

Muslim Diversity Study: Quantitative protocol and practical insights on engaging New Zealand's Muslim communities

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ABSTRACT

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The New Zealand Attitudes and Values Study (NZAVS) is a national longitudinal study that aims to understand social values and attitudes in New Zealand residents by repeatedly tracking responses in the same people over time. Prior to the Muslim Diversity Study, the NZAVS has been considerably undersampling Muslims, with Muslim participation rates being ten times lower than those of other religious groups. The Muslim Diversity Study seeks to recruit a proportionately representative cohort of Muslim participants within the NZAVS to involve the Muslim community in longitudinal scientific research, and to convey results to Muslim community. Our hope is that by incorporating a broader range of Muslim experiences to the NZAVS, the stories of Muslim adversity and resilience will be more accurately recorded and understood. Such inclusion will enrich the scientific study of human flourishing, address the curiosity of the Muslim community in understanding its diversity, and contribute practical insights that can lead to the betterment of this marginalised community. Here, we describe the motivations for the Muslim Diversity Study, explain how we developed the study in consultation with the Muslim community, outline our methods for data collection, and offer practical guidelines for data collection from a culturally diverse religious community. In the first instance, this article offers a record of our research with Muslims in New Zealand. However, we hope this record will prove useful to investigators who seek to advance the scientific understanding of human flourishing in other settings through the national-scale longitudinal study of culturally diverse, marginalised religious communities.

KEYWORDS

Muslims; diversity; New Zealand Attitudes and Values Study; Muslim Diversity Study; New Zealand

1. Introduction

Officially known as *A national longitudinal study of Muslim diversity and flourishing*, the Muslim Diversity Study (MDS) embraces a community-oriented approach by collaborating with the Muslim community in order to make decisions about the execution of data collection and for identifying key questions of interest for the community at large. It is important that such processes and decisions are recorded in the form of an article so that our findings and recommendations are shared with the broader public and future researchers in New Zealand and across the globe.

MDS started in 2023 as part of the New Zealand Attitudes and Values Study (NZAVS). The NZAVS is a planned 20-year-long longitudinal national probability annual panel study of social attitudes, personality, ideology and health outcomes that began in 2009 and is currently in its 16th year. It has so far collected data from more than 70,000 New Zealand residents using the electoral roll (**sibley2024?**). The NZAVS has been instrumental in exploring key issues related to minorities, including but not limited to discrimination, intergroup relations, identity, distress, security, and the dynamics and mechanisms behind them.

The NZAVS has been uniquely positioned due to its prestigious reputation (over 300 peer-reviewed publications), longitudinal panel design, large sample size, and a large multi-disciplinary research team (**sibley2024?**). More importantly, NZAVS has a nationally representative sample with data from different identity and religious groups (**sibley2024?**), thereby allowing researchers to compare data from different identity groups. However, the NZAVS has been undersampling Muslims by ten times lower than those of other religious groups (**sibley2024?**), which did not allow us to make meaningful inferences regarding Muslim lives and issues in comparison with other religious groups. Hence, the goal of MDS is to achieve as many as 650 Muslim respondents (i.e., ~ 1% of the total nation's Muslim community).

This article has three major parts. After providing the broader context of Muslims and MDS, we firstly discuss the process of co-designing and adjustments to the NZAVS design. Secondly, we present the final design and implemented protocol. Thirdly, we share the summary of advice and lessons learned in the process.

2. Muslims in New Zealand

The Muslim community has been expanding in New Zealand. Based on the 2018 census, New Zealand had more than 60,000 Muslims which has grown to over 75,000 according to the 2023 Census ([statsnz2024?](#)). Studies also show that the number of converts to Islam has recently increased ([arkilic2020?](#)). The Muslim community is uniquely positioned in New Zealand: a growing religious minority and a historically stigmatised group that was the direct target of the 15 March 2019 terrorist attack ([royalco2020?](#); [sibley2020?](#)).

The devastating far-right extremist attack on two mosques took place in Christchurch, killing 51 Muslims and injuring 40 ([royalco2020?](#)). Although this attack was widely condemned ([worldle2019?](#)) and was unprecedented in New Zealand ([jacinda2019b?](#)), it was not as surprising to the Muslim community ([rahman2019?](#)). Leading up to the attacks, many Muslims had regularly experienced Islamophobia and prejudice ([sibley2020?](#); [shaver2017?](#); [shaver2016?](#)).

Even as Islamophobia has reportedly increased overseas following these attacks ([islamoph2022?](#)), the evidence in New Zealand seems to be mixed. While news articles have reported increased hate ([frykberg2023?](#)), the NZAVS findings were indicative of improved attitudes towards Muslims ([shanaah2021?](#); [bulbulia2023?](#)) following the attacks. Addressing this discrepancy is beyond the scope of the current article; however, it is worth noting that most of our research in this area, primarily through the NZAVS lens, has so far shed light on such attitudes from a non-Muslim perspective. In other words, we have mostly reported on how Muslims are perceived by non-Muslim members of New Zealand society, rather than how Muslims perceive themselves. Although NZAVS studies of anti-Muslim prejudice are scientifically important, systematic insights into how Muslims are diversely responding to prejudice, and where Muslims are diversely found resilience remain unclear.

Muslims have generally faced prejudicial attitudes in New Zealand ([yogeeswaran2019?](#); [sibley2020?](#); [greaves2020?](#)). Until the Christchurch terror attack, news stories on Islam and Muslims in New Zealand media were mostly an extension of ‘the negative othering rhetoric’, and the national media tended to link Muslim converts to jihadis ([drury2016?](#)). Unsurprisingly, such rhetoric has been found to foster anti-Muslim prejudice ([shaver2017?](#)).

In the aftermath of Christchurch shootings, the New Zealand government introduced unprecedented counter-terrorism measures such as the prohibition of the sale of all military-style semi-automatic and assault rifles and creating the Royal Commission of Inquiry into these attacks ([royalco2020?](#)). The Royal Commission of Inquiry presented an 800-page report emphasising New Zealand’s inclusive and welcoming identity, among other measures ([arkilic2021a?](#)). In addition, the New Zealand press embraced a more inclusive and positive narrative with respect to Islam and Muslims ([rahman2020?](#); [kabir2024?](#)).

In summary, although there have been sporadic reports of increased hate crimes after the attacks (**wilson2020?**), the average sentiments towards Muslims have improved in New Zealand. The NZAVS, in a series of articles, reported this positive shift in these attitudes toward Muslims post Christchurch attacks (**shanaah2021?**; **bulbulia2023?**), and the psychological response of New Zealand public to the shootings (**byrne2022?**).

The Christchurch shootings prompted many New Zealand research groups and institutions to further study about Muslims and with Muslims, who so far had been a culturally-distinct, under-researched, minority group. These studies included trauma-focused response (**sulaiman-hill2021?**; **sulaiman-hill2024?**), inclusion, Islamophobia and wellbeing (**junaid2024?**), perceived discrimination among Muslim immigrant youth (**raissi2024?**), the political implications of government decisions (**arkilic2021a?**) among others. Given that the NZAVS had explored perceptions of Muslims and the mechanisms of attitudinal changes towards Muslims following 15 March 2019 attacks (**sibley2020?**; **shaver2017?**; **bulbulia2023?**; **hawi2019?**), it was a timely necessity that we expanded our reach to focus on the experiences of this same group.

In addition, much of the NZAVS work to date with the Muslim community had focused on conveying information about how Muslims are perceived by the non-Muslim members of New Zealand society. After receiving strong positive suggestions from the Muslim community to scientifically explore diversity, discrimination, self-perception, resilience, meaning-making and flourishing, the MDS was conceptualised in 2022 to address this scholarly and community knowledge gap. Therefore, MDS is effectively a booster to NZAVS, and uses the NZAVS questionnaires to collect data from the members of Muslim community in New Zealand.

Media reports pointed out incredible resilience and flourishing of victims as well as the wider Muslim community post Christchurch shootings (**oliver2024?**; **greenfield2019?**). Limited research on specific cohorts of Muslims indicated the same (**sulaiman-hill2024a?**; **nasier2023?**). Research on human flourishing has consistently shown that religiosity and religious service attendance might be associated with various aspects of human flourishing (**vanderweele2017?**; **vanderweele2017a?**). New Zealand Muslims' overall under-representation in research and resilience in the face of prejudice and terror produced a critical research gap in the relationship of Muslim religiosity and flourishing that warranted further empirical investigation. By addressing this line of inquiry with MDS, we contribute to the science of human flourishing in general.

3. MDS research aims

MDS aims to investigate the role of religious community engagement in buffering Muslims against anti-Muslim prejudice, to examine the employment and health challenges faced by Muslims relative to other religious groups, and to explore the similarities in subjective wellbeing and psychological distress across religious affiliations, emphasising the protective effects of community support and religious community-making. In addition, we aim to explore the diversity of Muslims in New Zealand, assess Muslims' perceived discrimination in comparison with other religious groups, unearth predictors of their flourishing and meaning-making, and measure the effect of service-attendance and religious-identification on these constructs. This comprehensive approach enables the examination of both direct relationships and complex mediating pathways between

religious community engagement, experienced prejudice, employment and health outcomes, and psychological wellbeing. Through this multifaceted investigation, the study seeks to contribute to our understanding of the Muslim experience in New Zealand and the role of religious community support in promoting positive outcomes across various life domains.

4. Part 1: Co-designing

4.1. *Community consultation*

Prior to applying for the research grant, we deemed it necessary to consult with the Muslim community to gauge interest in the project, and the feasibility of the project for the community. More importantly, inferring from the culturally-focused research groups, it was important to co-design the project with Muslims by consulting with the academics and leaders of the Muslim community. Therefore, the principal investigator (MUA) started engaging with the Muslim community in February 2022 — one year before the start of the project — to co-design the project.

This consultation continued until November 2022, where MUA reached out to 29 Muslims in six cities, Auckland, Hamilton, Palmerston North, Wellington, Christchurch, and Dunedin, from various age groups, genders, and cultural backgrounds. Twenty of these conversations took place with community leaders, religious scholars, academics, and cultural leaders, while 9 conversations took place with individual activists. The conversations were focused around four objectives: 1) To assess the feasibility of the project for Muslims, 2) To assess the interest of Muslims in the project, 3) To get feedback on the survey items, design, and working with the community, and 4) To inquire if translation of the questionnaire may be needed. The consultation revealed unanimous agreement among respondents regarding the study's feasibility and timeliness for the Muslim community, with expectations of strong interest in participation. The respondents indicated that the highest engagement would likely come from youth groups, subsequent-generation migrants, those with formal education, and female participants. Furthermore, the respondents not only endorsed the significance of the study and its planned measures but also pledged their comprehensive support for the initiative.

A few challenges were also identified with regards to the execution of the study: 1) The participation from Christchurch might not be up to the anticipated levels as after the Christchurch shooting, people were frequently surveyed and not provided with the findings, which might have affected their interest to participate in the study. 2) It might not be easy for all prospective participants to understand the questionnaires due to the community's unfamiliarity with research and limitations with fluency in English. 3) The participation from the elderly community (due to unfamiliarity with research) and Muslim converts (due to distrust of the institutions) might also be low. 4) Community members might be suspicious and consider the study to have ulterior or personal motives. Similar challenges have been identified by other researchers who have worked with the Muslim community in New Zealand (sulaiman-hill2024?).

The following recommendations on mitigating these challenges were received upon completing the consultation: 1) To encourage more participation from the Muslim community, findings should be shared with the wider community in future owing to the diversity it will present. To be able to share the research findings with the community smoothly and keep them up-to-date, it was recommended to have a dedicated website for the

study. Therefore, instead of calling it a booster to NZAVS, the project was named Muslim Diversity Study, and a website of the same name was created. 2) Although many said that the questionnaire needs to be translated into seven ethnic languages in connection to reducing the difficulty in reaching the diverse members of the community for the study, they also indicated that a majority of the potential participants could comprehend the English version easily. 3) It was proposed that we should reach out to the community via trusted community leaders/members, ethnic and religious organisations, and mosques, and that for youth engagement, we should go via youth organisations such as Muslim Student Associations (MSAs) at universities. A family-focused strategy was advised to be beneficial as starting with the men was implied to be more effective. 4) To assuage the possible distrust around the motives of the study, the participants must be clearly informed about the study's rationale and its benefits to the community, reiterating that it will increase Muslims' visibility and raise their voice in research. The long-term value of the study for the community as a whole as well as their children should also be emphasised.

This process led to the development of comprehensive guidelines that address feasibility, advice on engagement with the community, the possible challenges, and avenues to enhance participation. The 29 participants of this pilot consultation form the Advisory Group of MDS and are being regularly consulted.

4.2. *Translation*

Our consultation with the community revealed that the need for translation of the questionnaire may be limited to a small subset of New Zealand Muslims, as the majority are expected to be proficient in English. This finding aligns with the research conducted by the March 15 Project team ([sulaiman-hill2021?](#)), which found that 71% of participants preferred English for surveys and clinical interviews.

A critical component of the MDS is the comparison of Muslim scores on the NZAVS with those of other religious groups. The introduction of a translated questionnaire poses the risk of not capturing attitudes and behaviours with the same accuracy as the English version. Consequently, any observed differences in scores between Muslims and other groups could be attributed to translation bias rather than genuine differences in religious affiliations.

This concern was presented to the Advisory Group, which recommended against translating the questionnaire. Instead, it was advised to provide the English version to all potential Muslim participants. This approach offers a methodological safeguard, ensuring that the conceptual meanings are preserved and not distorted by translation. By maintaining the integrity of the questionnaire, we can be more confident in the validity of the comparative analyses between religious groups.

4.3. *Item retention and religious Context Considerations*

The consultation process with the MDS Advisory Group identified six items in the New NZAVS questionnaire that could potentially appear irrelevant to Muslim participants, given the questionnaire's original development within a predominantly Christian and secular context. Despite these potential concerns, a substantial majority of the Advisory Group (81% average across all six items) recommended retaining these items to enable meaningful cross-religious comparisons in the analysis.

Table 1.

Muslim Population in 2022 by Selected Cities (From Stats NZ, 2024)

City	Population	Research Assistants
Auckland	40,221	10
Christchurch	3,942	8
Hamilton	3,561	4
Wellington	3,294	5
Palmerston North	1,317	1
Dunedin	1,299	2

To address potential participant concerns about item relevance, we included in the survey instructions: “As the survey is designed for the general New Zealand population, there may be questions that do not necessarily apply to you. Please feel free to skip any questions that you do not wish to answer.” This approach maintains methodological consistency while acknowledging and accommodating the diverse religious perspectives of participants.

5. Part 2: Protocol

5.1. *Sample size estimation and participants*

The NZAVS sample of Muslim cohort was $n = 85$ prior to MDS (sibley2024?). To enhance the representation of Muslims in NZAVS, we initially aimed to recruit an additional 1500 participants, more than doubling the study’s proportional sampling of the general population. We were able to recruit $n = 582$ new participants. This target corresponds to about 1.3% of New Zealand’s Muslim population based on the 2018 Census (statsnz2024?). Notably, the 2023 Census that took place after the start of MDS shows an increased number of Muslims in New Zealand (75,138) (religi2024?). Data collection was concentrated in six major urban centers—Auckland, Christchurch, Hamilton, Wellington, Palmerston North, and Dunedin—each with a Muslim population of at least 1,000 (see Table ??). Participants were eligible if they self-identify as Muslim, were 18 years or older, and currently resided in New Zealand. There were no exclusion criteria. By conclusion of Wave 15, the sample size of NZAVS is 32,857, with further details available online (<https://osf.io/75snb/>). The total number of Muslim participants in NZAVS Wave 15 is 667.

5.2. *Materials*

We are highlighting measures that are pertinent to the planned papers aimed at communicating the findings emerging from MDS. The complete list of NZAVS measures can be accessed online (<https://osf.io/75snb/>).

For Likert type scales, the minimum and maximum levels are noted along with the description: for instance, 1 = Not Important, 7 = Very Important would mean that a score ranges between 1 and 7, with 1 being the minimum and 7 being the maximum score, whereas (R) indicates the reverse-scored items. Notwithstanding, we might choose

to explore further measures which will then be elaborated on in the individual articles.

5.2.1. 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? (1 = Not Important, 7 = Very Important).
6. I identify as a spiritual person. (1 = Strongly Disagree, 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).

5.2.2. Prejudice

1. I feel that I am often discriminated against because of my religious/spiritual beliefs. (1 = Strongly Disagree, 7 = Strongly Agree).
2. People from my ethnic group are discriminated against in New Zealand. (1 = Strongly Disagree, 7 = Strongly Agree).
3. I feel that I am often discriminated against because of my age. (1 = Strongly Disagree, 7 = Strongly Agree).
4. I feel that I am often discriminated against because of my ethnicity. (1 = Very Inaccurate, 7 = Very Accurate).
5. I feel that I am often discriminated against because of my gender. (1 = Very Inaccurate, 7 = Very Accurate).
6. Intergroup Warmth Ratings: Participants are asked to rate their feelings of warmth toward different groups using the “Feeling Thermometer Scale” for each group from least to most warmth on a 7-point scale where 1 = Least Warm and 7 = Most Warm (see Figure ?? 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.

Please rate your feelings of WARMTH toward the following groups using the “feeling thermometer scale” for each group.															
Feel LEAST WARM Toward This Group 1	Neutral 4						Feel MOST WARM Toward This Group 7								
	2	3		5	6										
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

Figure 1. Feeling thermometer scale

5.2.3. Felt belonging

1. I know that people in my life accept and value me. (1 = Very Inaccurate, 7 = Very Accurate).

2. I feel like an outsider. (1 = Very Inaccurate, 7 = Very Accurate).
3. I know that people around me share my attitudes and beliefs. (1 = Very Inaccurate, 7 = Very Accurate).

5.2.4. *Support*

1. There are people I can depend on to help me if I really need it. (1 = Strongly Disagree, 7 = Strongly Agree).
2. There is no one I can turn to for guidance in times of stress (R). (1 = Strongly Disagree, 7 = Strongly Agree).
3. I know there are people I can turn to when I need help. (1 = Strongly Disagree, 7 = Strongly Agree).

5.2.5. *Employment*

1. What is your highest level of qualification? (String entry).
2. Are you currently employed (This includes self-employed or 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? (1 = Not Satisfied, 7 = Very Satisfied).
7. How secure do you feel in your current job? (1 = Not Secure, 7 = Very Secure).
8. How valued do you feel by your current organization? (1 = Not valued, 7 = Very Valued).

5.2.6. *Health*

1. In general, would you say your health is... (1 = Poor, 7 = Excellent).
2. I seem to get sick a little easier than other people. (1 = Strongly Disagree, 7 = Strongly Agree).
3. I expect my health to get worse. (1 = Strongly Disagree, 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? This is measured using a 6 point nominal scale (a. Never - I don't drink, b. Monthly or less, c. Up to 4 times a month, d. Up to 3 times a week, e. 4 or more times a week, f. Don't know).
6. Have you ever regularly smoked tobacco cigarettes? (Yes/No).
7. Have you ever regularly used e-cigarettes? (Yes/No).
8. Do you currently smoke tobacco cigarettes? (Yes/No).
9. Do you currently vape or use e-cigarettes? (Yes/No).
10. 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? (1 = Not Satisfied, 7 = Very Satisfied). Do you think your doctor/GP shares a similar cultural background to you? (1 = Definitely No, 7 = Definitely Yes). Does your doctor/GP respect your cultural background when you are discussing health issues with them? (1 = Definitely No, 7 = Definitely Yes).

11. Please estimate how many hours you spent during each of the following things last week (String entry). Options provided: Working in paid employment, housework/cooking, looking after children, volunteer/charitable work, exercising/physical activity, watching TV/Netflix/movies, travelling/commuting, watching/reading news, using the internet (in total), using social media (e.g., Facebook), playing video games/computer games.
12. BMI: Calculated by using a person's weight (kg) divided by square root of height (m) that is asked separately, using "What is your height? (String entry (metres))", and "What is your weight? (String entry (kgs))".
13. During the past month, on average, how many hours of actual sleep did you get per night? (String entry).
14. 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).
15. Chronic diseases diagnosis: See Figure ??.

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

☐ High cholesterol
☐ High blood pressure
☐ Asthma
☐ Heart disease
☐ Diabetes (Type II)
☐ Depression
☐ Anxiety disorder
☐ Other (please state):

Figure 2. Chronic disease diagnosis

5.2.7. Subjective wellbeing/psychological distress

Measured using the Kessler-6 items (items 1-6 in Figure ??) rated on a 5-point scale (0 = None of the time, 4 = All of the time) ([kessler2010?](#)).

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					All Of The Time 4				
A Little Of The Time 1					Most Of The Time 3				
Some Of The Time 2									
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

Figure 3. Kessler-6 subjective wellbeing scale

5.2.8. *Meaning of life*

Items are: “My life has a clear sense of purpose” (1 = Strongly Disagree, 7 = Strongly Agree) and “I have a good sense of what makes my life meaningful” (1 = Strongly Disagree, 7 = Strongly Agree).

5.2.9. *Life satisfaction and national wellbeing*

Items from Figure ?? measured on 11-item scale (0 = Completely Dissatisfied, 10 = Completely Satisfied). In addition, “I am satisfied with my life (1= Strongly Disagree, 7 = Strongly Agree)” and “In most ways my life is close to ideal (1 = Strongly Disagree, 7 = Strongly Agree)” are used.

Instructions: Please rate your level of satisfaction with the following aspects of your life and New Zealand.																		
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

Figure 4. Life Satisfaction scale

5.2.10. *Self esteem*

Items are, “On the whole I am satisfied with myself” (1 = Very Inaccurate, 7 = Very Accurate), “I take a positive attitude toward myself” (1 = Very Inaccurate, 7 = Very Accurate) and “I am inclined to feel that I am a failure” (R) (1 = Very Inaccurate, 7 = Very Accurate).

5.2.11. *Gratitude*

Items are, “I have much in my life to be thankful for” (1 = Strongly Disagree, 7 = Strongly Agree), “When I look at the world, I don't see much to be grateful for” (R) (1 = Strongly Disagree, 7 = Strongly Agree) and “I am grateful to a wide variety of people” (1 = Strongly Disagree, 7 = Strongly Agree).

5.2.12. *Community making*

I feel a sense of community with others in my local neighbourhood (1 = Strongly Disagree, 7 = Strongly Agree).

5.2.13. *Intergroup anxiety*

I feel anxious about interacting with people from other races (1 = Strongly Disagree, 7 = Strongly Agree).

5.2.14. *Rumination*

During the last 30 days, how often did you have negative thoughts that repeated over and over? (0 = None of the time, 4 = All of the time).

5.2.15. *Forgivingness versus vengeful rumination*

Items are, “Sometimes I can’t sleep because of thinking about past wrongs I have suffered.” (1 = Strongly Disagree, 7 = Strongly Agree), “I can usually forgive and forget when someone does me wrong. (R)” (1 = Strongly Disagree, 7 = Strongly Agree), and “I find myself regularly thinking about past times that I have been wronged.” (1 = Strongly Disagree, 7 = Strongly Agree).

5.2.16. *Matching with other religious groups*

The following demographic variables are measures by which we will compare the sample obtained with population level indicators of Muslim Diversity in New Zealand Public records.

1. Age: “What is your age?” (String entry), and “When is your date of birth?” (String entry).
2. Education: Measured by an 11-point ordinal scale (0 = No Qualification, 11 = Doctoral Degree, based on the New Zealand Qualification Framework (**thenew2016?**)) from responses to the qualification-related question.
3. Employment: A binary variable is created (0 = Unemployed, 1 = Employed) based on the responses to the employment item “Are you currently employed?”.
4. Ethnicity: The items displayed in Figure ?? 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?” will be used to create a binary variable (Male = 1, Not male = 0).
6. Area-unit deprivation: Measured based on 2018 New Zealand Deprivation Index (**atkinson2019?**) that assigns a decile-rank index (1 = Least Deprived, 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, proportion of unemployed, proportion lacking qualifications, proportion of household crowding, proportion with no telephone access, and proportion with 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. Socioeconomic status (Occupational prestige): A census-derived occupation-based measure NZSEI (New Zealand Socioeconomic Index) is used to estimate one’s socioeconomic status. It uses an open-ended question regarding one’s occupation, which is subsequently classified in accordance with the Australian and New Zealand Standard Classification of Occupations (ANZSCO) Level 3. In case of missing values, the measure is imputed using a combination of age and education. The measure is assigned scores between 10 = Low and 90 = High.
8. 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).
9. Partner: Responses to “What is your relationship status?” are assigned a binary variable (1 = Has a partner, 0 = Doesn’t have a partner).
 10. Religious identification: Responses to “Do you identify with a religion and/or spiritual group?” are coded a binary variable (1 = Yes, 0 = No).
 11. Political orientation: Responses to “Please rate how politically left-wing versus right-wing you see yourself as being” are assigned a 7-point scale (1 = Extremely left-wing, 7 = Extremely right-wing).
 12. Residence: Urban or rural residence (a two-item nominal variable) is identified based on the physical addresses provided.
 13. Region of habitation: Whether participants are living in an urban or rural area, based on the addresses provided, is coded 1 = Urban, 0 = Rural.
 14. Race-based rejection anxiety: “People from other races would be likely to reject me on the basis of my race”. (1 = Strongly Disagree, 7 = Strongly Agree).
 15. Big Six personality traits: Six personality traits – agreeableness, conscientiousness, extraversion, openness, honesty-humility, and neuroticism – are measured using a 7-point (1 = Very Inaccurate, 7 = Very Accurate) Mini-IPIP6 scale (sibley2011?).

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:

Figure 5. Ethnic groups

5.3. Ethics

The NZAVS was approved by the University of Auckland Human Participants Ethics Committee on 26 May 2021 until 26 May 2027 (Reference: UAHPEC22576). All participants granted informed written consent and the University of Auckland Human Participants Ethics Committee approved all procedures.

5.4. Design

The NZAVS is a comprehensive, planned 20-year longitudinal national probability panel study that began in 2009, focusing on social attitudes, personality, ideology, and health outcomes of adults in New Zealand. Currently in its 16th wave, the NZAVS employs quantitative measures to gather data from adult New Zealanders. The MDS serves as

a booster to the NZAVS, specifically aimed at increasing the participation of Muslims residing in New Zealand. The MDS Wave 1 corresponded to NZAVS Wave 15 (from October 15, 2023, to October 14, 2024). Subsequent waves of the MDS align with NZAVS Wave 16 (October 15, 2024, to October 14, 2025), Wave 17 (October 15, 2025, to October 14, 2026), and so on. MDS will examine various outcome variables to test the proposed hypotheses, including perceived religious and ethnic discrimination, employment status, job satisfaction, job security, feeling valued by the organisation, self-rated health, perceived health decline, chronic diseases and disabilities, psychological distress, meaning of life, life satisfaction, sense of belonging, perceived support, warmth toward various groups, vengeful rumination, and forgivingness. The predictors variables include:

1. Perceived religious discrimination
2. Perceived ethnic discrimination
3. Employment status
4. Job satisfaction
5. Job security
6. Feeling valued by organisation
7. Self-rated health
8. Perceived health decline
9. Chronic diseases and disabilities
10. Kessler-6 psychological distress scale
11. Meaning of life
12. Life satisfaction
13. Sense of belonging
14. Perceived support
15. Warmth toward various groups
16. Vengeful rumination
17. Forgivingness

5.5. *Research questions*

1. Do service attendance and/or prayer practices buffer Muslims against experiences of anti-Muslim prejudice?
2. What is the relationship between community ties and resilience to anti-Muslim prejudice among Muslims?
3. Do Muslims face more challenges in employment compared to members of other religious groups?
4. How do health outcomes for Muslims differ from those of matched members of other religious groups?
5. How does religious community-making influence subjective well-being, meaning in life, and psychological distress among Muslims? And, in what ways do these outcomes compare between Muslims and matched members of other religious groups?

5.6. *Procedure*

5.6.1. Training, Support, and Supervision for the Project Team

The research assistant position was advertised by the University of Canterbury and shared via social media, emails, and community organisations. The eligibility criteria included at least tertiary level education in New Zealand, familiarity with research in

humanities and social sciences, interest in working with communities, and experiences of working with Muslim community organisations. Thirty research assistants, as detailed in Table ??, were recruited after initial screening and interviews from a total of 95 applicants.

Prior to the commencement of the MDS, a series of comprehensive Zoom training sessions were conducted to equip the research assistants with the necessary knowledge and skills. These sessions covered the background of the NZAVS and the MDS, as well as detailed instructions on the survey questionnaires. Additionally, the training emphasised ethical guidelines, confidentiality principles, and effective communication strategies for engaging with a culturally diverse participant pool. The training also provided guidelines on planning for hiring participants and promoting community participation in the study. All recommendations from the co-designing process with the community were included in the training material.

The training programme was tailored to accommodate varying levels of research experience. For some assistants, this was their first experience in data collection, while others had extensive research backgrounds. This structured support system ensured that research assistants were well-prepared and confident in their roles, contributing to the overall success of the project.

5.6.2. Data collection

Research assistants used the snowball approach for data collection. As per recommendations from the co-designing process, they started reaching out to their primary contacts first. These consisted of family members and close friends that the research assistants found the most comfortable to reach out to. Starting in this manner ensured that the research assistants were put in a real-life situation within their comfort zone. MUA provided them with consistent feedback and was available to help those that needed practice communicating the message.

After two weeks, the research assistants were guided to reach out to their secondary contacts. These consisted of extended families, peers, and classmates. The process of feedback and support by MUA continued. Finally, they reached out to community organisations. This gradual extension helped research assistants to build confidence in reaching out and attain coherence of narrative regarding the study. Research assistants with extensive previous engagement experience with the community reached out to the community sooner than the rest. In addition to promotion, the research assistants were available to help participants with understanding questions, and if needed, were also present when participants completed questionnaires.

The sample was non-representative, and participants had the choice of filling in the online questionnaire using Qualtrics, or a paper questionnaire which could be returned to the NZAVS headquarters in Auckland University using a prepaid postal envelope.

A runsheet was provided, and different documents and promotional materials such as individual messages, community messages, flyers, and posters were at the research assistants disposal based on their needs. We also developed vision and ethics statements that were part of our MDS introductory letter. In addition, a cover letter was sent to all participants alongside the information sheet. It was aimed to clearly convey the purposes of MDS to the community, see appendices A-H for the aforementioned materials. Furthermore, 10 promotional shirts were designed which the research assistants wore

during festivals and community events for the study promotion.

The social media campaign started at the beginning of 2024 and continued until the end of Wave 1. Besides regularly posting on a weekly, and later on, a fortnightly basis, we also used paid promotion to increase the reach of the project.

For the purposes of community promotion, we relied on a combination of community outreach at local mosques, religious, community, and ethnic organisations, Muslim schools and businesses, and MSAs (Muslim Student Associations). From available databases and community contacts, we identified 218 organisations and the research assistants were able to approach Muslims in 105 of these organisations. Out of these, 80 endorsed and promoted the study. Different organisations endorsed us in different manners: some allowed us to give speeches to their audience, while others shared our promotional material online on their social media platforms, via community message groups (e.g., WhatsApp), and mailing lists. It is worth noting that some of these organisations did not necessarily belong to the Muslim community (e.g., refugee resettlement centres and ethnic community trusts), though they still offered support. In addition, tens of posters were placed in community facilities (e.g., mosques and libraries) and hundreds of flyers were handed over after Friday prayers as well as cultural, community, and religious events and festivals.

In addition to reaching out to organisations, the principal investigator and research assistants conversed with 28 local and national community leaders, celebrities, religious scholars, and academics to disseminate information about the study to the communities. As part of this recruitment drive, the principal investigator, MUA, also presented 28 talks, presentations, and/or lectures to Muslim community groups around New Zealand via mosques, universities and community organisations in the selected cities, explaining the goals of the NZAVS, and how it would benefit the New Zealand Muslim community to be represented in this ongoing national longitudinal panel sample. Five additional talks were delivered by the research assistants too.

5.6.3. Ensuring research assistants' convenience

MDS research assistants came from varied backgrounds. Some of them have had research degrees and extensive research experience, whereas, for others, it was their first attempt at engaging in data collection. Some research assistants wanted explicit weekly targets while others decided their own targets. The principal investigator, MUA, also provided ongoing guidance and feedback, and was available to communicate with participants via audio and video mediums if and when needed. MUA conducted fortnightly check-ins with the research assistants and teams in each selected city to ensure that all their queries were answered, and that they had reliable guidance and feedback throughout the process.

5.6.4. Web hosting

The MDS website (access from [here](#)) provides all key information for the public and will be updated as progress is made.

5.6.5. Data management

The collected data were anonymised and processed in the NZAVS headquarters, and only made available to trusted researchers and collaborators. The NZAVS data dictionary,

sampling procedure, sample details and other relevant information can be accessed online (<https://osf.io/75snb/wiki/home/>) (sibley2024?).

5.7. Timeline

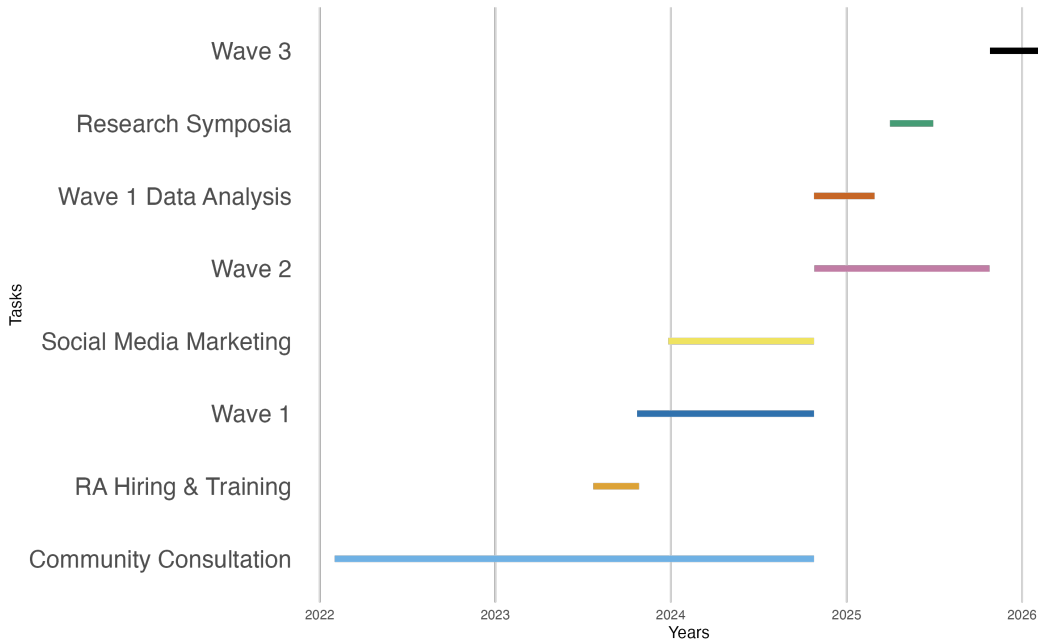


Figure 6. MDS timeline showing tasks and durations

As displayed in Figure ??, the community consultation started before Wave 1 and continued until the end of it. In addition, social media marketing has been an integral part of MDS data collection campaigns. The planned future events, with approximate dates, are indicated too.

6. Part 3: Lessons learned - Guidelines for working with the Muslim community

Based on our interactions with the community, we had anecdotal evidence that some members of the Muslim community might distrust social science research and view it as state surveillance. We also had anecdotal evidence of increases in such scepticism after the Christchurch shootings. Hence, we ensured that our approach and methodology addressed these issues beforehand, and in-line with recommendations from co-designing with the community, such as building trust, highlighting the importance and benefits of academic research, and addressing under-representation of Mulsims in research. Our flyers, posters, social media messages, and individual messages are testaments to this. Based on our interactions with the Muslim community and feedback from the research assistants, we inferred that the following elements encourage increased participation of the Muslim community in research:

1. Building rapport: The community trusts religious and community leaders, intellectuals, academics, and elderly. The first step in any community interaction would

be reaching out to such figures and clearly sharing with them the vision, mission, and need for the project. Leaders' endorsement can be extremely influential.

2. Addressing concerns regarding confidentiality and data management: Given that a large number of Muslims have taken refuge in New Zealand after escaping oppressive regimes, it is only natural for them to be sceptical of anyone who might ask for data. Therefore, it is extremely important to ensure that the data are secured. At NZAVS, we adhere to strict security protocols. Our data are anonymised yet not publicly available, and is safeguarded with some of the world's most secure encryption.
3. Being transparent and truthful with the community: Besides building rapport and ensuring confidentiality, it is extremely important to be transparent and truthful with the community in terms of deliverables and outputs. Reportedly, in the past, some researchers have collected data from the community, but the reports were not shared. Being in constant contact with the community ensures that future research endeavours could take place effectively.
4. Reaching out to individuals personally, and not via groups: Our research assistants have discovered this, especially by the means of targeting their close circles individually and keeping expanding the reach, as a more effective approach to incur higher response rate as compared to targeting the community via organisations. Notwithstanding, the group approach has its own advantages and helps with dissemination of messages.
5. Medium: At the beginning, the focus was on both online and paper questionnaires. Towards the end, based on the feedback from research assistants, we employed paper questionnaires only, which resulted in a comparatively higher response rate.
6. Achievable targets: After testing different targets, each research assistant committed to the completion of a minimum of three participants each week during the final five months. This, coupled with point 5, enhanced the response rate.
7. Comprehensive promotion and research assistant training and support: We found the use of social media, website, flyers, and posters effective in engaging the community. Contents of the website addressing privacy concerns, ethics, vision, and mission were appreciated by some participants and community leaders. In terms of research assistant training, we learned that a systematic approach, runsheet, manual, frequently asked questions, and evolving data collection targets were useful.

Similarly, we learned that the following factors could hinder data collection efforts.

1. Length of the questionnaire: It is measured by the time taken to complete the questionnaire, and was one of the challenges identified in MDS. This would not necessarily generalise to shorter questionnaires.
2. Unfamiliarity of participants with scientific research: Generally, it is the subsequent generation of Muslims that attend the Western education system and become familiar with the process of research, thereby, being more comfortable with research participation. On the other hand, the first generations are less likely to participate. We also have anecdotal evidence from participants, research assistants, and Advisory Group to infer that the first generation of Muslims, due to language barriers and other life priorities (settling in New Zealand, work, lower education)

- might be less likely to participate. Therefore, the sampling should be mindful of these barriers and implement appropriate recruitment strategies.
3. Privacy concerns: In general, if the community does not trust the research group, they would be hesitant to participate. It might sound like common sense, but this is an alert for researchers to not take this matter lightly. The community might not be very familiar with the research process, but that does not mean they should be approached in a non-serious or frank manner. All the potential concerns, including privacy, have to be addressed beforehand.
 4. Political climate: The current political climate and the Middle-East conflict have affected the population as well as the research assistants. Although we lack empirical data, many of our team members and potential participants lost their loved ones since October 2023 and have been grieving. In some of such instances, we tried not to approach affected members of the community.
 5. Language barriers: Our community consultation revealed that most of our potential participants would comprehend English. This, by design, left out those with limited language abilities from participation.

We witnessed enhanced participation by addressing these challenges. Some of these recommendations have been reflected in outputs of the March 15 research group too (sulaiman-hill2024?).

6.1. *Strengths of MDS*

MDS represents a significant advancement in knowledge production, addressing the historical under-representation of the Muslim community in research. While the NZAVS has made important contributions in this area, MDS is a crucial step forward.

As the first comprehensive, contextually rich study of Kiwi Muslims, MDS uses systematic, standardized research methods to explore the decision-making, policy formulation, and inclusion practices of key social players such as the news media, political parties, and social action groups. By ensuring a representative sample (with the NZAVS comprising more than 1% of the target population), MDS aims to enhance our understanding of how these entities interact with the Muslim community in New Zealand.

The findings of MDS are expected to provide valuable insights into issues like political perceptions, diversity, discrimination, self-perception, resilience, meaning-making, and flourishing within the Muslim community. Additionally, MDS will help dispel misconceptions and improve the general public's understanding of Muslims, fostering greater social cohesion. Furthermore, this research lays a solid foundation for future studies on the experiences and perspectives of Muslims in New Zealand.

6.2. *Limitations of MDS design*

MDS is a quantitative-only study, which was necessary to enable comparison with other groups in the NZAVS and to serve as a booster for the NZAS. While this focus on quantitative data limits certain aspects of the study, it provides valuable insights and lays the groundwork for future qualitative research, which could address emerging questions from the community. Given the large sample size and the range of variables examining various social aspects, MDS—and the NZAVS more broadly—offers an unprecedented wealth of data about the lives of New Zealanders. This richness is demonstrated by 300+ peer-reviewed publications that have emerged from the datasets.

A limitation of the study is its focus on English-speaking participants, which may restrict the generalisability of the findings. This approach was necessary for ensuring comparability with other groups in the NZAVS, but a future qualitative follow-up study could aim to include non-English speakers and further broaden the scope of the research.

Another challenge was the length of the questionnaire, which may have affected overall participation and completion rates. However, gathering detailed data on these variables was deemed essential for enhancing the NZAVS dataset and making meaningful comparisons across religious groups.

Finally, because MDS follows the same structure as the NZAVS, some survey items may not be fully culturally compatible with the attitudes and beliefs of the Muslim community. However, feedback from the Advisory Group indicated that these items did not need to be removed, as they were considered important for the overall study framework.

6.3. *Application and implications of MDS findings*

This research enables Muslims in New Zealand to be active participants in shaping their unique identity. This identity not only encapsulates the diverse ethnocultural societies within the New Zealand Muslim community, but also allows for the formation of a distinct national identity. Often research used to drive policy and intervention targeted at New Zealand Muslims is informed by research undertaken on Muslim communities overseas. Whilst there are many comparable similarities between Muslims worldwide, their everyday life experiences are heavily shaped by the society in which a Muslim resides. Furthermore, the strengthening of this identity can facilitate greater in-group understanding, connection, and belonging to New Zealand.

This research also has the potential for the Muslim voice to have a greater influence on public perception of Muslims in New Zealand. The visible Muslim voice in many parts of the Western world is often reactionary to political events, discriminatory experiences, or accusations of terror. Greater understanding and public discourse of lived experiences of Muslims in New Zealand, one allows for a more accurate understanding of these experiences, and two, facilitates a shift in how Muslim voices are ‘allowed’ to participate in society.

This research can also inform international discourse on the experiences of Muslim immigrants, and their views and beliefs on their country of residence. (stockemer2021?) completed a comprehensive review on studies focused on Muslim immigrants’ sense of belonging and identity; results reflected this varied greatly depending on the country of residence at a macro-level, and personal education at the micro-level.

MDS allows Muslim to have an active, data informed input in shaping policies and intervention targeted at their wellbeing and livelihood. This is especially significant in the aftermath of the 15 March terror attacks targeting Muslims in New Zealand. Research highlights significant long term mental health distress and vulnerability for individuals directly impacted by the attacks (sulaiman-hill2024a?).

Insights from the findings could be used as a form of policy advocacy in two ways: first, by engaging with policymakers to advocate for policies that address discrimination and promote inclusivity. This could involve working with local governments and organisations to ensure that the voices of Muslims are heard in policymaking and in organising

safety and security initiatives. Second, by collaborating with law enforcement to create safety initiatives that ensure the wellbeing of Muslim communities.

Policymakers can use our findings to develop more effective and equitable policies that better address the needs and rights of Muslim communities. For instance, understanding the impact of community ties and religiosity on the resilience of Muslim communities can guide the government in creating support programmes that strengthen these aspects.

Findings from this study can contribute to government strategies that focus on adaptability and change while engaging with the Muslim community to encourage bonding, bridging, and linking social capital where possible.

Research also highlights the psychological impact that the terror attacks had on wider Muslim communities in New Zealand, who viewed the attack to be of a personal nature through a shared identity with the targeted victims of the attacks (**nasier2023?**). This poses significant responsibility on the health system in New Zealand to be equipped to meet the ongoing and long-term needs of New Zealanders impacted by terror. This research can provide valuable insights into the Muslim community, facilitating the development of interventions that are effectively tailored to meet their needs.

Practically, the findings could guide the development of targeted interventions aimed at reducing Islamophobia and supporting the Muslim community in New Zealand. Since “programmes are the instruments, governments use to implement a policy or achieve a particular outcome” (**rose1991?**), community-based programmes that strengthen social ties and religious practices could be designed to buffer against anti-Muslim prejudice. Insights from the findings could further pave the way for organising public forums and discussions to bring together Muslims and non-Muslims to address issues of discrimination, resilience, and community wellbeing, with the aim of fostering dialogue and understanding.

The findings could also inform policy regarding the need for targeted anti-discrimination measures. As the research has highlighted the challenges faced by Muslims in employment and health, targeted interventions to improve these areas for Muslim communities should be prioritised by the government. Muslims in New Zealand are diverse and the Muslim community organisations have been actively working with local and central governments to provide advice and input regarding ethnic communities (**fianz2024?; nzma2024?**). However, it should be noted that while it may be regarded as illusory to develop policies, programmes, and practices that purport to be “blind” to race and ethnicity (**durie2005?**), socio-economic measures addressing discrimination among Muslims in New Zealand should be tailored to the communities, considering their religious characteristics alongside their ethnicities or races.

Regarding socio-economic concerns, the practical applications of the study’s findings can be seen in interventions focusing on employment and economic support, such as creating programmes that assist Muslims in navigating the job market and addressing the unique challenges they face. This could include mentorship programmes, skills training, and networking opportunities. Additionally, partnerships between local businesses and Muslim community organisations could promote diversity in hiring practices and support entrepreneurs. Culturally sensitive mental health initiatives that are visible within Muslim communities and tailored to their cultural and religious needs would also be effective programmes.

6.4. *Conclusion*

MDS is a crucial booster for the NZAVS because not only it addresses the under-representation of Muslim in NZAVS, but it only helps us answer many questions about Muslims' self-perception, meaning-making, flourishing, religiosity, and health outcomes. We have provided a preliminary guideline of working with a minoritised religious community in a culturally sensitive manner. Despite the well-known limitations of observational, quantitative, survey research, MDS provides substantial values in terms of implications and applications. Techniques learned from MDS can be applied while working with Muslims and other culturally similar groups in New Zealand and overseas.