Who are the NFDS

An OutcomeWide Study

Authors TBA Chris G Sibley Joseph Bulbulia

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Abstract

Who are the NFDs anyway?

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Introduction

Who are the NFDs anyway?(Sibley 2012)

Method

Questions related to religion are as follows

Belief in God

Using one item from Eurobarometer (2005), we asked participants "Do you believe in a God" (1 = Yes, 0 = No) (Eurobarometer 2005).

Belief in Sprituality

Using one item from Eurobarometer (2005), we asked participants "Do you believe in some form of spirit or lifeforce? (1 = Yes, 0 = No) (Eurobarometer 2005).

Religion Affiliation

Participants were asked to indicate their religion identification ("Do you identify with a religion and/or spiritual group?") on a binary response (1 = Yes, 0 = No). We then asked "What religion or spiritual group?" These questions are used in the New Zealand Census.

Frequency of Church Attendence

If participants answered *yes* to "Do you identify with a religion and/or spiritual group?" we measured their frequency of church attendance using one item from Sibley (2012): "how many times did you attend a church or place of worship in the last month?". Those participants who were not religious were imputed a score of "0".

Frequency of Prayer

If participants answered *yes* to "Do you identify with a religion and/or spiritual group?" we measured their frequency of prayer by asking "how many times did you pray in the last week?" Those participants who were not religious were imputed a score of "0" (S. Bulbulia J. A. 2015) .

Frequency of Scripture Reading

If participants answered *yes* to "Do you identify with a religion and/or spiritual group?" we measured their frequency of scripture reading by asking "how many times did you read religious scripture in the last week?" Those participants who were not religious were imputed a score of "0" (J. Bulbulia et al. 2016).

Religious Identification

If participants answered *yes* to "Do you identify with a religion and/or spiritual group? we asked"How important is your religion to how you see yourself?" (1 = Not important, 7 = Very important). Those participants who were not religious were imputed a score of "0".

Descriptive statistics

Analytic approach

We next leveraged longitudinal data to investigate whether changing from transiting from a Christian denomination to a Christian NFD affiliation affect people's religious behaviors. That is, we used the longitudinal features of NZAVS data collection to evalutate the causal question of whether becoming a Christian NFD makes somebody less religious.(Eurobarometer 2005)

Selection criteria.

1. We selected people who participated in both the NZAVS 2018 and 2019 waves.
2. We modelled religious behaviour as
3. Because non-response and panel attrition may bias estimates, we multiply impute missing data both in the Time 10 baseline and Time 11 post-attack waves.
4. Using a repeated measures design, we naively assess the effects of the attack exposure on 2019/2020 (NZAVS Time 11) responses to all minority groups measure by the NZAVS estimating the effect of time on group-level attitudes. The NZAVS Time 10 pre-attack responses identify pre-exposure values; The NZAVS Time 11 post-attack responses identify post-attack attitudes. Note that in the naive analysis, the unit of time (one-year) is the exposure. Here we stimate the effect of time within individuals adjusting for the dependencies from the repeated measures using Generalised Estimating Equations (GEE) (**halekoh2006?**). To recover population-level coefficients we use sampling weights. (SUPPLEMENT XYZ describes estimates for the ATE, which are substantially similar.)
5. Recover the **Population Average Treatment Effect (PATE)** of the Attacks on Group Attitudes using G-computation:(a) compute the expected effect of the attack condition (exposure = 1) for the entire sample weighted by post-stratification sample weights. (b) compute the expected effect of the no-attack condition (exposure = 0) for the sample weighted by post-stratification sample weights. The difference in these expected values is the statistical estimate of the **PATE**. We obtain standard errors using the delta method and simulation-based inference (**greifer2023?**).[1].
6. Next, using this same sample, we obtain responses from prior to the attacks: years 2016-2019 (pre-attack). Again we multiply-impute missing values for missing responses conditional on demographic, political, and personality indicators.
7. We estimate the time trend from these years for each of the 12 social attitude domains.
8. We use the average, lower, upper intervals of these estimates to obtain bounds with which to adjust the estimated effects of the attacks of social attitudes from the naive analysis. These adjustments represent the best, worst-case scenarios for the attack-effect estimands. Again because it is preferable to think of social attitudes as increasing without a focus on injustice, we describe the outcomes adjusted under the strongest

[1]We note that this coefficient is simply the time effect in the conditional analysis. We use G-computation for consistency with other NZAVS outcome-wide studies

pre-attack intervals as "best-case" outcomes for the attack effects, even if these attenuate the attack effect estimands.

Sample

Table 1: Sample Statistics (baseline = 2018)

	Time 10 (baseline)
	(N=10787)
Male	
Male	4003 (37 %)
Not_male	6784 (63 %)
Cohort	
Gen_Silent: born< 1946	714 (7 %)
Gen Boomers: born >= 1946 & b.< 1965	5229 (48 %)
GenX: born >=1961 & b.< 1981	3311 (31 %)
GenY: born >=1981 & b.< 1996	1421 (13 %)
GenZ: born >= 1996	112 (1 %)
NZ-European	
No	2018 (19 %)
Yes	8730 (81 %)
Missing	39 (0.4%)
Education	
Mean (SD)	5.63 (± 2.66)
Missing	37 (0.3%)
Employed	
No	2714 (25 %)
Yes	8064 (75 %)
Missing	9 (0.1%)
NZDep2018	
Mean (SD)	4.70 (± 2.73)
Missing	117 (1.1%)
NZSEI13	
Mean (SD)	54.9 (± 16.0)
Missing	56 (0.5%)
Rural_GCH2018	
1	6632 (61 %)
2	2092 (19 %)
3	1254 (12 %)
4	567 (5 %)
5	126 (1 %)
Missing	116 (1.1%)
Born NZ	
Mean (SD)	0.800 (± 0.400)
Missing	18 (0.2%)
Parent	
No	2574 (24 %)
Yes	8212 (76 %)
Missing	1 (0.0%)
Partner	

	Time 10 (baseline)
No	2576 (24 %)
Yes	7903 (73 %)
Missing	308 (2.9%)
Politically_Liberal	
Mean (SD)	3.57 (± 1.38)
Missing	497 (4.6%)
Left_Wing	
Mean (SD)	3.71 (± 1.31)
Missing	537 (5.0%)
Religious_Identification	
Mean (SD)	1.72 (± 2.58)
Missing	68 (0.6%)

Description of Changes in Attitudes in Sample Pre-Post Attacks (one year)

The sample consists of 10,878 participants who responded the NZAVS 2016/17 Time 8 survey and who again responded to the NZAVS 2018/19 Time 10 survey.

Table 2: Average warmth ratings before and one-year after attacks

	Pre Attacks(Time 10)	Post Attacks(Time 11)
	(N=10787)	(N=10787)
Warm Muslims		
Mean (SD)	4.09 (1.46)	4.35 (1.41)
Median [Min, Max]	4.00 [1.00, 7.00]	4.00 [1.00, 7.00]
Missing	286 (2.7%)	1672 (15.5%)
Warm Asians		
Mean (SD)	4.54 (1.27)	4.64 (1.23)
Median [Min, Max]	4.00 [1.00, 7.00]	4.00 [1.00, 7.00]
Missing	265 (2.5%)	1647 (15.3%)
Warm Chinese		
Mean (SD)	4.39 (1.34)	4.47 (1.32)
Median [Min, Max]	4.00 [1.00, 7.00]	4.00 [1.00, 7.00]
Missing	280 (2.6%)	1673 (15.5%)
Warm Immigrants		
Mean (SD)	4.54 (1.23)	4.64 (1.23)
Median [Min, Max]	4.00 [1.00, 7.00]	4.00 [1.00, 7.00]
Missing	282 (2.6%)	1674 (15.5%)
Warm Indians		
Mean (SD)	4.31 (1.36)	4.42 (1.34)
Median [Min, Max]	4.00 [1.00, 7.00]	4.00 [1.00, 7.00]
Missing	277 (2.6%)	1669 (15.5%)
Warm Refugees		
Mean (SD)	4.68 (1.34)	4.80 (1.31)
Median [Min, Max]	5.00 [1.00, 7.00]	5.00 [1.00, 7.00]
Missing	283 (2.6%)	1654 (15.3%)
Warm Pacific		
Mean (SD)	4.78 (1.24)	4.87 (1.20)

	Pre Attacks(Time 10)	Post Attacks(Time 11)
Median [Min, Max]	5.00 [1.00, 7.00]	5.00 [1.00, 7.00]
Missing	265 (2.5%)	1654 (15.3%)
Warm Maori		
Mean (SD)	5.00 (1.27)	5.03 (1.26)
Median [Min, Max]	5.00 [1.00, 7.00]	5.00 [1.00, 7.00]
Missing	270 (2.5%)	1660 (15.4%)
Warm NZ Euro		
Mean (SD)	5.57 (1.23)	5.58 (1.24)
Median [Min, Max]	6.00 [1.00, 7.00]	6.00 [1.00, 7.00]
Missing	282 (2.6%)	1659 (15.4%)
Warm Elderly		
Mean (SD)	5.52 (1.16)	5.51 (1.15)
Median [Min, Max]	6.00 [1.00, 7.00]	6.00 [1.00, 7.00]
Missing	258 (2.4%)	1648 (15.3%)
Warm Overweight		
Mean (SD)	4.21 (1.37)	4.22 (1.38)
Median [Min, Max]	4.00 [1.00, 7.00]	4.00 [1.00, 7.00]
Missing	274 (2.5%)	1660 (15.4%)
Warm Mental-illness		
Mean (SD)	4.60 (1.29)	4.64 (1.28)
Median [Min, Max]	4.00 [1.00, 7.00]	4.00 [1.00, 7.00]
Missing	288 (2.7%)	1671 (15.5%)

Table 3: Personality ratings at baseline. In addition to demographic indicators we also used personality ratings to multiply impute missing values

	Time 10 (baseline)
	(N=10787)
AGREEABLENESS	
Mean (SD)	5.36 (± 0.968)
Missing	36 (0.3%)
CONSCIENTIOUSNESS	
Mean (SD)	5.15 (± 1.01)
Missing	33 (0.3%)
EXTRAVERSION	
Mean (SD)	3.85 (± 1.16)
Missing	33 (0.3%)
HONESTY_HUMILITY	
Mean (SD)	5.51 (± 1.16)
Missing	33 (0.3%)
NEUROTICISM	
Mean (SD)	3.38 (± 1.15)
Missing	36 (0.3%)
OPENNESS	
Mean (SD)	4.95 (± 1.12)
Missing	33 (0.3%)