
Disability or illness 6+ months	−0.091	0.025	−0.139	−0.042	−0.033	−3.644	0.000 **
High Cholesterol (0 no, 1 yes)	0.016	0.030	−0.042	0.074	0.005	0.553	0.580
High blood pressure (0 no, 1 yes)	0.012	0.030	−0.048	0.071	0.004	0.388	0.698
Hearth disease (0 no, 1 yes)	0.047	0.058	−0.066	0.161	0.008	0.812	0.417
Diabetes (0 no, 1 yes)	0.141	0.065	0.014	0.268	0.023	2.179	0.029 *
Asthma (0 no, 1 yes)	−0.067	0.032	−0.131	−0.004	−0.017	−2.089	0.037 *
Sleep duration (average night)	−0.004	0.010	−0.024	0.016	−0.004	−0.371	0.711
Kessler-6 score (stress level)	0.014	0.004	0.005	0.022	0.042	3.162	0.002 **
Narcissism	**0.146**	**0.010**	**0.126**	**0.166**	**0.148**	**14.516**	**0.000 ** **
Extraversion	0.066	0.010	0.047	0.085	0.061	6.887	0.000 **
Agreeableness	−0.075	0.013	−0.100	−0.050	−0.057	−5.920	0.000 **
Conscientiousness	0.043	0.011	0.021	0.064	0.034	3.817	0.000 **
Neuroticism	0.004	0.012	−0.020	0.027	0.003	0.292	0.770
Openness	−0.106	0.010	−0.126	−0.086	−0.093	−10.500	0.000 **

Correlates of higher feelings of entitlement

- Male
- Higher Religiosity
- Lower education
- Lower self-rated health
- Greater health locus of control
- Higher psychological distress
- Having no disability
- Smoker

- High Extraversion
- High Conscientiousness
- Low Agreeableness
- Low Openness
- **High Narcissism** (b=.146)
  Overconfidence (Campbell et al., 2004)

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Future research

- Snapshot of general attitudes towards antibiotics in NZ
- Further research on personality and psychological factors may help identify more effective communicate strategies to respond to patients demand for antibiotics
  - E.g. emphasize dangers of antibiotic overuse to Conscientious individuals

- Possible disparities in the way people perceive the severity of "sore throats", "runny noses", and "coughs", which were listed as examples of a minor illness in our survey item.
- Reasons for feelings of entitlement to antibiotics

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Concluding comments

- These studies increase insight into topic health issues which are understudied in NZ
- Framework for future research
- Cross-sectional data was used previously but will be able to use longitudinal data soon

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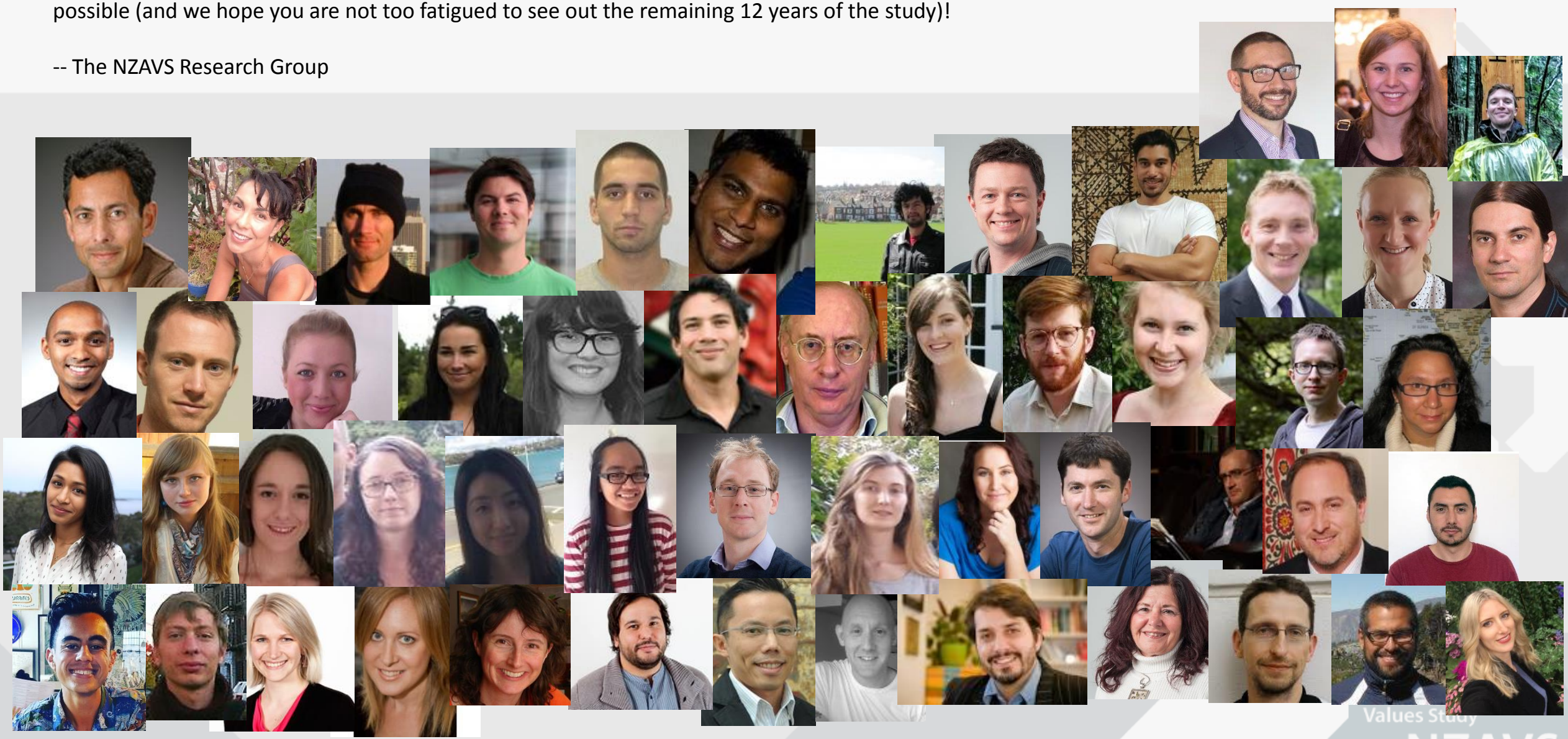
Dedication: to the 23,206 people who have generously taken the time to complete one or more of our annual NZAVS questionnaires. Over the first seven years of the study you, our participants, have completed a combined total of 78,033 questionnaires, which we estimate has taken a total of 67,629 hours. Thank you for making this research possible (and we hope you are not too fatigued to see out the remaining 12 years of the study)!

-- The NZAVS Research Group



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