

**A national longitudinal study of Muslim diversity and flourishing in Aotearoa New Zealand:  
A quantitative study protocol**

Usman Afzali<sup>1</sup>, Jamila Badis<sup>1</sup>, Parus Khoso<sup>2</sup>, Gul e Aqsa<sup>3</sup>, Farah Shawkat<sup>1</sup>, Fatima Junaid<sup>4</sup>,  
Hussain Raissi<sup>5</sup>, Hala Burhoum<sup>1</sup>, Tuba Azeem<sup>6</sup>, Iman Husain<sup>1</sup>, Zarqa Shaheen Ali<sup>7</sup>, Zahra  
Haidary<sup>1</sup>, Nasratullah Hamid<sup>8</sup>, Zahra Emamzadeh<sup>9</sup>, Rizwan Sulehry<sup>10</sup>, Somia Tasneem<sup>1</sup>, Aarif  
Rasheed<sup>11</sup>, Kumar Yogeeswaran<sup>1</sup>, Chris G. Sibley<sup>12</sup>, and Joseph A. Bulbulia<sup>13,14</sup>

<sup>1</sup>School of Psychology, Speech and Hearing, University of Canterbury

<sup>2</sup>College of Education, University of Canterbury

<sup>3</sup>School of Health Sciences, University of Canterbury

<sup>4</sup>School of Management, Massey University

<sup>5</sup>School of Social Science, University of Otago

<sup>6</sup>School of ABC, Victoria University of Wellington

<sup>7</sup>ICL Business School, New Zealand Skills and Education College

<sup>8</sup>School of Psychological Medicine, University of Otago

<sup>9</sup>TBA, Ministry of Education

<sup>10</sup>School of Management, Victoria University of Wellington





















<sup>11</sup>Just Community

<sup>12</sup>School of Psychology, University of Auckland

<sup>13</sup>School of Psychology, Victoria University of Wellington

<sup>14</sup>Department of Linguistic and Cultural Evolution, Max Planck Institute for Evolutionary  
Anthropology

### Author Note

Usman Afzali  <https://orcid.org/0000-0001-5119-9388>  
Jamila Badis  <https://orcid.org/0009-0005-2866-5033>  
Parus Khoso  <https://orcid.org/0000-0001-6384-038X>  
Gul e Aqsa  <https://orcid.org/0009-0003-0928-8039>  
Farah Shawkat  <https://orcid.org/0000-0000-0000-0001>  
Fatima Junaid  <https://orcid.org/0000-0002-6656-8120>  
Hussain Raissi  <https://orcid.org/0000-0000-0000-0001>  
Hala Burhoum  <https://orcid.org/0000-0000-0000-0001>  
Tuba Azeem  <https://orcid.org/0000-0000-0000-0001>  
Iman Husain  <https://orcid.org/0000-0003-4032-4387>  
Zarqa Shaheen Ali  <https://orcid.org/0000-0002-7145-5788>  
Zahra Haidary  <https://orcid.org/0009-0000-5259-622X>  
Nasratullah Hamid  <https://orcid.org/0009-0002-0120-7428>  
Zahra Emamzadeh  <https://orcid.org/0009-0000-0000-0001>  
Rizwan Sulehry  <https://orcid.org/0000-0002-1209-0635>  
Somia Tasneem  <https://orcid.org/0000-0001-5471-6934>  
Aarif Rasheed  <https://orcid.org/0000-0000-0000-0001>  
Kumar Yogeeswaran  <https://orcid.org/0000-0002-1978-5077>  
Chris G. Sibley  <https://orcid.org/0000-0002-4064-8800>  
Joseph A. Bulbulia  <https://orcid.org/0000-0002-5861-2056>

Correspondence concerning this article should be addressed to Usman Afzali, School of Psychology, Speech and Hearing, University of Canterbury, 20 Kirkwood Ave, Christchurch, Canterbury 8041, New Zealand, Email: [usman.afzali@canterbury.ac.nz](mailto:usman.afzali@canterbury.ac.nz)

### **Abstract**

The New Zealand Attitudes and Values Study is a longitudinal study of social values and attitudes of New Zealanders that has started in 2009 and collected data from thousands of subjects so far. Within the realm of this study, negative attitudes towards minority groups, such as discrimination and prejudice have been examined. Given that the Muslim community has recently been subjected to a terrorist attack in Christchurch, we decided to use data from the New Zealand Attitudes and Values Study to look into Islamophobia from the Muslims' perspective, as well as the remarkable resilience of Muslims despite many challenges. In addition, we deemed necessary to investigate the overall wellbeing and flourishing of Muslims, and whether values, identity, religiosity, and meaning-making affect how Muslims perceive themselves. However, we were limited by the sample size of Muslims within the New Zealand Attitudes and Values Study to make such inferences. Therefore, the current project was designed to boost the sample of Muslims within the New Zealand Attitudes and Values Study in a three year quantitative longitudinal study. This protocol describes our pilot community consultation, the decisions made and modified based on consultation, community engagement, data collection, team, measures, timeline, and proposed analyses during the first year of the booster. We also address the overall nuances in terms of perceived enablers and challengers of data collection from a culturally distinct minority religious community. We think that this protocol will be useful to researchers who want to work with Muslims and similar communities in New Zealand and globally.

*Keywords:* Muslim, Islam, religion, diversity, discrimination, flourishing, meaning-making, identity

## **A national longitudinal study of Muslim diversity and flourishing in Aotearoa New Zealand: A quantitative study protocol**

### **Introduction**

The devastating far-right extremist attack on two mosques in Christchurch that killed 51 and injured another 49 Muslims (*Royal Commission of Inquiry into the Terrorist Attack on Christchurch Masjidain on 15 March 2019*, 2020), albeit shocking to the world (*World Leaders Condemn New Zealand Mosque Attacks*, 2019) and unprecedented in New Zealand (*Jacinda Ardern on the Christchurch Shooting*, 2019), was not as surprising to the Muslim community and their leadership (*Rahman*, 2019) due to the widespread experience of Islamophobia and prejudice (*Sibley et al.*, 2020). With overseas reports showing increased Islamophobia following these attacks (*Islamophobia After Christchurch Terror Attacks Quadrupled - Australian Report*, 2022), we have reasons to see an array of hope in New Zealand due to reports of recent improved attitudes towards Muslims (*Bulbulia et al.*, 2023; *Shanaah et al.*, 2021). Most New Zealand research in this area so far has shed light on such attitudes from a non-Muslim perspective. In other words, we reported on how Muslims are perceived, and not how Muslims perceive themselves. While such reports are an absolute necessity, one can never underestimate the self-experience of Muslims themselves - the direct victims of this heinous crime.

1. Far right terrorism and attitudes toward Muslims (Usman)
2. Other research on Muslim wellbeing (Dr Fatima)
3. Other ongoing projects: Qual (Farah); and Islamophobia scale to verify our previous findings (Jamila).

The New Zealand Attitudes and Values Study (NZAVS) is a large longitudinal national probability annual panel study of social attitudes, personality, ideology and health outcomes that began in 2009 and has collected data from more than 70,000 subjects so far. NZAVS has been instrumental in exploring minority issues, including but not limited to discrimination, intergroup relations, identity, security, and etc. In this pursuit, NZAVS has also explored perception of

Muslims and the mechanisms of attitudinal changes towards Muslims following 15 March 2019 Christchurch terrorist attacks. However, much of the NZAVS work to date with the Muslim community has focused on conveying information about how Muslims are perceived. After receiving strong positive signals from the Muslim community to scientifically explore diversity, discrimination, self-perception, resilience, meaning-making, and flourishing; this longitudinal study was conceived to address such a worthwhile scientific need. This protocol addresses our pilot community consultation, the decisions made and modified based on consultation, community engagement, data collection, team, and measures. The study primarily aims to explore the diversity of Muslims in New Zealand, assess Muslims' perceived discrimination in comparison with other groups, unearth predictors of flourishing and meaning-making, and measure the effect of service-attendance and religious-identification on these constructs.

Introduce the context of the study, emphasizing the need to understand the psychological impact of mass trauma events on diverse populations such as the Christchurch Muslim community. Highlight the significance of longitudinal research in assessing long-term mental health outcomes.

### **Background**

- Provide a brief overview of the Christchurch mosque attacks and their aftermath.
- Discuss existing literature on the psychological effects of mass trauma events, particularly on diverse cultural groups.
- Outline the gaps in current knowledge regarding the long-term psychological effects of such events on the Muslim community.

### **Research Aims**

- Clearly state the research questions and objectives of the longitudinal study.
- Emphasize the importance of assessing psychological outcomes over time to understand the trajectory of mental health in the affected population.

## Hypotheses

Given that the present project functions as a booster for NZAVS and uses the same questionnaires, the questions that can be answered by MDS can be limitless, and one could suggest a large number of hypotheses to be tested and questions that can be answered from these data in the years to come. However, immediately we are trying to test the following hypotheses – within the span of MDS:

*Hypothesis 1:* Muslims with the strongest ties to their community as measured by service attendance and prayer are buffered most from anti-Muslim prejudice.

*Hypothesis 2:* Muslims experience greater challenges to employment and health than matched members of other religious groups.

*Hypothesis 3:* Subjective well-being, the meaning of life, and psychological distress are similar among Muslims and matched members of religious groups from the buffering of religious community-making.

Having sensed interest in these data from researchers in New Zealand and overseas, it maybe possible to immediately test other hypotheses within the realm of MDS, that would be published as independent research articles.

## Method

- **Study Design:** Describe the longitudinal design of the study, including the planned follow-up periods.
- **Participant Selection:** Define the inclusion criteria for participants, specifying age, residency, and other relevant factors.

## Materials

NZAVS questionnaire has a large number of measures. Here, we are only highlighting and explaining those that are pertinent to the readily planned papers that are going to be published from the booster study, with levels of measurement indicated, as well as the reversed coded ones. For Likert type scales, we are noting the minimum and maximum level along with description. For

instance, (*Not important 1-7 Very important*) would mean that it is rated on a scale of 1 to 7 where 1 indicates not important and 7 indicates very important. Notwithstanding, we might choose to report further measures too, which will then be elaborated upon in the individual articles.

- Service attendance and religiosity:

1. Do you identify with a religion and/or spiritual group? (Yes/No). If yes, what religion or spiritual group? (String entry).
2. How many times did you attend a church or place of worship in the last month? (String entry)
3. How many times did you pray in the last week? (String entry)
4. How many times did you read religious scripture in the last week? (String entry)
5. How important is your religion to how you see yourself? (String entry) (Not important 1-7 Very important)
6. I identify as a spiritual person. (Strongly Disagree 1-7 Strongly Agree)
7. Do you believe in God? (Yes/No)
8. Do you believe in any form of spirit or life force? (Yes/No)

- Prejudice:

1. I feel that I am often discriminated against because of my religious/spiritual beliefs. (Strongly Disagree 1-7 Strongly Agree)
2. People from my ethnic group are discriminated against in New Zealand. (Strongly Disagree 1-7 Strongly Agree)
3. I feel that I am often discriminated against because of my age. (Strongly Disagree 1-7 Strongly Agree)
4. I feel that I am often discriminated against because of my ethnicity. (Very Inaccurate 1-7 Very Accurate)

5. I feel that I am often discriminated against because of my gender. (Very Inaccurate 1-7 Very Accurate)
- Intergroup Warmth Ratings: Participants are asked to rate their feelings of warmth toward different groups using “feeling thermometer scale” for each group from least to most warmth on a 1-7 Likert scale (see Figure 1 for reference). Groups include: NZ Europeans, Māori, Asians in general, Pacific Islanders, Elderly people, People with a disability, Refugees, Overweight people, Immigrants in general, Chinese, Indians, Muslims, LGBTQ+ people, People with mental illness.
  - Felt belonging:
    1. I know that people in my life accept and value me. (Very Inaccurate 1-7 Very Accurate)
    2. I feel like an outsider. (Very Inaccurate 1-7 Very Accurate)
    3. I know that people in around me share my attitudes and beliefs. (Very Inaccurate 1-7 Very Accurate)
  - Support:
    1. There are people I can depend on to help me if I really need it. (Strongly Disagree 1-7 Strongly Agree)
    2. There is no one I can turn to for guidance in times of stress (R). (Strongly Disagree 1-7 Strongly Agree)
    3. I know there are people I can turn to when I need help. (Strongly Disagree 1-7 Strongly Agree)
  - Employment:
    1. What is your highest level of qualification? (String entry)



2. Are you currently employed (This includes self-employed of casual work)? (Yes/No).  
This leads to a four-point nominal response: employed full-time, employed part-time, unemployed, and not in the labour force.
  3. In that job, what is your current occupation (String entry)
  4. What is the main activity of the business or employer that you work for? (String entry)
  5. How long have you worked at your current organization? (String entry: years/months)
  6. How satisfied are you with your current job? (Not satisfied 1-7 Very satisfied)
  7. How secure do you feel in your current job? (Not secure 1-7 Very secure)
  8. How valued do you feel by your current organization? (Not valued 1-7 Very valued)
- Health:
    1. In general, would you say your health is... (Poor 1-7 Excellent)
    2. I seem to get sick a little easier than other people. (Strogly disagree 1-7 Strongly agree)
    3. I expect my health to get worse. (Strogly disagree 1-7 Strongly agree)
    4. Do you have a health condition or disability that limits you, and that has lasted for 6+ months? (Yes/No). If yes, please state: (String entry)
    5. How often do you have a drink containing alcohol? Measured using a 6 point nominal scale (Never - I don't drink, Monthly or less, Up to 4 times a month, Up to 3 times a week, 4 or more times a week, Don't know)
    6. Access to and satisfaction with GP: Do you have a regular family doctor/GP? (Yes/No). (If yes) How satisfied are you with the service and care you receive from your family doctor/GP? (Not satisfied 1-7 Very satisfied). Do you think your doctor/GP shares a similar cultural background to you? (Definitely no 1-7 Definitely yes). Does your doctor/GP respect your cultural background when you are discussing health issues with them? (Definitely no 1-7 Definitely yes).

7. Chronic diseases diagnosis: See Figure 2.
- Matching with other religious group: Similar to Bulbulia et al. (2023), we will use the following demography and personality variables to identify matching members in different religions groups.
    1. Age: What is your age? (String entry) and when is your date of birth (String entry)
    2. Education: An 11-point ordinal scale (No qualification 0-11 Doctoral degree, based on the New Zealand Qualification Framework (*The New Zealand Qualifications Framework, 2016*)) based on the responses to the qualification-related question.
    3. Employment: A binary variable is created (0 = unemployed, 1 = employed) based on the responses to employment items “Are you currently employed?”
    4. Ethnicity: The items displayed in Figure 3 are categorised following the New Zealand Census Groups: European, Māori, Pacific Peoples, Asian, MELAA (Middle Eastern, Latin American/African), and Other.
    5. Gender: Responses to the string entry item “What is your gender?”, gender will be used to create a binary measure (Male = 1, Not male = 0).
    6. Socioeconomic status: Measured based on 2013 New Zealand Deprivation Index (Atkinson et al., 2014) that assigns a decile-rank index (Least deprived 1-10 Most deprived) using participants’ immediate neighbourhood’s aggregate census information. This index is calculated using component factor analysis of nine variables in weighted order as follows: proportion of adults who received a means-tested benefit, household income, proportion not owning own home, proportion of single-parent families, the proportion of unemployed, proportion lacking qualifications, proportion household crowding, proportion no telephone access, and proportion no car access. Hence, this index reflects nationwide mean deprivation level for small neighbourhood-type units (i.e., small community areas consisting about 80-90 people).

7. Parent: Measured by assigning a binary variable (1 = those with children, 0 = the rest) to the item: How many children have you given birth to, fathered, or adopted? (String entry).
  8. Partner: Responses to “What is your relationship status?” are assigned a binary variable (1 = Has a partner, 0 = Doesn’t have a partner).
  9. Religious identification: “Yes” responses to “Do you identify with a religion and/or spiritual group?” are assigned 1 and “No” responses are coded 0.
  10. Political orientation: Based on responses to “Please rate how politically left-wing versus right-wing you see yourself as being”, political orientation is assigned a 7-point scale (extremely left-wing 1-7 extremely right-wing).
  11. Residence: Urban or rural residence (a two-item nominal variable) is identified based on the physical addresses provided.
  12. Region of habitation (?)
  13. Occupational prestige (?)
  14. Race rejection anxiety:
  15. Big six personality traits: Six personality traits, agreeableness, conscientiousness, extraversion, openness, honesty-humility, and neuroticism, are measured using a 7-point (very inaccurate 1-7 very accurate) Mini-IPIP6 scale ([Sibley et al., 2011](#)).
- Subjective wellbeing/psychological distress: Measured using the Kessler-6 items (items 1-6 in Figure 4) rated on a 5-point scale (None of the time 0-4 All of the time) ([Kessler et al., 2010](#)).
  - Meaning of life: My life has a clear sense of purpose (Strongly disagree 1-7 Strongly agree) and I have a good sense of what makes my life meaningful (Strongly disagree 1-7 Strongly agree).

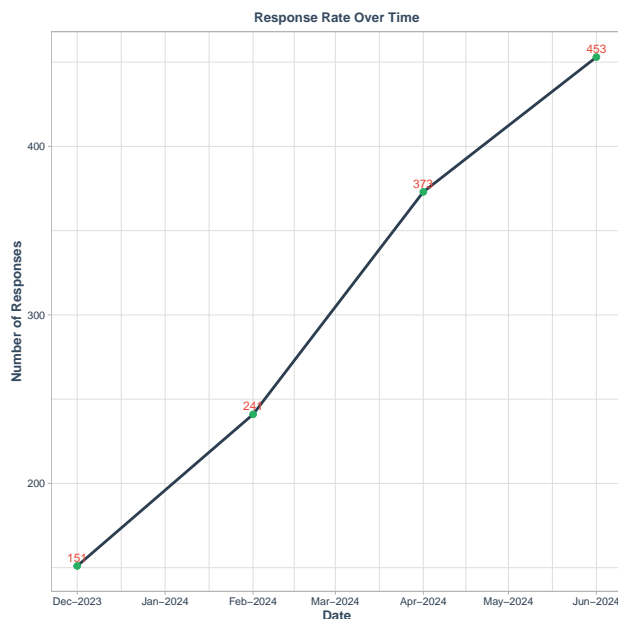
- Life satisfaction and national wellbeing: Items from Figure 5 measured on 11-item measure (Completely dissatisfied 0-10 Completely satisfied). In addition, “I am satisfied with my life. (Strongly disagree 1-7 Strongly agree)” and “In most ways my life is close to ideal. (Strongly disagree 1-7 Strongly agree)”.

7. Community making: I feel a sense of community with others in my local neighbourhood (Strongly disagree 1-7 Strongly agree).

- **Recruitment:** Detail the recruitment strategy, including outreach methods and sources of recruitment.
- **Data Collection:** Explain the quantitative measures to be used in data collection, including validated self-report instruments and clinical assessments.

Warning: Using `size` aesthetic for lines was deprecated in ggplot2 3.4.0.

i Please use `linewidth` instead.



- **Procedure:** Outline the procedure for data collection at each time point, whether face-to-face or virtual.

1. Community consultation in 2022: Aqsa and Parus
  2. Current Wave general procedure: Usman and Jamila with input from all RA's: Farah, Hussain, Hala, Zarqa, Zahra H, Nasrat
- **Ethical Considerations:** Discuss ethical approval obtained for the study and procedures for obtaining informed consent from participants.
  - **Data Analysis:** Provide an overview of the planned data analysis methods, including statistical techniques for longitudinal data analysis.
  - **Preregistration:** The design, hypotheses, measures, and anticipated data analysis are preregistered on OSF (). The study was preregistered before any attempted analyses of data.

### Expected Outcomes

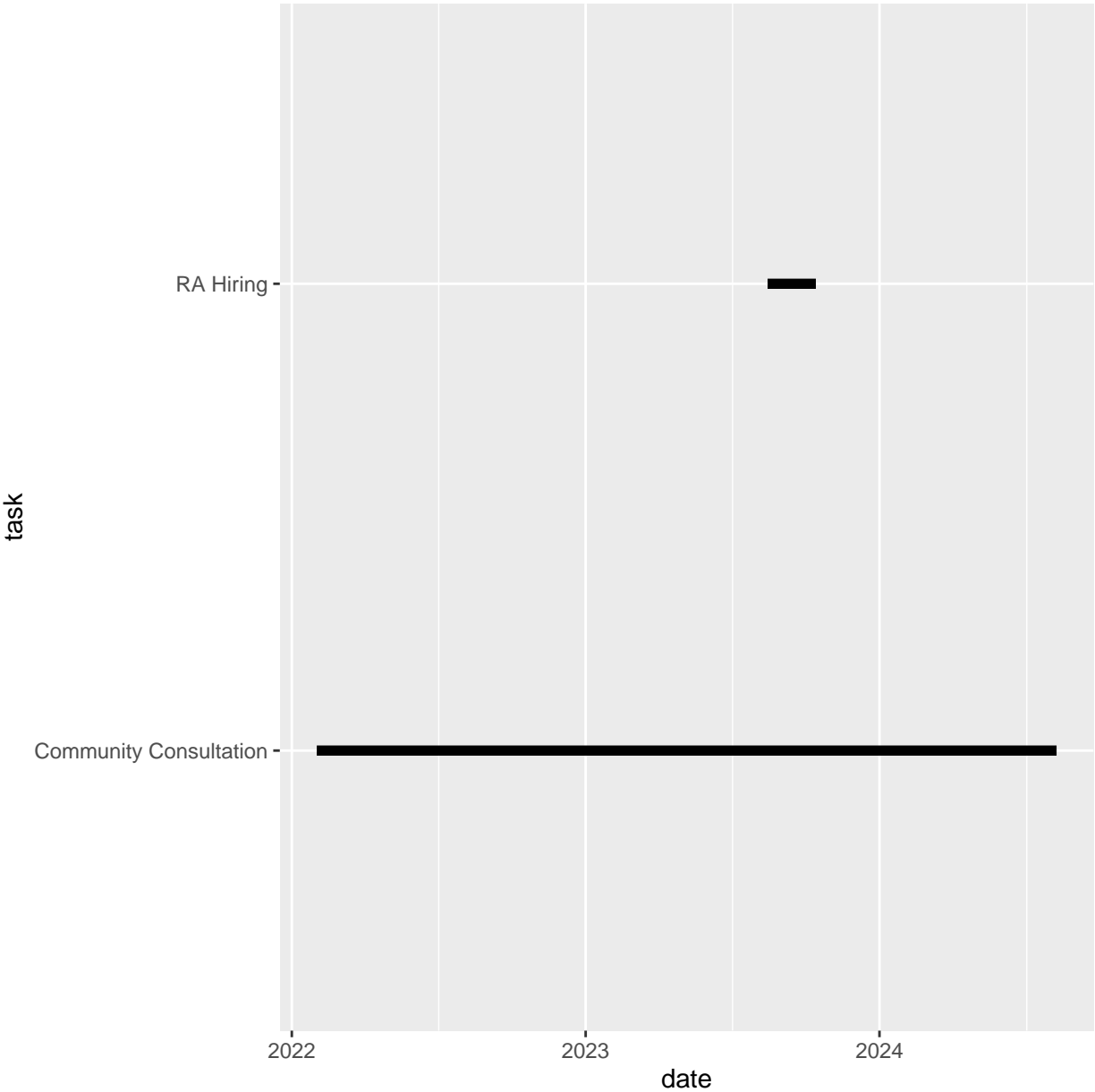
- Anticipated findings based on the research questions and objectives.
- Potential contributions of the study to the field of mental health research and implications for policy and practice.

### Timeline

- Present a timeline indicating key milestones in the study, including recruitment periods, data collection waves, and analysis phases.

#### 1. Usman and Jamila

```
-- Attaching core tidyverse packages ----- tidyverse 2.0.0 --
v dplyr      1.1.4      v readr      2.1.5
v forcats    1.0.0      v stringr    1.5.1
v lubridate  1.9.3      v tibble     3.2.1
v purrr      1.0.2      v tidyr      1.3.1
-- Conflicts ----- tidyverse_conflicts() --
x dplyr::filter() masks stats::filter()
x dplyr::lag()    masks stats::lag()
i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to
```



**Strengths and Limitations**

- 1. Zahra E, Rizwan, Somia

**Conclusion**

Summarize the importance of the longitudinal study in understanding the psychological effects of the Christchurch mosque attacks on the Muslim community and reiterate the significance of the research aims.

1. Zahra E, Rizwan, Somia

### **Ethics**

### **Funding**

A National Longitudinal Study of Muslim Diversity and Flourishing (famously known as Muslim Diversity Study) is supported by a grant from the Templeton Religion Trust (TRT-2022-30579). The funders had no role in preparing the manuscript or the decision to publish it.

### **Data Availability**

The data described in this study are part of the Muslim Diversity Study, that is conducted under the [New Zealand Attitudes and Values Study](#).

### **CoI**

We have no conflict of interest to disclose.

## References

- Atkinson, J., Salmond, C., & Crampton, P. (2014). *NZDep2013 Index of Deprivation*.
- Bulbulia, J. A., Afzali, M. U., Yogeeswaran, K., & Sibley, C. G. (2023). Long-term causal effects of far-right terrorism in New Zealand. *PNAS Nexus*, 2(8).  
<https://doi.org/10.1093/pnasnexus/pgad242>
- Islamophobia after Christchurch terror attacks quadrupled - Australian report*. (2022).  
<https://www.rnz.co.nz/news/national/463304/islamophobia-after-christchurch-terror-attacks-quadrupled-australian-report>
- Jacinda Ardern on the Christchurch shooting: 'One of New Zealand's darkest days'*. (2019).  
<https://www.theguardian.com/world/2019/mar/15/one-of-new-zealands-darkest-days-jacinda-ardern-responds-to-christchurch-shooting>
- Kessler, R. C., Green, J. G., Gruber, M. J., Sampson, N. A., Bromet, E., Cuitan, M., Furukawa, T. A., Gureje, O., Hinkov, H., Hu, C.-Y., Lara, C., Lee, S., Mneimneh, Z., Myer, L., Oakley-Browne, M., Posada-Villa, J., Sagar, R., Viana, M. C., & Zaslavsky, A. M. (2010). Screening for serious mental illness in the general population with the K6 screening scale: results from the WHO World Mental Health (WMH) survey initiative. *International Journal of Methods in Psychiatric Research*, 19(S1), 4–22. <https://doi.org/10.1002/mpr.310>
- Rahman, A. (2019). *Islamic Women's Council repeatedly lobbied to stem discrimination*.  
<https://www.rnz.co.nz/news/on-the-inside/384911/islamic-women-s-council-repeatedly-lobbied-to-stem-discrimination>
- Royal Commission of Inquiry into the terrorist attack on Christchurch Masjidain on 15 March 2019*. (2020). <https://christchurchattack.royalcommission.nz>
- Shanaah, S., Yogeeswaran, K., Greaves, L., Bulbulia, J. A., Osborne, D., Afzali, M. U., & Sibley, C. G. (2021). Hate begets warmth? The impact of an anti-Muslim terrorist attack on public attitudes toward Muslims. *Terrorism and Political Violence*, 119.
- Sibley, C. G., Afzali, M. U., Satherley, N., Ejova, A., Stronge, S., Yogeeswaran, K., Grimshaw, M., Hawi, D., Mirnajafi, Z., & Barlow, F. K. (2020). Prejudice toward Muslims in New



Zealand: Insights from the New Zealand Attitudes and Values Study. *New Zealand Journal of Psychology*, 49(1).

Sibley, C. G., Luyten, N., Purnomo, M., Mobberley, A., Wootton, L. W., Hammond, M., Sengupta, N., Perry, R., West-Newman, T., Wilson, M., McLellan, L., Hoverd, W. J., & Robertson, A. (2011). The mini-IPIP6: Validation and extension of a short measure of the big-six factors of personality in new zealand. *New Zealand Journal of Psychology*, 40(3), 142–159.

*The New Zealand Qualifications Framework*. (2016).

*World leaders condemn New Zealand mosque attacks*. (2019).

<https://www.aljazeera.com/news/2019/3/15/the-world-reacts-to-new-zealand-mosque-attacks>

### **Acknowledgements**

W. Joel Schneider for the [Quarto template](#).

### **CRedit Taxonomy Statement**

**M. Usman Afzali:** Conceptualization, Methodology, Formal analysis, Investigation, Resources, Data Curation, Writing - Original Draft, Writing - Review & Editing, Visualization, Supervision, Project Administration, Funding Acquisition. **Jamila Badis:** Data Curation, Project Administration, Writing - Original Draft, Writing - Review & Editing. **Parus Khoso:** Formal analysis, Data Curation, Writing - Original Draft (Pilot Community Consultation), Writing - Review & Editing. **Gul e Aqsa:** Formal analysis, Data Curation, Writing - Original Draft (Pilot Community Consultation), Writing - Review & Editing. **Farah Shawkat:** Data Curation, Writing - Original Draft (Other Related Work), Writing - Review & Editing. **Fatima Junaid:** Writing - Original Draft (Introduction), Writing - Review & Editing. **Hussain Raissi:** Writing - Original Draft (Method), Writing - Review & Editing. **Hala Burhoun:** Data Curation, Writing - Original Draft (Method), Writing - Review & Editing. **Tuba Azeem:** Data Curation, Writing - Original Draft (Method), Writing - Review & Editing. **Iman Husain:** Data Curation, Writing - Original Draft (Method), Writing - Review & Editing. **Zarqa Shaheen Ali:** Data Curation, Writing - Original Draft (Method), Writing - Review & Editing. **Zahra Haidary:** Data Curation, Writing - Original Draft (Method), Writing - Review & Editing. **Nasratullah Hamid:** Data Curation, Writing - Original Draft (Method), Writing - Review & Editing. **Zahra Emamzadeh:** Writing - Original Draft (Strengths and Limitations, Conclusion), Writing - Review & Editing. **Rizwan Sulehry:** Writing - Original Draft (Strengths and Limitations, Conclusion), Writing - Review & Editing. **Somia Tasneem:** Writing - Original Draft (Strengths and Limitations, Conclusion), Writing - Review & Editing. **Aarif Rasheed:** Conceptualization, Data Curation, Writing - Review & Editing, Funding Acquisition. **Kumar Yogeeswaran:** Conceptualization, Methodology, Writing - Original Draft, Writing - Review & Editing, Funding Acquisition. **Chris G. Sibley:** Conceptualization, Methodology, Resources, Data Curation, Supervision, Writing - Original Draft, Writing - Review & Editing, Project Administration, Funding Acquisition. **Joseph A. Bulbulia:** Conceptualization, Methodology, Resources, Supervision, Writing - Original Draft, Writing - Review & Editing, Project Administration, Funding Acquisition.

**Figure 1***Feeling thermometer scale*

Please rate your feelings of <u>WARMTH</u> toward the following groups using the “feeling thermometer scale” for each group.															
Feel <u>LEAST WARM</u> Toward This Group	Neutral											Feel <u>MOST WARM</u> Toward This Group			
1	2		3		4		5		6		7				
NZ Europeans	1	2	3	4	5	6	7	Overweight people	1	2	3	4	5	6	7
Māori	1	2	3	4	5	6	7	Immigrants in general	1	2	3	4	5	6	7
Asians in general	1	2	3	4	5	6	7	Chinese	1	2	3	4	5	6	7
Pacific Islanders	1	2	3	4	5	6	7	Indians	1	2	3	4	5	6	7
Elderly people	1	2	3	4	5	6	7	Muslims	1	2	3	4	5	6	7
People with a disability	1	2	3	4	5	6	7	LGBTQ+ people	1	2	3	4	5	6	7
Refugees	1	2	3	4	5	6	7	People with mental illness	1	2	3	4	5	6	7

*Note.* From NZAVS Wave 15 <https://osf.io/75snb/>

**Figure 2***Chronic disease diagnosis*

**07. Have you been diagnosed with, or treated for, any of the following health conditions by a doctor in the last five years?**

<input type="radio"/>	High cholesterol
<input type="radio"/>	High blood pressure
<input type="radio"/>	Asthma
<input type="radio"/>	Heart disease
<input type="radio"/>	Diabetes (Type II)
<input type="radio"/>	Depression
<input type="radio"/>	Anxiety disorder
<input type="radio"/>	Other (please state):
	<input type="text"/>

*Note.* From NZAVS Wave 15 <https://osf.io/75snb/>

**Figure 3***Ethnic Groups*

**02. Which ethnic group(s) do you belong to?**

(Mark the space or spaces which apply to you).

- ☐ New Zealand European
- ☐ Māori
- ☐ Samoan
- ☐ Cook Island Māori
- ☐ Tongan
- ☐ Niuean
- ☐ Chinese
- ☐ Indian
- ☐ Other such as *DUTCH, JAPANESE, TOKELAUAN*. Please state:

*Note.* From NZAVS Wave 15 <https://osf.io/75snb/>

**Figure 4***Kessler 6*

During the last 30 days, how often did.... (Please use the scale below to circle a number for each question)					
None Of The Time 0	A Little Of The Time 1	Some Of The Time 2	Most Of The Time 3	All Of The Time 4	
1. ... you feel hopeless?	0	1	2	3	4
2. ... you feel so depressed that nothing could cheer you up?	0	1	2	3	4
3. ... you feel restless or fidgety?	0	1	2	3	4
4. ... you feel that everything was an effort?	0	1	2	3	4
5. ... you feel worthless?	0	1	2	3	4
6. ... you feel nervous?	0	1	2	3	4
7. ... you have negative thoughts that repeated over and over?	0	1	2	3	4
8. ... you feel exhausted?	0	1	2	3	4
9. ... other people exclude you from conversations?	0	1	2	3	4

*Note.* From NZAVS Wave 15 <https://osf.io/75snb/>

**Figure 5***Life Satisfaction*

<i>Instructions: Please rate your level of satisfaction with the following aspects of your life and New Zealand.</i>										
Completely Dissatisfied	Somewhat Satisfied									Completely Satisfied
0	1	2	3	4	5	6	7	8	9	10
1. Your standard of living.	0	1	2	3	4	5	6	7	8	9 10
2. The economic situation in New Zealand.	0	1	2	3	4	5	6	7	8	9 10
3. The quality of New Zealand's natural environment.	0	1	2	3	4	5	6	7	8	9 10
4. Your health.	0	1	2	3	4	5	6	7	8	9 10
5. The social conditions in New Zealand.	0	1	2	3	4	5	6	7	8	9 10
6. The performance of the current New Zealand government.	0	1	2	3	4	5	6	7	8	9 10
7. Your future security.	0	1	2	3	4	5	6	7	8	9 10
8. Business in New Zealand.	0	1	2	3	4	5	6	7	8	9 10
9. Your personal relationships.	0	1	2	3	4	5	6	7	8	9 10
10. Your access to health care when you need it (e.g., doctor, GP).	0	1	2	3	4	5	6	7	8	9 10
11. The quality and health of the waterways in your local region.	0	1	2	3	4	5	6	7	8	9 10

*Note.* From NZAVS Wave 15 <https://osf.io/75snb/>



**Appendix**

**Title for Appendix**