



New Zealand
Crime and Victims **survey**

HELP CREATE SAFER COMMUNITIES

Māori victimisation in Aotearoa New Zealand

April 2021

Results drawn from Cycle 1 and 2
(2018/19) of the New Zealand
Crime and Victims Survey

Executive summary

Background

Calls for fundamental reform of the criminal justice system in Aotearoa New Zealand have occurred over many years. In 2018 the [Hāpaitia te Oranga Tangata](#), the Safe and Effective Justice Programme was initiated to set a new direction for change. In 2019, the [Turuki! Turuki! Move together!](#) report published by Te Uepū Hāpai i te Ora, the Safe and Effective Justice Advisory Group, established by the Minister of Justice, called for “*a fundamental reshaping of Aotearoa New Zealand’s justice system to one which prevents harm, addresses its causes, and promotes healing and restoration among individuals and communities.*” (p.5). The report noted, among other things, that “*the [justice] system is failing Māori. ... We heard how the enduring effects of colonisation disenfranchise and impoverish Māori communities, and how Māori experience worse outcomes than other new Zealanders at every stage of the justice process.*” (p.12), and that “*We heard numerous examples of institutional racial discrimination in the justice system, particularly towards Māori and Pacific communities.*” (p13).

Many criticisms of the criminal justice system focus on criminal justice responses to people who offend and the disproportionately negative affect this has on Māori. However, it has been known for a long time that Māori are also significantly over-represented among those who are harmed by crime.

This report takes an in-depth look into Māori victimisation in Aotearoa New Zealand to help inform the discussions and initiatives around the ongoing reform of the justice system. Specifically, we look at victimisation within the Māori population during the first two cycles of the NZCVS (2018/19) to examine the extent and nature of crime experienced, who within Māori are more likely to be victimised, and what factors protect against victimisation.

Key findings

Note: All demographic findings are in comparison with the Māori population average.

Offences experienced

- Over one third of Māori adults (38%) were victimised within a 12-month period. This is significantly higher than the New Zealand average of 30%.
- Burglary (16%) and interpersonal violence (12%) are the most common types of offences experienced by Māori adults and are more likely to be experienced multiple times. This is compared with the New Zealand average of 12% and 7% respectively.

Multiple and repeat victimisation

- One fifth of Māori adults (20%) experienced one offence, and 18% of Māori adults experienced multiple offences. These victims experienced 80% of all offences towards Māori.
- A small proportion of Māori experience disproportionate amounts of crime against Māori, with 5% of Māori adults experiencing 81% of all violent interpersonal offences and 56% of burglaries.

Individual-level factors

- Factors that significantly increased the risk of victimisation for Māori include being younger (aged 15–29), being bisexual, being in a non-legally recognised partnership¹ and having a disability.
- In contrast, factors that significantly decreased the risk of victimisation include being older (aged 50+) and being in a legally recognised partnership (marriage/civil union/de facto relationship).

Regional, neighbourhood, household and relational factors

- Māori adults living anywhere in the North Island – apart from the Wellington region – were less likely to experience personal offences and violent interpersonal offences compared with Māori living in Wellington or the South Island.
- Māori adults living in rural settlements, couple-only households and low-deprivation areas were less likely to experience household offences and burglary.
- In contrast, Māori adults living in high-deprivation areas or single-parent, single-person or multi-family households were more likely to experience household offences and burglary.
- Māori adults who experienced problems in their neighbourhood such as noisy neighbours and dangerous driving were significantly more likely to experience crime.
- Māori adults were more likely to experience violent interpersonal offences perpetrated by non-family members, with roughly half of these non-family members being strangers.

Lifetime experiences of partner and sexual violence

- Thirty-six percent of Māori adults have experienced some form of intimate partner or sexual violence during their lifetime.
- Factors associated with a higher chance of having experienced intimate partner or sexual violence include being female, being aged 40–49, identifying as gay/lesbian or bisexual, being separated or divorced, and living in a single-parent household.

¹ Non-legally recognised partnerships are any intimate partnership where the couple are not married/in a civil union and have not been living together for two years (de facto).

Economic factors

- Māori adults who are retired, have high household incomes, are not financially stressed and who own their own homes are significantly less likely to experience violent interpersonal offences and household offences, specifically burglary.
- In contrast, Māori adults who are unemployed, under financial pressure, and who rent their accommodation from local or central government are significantly more likely to experience violent interpersonal offences, and their homes are more likely to be burgled.

Wellbeing factors

- There is a strong association between wellbeing and victimisation for Māori. Māori who have experienced crime are more likely to suffer from psychological distress, have lower life satisfaction and feel less safe.
- Māori who had experienced crime were less likely to trust people and were more likely to expect others to take advantage of them.

Conclusion

Almost all of the factors found to increase or decrease the likelihood of victimisation for Māori are the same as those found for the general population (see [NZCVS Cycle 2 report](#)). However, the Māori population is overrepresented in many of the high-risk areas for victimisation and underrepresented in many of the low-risk areas, leaving Māori to bear a disproportionate level of victimisation overall.

The [Turuki! Turuki! Move together!](#) report published in 2019, within the [Hāpaitia te Oranga Tangata](#) programme as well as a range of previously published reports attribute many of the factors that lead the Māori population to be overrepresented in high-risk areas for victimisation and underrepresented in many of the low-risk areas to the enduring effects of colonisation². Any intervention or response aimed at reducing victimisation for Māori needs to take structural differences into account and extend beyond the relatively narrow set of interventions currently available within the criminal justice system to encompass a wider set of contextual issues. This includes recognising social and economic inequalities, urban/rural disparities, and structural racism, as well as seeking to understand the issues and identify solutions within a Māori conceptual framework.

The findings of this report provide one view of Māori victimisation in Aotearoa New Zealand. However, more work is needed to also bring a specifically te ao Māori perspective to the research, including kaupapa Māori research to better understand the issues and answer a range of additional questions raised by this research.

² See, for example, Jackson, M (1987) [A New Perspective – He Whaipanga Hou](#). *Study Series 18, Part 1*, Department of Justice, Wellington; Maynard, K, Coebergh, B, Anstiss, B, Baker, B, and Huriwai, T (1999) [Ki Te Arotu: Toward a new assessment](#): The identification of cultural factors which may predispose Māori to crime. *Social Policy Journal of New Zealand* 13: 43–58; Quince, K (2007) [Māori and the criminal justice system in New Zealand](#). In *Criminal Justice in New Zealand*. Tolmie, J and Brookbanks, W (eds). Wellington: LexisNexis NZ Limited, pp333–358

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Service provider

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Contributors

All writing and analysis for this report was performed by Dr Tadhg E Daly and Tianying Chu. Contributors were employed by the Ministry of Justice Research and Evaluation team at the time of publication.

Internal and external experts

To produce this report, we consulted with several agencies and subject matter experts in areas related to Kaupapa Māori and indigenous research, criminology, crime and victimisation, statistics and the intersection of these subjects. These consultations helped form the structure of the report which was then drafted and sent back to agencies and subject matter experts for peer-review. We are grateful for the support, guidance and advice of all the experts who provided consultation and peer-review for this report.

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NZCVS Project Team

1 Introduction

This report was written by the New Zealand Crime and Victims Survey (NZCVS) team to help inform discussions and initiatives around the ongoing reform of the criminal justice system.

The NZCVS is a nationwide, face-to-face, annual, random-sample survey asking adults living in private dwellings and aged 15 and over about incidents of crime they experienced in New Zealand over the previous 12 months. This includes incidents reported to the Police and unreported incidents. This report focuses mainly on the Māori participants of the survey to provide a within-Māori analysis. That is, we compare the experiences of Māori who were victimised with the experiences of Māori who were not victimised, as opposed to comparisons with non-Māori.

1.1 Background to this report

Calls for fundamental reform of the criminal justice system in Aotearoa New Zealand have occurred over many years. In 2018, the [Hāpaitia te Oranga Tangata](#), the Safe and Effective Justice Programme was initiated by Ministers to set a new direction for change. In a fresh approach to engagement, the public was asked what their experience of the system was, and how they would like it to change.

Many thousands of New Zealanders contributed to the conversation about what they want from their criminal justice system. Their views are reflected in the [Turuki! Turuki! Move together!](#) report published by Te Uepū Hāpai i te Ora, the Safe and Effective Justice Advisory Group, established by the Minister of Justice. The report called for “*a fundamental reshaping of Aotearoa New Zealand’s justice system to one which prevents harm, addresses its causes, and promotes healing and restoration among individuals and communities.*” (p.5). The report also noted, among other things, that “*the [justice] system is failing Māori. ... We heard how the enduring effects of colonisation disenfranchise and impoverish Māori communities, and how Māori experience worse outcomes than other new Zealanders at every stage of the justice process.*” (p.12), and that “*We heard numerous examples of institutional racial discrimination in the justice system, particularly towards Māori and Pacific communities.*” (p13).

The findings in [Turuki! Turuki! Move together!](#) are accompanied by recommendations for reform, including establishing a Mana Ōrite (equal power) governance model between Māori and the Crown, making tikanga Māori and te ao Māori values central to the justice system, and providing better and more diverse support services for people who are victimised (see the reports [here](#) to learn more about the issues and recommendations for reform).

1.2 Why have we written this report?

Many of the criticisms of the criminal justice system raised in the [Hāpaitia te Oranga Tangata](#) reports and previous reports on our criminal justice system focus on responses to people who offend. They note, for example, that Māori are over-represented in some of our most negative crime statistics. However, it has been known for a long time that Māori are also significantly over-represented among those who are harmed by crime. For example, in 2006, a report written by Cunningham et al on Māori victimisation³ provided statistics that showed that Māori were more likely than non-Māori to be victimised across all offence types and were more likely to experience multiple offences. That report also found that victimisation was more likely for Māori with fewer social and economic resources.

The government has already started to roll out its plan to keep our communities safe through the [Hāpaitia te Oranga Tangata](#), the Safe and Effective Justice Programme, which is bringing people together to address the root causes of crime, empower victims, reduce offending, and reduce the over-representation of Māori in the criminal justice system. This report provides evidence in support of this plan.

The first two cycles of the NZCVS ([Cycle 1 and 2: 2018/2019](#)) have found similar results to the Cunningham report. Some of the findings are presented in the text box below.

- Māori are significantly more likely to experience crime across all offences, household offences and personal offences (38% vs. New Zealand average of 30%).
- Māori were almost twice as likely to be victims of interpersonal violence than the New Zealand average.
- Māori were more likely to be victims of Intimate Partner Violence and/or sexual violence than the New Zealand average.
- When controlling for both age and the level of deprivation, Māori are 3 percentage points more likely to be victims of crime compared with the New Zealand average. This difference is not statistically significant. This suggests that the higher overall rates of victimisation observed for Māori are largely due to there being higher proportions of young Māori and higher proportions of Māori in high deprivation areas.

Note. Statistical control is a technique that helps to separate the effect of one or more particular factors from the remaining factors.

These repeated findings suggest that little progress has been made to address high rates of Māori victimisation and that this is likely to continue if changes are not made.

³ Cunningham, C, Triggs, S, and Faisandier, S. 2009. *Analysis of the Maori experience: Findings from the New Zealand Crime and Safety Survey 2006*. Wellington: New Zealand Ministry of Justice.

This report has been written to provoke interest in and help illuminate this issue of Māori victimisation, inform discussion and enable targeted solutions to be identified and implemented. The statistics may also be used as baselines to assess whether further reform initiatives are having the desired impact.

1.3 What is in the report?

This report takes a deep look into the Māori population data within the NZCVS to provide a detailed picture about Māori experiences of crime in Aotearoa New Zealand. It focuses on the extent and nature of victimisation experienced by Māori and the diversity of victimisation within the Māori population – it asks which Māori are more or less likely to be victimised? With the exception of high-level comparisons from previous reports, no comparisons are made with the average New Zealand experience or the experience of any other ethnic group.

High-level questions addressed in this report include:

- What is the extent and nature of victimisation for Māori in Aotearoa New Zealand?
- How is victimisation distributed within the Māori population?
- Who within the Māori population is more or less likely to be victimised?
- For Māori, which factors are most predictive of victimisation, and which appear to protect against victimisation?

1.4 Māori involvement in the survey and this report

Although Māori were consulted on the development of the NZCVS survey questionnaire both externally and within the Ministry of Justice, the survey reflects a mainly Eurocentric worldview and was influenced by similar international surveys in the United States, Australia and Europe. We intend to enhance future reports on this topic by building on a kaupapa Māori research model with Māori authors or co-authors in the research design, analysis and writing to provide a more te ao Māori perspective. More discussion on how we intend to share our data and research outputs and our intentions for future research are provided in [Section 6.2](#) of this report.

2 Offences experienced

2.1 What are personal and household offences?

Personal offences include:

- theft and property damage (personal)
- robbery and assault (except sexual assault)
- fraud and deception
- cybercrime
- sexual assault
- harassment and threatening behaviour.

Household offences include:

- burglary
- theft of/unlawful takes/converts motor vehicle theft from motor vehicle
- unlawful interference/getting into motor vehicle
- damage to motor vehicles
- unlawful takes/converts/interferes with bicycle
- property damage (household)
- theft (except motor vehicles – household)
- trespass.

Summary of findings

Over one third of Māori adults (38%) were victimised within a 12-month period. Twenty-six percent of Māori have experienced a household offence and 20% a personal offence. The most common and frequent type of household offence experienced was burglary. The most common types of personal offences experienced were fraud and deception, followed by assault and robbery.

Looking at broad offence types, burglary and interpersonal violence are the most common and are more likely to be experienced multiple times.

2.2 Overall

Thirty-eight percent of Māori experienced a crime within a 12-month period. Altogether, Māori experienced 529,000 incidents, or 97 incidents per 100 adults.

Twenty-six percent of Māori experienced a household offence and 20% experienced a personal offence.⁴ Both types of offence were experienced at similar rates, with 48 household offences occurring per 100 households and 49 personal offences occurring per 100 adults.

2.3 Household offences

Burglary was by far the most common and frequent household offence, with 16% of households experiencing a burglary and 26 burglary incidents occurring per 100 households.

Household thefts, property damage, trespass and motor vehicle offences were less common and less frequent household offences, with 1%–3% of Māori experiencing each of these offences at rates between 1 and 5 per 100 households (see Figure 2.1).

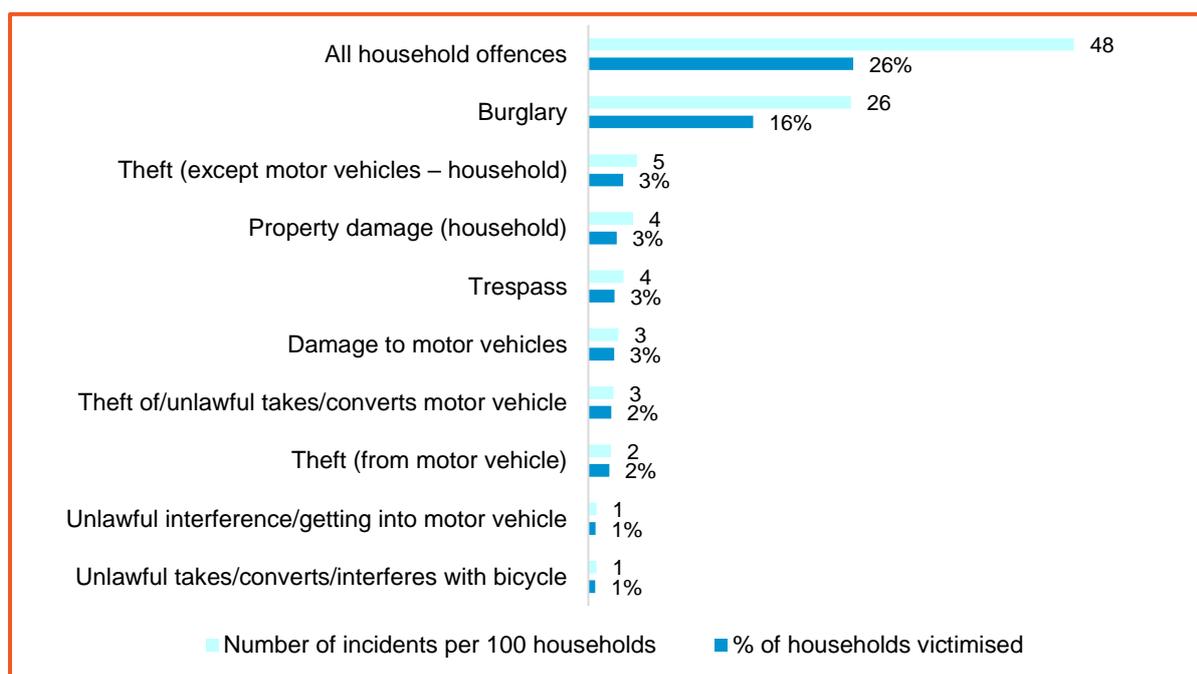


Figure 2.1 Percentage of Māori-occupant households victimised and the number of incidents per 100 households⁵

⁴ Underlying percentages of offences experienced do not sum to the total because some people experienced both household and personal offences.

⁵ Bars with the same number may not appear even because the underlying data was not rounded.

2.4 Personal offences

Fraud and deception was the most common personal offence experienced, followed by assault and robbery. However, those experiencing assault and robbery offences experienced more incidents. Specifically, 7% of Māori adults experienced a fraud and deception offence at a rate of 10 per 100 adults, whereas 6% experienced an assault or robbery at a rate of 12 per 100 adults.

Sexual assaults and harassment offences were relatively less common but were experienced at relatively high frequencies, with 4% of Māori adults experiencing each of these offences at rates of 10 per 100 adults (see Figure 2.2).

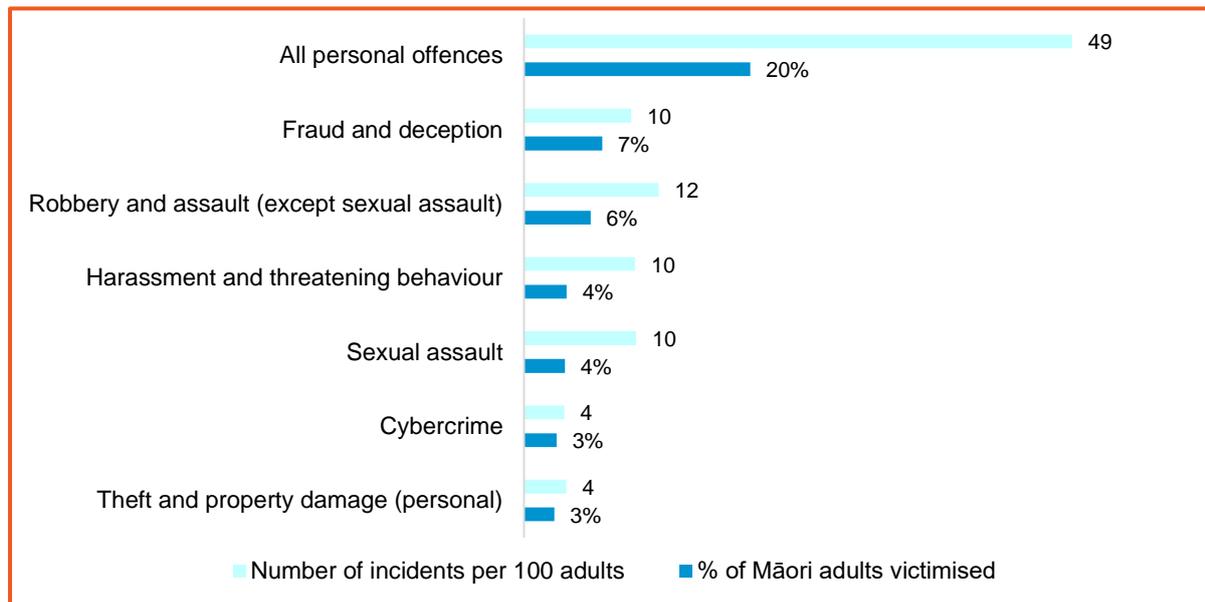


Figure 2.2 Percentage of Māori adults who experienced personal offences and the number of incidents experienced per 100 adults

2.5 Broad offence types

In the NZCVS the same offences described above are grouped into four broad categories excluding burglary and trespass to aggregate similar but less common offences together. These broad offence categories are interpersonal violence; fraud and cybercrime; theft and damage offences; and vehicle offences (see [Appendix A](#) for how the offences are grouped).

Looking at the broad offence types displayed in Figure 2.3, burglary followed by interpersonal violence are the most common types of offence experienced by Māori. Together, these two offence types account for over half of all incidents experienced by Māori. Violent interpersonal offences are experienced at a higher rate than any other broad offence, with a rate of 34 incidents occurring per 100 adults. This suggests that those experiencing interpersonal violence are more likely to experience multiple events.

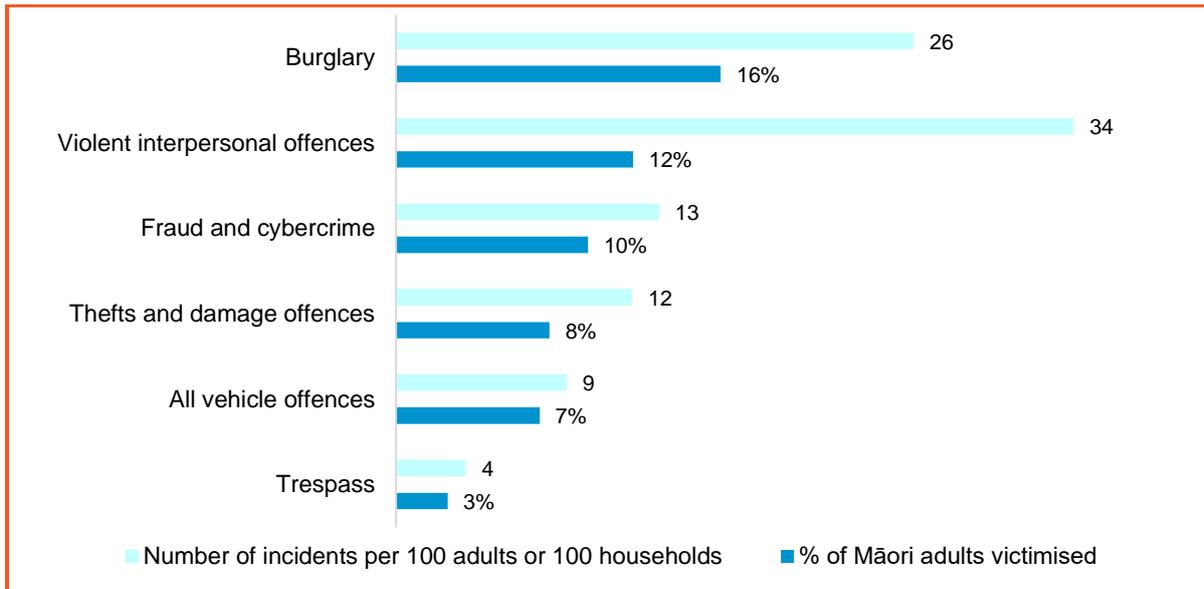


Figure 2.3 Percentage of Māori adults victimised and the number of incidents experienced per 100 adults or per 100 households

3 Multiple and repeat victimisation

3.1 What is multiple and repeat victimisation?

Multiple victimisation refers to experiencing any offence more than once within a 12-month period.

Repeat victimisation refers to experiencing a specific type of offence (eg, burglary) more than once within 12 months.

Summary of findings

Eighteen percent of Māori adults experienced multiple offences within a 12-month period, and these victims experienced 80% of all offences towards Māori. A small proportion (5%) experienced almost half (46%) of all offences towards Māori.

Interpersonal violence is the most repeated type of offence, with 81% of all offences occurring as part of a chain, with burglary the second most repeated at 56%. Analysis of repeat victimisation reveals that a small proportion of Māori experience disproportionate amounts of crime, with 5% of Māori experiencing 81% of violent interpersonal offences and 56% of burglaries.

3.2 Multiple victimisation

As mentioned above, 38% of Māori adults experienced crime within a 12-month period. Of them, 20% of Māori adults experienced a single offence within a 12-month period. This group experienced 20% of all incidents towards Māori.

The remaining 18% of victims experienced more than one offence within a 12-month period and experienced 80% of all incidents towards Māori.

Five percent of Māori adults experienced five or more offences within a 12-month period. This group experienced almost half (46%) of all incidents towards Māori (see Figure 3.1).

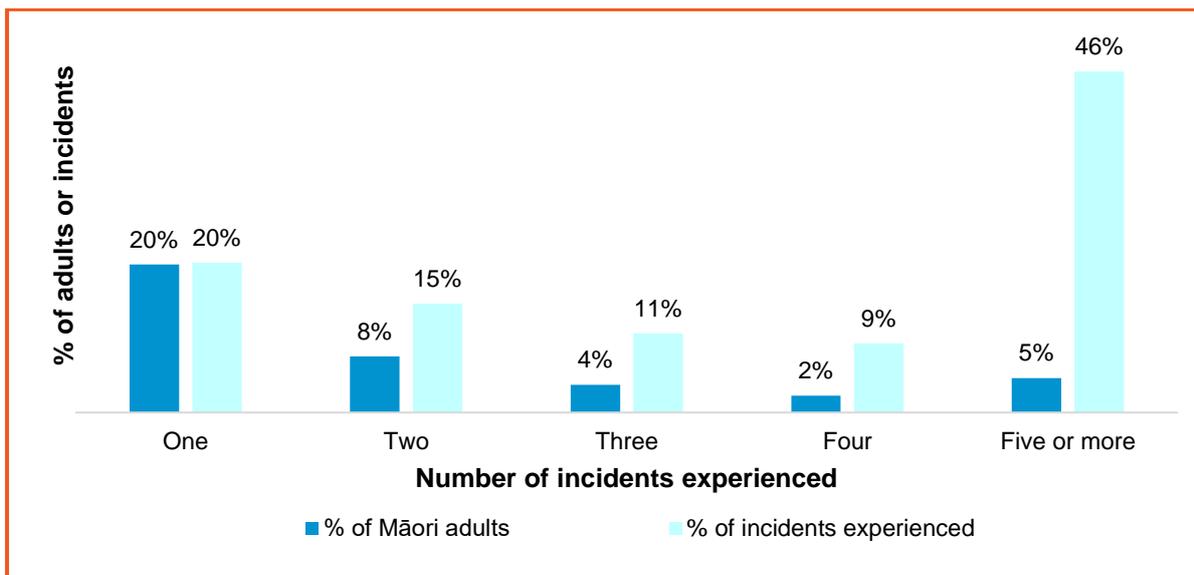


Figure 3.1 Percentage of Māori adults and the percentage of all incidents towards Māori experienced, by the number of incidents experienced

3.3 Repeat victimisation

Interpersonal violence is the most repeated broad offence type, with 81% of all interpersonal violence incidents towards Māori experienced as part of chain of multiple incidents (see Figure 3.2).

Burglary is the next most repeated offence, with 56% of all burglaries occurring as part of a chain. In contrast, 72% of all vehicle offences experienced by Māori are one-off events.

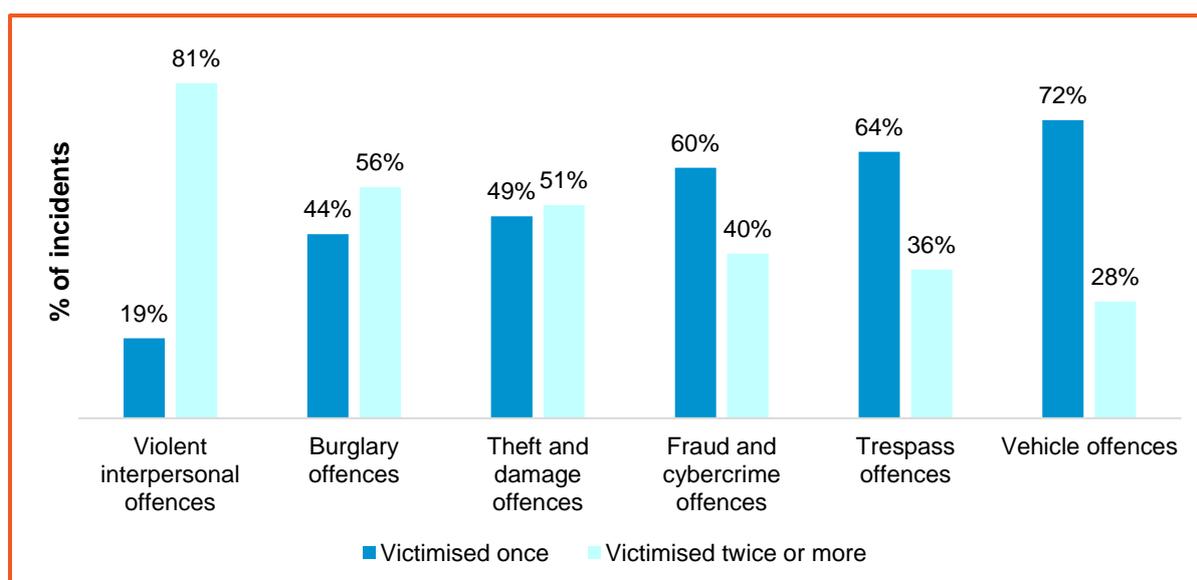


Figure 3.2 Percentage of incidents experienced, by repeat victimisation across broad offence types

Small proportions of Māori adults experience large proportions of offences. For example, 5% of Māori adults experience 81% of all violent interpersonal offences towards Māori (see Figure 3.3). Similarly, 56% of all burglaries experienced by Māori occur within 5% of Māori households.

Even with less-repeated offences like fraud, there are still 2% of Māori adults who experience 40% of all fraud and cybercrime offences.

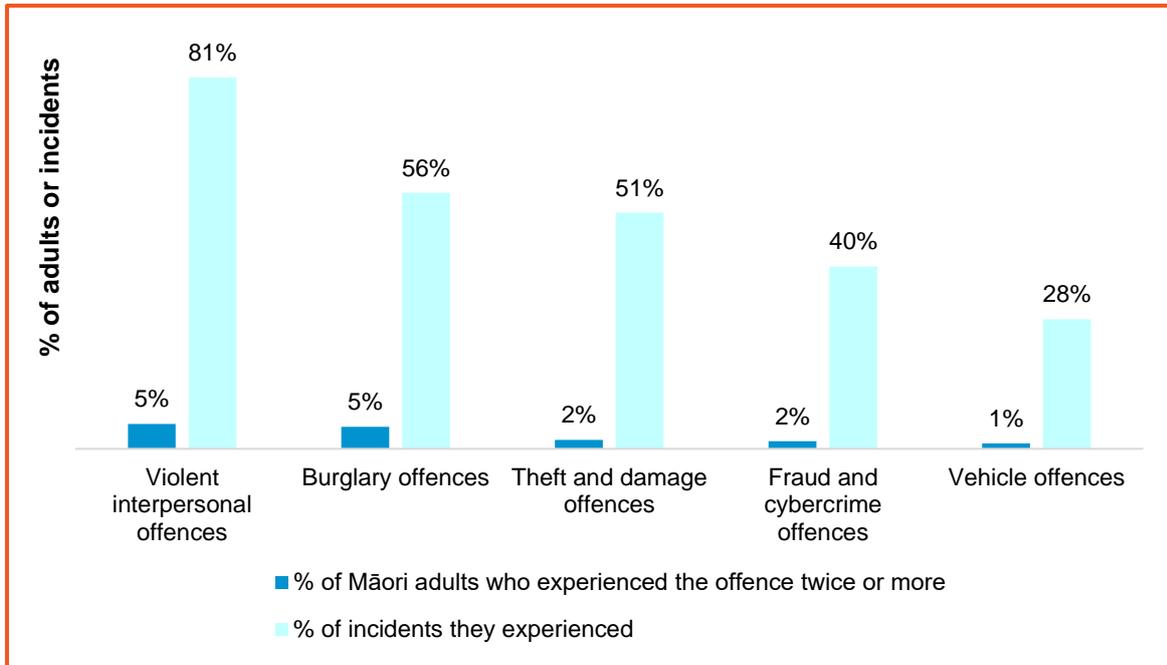


Figure 3.3 Percentage of Māori adults who experienced repeat offences and the percentage of offences they experienced, by broad offence types

4 Lifetime experiences of intimate partner and sexual violence

4.1 How do we measure lifetime intimate partner and sexual violence?

The NZCVS asked whether someone had ever experienced intimate partner violence and/or sexual violence at some point during their lives (lifetime prevalence).⁶ With sensitive questions like these, survey respondents may not want to admit that an incident has taken place, even though they enter their own responses to the questions confidentially. They may choose to put “don’t know” or “don’t wish to answer” as their responses. As such, we have included people who said “yes”, “don’t know” and “don’t wish to answer” in these estimates.

Summary of findings

Thirty-six percent of Māori adults have experienced some form of intimate partner or sexual violence during their lifetime. Twenty-three percent have experienced intimate partner violence, and 30% have experienced sexual violence.

Factors associated with include being female (50%), being aged 40–49 (46%), identifying as gay/lesbian or bisexual (64%), being separated or divorced (50%), and living in a single-parent household (54%).

4.2 Overall

Thirty-six percent of Māori experienced some form of intimate partner or sexual violence during their lifetime⁷ (see Figure 4.1).

⁶ The intimate partner violence question was only for those who have ever had a partner. The questionnaire did not explicitly ask about either current partners or ex-partners at the time of the incident.

⁷ Underlying percentages of intimate partner or sexual violence will not sum to the total because some people experience both types of offence.

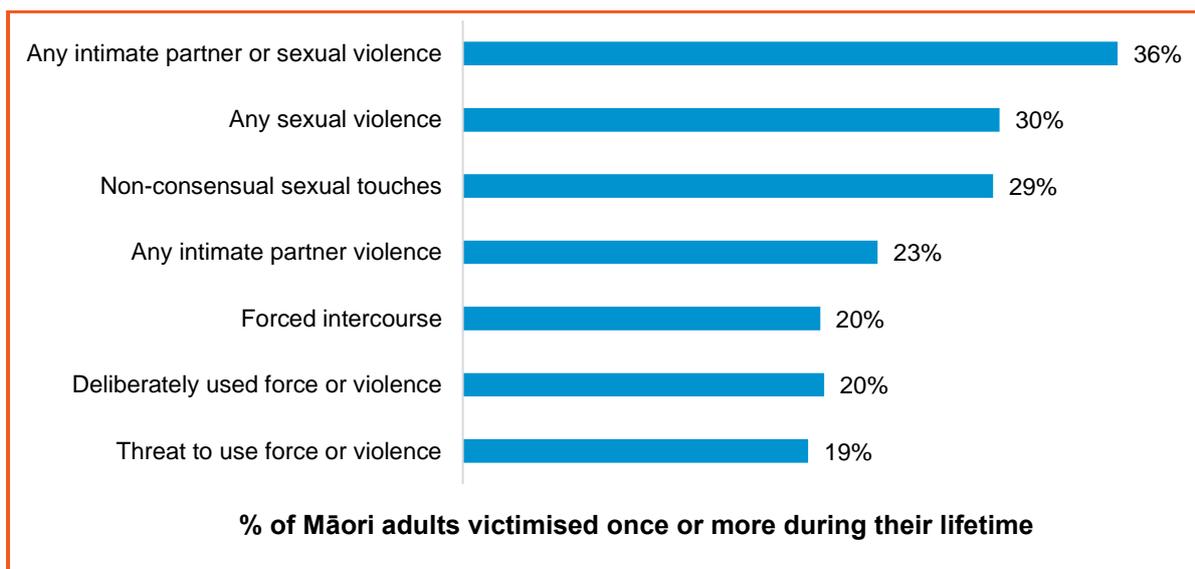


Figure 4.1 Percentage of Māori adults who experienced different forms of intimate partner or sexual violence during their lifetime, by offence type

4.3 Lifetime experience of intimate partner violence

Twenty-three percent of Māori adults experienced intimate partner violence during their lifetime, with 20% experiencing a deliberate use of force or violence and 19% experiencing a threat to use force or violence.

4.4 Lifetime experience of sexual assault

Thirty percent of Māori adults experienced sexual assault during their lifetime, with 20% experiencing forced intercourse and 30% experiencing non-consensual sexual touches.

4.5 Demographics

Factors associated with a higher chance of having experienced intimate partner or sexual violence include being female (49%), being aged 40–49 (46%), identifying as gay/lesbian or bisexual (64%), being separated or divorced (50%), or living in a single-parent household (54%) (see Figure 4.2).

Māori who present with higher levels of psychological distress, lower life satisfaction and lower feelings of safety are also more likely to have experienced intimate partner or sexual violence during their lifetime.

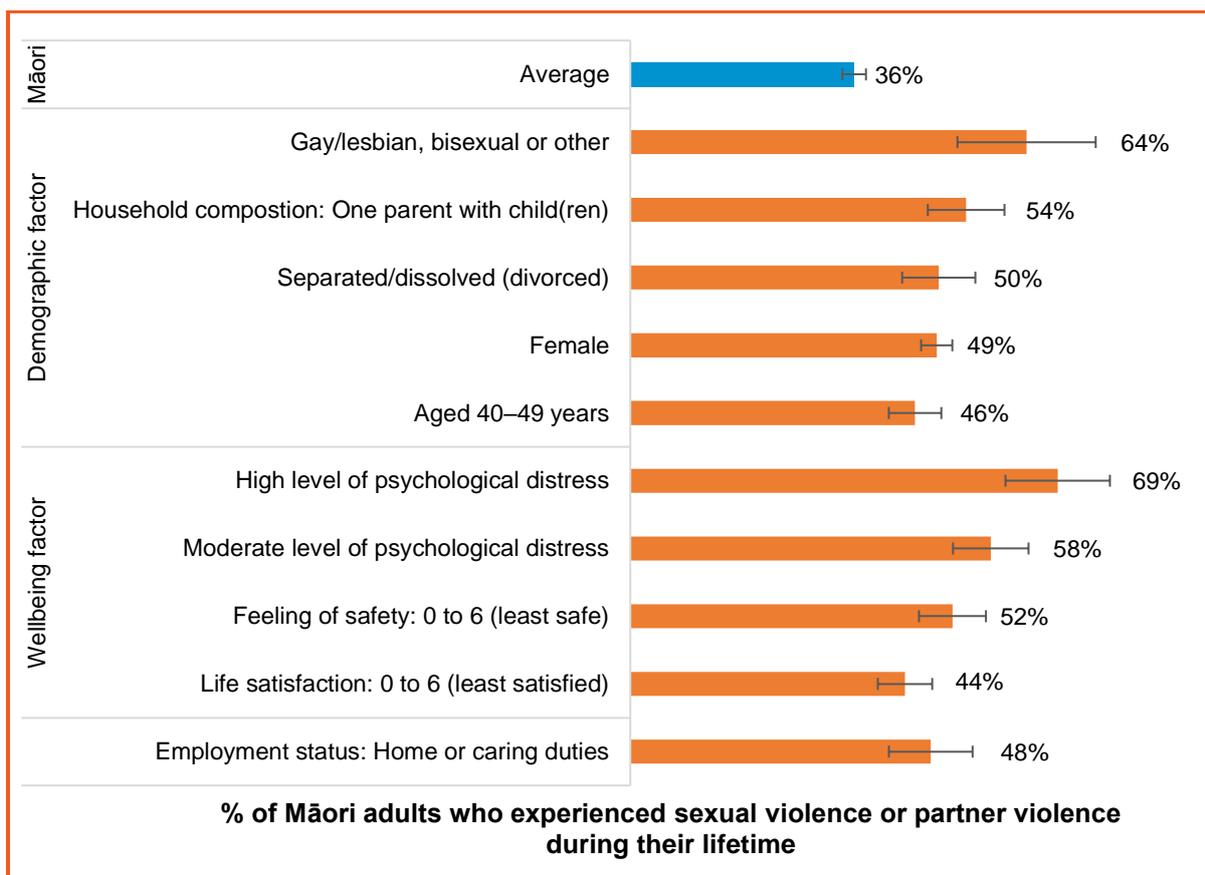


Figure 4.2 Percentage of Māori adults who experienced sexual violence or partner violence during their lifetime, by demographic factors

Colour coding in graphs showing statistical significance

This report contains a large number of graphs to visualise key findings. In some graphs in which significance testing relative to the Māori average was carried out, the following colour scheme is used to highlight statistical significance.

	Māori average
	No statistically significant difference from the Māori average (at 95% confidence level)
	Statistically significant difference from the Māori average (at 95% confidence level)

Note: Statistical testing is based on overlapping confidence intervals and not formal tests, as described in [Section B.5](#).

5 Who experiences crime?

5.1 Structure of the Māori population

The rest of this report looks at how victimisation is related to diversity within the Māori population or, more specifically, how demographic and socioeconomic factors increase or decrease the risk of victimisation for Māori. When interpreting these results, it is important to understand that the Māori population does not mirror the non-Māori population on key demographic and socioeconomic factors. For example, younger people are more likely to experience crime, but the Māori population is on average younger than the non-Māori population, meaning the impact of higher victimisation for young people is greater for Māori than non-Māori. Some of these populations' features will be discussed below to add more context to the results.

To consider differences in the structure of Māori population we used **statistical control**. Statistical control is a technique that helps to separate the effect of one or more particular factors from the remaining factors. In our analysis we attempted to look at Māori data while considering differences between ethnic groups in average age and economic position described by NZDep2013 (see p.33).

When controlling for both age and the level of deprivation, Māori are 3 percentage points more likely to be victims of crime compared with the New Zealand average. This difference is not statistically significant. This suggests that the higher overall rates of victimisation observed for Māori are largely due to there being higher proportions of young Māori and higher proportions of Māori in high deprivation areas.

5.2 A note on the modelling used for the remainder of this report

For the rest of the report, we will combine the results of our usual one-way or one-dimensional analyses with some results that we obtained from multivariate modelling. That is, we look at the relationship between victimisation and individual demographic or socioeconomic factors alone and then looked at these relationships while controlling for the influence of other factors. For example, we look at the relationship between age and victimisation and then look at this relationship when accounting for the influence of factors like sex, employment and deprivation. These results are described in a simplified way below, but the full details of our modelling and results are provided in [Appendix C](#) and [Appendix D](#) for those interested in our approach.

5.3 Individual-level factors

Summary of findings

Although the proportion of male and female Māori who were victimised is similar, female Māori experience a higher number of offences. Age is one of the strongest indicators of victimisation for Māori, with those aged 15–29 at the highest risk of victimisation and those aged 50+ at the lowest risk. Māori who identify as bisexual were significantly more likely to experience personal offences. Māori adults in legally recognised partnerships (marriage/civil union/de facto relationship) were significantly less likely to experience violent interpersonal offences, and those who were victimised experienced fewer household and personal offences. In contrast, those in non-legally recognised partnerships were more likely to experience interpersonal violence. Adjusting for age, Māori adults with a disability were significantly more likely to be victimised.

Sex

Unlike the findings for lifetime experiences described above, over a 12-month period similar proportions of male and female Māori experienced any offence, any personal offence, any household offence and any broad offence type, including interpersonal violence.⁸ Sex also did not arise as a contributing factor to the risk of victimisation across any of these offence types when controlling for other demographic factors using modelling (see [Appendix C](#)).

Despite the proportion of males and females who were victimised being similar, females who were victimised experienced a higher rate (or frequency) of personal and household incidence (see Figure 5.1). This pattern was strongest for violent interpersonal offences, where females experienced almost double the rate of violent offences compared to males (42 per 100 adults vs 26 per 100 adults).

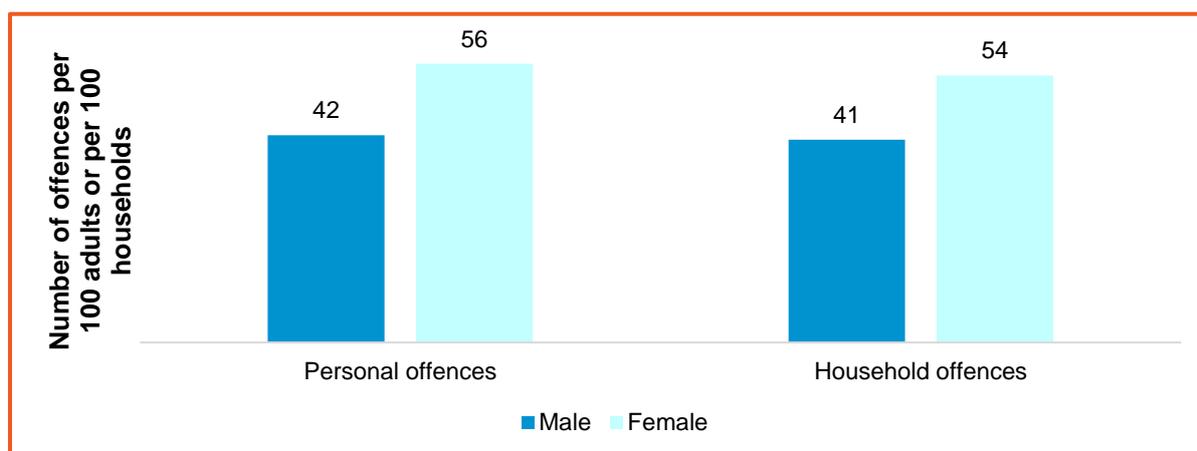


Figure 5.1 Number of offences per 100 adults or per 100 households by sex

⁸ Though stronger patterns do begin to emerge when looking at offences within interpersonal violence or violence by family members.

Sexual orientation

Trends indicate that Māori who identify themselves as gay/lesbian or bisexual are more likely to experience crime – specifically, personal offences and interpersonal violence (see Figure 5.2⁹). However, due to limited sample size these estimates are not statistically significant.

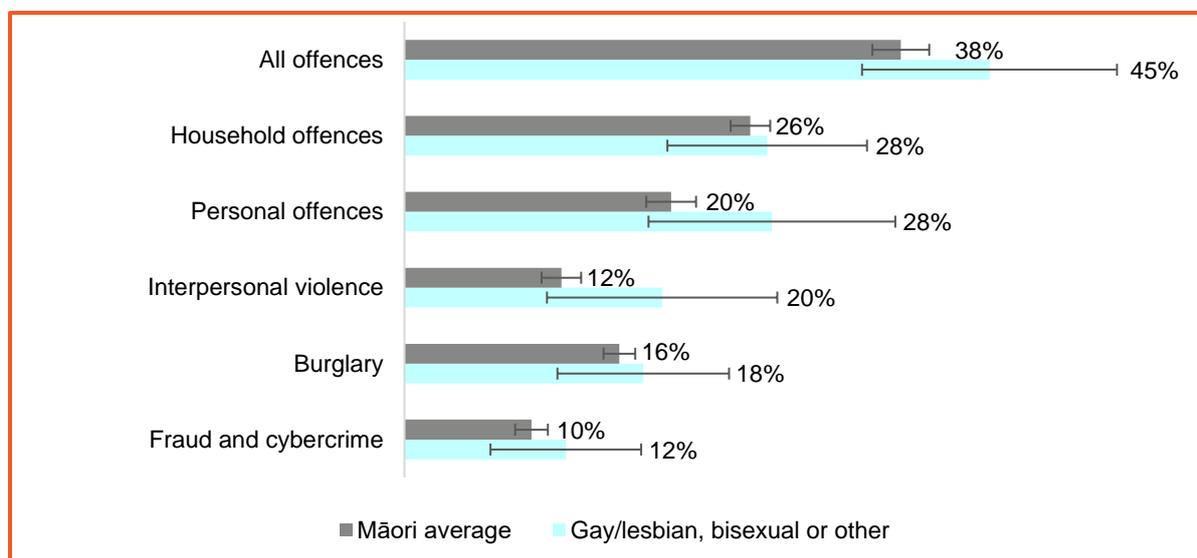


Figure 5.2 Percentage of Māori adults who experienced different offence types, by sexual orientation

Māori who identify as bisexual are significantly more likely to experience personal offences (see Figure 5.3¹⁰). Bisexuality also remains one of the strongest predictors of experiencing a personal offence when controlling for a range of other demographic and socioeconomic factors like age, sex and employment status (see Table C.6 in [Appendix C](#))

⁹ From Figure 5.2 onwards, some bars within graphs will display confidence intervals to show the amount of variance present around prevalence rate estimates. Confidence intervals can also be used to help detect statistically significant differences by identifying whether the confidence intervals of comparable estimates do not overlap.

¹⁰ When figures are two dimensional (eg, multiple groups by multiple outcomes) we cannot always use orange to denote significance, meaning differences may only be observed using confidence intervals.

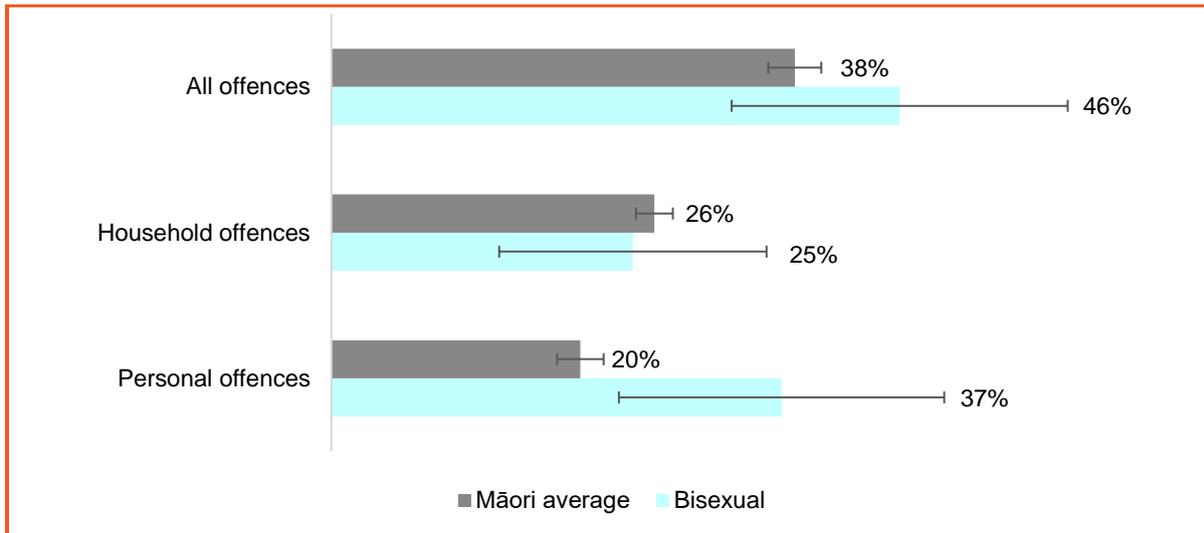


Figure 5.3 Percentage of Māori adults who identify as bisexual who experienced all offences, household offences and personal offences

Age

Across our analyses, age was one of the best indicators for identifying who was and was not victimised within Māori. On the high level, the likelihood of any victimisation for Māori is at its peak for those aged 15–29 (41%–45% prevalence rate). By the age of 50 this prevalence rate drops quite substantially to around 34%, and past the age of 65 it almost halves at 24% (see Figure 5.4).

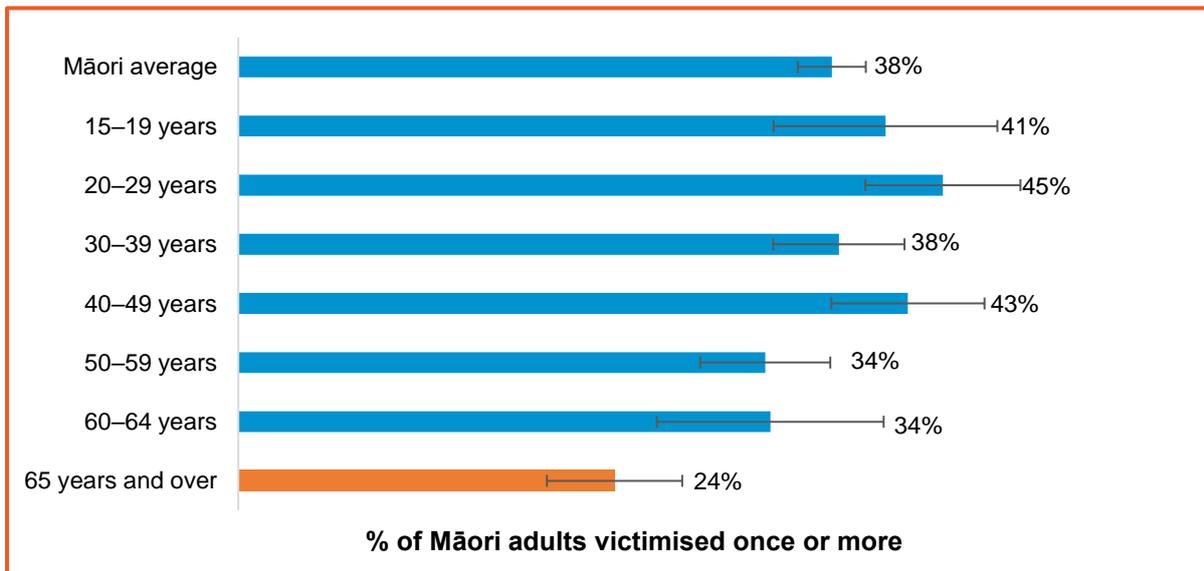


Figure 5.4 Percentage of Māori adults who experienced any offence, by age group

This pattern found for age is consistent across different offence types, with Māori adults aged 50+ significantly less likely to be victimised across all offences, personal offences, household offences, violent interpersonal offences and vehicle offences. Māori aged 15–29

trend towards higher likelihoods of victimisation across all offence types and are significantly more likely to experience violent interpersonal offences and vehicle offences. The contrast in victimisation between younger and older Māori was greatest for violent interpersonal offences, where 19% of those aged 15–29 experienced a violent interpersonal offence compared to only 4% of those aged 50+ (see Figure 5.5).

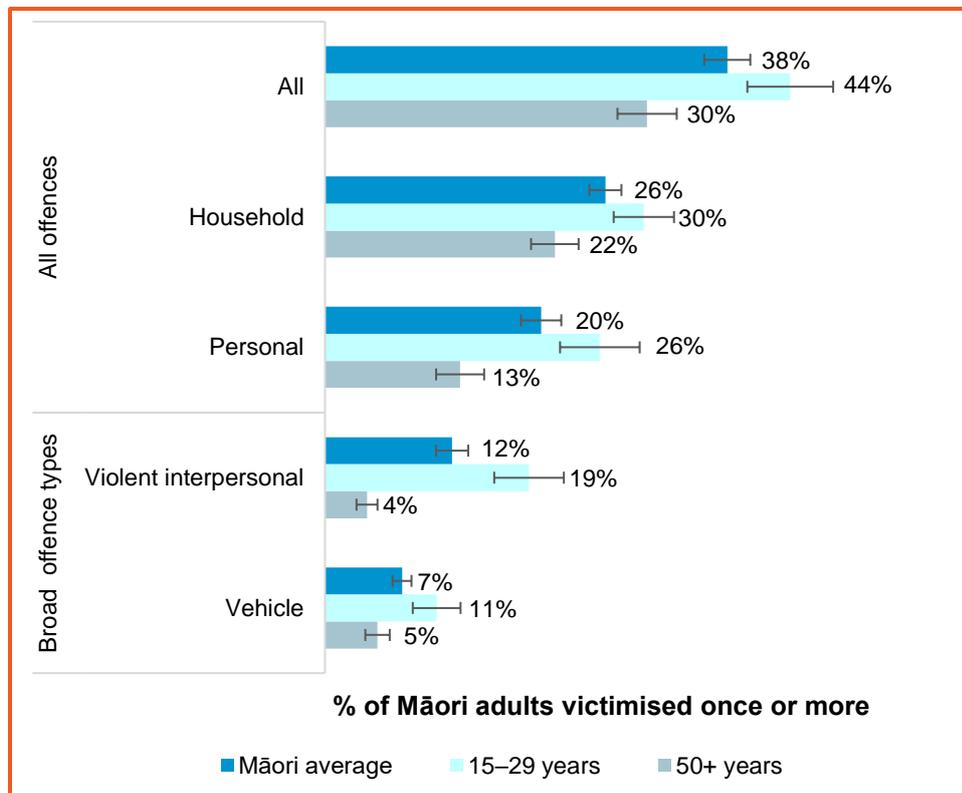


Figure 5.5 Percentage of Māori adults who experienced different offence types, by age group

Controlling for the influence of other demographic and socioeconomic factors in our modelling analyses, age consistently remained a strong indicator of victimisation across all offence types, but especially with regard to personal offences and violent interpersonal offences. That is, controlling for other factors, being aged 15–29 was the strongest predictor for experiencing a personal or violent interpersonal offence for Māori. Furthermore, Māori aged 30–49 were also among the highest risk groups for experiencing personal and violent interpersonal offences (see Table C.5, Table C.6, Table C.9 and Table C.10 in [Appendix C](#)).

Victimisation and age structure of the Māori population

The relationship found between victimisation and age in our analysis is similar to that found for the general population in Cycle 1 and 2 of the NZCVS but is particularly relevant for Māori because the Māori population is more youthful than the non-Māori population (see Figure 5.6). This means that Māori are disproportionately affected by the impacts of age because there are higher proportions of younger Māori, who experience higher rates of victimisation, and lower proportions of older Māori, who experience lower rates of victimisation.

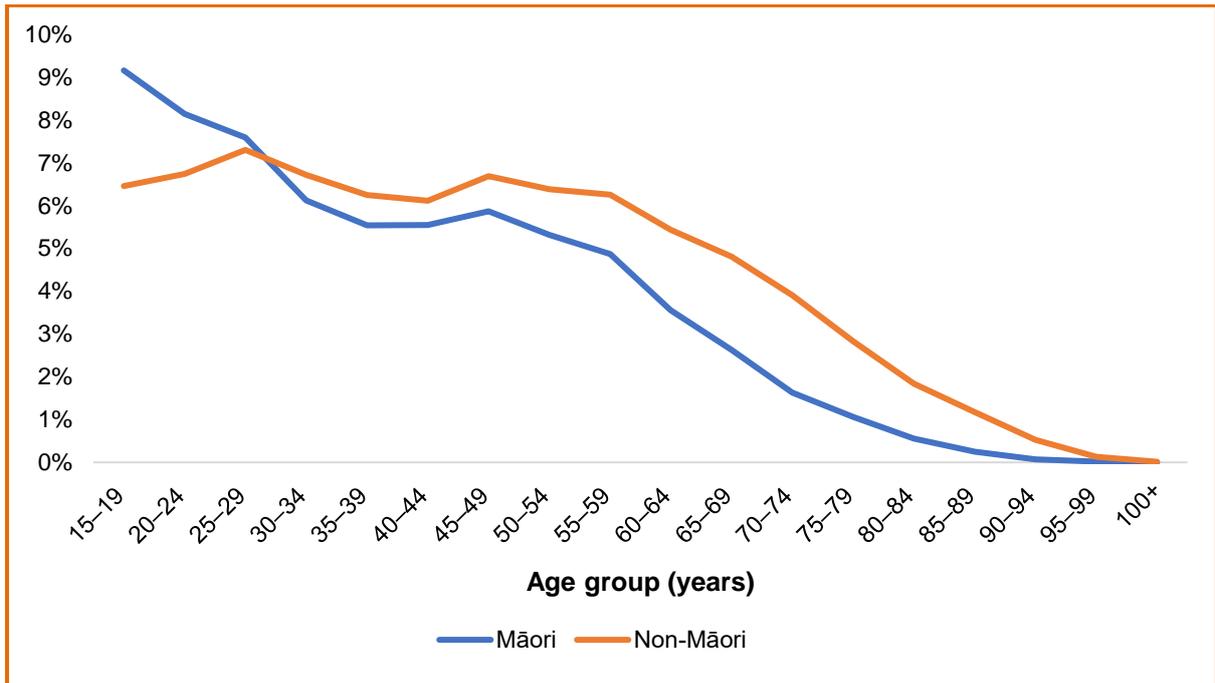


Figure 5.6 Distribution of Māori and non-Māori populations by age (Census 2018)

Relationship/Marital status

Māori adults in legally registered partnerships experienced a significantly lower frequency of personal and household offences – specifically, interpersonal violence and burglary offences (see Figure 5.7). In contrast, Māori who did not have a partner at the time of their interview experienced significantly higher frequencies of burglary (34 per 100 households compared with an average of 26).

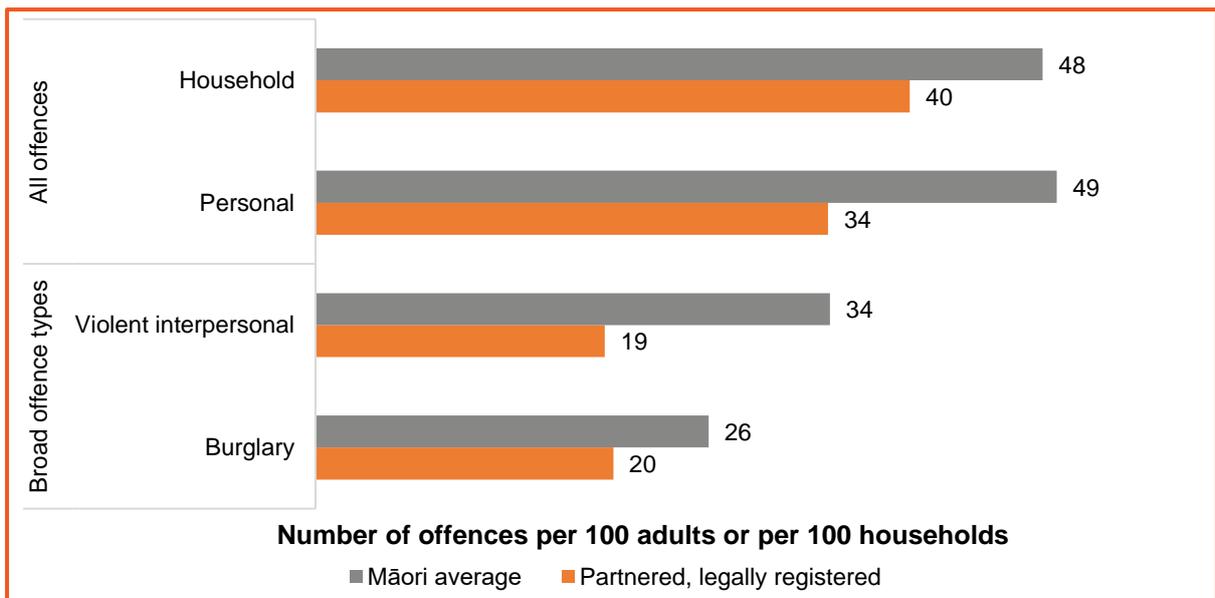


Figure 5.7 Number of offences per 100 adults or per 100 households, by partnership status

Also, Māori in legally registered partnerships were significantly less likely to experience violent interpersonal offences, whereas those in non-legally registered partnerships were significantly more likely (see Figure 5.8). Moreover, in modelling analysis, the relationship between partnership status and household or violent victimisation was consistent when controlling for factors associated with partnership status like age and employment (see [Appendix D](#)). This suggests that the relationship between victimisation and partnership status is not just a reflection of age and that long-term or legally recognised relationships (including de facto) may be protective against certain forms of victimisation.

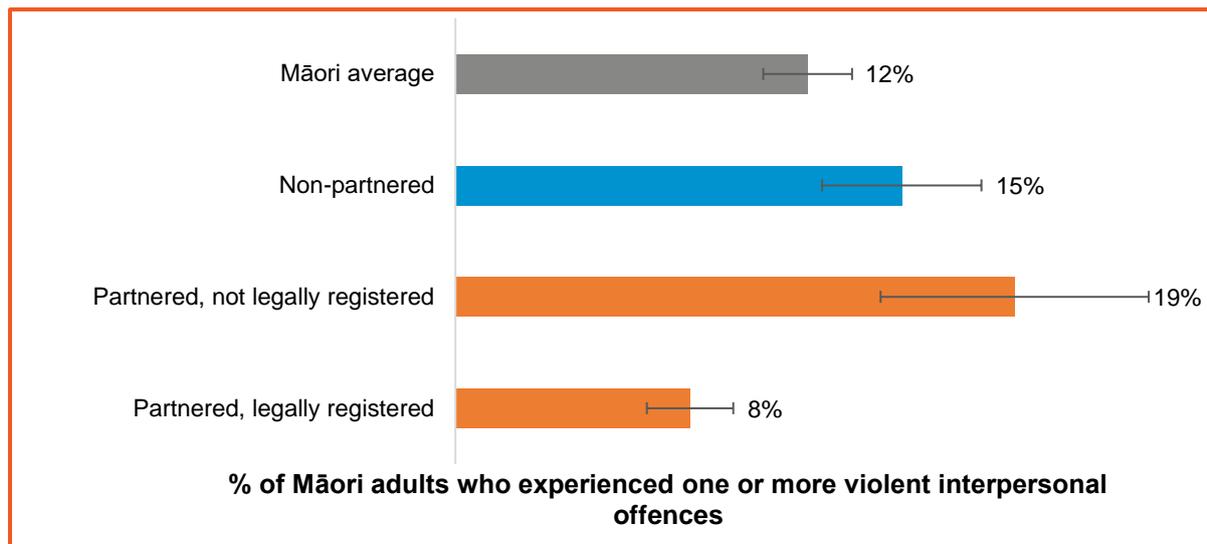


Figure 5.8 Percentage of Māori adults who experienced violent interpersonal offences, by partnership status

Disability

Adjusting for age,¹¹ Māori adults with a disability were significantly more likely to experience crime compared with Māori without a disability – that is, accounting for age differences, half of Māori adults (49%) with a disability experienced some type of offence within a 12-month period compared with 38% of non-disabled Māori (see Figure 5.9). Disability also remained a significant predictor of victimisation in our modelling analysis when controlling for a range of other demographic and economic factors such as employment status (see Table D.2 in [Appendix D](#)).

¹¹ Age standardisation was used to detect differences in victimisation for disabled people because disabled populations tend to be older and older people are less likely to experience crime.

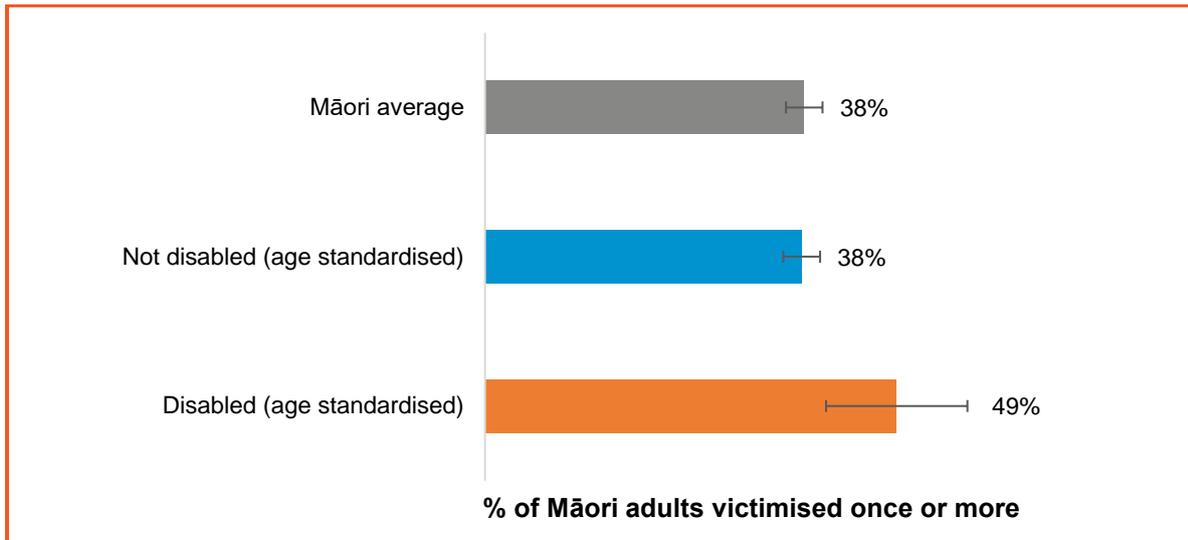


Figure 5.9 Percentage of Māori adults who experienced any offence, by disability status

5.4 Regional, neighbourhood, household, and relational factors

Summary of findings

Controlling for a range of other factors, Māori adults living anywhere in the North Island – apart from the Wellington region – were at significantly lower risk of experiencing personal offences and violent interpersonal offences compared with Māori living in Wellington or the South Island. Māori adults living in rural settlements and households in low-deprivation areas were significantly less likely to experience household offences and burglaries. Household composition was one of the strongest predictors of household offences and burglaries, with Māori living in single-parent, single-person or multi-family households at the highest risk for these offences and Māori living in couple-only households at the lowest risk.

Māori who experienced problems in their neighbourhood like noisy neighbours and dangerous driving were also more likely to be victimised. Māori adults were more likely to experience violent interpersonal offences perpetrated by non-family members. Roughly half of these non-family members were strangers.

Region

Looking at broad differences across the regions, there were no significant differences in victimisation rates between different regions of Aotearoa New Zealand. Although trends suggested that some forms of victimisation were higher for Māori living in Wellington and the South Island compared to Māori living in Auckland or the rest of the North Island (see Figure 5.10). These trends were substantiated in our modelling analysis, which revealed that when

controlling for a range of other factors like age, employment status and household ownership, Māori adults living anywhere in the North Island – apart from the Wellington region – were at a significantly lower risk of experiencing personal offences and violent interpersonal offences (see Table D.5, Table D.6, Table D.9 and Table D.10 in [Appendix D](#)). According to 2018 Census data, there are much higher relative proportions of Māori living in the North Island excluding Wellington (28%) compared with Wellington and the South Island (11%), suggesting that Māori are safer in regions with relatively larger Māori communities.

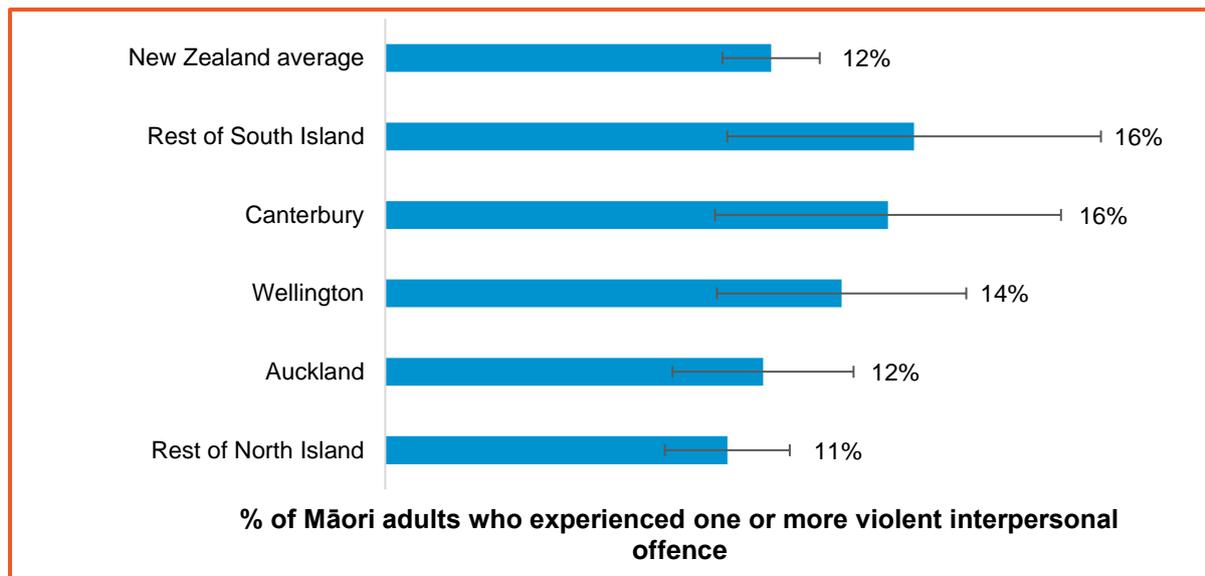


Figure 5.10 Percentage of Māori adults who experienced one or more violent interpersonal offences, by region

Urbanisation

When comparing Māori who live in more urban areas with those living more rurally, non-significant trends suggest that Māori who live in more rural areas are less likely to be victimised overall and Māori living in rural settlements are significantly less likely to experience household offences at significantly lower frequencies (see Figure 5.11). Māori living in rural settlements are also significantly less likely to experience theft and damage offences at significantly lower frequencies. The benefits of living rurally were also present in our modelling analyses – that is, when controlling for other demographic and socioeconomic factors, those living rurally were significantly less likely to experience all offences, household offences, personal offences and burglary (see [Appendix D](#)).

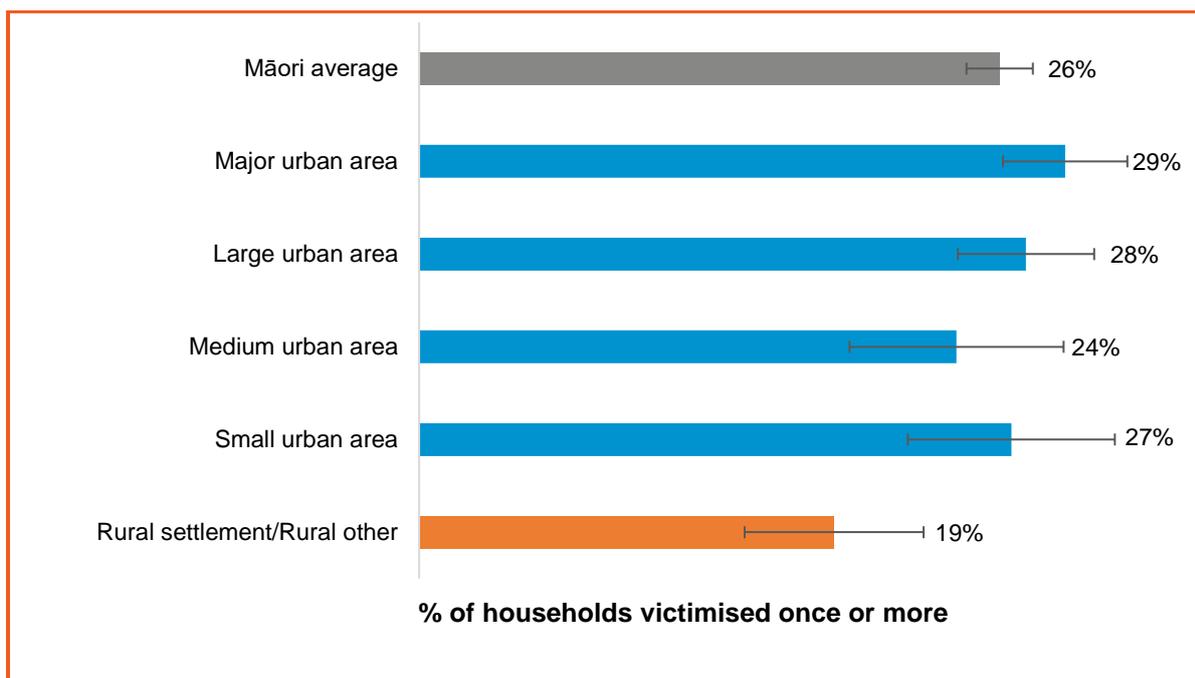


Figure 5.11 Percentage of Māori-occupant households that experienced household offences, by level of urbanisation

Deprivation

All households surveyed in the NZCVS were given a deprivation score using the NZDep2013 index of socioeconomic deprivation. NZDep2013 estimates the relative socioeconomic deprivation of small geographic areas (or mesh blocks) with populations of 60–110 people. Deprivation scores are calculated using census data relating to income, home ownership, employment, qualifications, family structure, housing, and access to transport and communications. These scores are then grouped into quintiles where 1 represents the least deprived areas and 5 represents the most deprived areas.

Māori adults living in the most deprived areas (Quintile 5) are significantly more likely to experience household offences at significantly higher frequencies, with burglary standing out as the main household offence related to deprivation level (see Figure 5.12). In contrast, Māori living in the least deprived areas (Quintile 1) are significantly less likely to experience burglary, and those living in the top three least deprived areas (Quintiles 1–3) experience significantly lower frequencies of household offences, mainly burglary. This pattern was consistent when controlling for other demographic and socioeconomic factors in our modelling analyses, with deprivation emerging as one of the strongest predictors of household offences and burglary (see Table C.3 and Table C.7 in [Appendix C](#)).

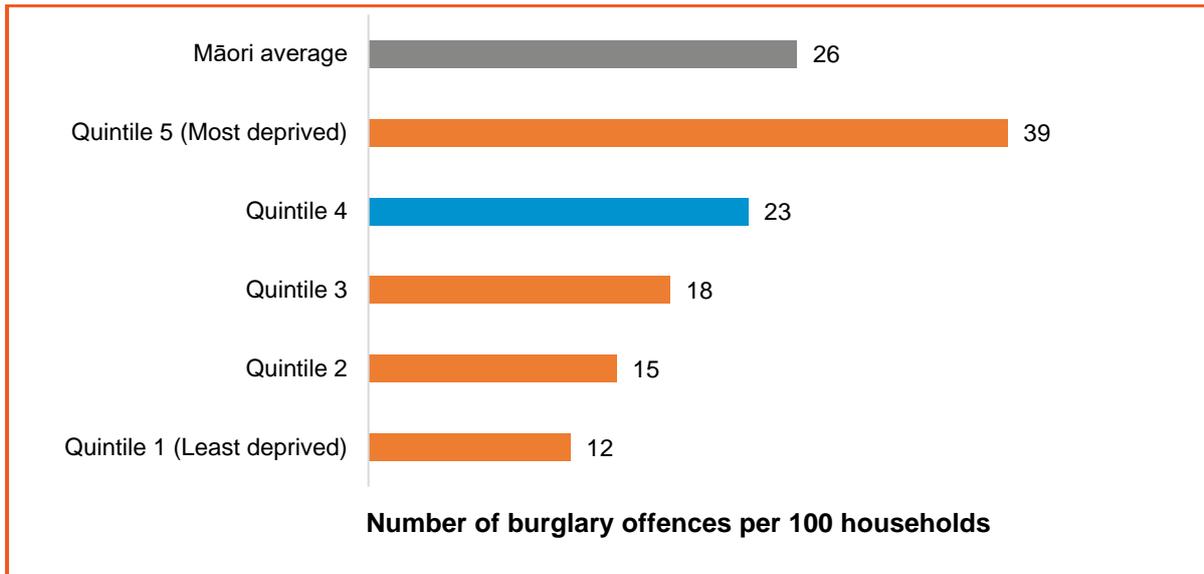


Figure 5.12 Number of burglary offences per 100 households, by deprivation quintile

Previous research by the Ministry of Health has shown that higher relative proportions of Māori live in more deprived areas compared to non-Māori, and lower relative proportions live in the least deprived areas.¹² This means that Māori are disproportionately affected by both higher rates of victimisation in more deprived areas and lower rates of victimisation in less deprived areas. This was supported in Cycle 2 of the NZCVS where we found that controlling for differences in living area deprivation between Māori and non-Māori reduced the difference in victimisation level between Māori and non-Māori (see [NZCVS Cycle 2 report](#)).

Household composition

Māori adults living in single-parent households were significantly more likely to experience any offence, and they were significantly more likely to experience any household offence at significantly higher frequencies. In contrast, Māori living in couple-only households were significantly less likely to experience household offences at significantly lower frequencies (see Figure 5.13).

¹² Ministry of Health. 2018. Neighbourhood deprivation. <https://www.health.govt.nz/our-work/populations/maori-health/tatau-kahukura-maori-health-statistics/nga-awe-o-te-hauora-socioeconomic-determinants-health/neighbourhood-deprivation>

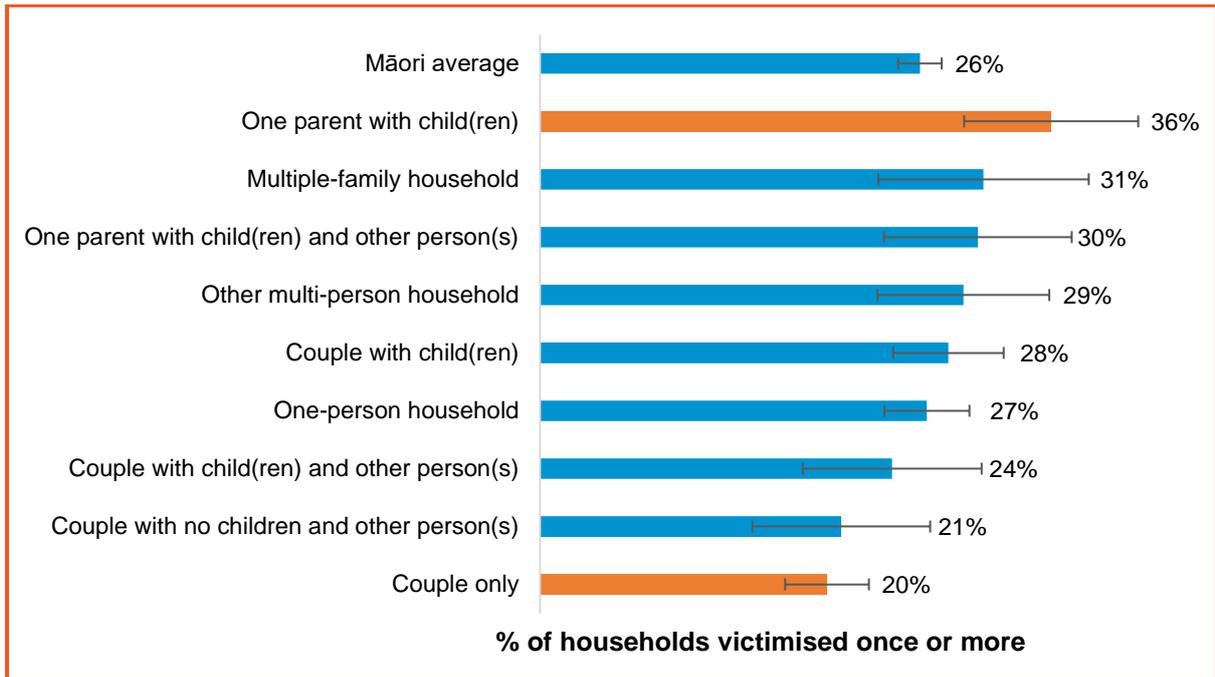


Figure 5.13 Percentage of Māori-occupant households that experienced household offences, by household composition

Looking at broad offence types, Māori living in single-parent households were significantly more likely to experience burglary at significantly higher frequencies, whereas those in couple-only households were significantly less likely to experience burglary, vehicle offences and violent interpersonal offences (see Figure 5.14).

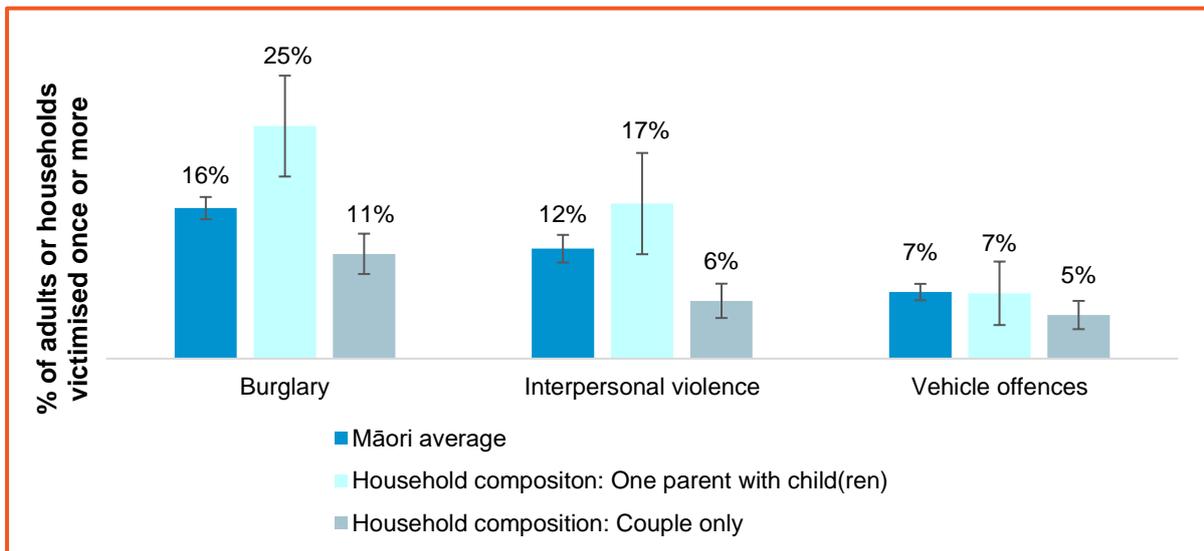


Figure 5.14 Percentage of Māori adults or Māori-occupant households that experienced broad offences, by household composition

Household composition was also a strong predictor of victimisation across all offences, household offences and burglary when controlling for other relevant factors like age and household ownership in our modelling analyses. Specifically, single-parent households,

multi-family households, and one-person households were all among the strongest predictors for all offences, household offences and burglaries (see Table C.2, Table C.4 and Table C.8 in [Appendix C](#)).

Household size and number of children living in the household

Crimes experienced by Māori adults were largely unrelated to the size of the household they lived in, but those living in a two-person household experienced a significantly lower frequency of household offences, and those living in a four-person household were significantly more likely to experience vehicle offences at higher frequencies.

Māori adults living in a household with four or more children were significantly more likely to experience an offence (see Figure 5.15) and were significantly more likely to experience burglary. However, it should be noted that due to the small sample size of this group the error on these estimates is relatively large. As a result, most estimates for specific offence types experienced by this group were suppressed.

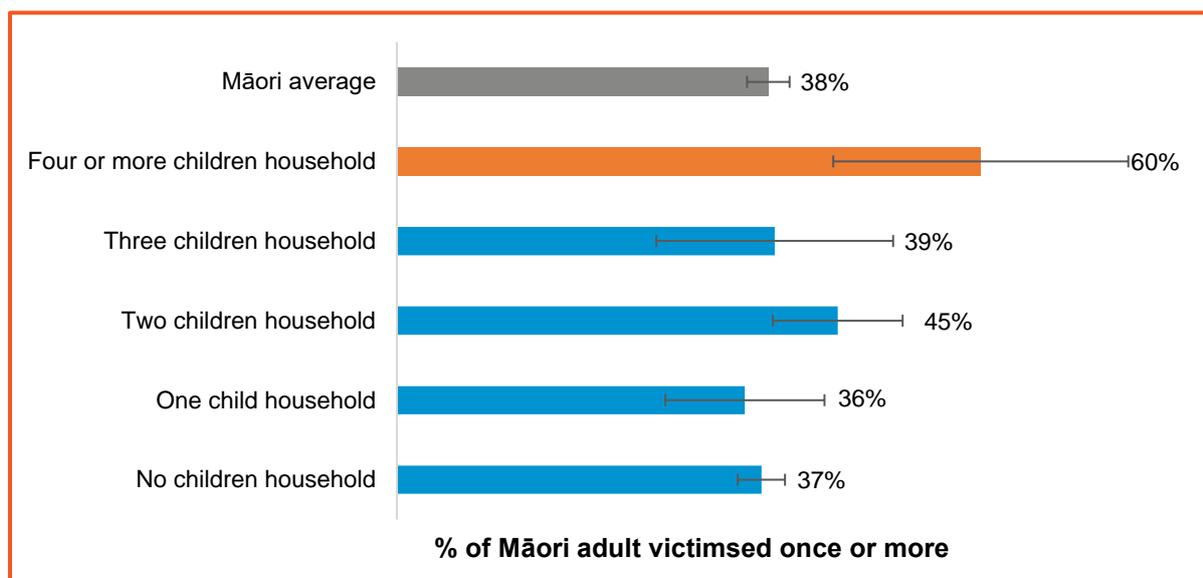


Figure 5.15 Percentage of Māori adults victimised once or more, by number of children living in the household

Neighbourhood factors

In Cycle 2 of the NZCVS, in addition to questions about respondents' personal experiences with crime, we also asked respondents about a series of issues and whether they had been a problem in their local neighbourhood during the previous 12 months.

Looking at the association between neighbourhood issues and victimisation, 81% of Māori adults who experienced crime and 87% of Māori who experienced multiple crimes had also experienced an issue in their neighbourhood compared with only 58% of Māori who were non-victims (see Figure 5.16).

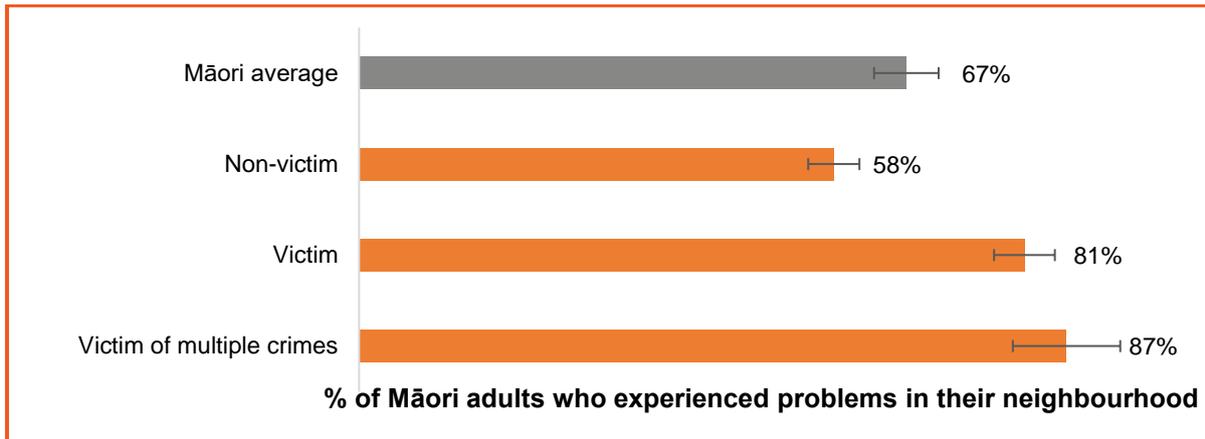


Figure 5.16 Percentage of Māori adults who experienced problems in their neighbourhood, by level of victimisation

Moreover, Māori adults who experienced crime were significantly more likely to experience almost every type of neighbourhood issue asked about in comparison to non-victims (see Figure 5.17).

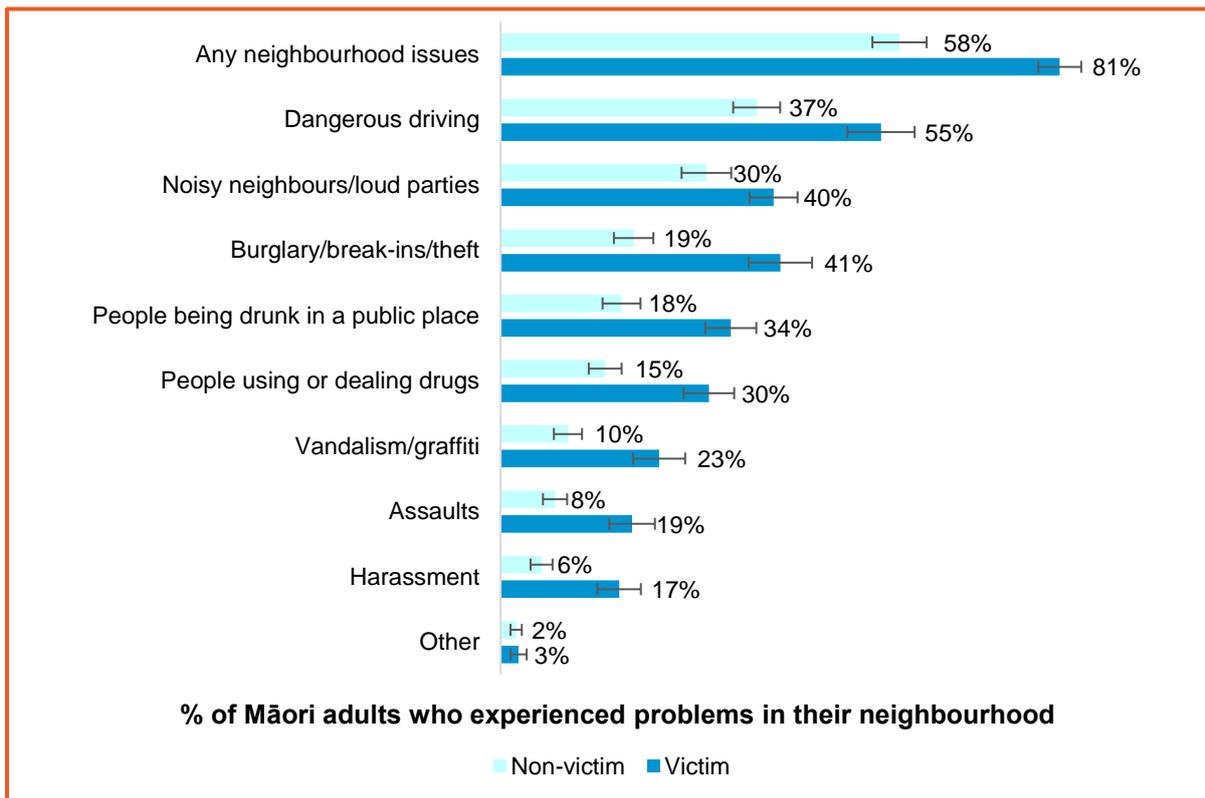


Figure 5.17 Percentage of Māori adults who experienced different types of neighbourhood problems, by victimisation

Relationship to offenders

In the NZCVS, if a victim had contact with the offender, we ask about their relationship to the offender. This allows offences to be grouped by family and non-family relationships (see

Figure 5.18 for how relationships are grouped). This information can then be used to see whether certain types of relationship are more or less common for different offences.

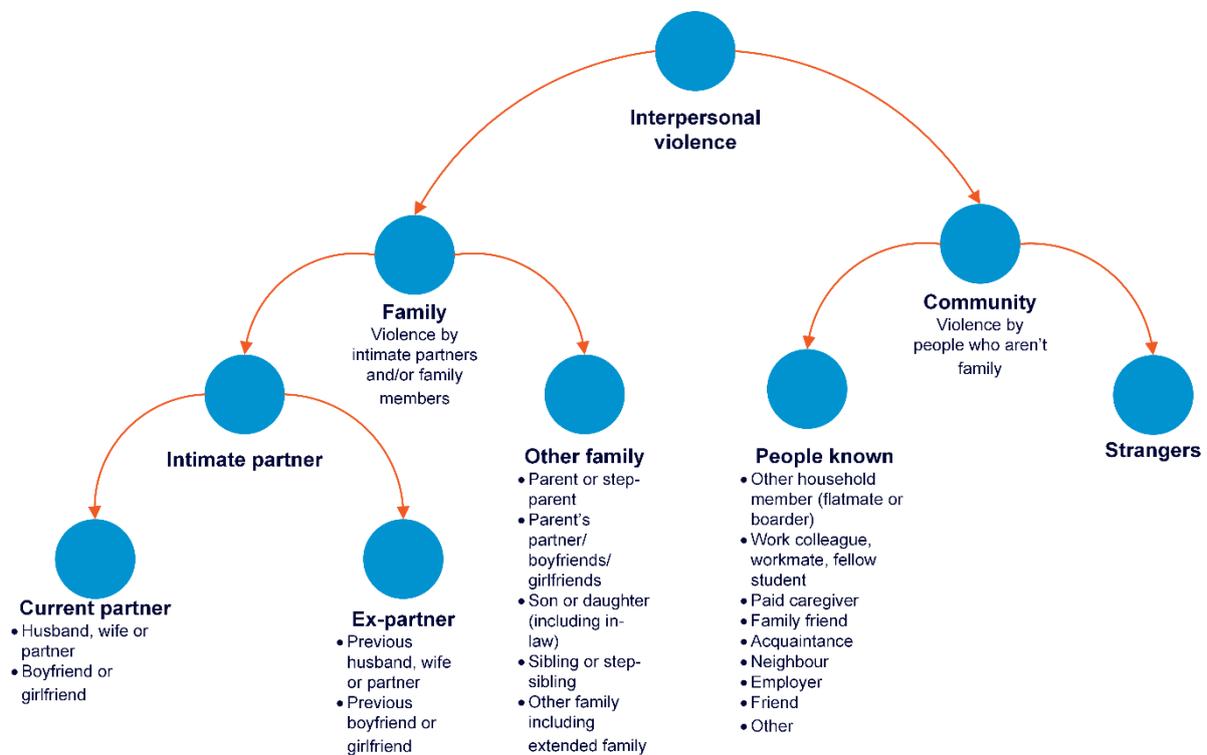


Figure 5.18 Interpersonal violence relationship to offender framework

Looking at violent interpersonal offences by relationship, Māori adults were more likely to experience a violent incident perpetrated by a non-family member (8.1%), and around half of these victims experienced events perpetrated by strangers (4.4%). In contrast, 4.6% of Māori adults experienced a violent incident perpetrated by a family member, with a larger proportion of these victims experiencing incidents from intimate partners (2.9%) compared with other family members (see Figure 5.19¹³).

The pattern for violent interpersonal offences is also seen for offences within interpersonal violence. That is, for these offences, a higher proportion of victims are victimised by non-family members than family members (see Figure 5.20). This pattern is most evident for sexual assault, where 3% of Māori adults experienced sexual assault by a non-family member compared with 0.9% who experienced sexual assault by a family member.

¹³ Respondents are able to select multiple relationships for an incident, meaning some incidents are counted multiple times to represent the different relationships involved in that incident. Therefore, in Figure 5.19 and Figure 5.20, percentages for lower-level relationship categories will not sum to percentages for higher-level categories because some incidents are counted across multiple relationships.

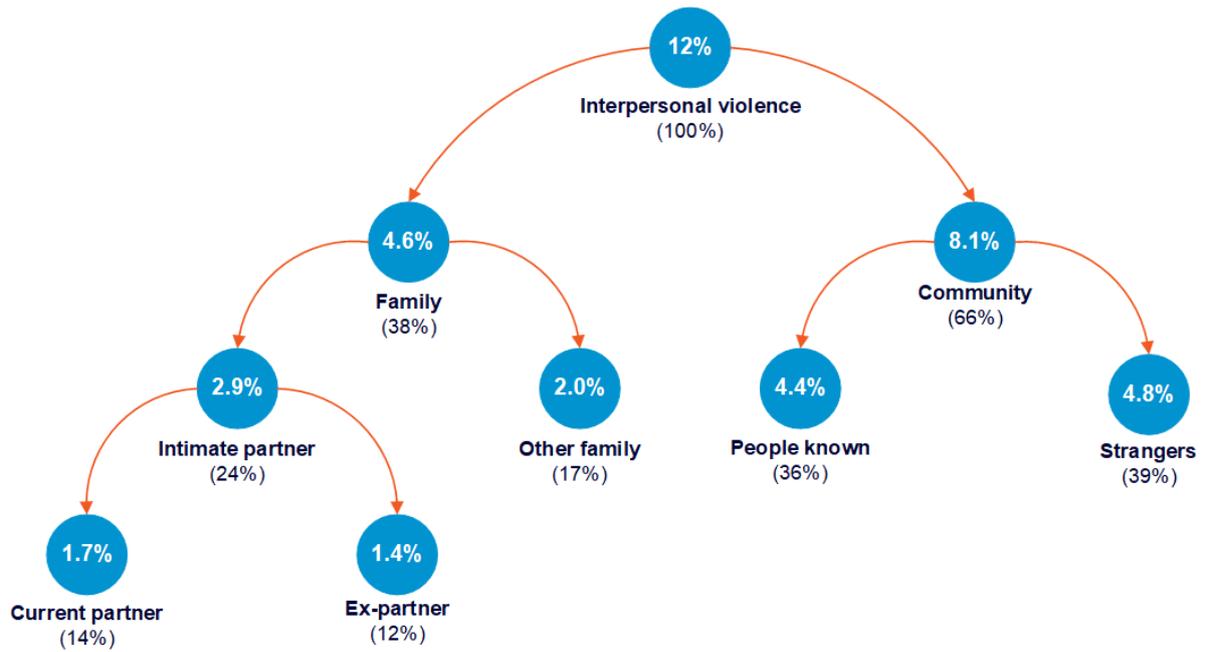


Figure 5.19 Percentage of Māori adults who experienced violent interpersonal offences perpetrated by family and non-family members



Figure 5.20 Percentage of Māori adults who experienced violent interpersonal offences by family and non-family members, by types of interpersonal violence

5.5 Wellbeing factors

Summary of findings

There is a strong association between wellbeing and victimisation for Māori adults. Māori who have experienced crime are more likely to suffer from psychological distress, have a lower life satisfaction and feel less safe. Differences in feelings of safety are greatest for Māori when they are home alone at night.

Overall, there were no strong associations between connecting socially and experiencing crime. However, Māori adults who had experienced multiple offences were less likely to find it easy to talk to someone when they felt the need. Also, those who had experienced crime were less likely to trust people and were more likely to expect others to take advantage of them.

Psychological distress

In the NZCVS, psychological distress is measured using the Kessler-6 (K6) scale. This short six-item self-report scale screens for non-specific psychological distress in the general population. Ratings of moderate or high indicate the probability of experiencing mild to moderate or serious mental health disorders respectively.

Māori adults who had experienced moderate to high levels of psychological distress within the last month were significantly more likely to have also experienced crime within the last 12 months (see Figure 5.21). The relationship between psychological distress and the experience of crime is consistent across personal and household offences and all broad offence types.

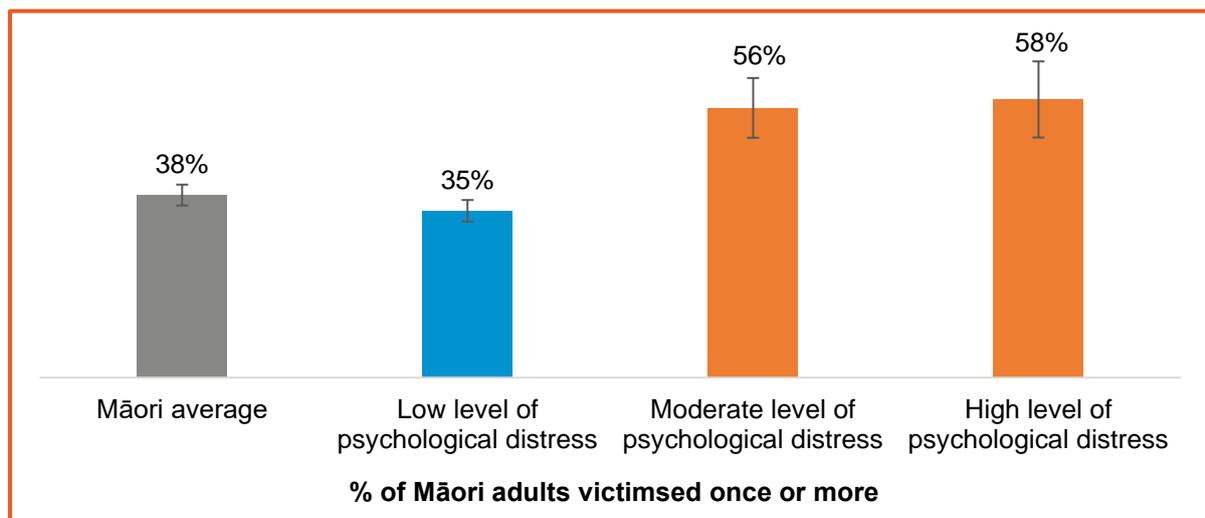


Figure 5.21 Percentage of Māori adults who experienced crime, by level of psychological distress

Life satisfaction and feelings of safety

Life satisfaction and feelings of safety are measured using self-report 10-point scales where 10 indicates you feel “completely satisfied” or “completely safe” and 1 indicates you feel “not at all satisfied” or “not at all safe”.

A similar pattern is found when looking at experiences of crime and how Māori rate their level of life satisfaction or their general feelings of safety. Māori adults who rate their life satisfaction between 0 and 6 out of 10 or their feelings of safety between 0 and 7 out of 10 were significantly more likely to experience all crime, personal crime and household crime. In contrast, Māori who rated their life satisfaction or feelings of safety as 10 out of 10 were significantly less likely to experience the same types of offences (see Figure 5.22). These patterns of victimisation by life satisfaction and feelings of safety were also found across the broad offence types.

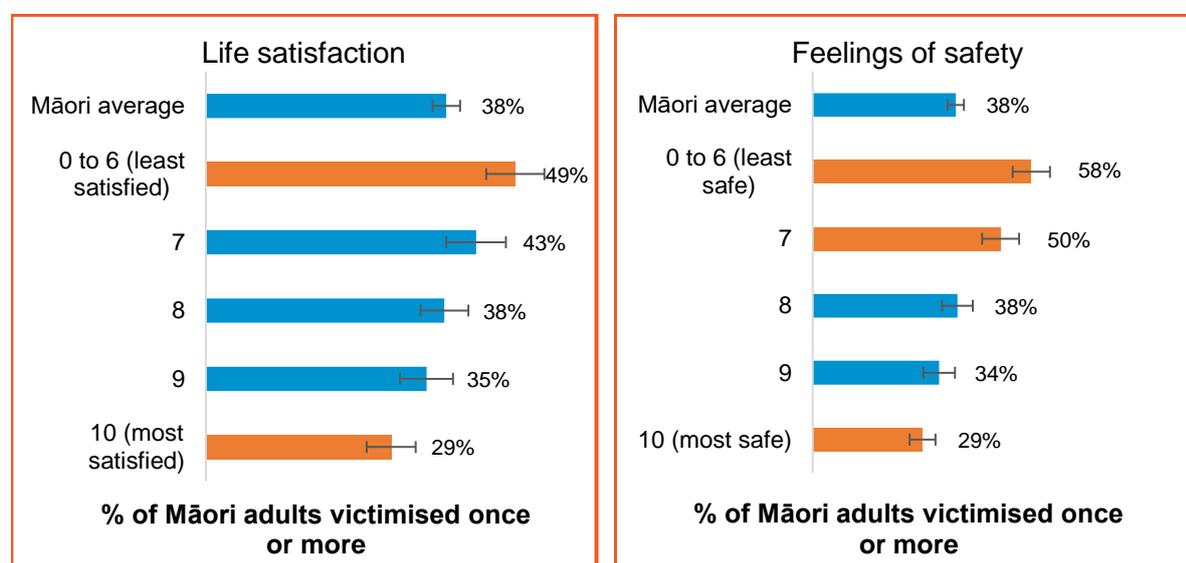


Figure 5.22 Percentage of Māori adults who experienced crime, by ratings out of 10 on life satisfaction (left) and feelings of safety (right)

The associations between victimisation, psychological distress, life satisfaction and feelings of safety also remain strong across offence types when controlling for other demographic and socioeconomic factors in our modelling analyses (see all Model 1 results in [Appendix C](#) and [Appendix D](#)). However, it is unclear whether this is because victimisation results in poorer wellbeing or whether poor wellbeing somehow leads to victimisation, or both. Regardless, it is clear that victims would benefit from services that attend to their wellbeing and psychological needs.

Feelings of safety by place and time

In Cycle 2 of the NZCVS, we asked respondents how safe they felt in different places during night time. Looking at these responses, we found that compared to all Māori and Māori who were not victims, Māori who had experienced crime were less likely to say they felt safe in their home at night (see Figure 5.23).

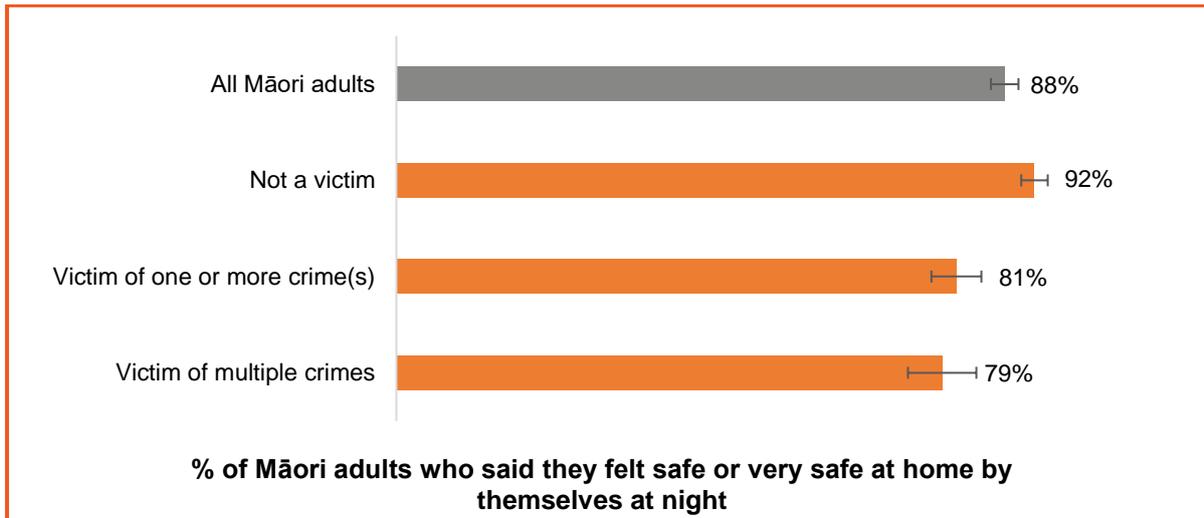


Figure 5.23 Percentage of Māori adults who said they felt safe or very safe at home by themselves at night, by level of victimisation

Those who were victims of multiple crimes were also significantly less likely than all Māori adults to say they felt safe or very safe in their neighbourhood after dark and significantly less likely to say they felt safe or very safe in the town centre at night (see Figure 5.24).

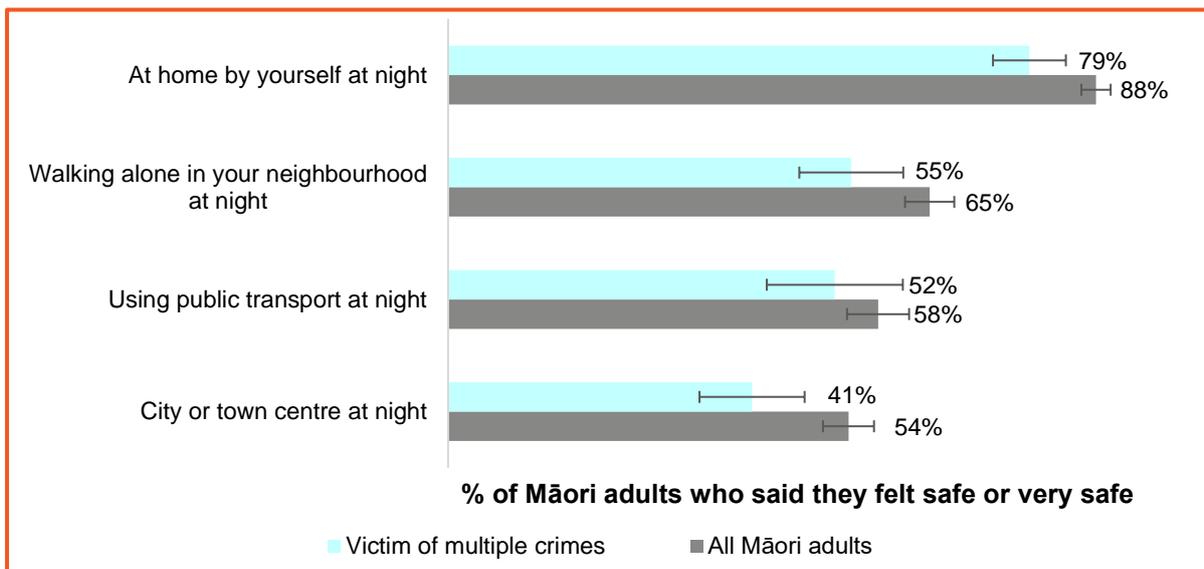


Figure 5.24 Percentage of Māori adults who said they felt safe or very safe across different places at night, by multiple victimisation

Worry about being a victim

In Cycle 2, we also asked respondents how much they worried about victimisation. Compared to all Māori adults, Māori who had experienced multiple crimes were significantly more worried about being a victim of crime, and those who experienced any crime were significantly more worried than non-victims (see Figure 5.25).

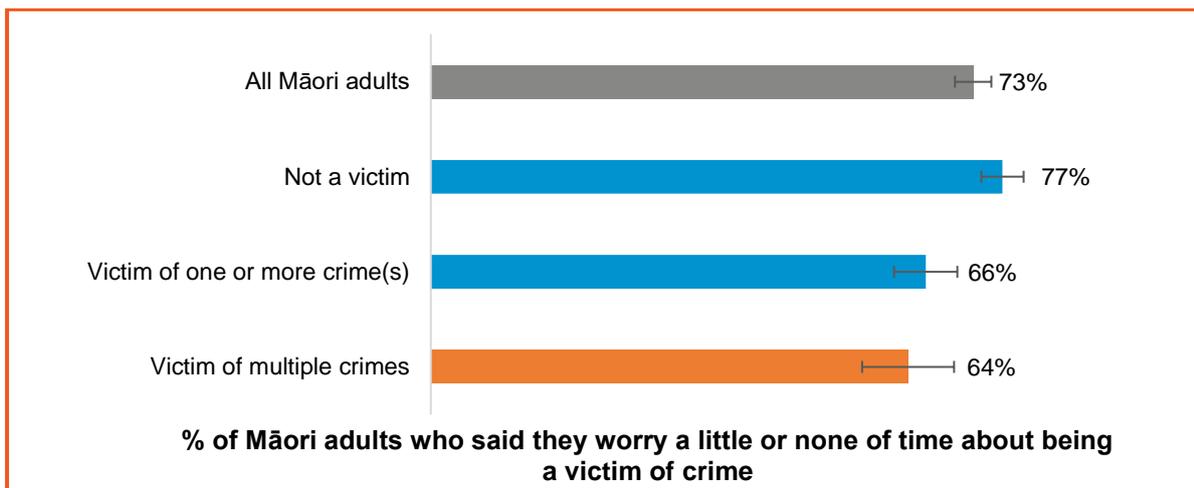


Figure 5.25 Percentage of Māori adults who said they worry about being a victim of crime a little or none of the time, by level of victimisation

Social connection and trust

In Cycle 2 of the NZCVS, respondents were asked a series of questions about how often they connect with people, how much of the time they feel lonely, how easy it is to talk to someone if they feel down, their level of trust in most people, whether they expect people to take advantage of them, and whether they expect people to be helpful.

Overall, there were no strong associations between how often Māori adults connected socially with others and whether they experienced crime. There were also few significant associations between victimisation and loneliness or victimisation and ease of communication in difficult times. However, Māori who experienced multiple crimes were significantly more likely to say they felt lonely and were less likely to say they could talk with someone when they felt down or depressed (see Figure 5.26).

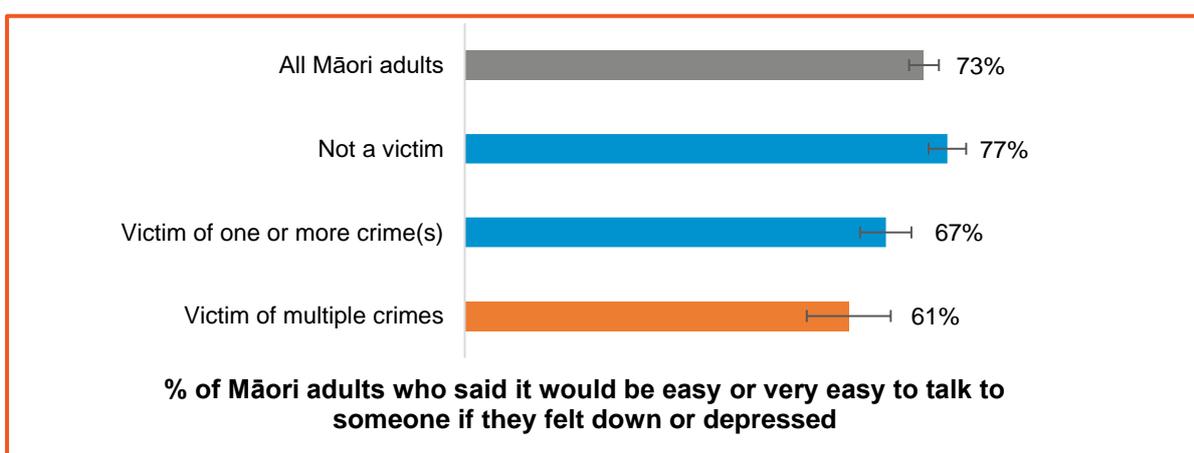


Figure 5.26 Percentage of Māori adults who said it would be easy or very easy to talk to someone if they felt down or depressed, by level of victimisation

Māori adults who experienced crime were significantly more likely to say they had low or very low trust in most people and were significantly less likely to say they expect most people to take advantage of them a little or none of the time (see Figure 5.27).

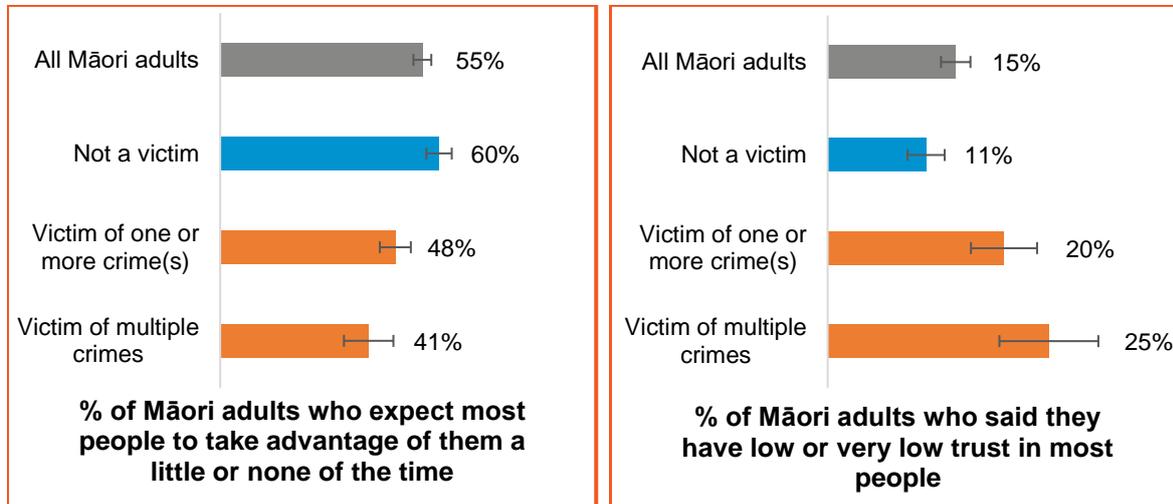


Figure 5.27 Percentage of Māori adults who said they expect most people to take advantage of them a little or none of the time (left), and those who said they have low or very low trust in most people (right), by level of victimisation

5.6 Economic factors

Summary of findings

Māori adults who are retired, have high household incomes, are not financially stressed and who own their own homes are significantly less likely to experience violent interpersonal offences and household offences, specifically burglary.

In contrast, Māori adults who are not employed and not actively seeking work, are unable to afford non-essential items or unexpected expenses, and who rent their accommodation from local or central government are significantly more likely to experience violent interpersonal offences, and their houses are more likely to be burgled. These patterns were consistent and extended to more offence types when controlling for other demographic and socioeconomic factors in modelling analyses.

Employment status

Māori adults who had retired were significantly less likely to experience household offences, whereas those who were not employed and not actively seeking work were significantly more likely to experience household offences (Figure 5.28).

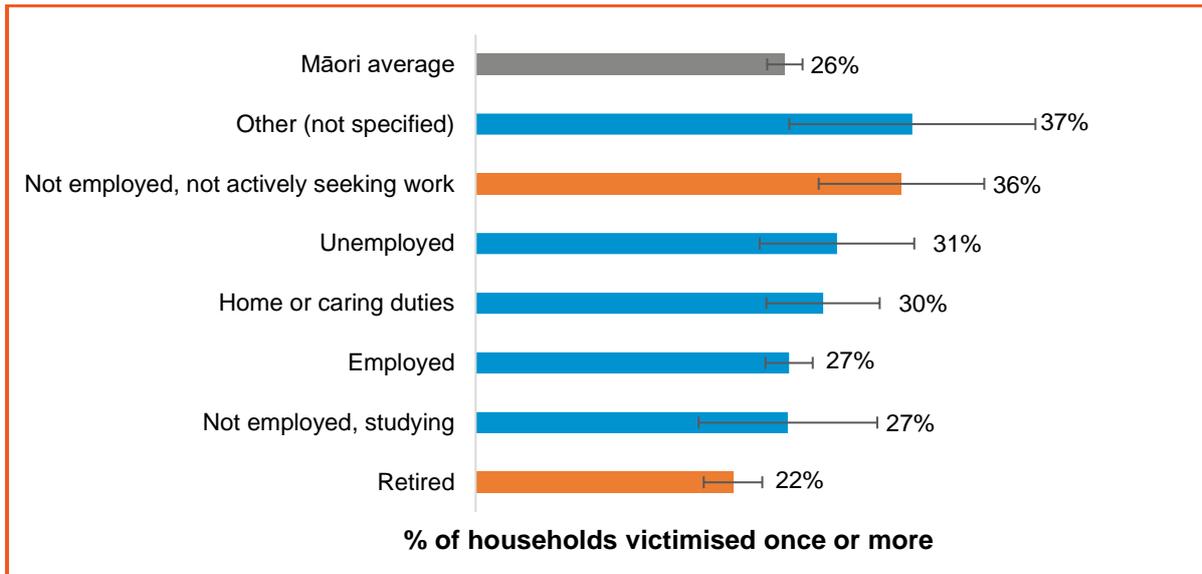


Figure 5.28 Percentage of Māori adults who experienced offences towards their household, by employment status

In modelling analyses that controlled for a range of other factors, including age, being retired was strongly associated with a lower risk of victimisation across all offences, household offences, personal offences and burglary (see Table C.1, Table C.2, Table C.3, Table C.4, Table C.6 and Table D.8 in [Appendix C](#) and [Appendix D](#)). Similarly, home or caring duties were also associated with a lower risk of victimisation across all offences, household offences and personal offences (see Table D.1, Table D.2, Table D.3, Table D.4 and Table D.6 in [Appendix D](#)). Surprisingly, when controlling for other factors, both Māori adults who were not employed and those who were employed were more likely to experience violent interpersonal offences. However, Māori adults who were employed were less likely to experience any offence and any household offence (see Table D.1, Table D.2, Table D.3, Table D.4 and Table D.10 in [Appendix D](#)).

Personal and household income

Overall, there was no strong association between personal or household income and experiences of crime for Māori. However, Māori adults living in households with annual incomes above \$150,000 a year were significantly less likely to experience violent interpersonal incidents, and their households experienced a significantly lower frequency of burglaries (see Figure 5.29).

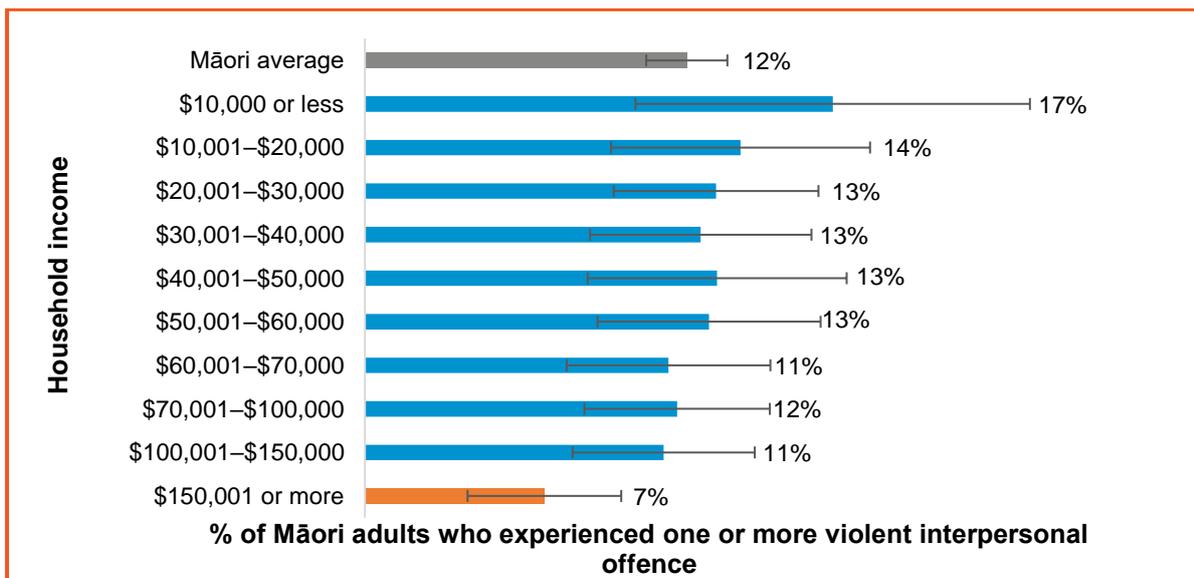


Figure 5.29 Percentage of Māori adults who experienced one or more violent interpersonal offences, by annual household income

Financial stress

In the NZCVS, respondents are asked about their ability to pay for a non-essential item costing \$300 and whether they can afford an unexpected expense of \$500 within a month without borrowing. Māori adults who could easily afford the non-essential \$300 item were significantly less likely to experience interpersonal violence, whereas those who couldn't afford this item were significantly more likely to experience violent incidents, and their households experienced significantly higher frequencies of burglary.

Similarly, Māori adults who were unable to meet an unexpected expense of \$500 were significantly more likely to experience violent interpersonal incidents, and their households were more likely to be burgled (see Figure 5.30). When controlling for a range of other factors in modelling analysis, the level of financial stress emerged as a significant contributor to the likelihood of experiencing all offences, personal offences, burglary and interpersonal violence (see [Appendix D](#)).

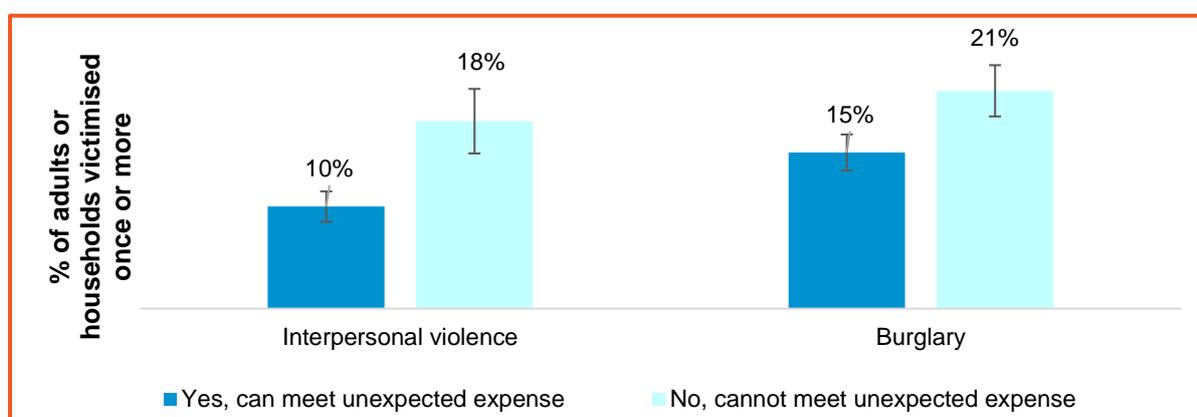


Figure 5.30 Percentage of Māori adults who experienced burglary or violent interpersonal offences, by their level of financial stress

Home ownership

Māori adults who owned their own home either with or without a mortgage were significantly less likely to experience violent interpersonal incidents and experienced significantly lower frequencies of household offences, particularly burglary. Conversely, Māori living in government rentals were significantly more likely to experience violent interpersonal incidents, and their households were more likely to be burgled (see Figure 5.31). Controlling for a range of other factors in modelling analyses, renting government accommodation was consistently found to predict higher rates of victimisation across all offences, household offences, personal offences, burglary and interpersonal violence (see [Appendix D](#)).

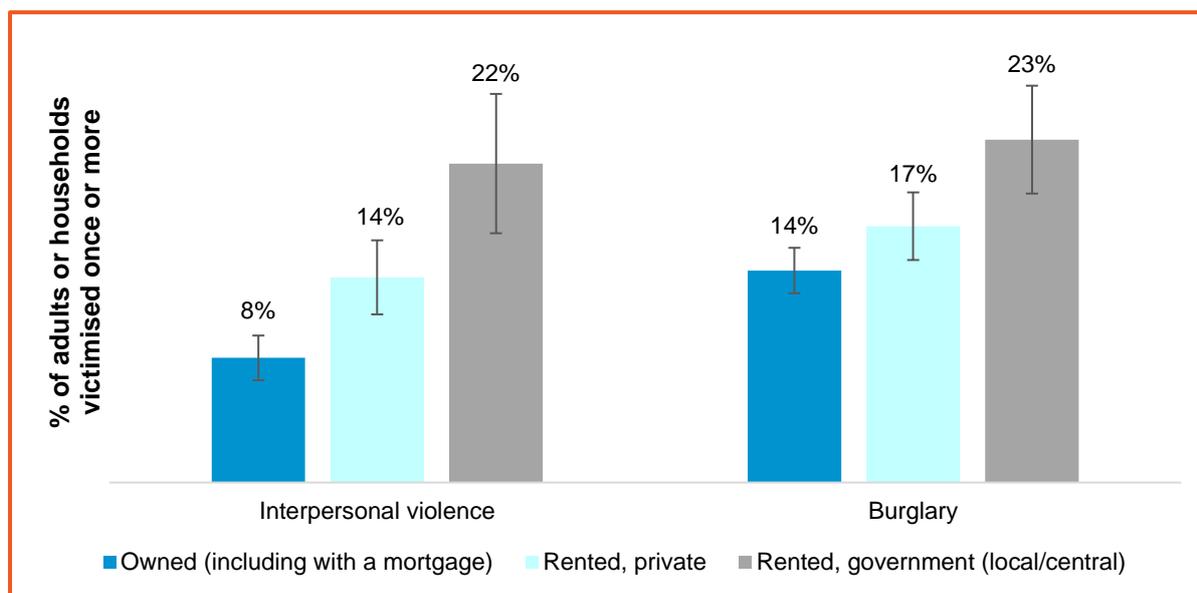


Figure 5.31 Percentage of Māori adults who experienced burglary or interpersonal violence offences, by home ownership status

6 Conclusions and future research

6.1 Summary of findings

The purpose of this report is to provide more detailed and up-to-date information on Māori victimisation in Aotearoa New Zealand to help inform the discussions and initiatives around the ongoing reform of the justice system. Specifically, we conducted a within-Māori analysis, comparing Māori adults who had been victimised with those who had not to learn more about the types of crime experienced, how those crimes were distributed, and who within Māori were more or less likely to be victimised.

High-level comparative analysis between Māori and non-Māori victimisation is available from the NZCVS annual reports (see [here](#) for cycle 1 and [here](#) for cycle 2). Some key findings are listed on p.12.

Crime types and distribution

Overall, we found that within a 12-month period, Māori adults who were victimised were more likely to experience a burglary or a violent interpersonal offence. These offences were also more likely to be experienced multiple times, and a small proportion of Māori experienced most of the incidents. We also found that over a third of Māori adults had experienced some form of intimate partner or sexual violence during their lifetime and that these rates increased substantially for those who were female, those who identified as gay/lesbian or bisexual, those aged 40–49, those living in a single-parent household, and those who were separated or divorced.

Factors associated with victimisation for Māori

Through our analyses we found a range of factors that were associated with a higher likelihood of victimisation for Māori. These included individual factors like being younger (aged 15–29), identifying as bisexual, being in short-term or non-legally recognised partnerships, and having a disability. There were also regional and neighbourhood factors like living in the Wellington region or the South Island, living in more-deprived neighbourhoods, living in neighbourhoods with greater crime and social disorder, and living in single-parent, single-person or multi-family households. Economic factors included being unemployed, under more financial stress, and renting government accommodation. We also found that wellbeing was highly related to victimisation for Māori. Those who had been victimised displayed higher levels of psychological distress, lower life satisfaction and lower feelings of safety. They also worried more often about being a victim and were less trusting of others.

Factors that protect against victimisation

Our analyses also revealed several factors that were in some way protective against victimisation for Māori. These included individual factors like being aged 50+ and being in a legally recognised partnership. Regional and neighbourhood factors included living in the North Island (excluding the Wellington region), living in a rural settlement, living in neighbourhoods with low deprivation and good resources, living in neighbourhoods with low crime or social disorder, and living in couple-only households. Finally, economic factors linked to a lower risk of victimisation included being retired or performing home caring duties, owning your home, and having low financial stress. Māori who were not victimised also displayed higher levels of wellbeing with lower psychological distress, higher life satisfaction and greater feelings of safety.

How do these findings compare with non-Māori and previous research?

Almost all of the factors found to increase or decrease the likelihood of victimisation for Māori are the same as those found for the general population (see [NZCVS Cycle 2 report](#)). However, the Māori population is overrepresented in many of the high-risk areas for victimisation and underrepresented in many of the low-risk areas, leaving Māori to bear a disproportionate level of victimisation overall. For example, as discussed in [Sections 5.3 and 5.4](#), Māori are over-represented in younger age groups and high-deprivation neighbourhoods and under-represented in older age groups and low-deprivation neighbourhoods.

The *Turuki! Turuki! Move together!* report published in 2019 within the [Hāpaitia te Oranga Tangata](#) programme as well as a range of previously published reports attribute many of the factors that lead the Māori population to be overrepresented in high-risk areas for victimisation and underrepresented in many of the low-risk areas to the enduring effects of colonisation¹⁴. Any intervention or response aimed at reducing victimisation for Māori needs to take structural differences into account and extend beyond the relatively narrow set of interventions currently available within the criminal justice system to encompass a wider set of contextual issues. This includes recognising social and economic inequalities, urban/rural disparities, and structural racism, as well as seeking to understand the issues and identify solutions within a Māori conceptual framework.

The risk factors and associated population differences identified in this report are almost identical to those identified in a similar report written by Cunningham et al,¹⁵ which looked at Māori victimisation 15 years ago in 2006. Their report also found higher victimisation for Māori compared to non-Māori across all offence types and that younger Māori with fewer social and economic resources were at the highest risk. Looking at patterns of victimisation over time, the only difference between these reports is that the current report was able to

¹⁴ See footnote on p.4.

¹⁵ Cunningham, C, Triggs, S, and Faisandier, S. 2009. *Analysis of the Maori experience: Findings from the New Zealand Crime and Safety Survey 2006*. Wellington: New Zealand Ministry of Justice.

identify some additional groups within Māori who were also more vulnerable to victimisation, including bisexual people and people with a disability. The consistency of these findings suggests that little has been achieved to reduce victimisation for Māori, and this is likely to continue if significant changes are not made.

Finally, one finding in this report that was unique to Māori was when controlling for a range of factors including deprivation, Māori living anywhere in the North Island apart from the Wellington region were less likely to experience personal offences and violent interpersonal offences compared with Māori living in Wellington or the South Island. This finding was also present in the 2006 Māori victimisation report, which also found that Māori living in the South Island were at a higher risk of victimisation. This finding is particularly interesting because, as stated in [Section 5.4](#), the relative proportion of Māori living in the North Island excluding the Wellington region is almost three times higher than the relative proportion of Māori living in Wellington and the South Island (28% vs 11%; Census 2018). This means that Māori appear to be safer in regions with relatively larger Māori communities. This phenomenon has previously been identified in research looking at the effects of ethnic density on Māori health outcomes using New Zealand Health Survey Data.¹⁶ This research found that Māori living in communities with higher Māori densities were less likely to experience racial discrimination, report poor health or have a diagnosed mental disorder. Like the current findings, they found the relationship between ethnic density, racial discrimination and positive health outcomes were much stronger after controlling for the negative effects of deprivation on health. Further analysis confirming this effect and additional research examining how ethnic density reduces the risk of victimisation for Māori may provide invaluable information for reform efforts.

6.2 Directions for future research

The findings of this report provide an updated outline for a picture of Māori victimisation in Aotearoa New Zealand. However, the future research would benefit from also bringing te ao Māori perspective and fill in the details of this image. Specifically, we recommend enhancing future research by building on a kaupapa Māori research model to better understand crime and victimisation issues through a Māori lens. One feature of the NZCVS is that part of the survey is modular, meaning there is one group of questions in the survey that changes each year. This feature could allow kaupapa Māori researchers to lead or co-lead the design of a new module that applies tikanga as the foundation and scope for new questions. Questions from a kaupapa Māori module could also be linked back to the core survey data to provide new insights on why victimisation occurs or identify cultural factors that help protect against victimisation. Future reports on this topic will also benefit from having Māori researchers lead the research questions, analysis, writing and presentation in order to move towards a fully kaupapa Māori approach.

Anonymised NZCVS data is also shared annually to the Stats NZ Integrated Data Infrastructure (IDI) to allow independent researchers to produce new research and analysis

¹⁶ Bécares, L, Cormack, D, and Harris, R. 2013. Ethnic density and area deprivation: Neighbourhood effects on Māori health and racial discrimination in Aotearoa/New Zealand. *Social Science & Medicine* 88: 76–82.

using our datasets. Data in the IDI can be linked to other government datasets, such as the census, creating vast opportunities for new analysis on Māori victimisation as well as many other topics. For example, as the sample for NZCVS increases over time, it may be possible to produce iwi-level analysis of victimisation using iwi affiliation data from the census. The NZCVS team is happy to assist or partner with any researchers, including kaupapa Māori researchers, who are interested in using NZCVS data for new research and analysis. Based on the findings of the current report, we have proposed some follow-up questions that we believe will add to our understanding in the area of Māori victimisation. We hope these questions will spark continued interest in the topic area and encourage others to ask questions that advance our knowledge on these issues.

Future research questions

- Why do Māori adults aged 50+ experience substantially less crime? Does the accumulation of social and economic capital over time reduce the likelihood of victimisation?
- What are the circumstances surrounding personal and violent interpersonal incidents experience by young Māori?
- Why are households with specific compositions (eg, single-parent or single-person) more likely to experience household offences and burglary?
- How do long-term or legally recognised relationships protect against victimisation for Māori?
- What is the relationship between Māori density and victimisation? How does involvement or participation in Māori communities or communal activities protect against victimisation?
- Do Māori who have experienced crime have access to services (including culturally appropriate services) that support their mental health and wellbeing?
- What are the circumstances surrounding violent interpersonal incidents perpetrated by strangers or known associates?

Appendix A: Broad offence groupings

Table A.1 Broad offence groupings

Individual offence types	Broad offence grouping	
Fraud and deception	Fraud and cybercrime offences	
Cybercrime		
Sexual assault	Violent interpersonal offences*	
Harassment and threatening behaviour		
Other assault		
Robbery		
Property damage (personal)		
Property damage (household)	Theft and damage offences†	
Theft (except motor vehicles – personal)		
Theft (except motor vehicles – household)		
Unlawful takes/converts/interferes with bicycle		
Burglary	Burglary	
Trespass	Trespass	
Theft of/unlawful takes/converts motor vehicle	Vehicle offences	
Theft (from motor vehicle)		
Unlawful interference/getting into motor vehicle		
Damage to motor vehicles		

* “Violent interpersonal offences” is a group combining sexual assault, other assault, harassment and threatening behaviour, robbery, and damage of personal or household property if the offender is known to the victim.

† “Theft and damage offences” is a group combining theft (except motor vehicle theft); damage of household and personal property if the offender is unknown to the victim; and unlawful takes, converts or interference with bicycle.

Appendix B: Brief report methodology

B.1 Sample and datasets used

The New Zealand Crime and Victims Survey (NZCVS) is a nationwide, face-to-face, annual, random-sample survey asking adults living in private dwellings and aged 15 and over about incidents of crime they experienced in New Zealand over the last 12 months. This includes incidents reported to the Police and unreported incidents.

The sample for this report consists of 4,641 Māori respondents who participated in one of the first two cycles of the NZCVS (March 2018 to September 2019). All estimates in this report are based on either the full Māori sample of pooled data from Cycle 1 and 2 or on the sample of the 2,338 Cycle 2 Māori respondents who answered questions on our module about trust and wellbeing in the criminal justice system. All estimates in the report apart from those provided in [Appendix C](#) and [Appendix D](#) were weighted to provide more accurate Māori population estimates of victimisation. For more details on the full NZCVS samples and how weights were calculated, see the [Cycle 2 methodology report](#).

B.2 Māori booster sample and ethnicity selection

The NZCVS employs a Māori booster sample as part of its survey methodology. The Māori booster sample was designed to increase the sample size for Māori to ensure the production of reliable estimates. Addresses for the Māori booster sample were selected from those on the electoral roll where an elector of Māori descent resided.

The NZCVS uses Stats NZ ethnicity classification categories and asks respondents to self-select all ethnicities they identify with. All responses are coded using the Stats NZ 5-digit Ethnicity Standard Classification (2005). Moreover, 5-digit ethnicity codes were assigned to broader Stats NZ categories according to the first two digits of the code. The NZCVS uses the standard Stats NZ total response output method when producing estimates for ethnic groups. This means that all Māori people referred to in this report are those who self-selected Māori for at least one of their ethnicity selections. The NZCVS does not ask about iwi affiliation because the annual sample size is too small to provide reliable estimates. However, if the survey continues for several more years, iwi-level analysis may become possible using census data from the Stats NZ Integrated Data Infrastructure (IDI).

B.3 Household offences experienced by Māori

In the NZCVS, household offences are defined as offences directed towards the household (e.g., burglary). This means when we talk about household offences experienced by Māori, we mean that there is at least one Māori person living in the household who experienced the offence. We do not collect ethnicity data for all household members, so we cannot assume the ethnicity of the other household members. This means we may fail to count incidents for someone of a different ethnicity who lived in the same household and experienced the same household offence.

For more details on the full NZCVS methodology, including sample, Māori booster sample, weighting calculations and ethnicity categories, see the [NZCVS Cycle 2 methodological report](#).

B.4 Measures of crime used in this report

The NZCVS collects information on the number of people who experience crime and the number of crime incidents they experience. This information is weighted and then summed or averaged to produce the following estimates:

1. **Incidence of crime** – the number of incidents of crime experienced by adults (15 years of age or older) in a 12-month period
2. **Incidence rate** – the average number of offences for every 100 adults or 100 households
3. **Prevalence of crime** – the number of adults and/or households victimised once or more
4. **Prevalence rate** – the percentage of adults and/or households that were victimised once or more

This report primarily looks at prevalence rates and incidence rates because they are the easiest to interpret when making comparisons between groups or different types of offences. However, for most areas covered in the report the total incidence and prevalence estimates are also provided in the accompanying [tables](#).

B.5 Estimates and statistical significance

The report contains many graphs that help to visualise key facts and findings. Only those graphs that relate to the key findings are included. In most graphs, the colour orange indicates values with a statistically significant difference from the Māori average (on 95% confidence level), and grey indicates the Māori average.

All observations and graphs in the report are based on [data tables](#) available from a separate Excel document located on the Ministry of Justice website. These tables also provide information about the accuracy of the estimates and whether estimates should be used with caution due to the margin of error.

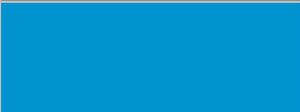
Estimates in the text and graphs (including percentages) are rounded to the nearest thousands, hundreds or whole numbers. The one exception is when it is essential to recognise the smaller differences between the prevalence rates in different groups. In this case, we round the percentages to one decimal point.

Formal statistical tests of differences in estimates across population groups are not provided in this report. Confidence intervals (at the 95% level) are provided to show the uncertainty of estimates. When confidence intervals of two estimates are not overlapping, it can be concluded that there is a statistically significant difference. However, when the intervals do overlap, the difference is unlikely to be statistically significant.

Throughout the report, the word “significance” always means “statistical significance”. Note that statistical significance depends not only on the difference between the estimates but also on sample size and variance. This may result in situations where smaller differences are statistically significant while larger differences are not.

Colour coding in graphs showing statistical significance

This report contains a large number of graphs to visualise key findings. In some graphs in which significance testing relative to the Māori average was carried out, the following colour scheme is used to highlight statistical significance.

	Māori average
	No statistically significant difference from the Māori average (at 95% confidence level)
	Statistically significant difference from the Māori average (at 95% confidence level)

Note: Statistical testing is based on overlapping confidence intervals and not formal tests, as described above.

If you have any feedback or questions about NZCVS results, please email us at nzcvcs@justice.govt.nz

B.6 Moving towards inferential analysis

Up to this point, reports on the NZCVS have mostly described univariate (one-way) descriptive statistics. As we move forward and develop a better understanding of our data, we intend to do more inferential analysis. The modelling in [Appendix C](#) and [Appendix D](#) of this report is a first step in that direction, though through feedback and consultation we intend to continue refining our inferential methodologies to improve the quality of these analyses for future publications.

Appendix C: What are the strongest correlates or predictors of victimisation?

Summary of findings

In unspecified multivariate regression models that included all available variables, wellbeing factors were the most highly associated with all offence types, and deprivation was a top predictor of household offences. That is, Māori adults with low feelings of safety and high levels of psychological distress were among those at highest risk for all types of victimisation, and Māori living in more deprived areas were at the highest risk of experiencing household offences, particularly burglary.

In the specified models that excluded wellbeing and deprivation variables, the top predictors of victimisation included age, employment status, household composition, financial stress, sexual orientation and location. Specifically, Māori aged 20–29 were among those at the highest risk of experiencing any offence, and Māori aged 15–29 were among those at the highest risk of experiencing personal offences and interpersonal violence. Māori living alone, in single-parent households or in multi-family households were among those at the highest risk of experiencing household offences, and Māori who identified as bisexual were among those at the highest risk of experiencing personal offences.

In contrast, Māori adults who were retired or living in rural areas were among the lowest risk groups for all offences, household offences and personal offences, and Māori living anywhere in the North Island apart from the Wellington region were at lower risk of experiencing personal offences and violent interpersonal offences.

C.1 Understanding multivariate analysis of victimisation

In the report we outlined individual, regional, neighbourhood, household, wellbeing and economic factors that were significantly related to the victimisation of Māori adults. This type of descriptive analysis is important because it provides a high-level picture of which factors are associated with victimisation and the estimated size of differences from the average. However, many of the factors described in this way are interconnected. For example, we found that Māori adults in legally registered relationships were less likely to experience crime – however, older Māori are both less likely to experience crime and more likely to be in

legally registered relationships, so it is unclear whether the relationship between victimisation and partnership status is simply due to age.

One way to disentangle these factors is by using regression models to see which factors are associated with victimisation when considering their relationship with all other factors. For example, regression can tell us whether relationship status is still related to victimisation when age and other related factors are accounted for.

Another advantage of multivariate modelling is that some factors that did not appear to be related to victimisation when analysed individually might become significantly associated when related factors are accounted for. For example, household income might appear to be unrelated to victimisation until you consider the relationship between household income and household size. That is, those with a low household income and a large household size might be at higher risk of victimisation compared to those with low household income and a small household size.

Something else to consider when trying to understand the relationship between multiple different factors and victimisation is to identify whether some factors are more highly related to victimisation because they are a result or side effect of victimisation. For example, victimisation may result in moderate to high psychological distress or low life satisfaction, but it cannot influence age. Therefore, we may look at models with and without wellbeing variables to identify more likely predictors of victimisation.

Similarly, we may want to look at models with and without our deprivation variables because deprivation is measured using a combination of variables like income, employment and homeownership, which we have also measured separately. That is, by removing deprivation from the models, we may have a better chance of identifying the individual components within deprivation that are more predictive of victimisation.

C.2 Models of Māori victimisation

We used backward elimination stepwise logistic regression procedures to model which variables were the best predictors of Māori victimisation across five offence outcomes: all offences, household offences, personal offences, burglary, and interpersonal violence. For each outcome we looked at two types of model (10 models in total). The first type of model was unspecified and included all possible variable sets that had not been suppressed in univariate analyses due to large error estimates. The second type of model was specified and removed all wellbeing and deprivation variables for the reasons described in [Section C.1](#). For the specified models, we also tried to reduce the overlap between sets of similar variables by selecting one set per category. Specifically, we selected one set of income variables, one set of financial stress variables and one set of household composition variables (see [Appendix D](#) for full model selection details). To make accurate comparisons within each model, all variables were entered in a dichotomous format – for example, age was entered as seven age group variables (15–19, 20–29, 30–39, 40–49, 50–59, 60–64, 65+), and each variable was coded to 1/Yes or 0/No.

The tables below show the top five correlates/predictors in each unspecified and specified model, the odds ratio for each predictor, whether the predictor is positively or negatively related to the victimisation outcome, and the model's predictive accuracy (the *c*-statistic). For each model, all variables were entered in dichotomous formats and odds ratios less than one were converted so that the relative strength of each predictor was easy to compare. The odds ratio describes the odds of someone experiencing the outcome given the presence or absence of the predictor. For example, an odds ratio of 2 for people aged 15–19 suggests that people in that age range are twice as likely to experience crime. The *c*-statistic describes the model's ability to predict the outcome, a result of 0.5 means that the model is no better than chance at predicting the outcome, and a result of 1 means that the model perfectly predicts the outcome.

All ten models and predictors displayed below were statistically significant ($p > .05$). It should be noted that for our multivariate analyses there were more significant predictor variables for some outcomes than were present in our univariate analyses (see [data tables](#)), this might be due to our more conservative approach for identifying significant estimates in our univariate analyses (see [Section B.5](#)). These models were also unable to include any predictors from the Cycle 2 module (e.g. neighbourhood issues) because they were available for only half the sample. For a more in-depth look at our full models with all predictors, variable selection procedures and final model statistics, see [Appendix D](#).

Results for all offences

When considering all potential variables, the factors most closely associated with any victimisation for Māori adults were their feelings of safety, whether they had four or more children in the household, their employment status and their level of psychological distress. Specifically, Māori adults who were the most likely to experience any type of offence were those with low feelings of safety, those living with four or more children in the household, those who were not retired, and those with moderate or high levels of psychological distress (see Table C.1).

Table C.1 Factors most related to Māori victimisation: All offences (Unspecified model)

Associated factors	Odds ratio	+/-	C-statistic
Feeling of safety: 0 to 6 out of 10 (least safe)	3.27	+	0.68
Four or more children in the household	2.22	+	
Employment status: Retired	1.90	-	
Feeling of safety: 7 out of 10	1.89	+	
Low level of psychological distress	1.85	-	

When refining the model to exclude wellbeing and deprivation variables, the factors most closely associated with any victimisation for Māori adults were their employment status, their age, whether they lived in a rural area, their financial pressure and their household composition. Specifically, Māori adults who were the most likely to experience any type of

offence were those who were not retired, those who were aged 20–29, those who did not live in a rural area, those who were under more financial pressure, and those who lived in single-parent households (see Table C.2).

Table C.2 Factors most related to Māori victimisation: All offences (Specified model)

Associated factors	Odds ratio	+/-	C-statistic
Employment status: Retired	2.16	-	0.62
20–29 years old	1.71	+	
Rural area	1.42	-	
Able to afford \$300 item: Very limited	1.41	+	
Household composition: One parent with child(ren)	1.39	+	

Results for household offences

When considering all potential variables, the factors most closely associated with household offences towards Māori adults were their feelings of safety, whether they had four or more children in the household, deprivation, and their employment status. Specifically, Māori adults who were the most likely to experience an offence towards their household were those with low feelings of safety, those living with four or more children in the household, those living in more deprived areas, and those who were not retired (see Table C.3).

Table C.3 Factors most related to Māori victimisation: Household offences (Unspecified model)

Associated factors	Odds ratio	+/-	C-statistic
Feeling of safety: 0 to 6 out of 10 (least safe)	3.08	+	0.68
Four or more children in the household	2.28	+	
NZDep2013: Quintile 1	2.01	-	
Employment status: Retired	1.97	-	
Feeling of safety: 7 out of 10	1.94	+	

When refining the model to exclude wellbeing and deprivation variables, the factors most closely associated with household victimisation for Māori adults were their employment status and the composition of their household. Specifically, Māori adults who were the most likely to experience an offence toward their household were those who were not yet retired and those who lived in a single-parent household (with or without other persons), a one-person household or a multi-family household (see Table C.4).

Table C.4 Factors most related to Māori victimisation: Household offences (Specified model)

Associated factors	Odds ratio	+/ -	C-statistic
Employment status: Retired	2.34	-	0.62
Household composition: One parent with child(ren)	2.15	+	
Household composition: Multi-family household	1.64	+	
Household composition: One-person household	1.62	+	
Household composition: One parent with child(ren) and other person(s)	1.59	+	

Results for personal offences

When considering all potential variables, the factors most closely associated with personal offences for Māori adults were age, psychological distress and feelings of safety. Specifically, Māori adults who were the most likely to experience a personal offence were those aged 15–39, those who had moderate to high levels of psychological distress, and those who had low feelings of safety (see Table C.5).

Table C.5 Factors most related to Māori victimisation: Personal offences (Unspecified model)

Associated factors	Odds ratio	+/-	C-statistic
15–19 years old	2.00	+	0.67
20–29 years old	1.98	+	
Low level of psychological distress	1.78	-	
Feeling of safety: 0 to 6 out of 10 (least safe)	1.73	+	
30–39 years old	1.65	+	

When refining the model to exclude wellbeing and deprivation variables, the factors most closely associated with personal offences for Māori adults were age, sexual orientation and employment status. Specifically, Māori adults who were the most likely to experience a personal offence were those aged 15–39, those who identified as bisexual, and those who were not retired (see Table C.6).

Table C.6 Factors most related to Māori victimisation: Personal offences (Specified model)

Associated factors	Odds ratio	+/-	C-statistic
20–29 years old	2.03	+	0.64
15–19 years old	1.92	+	
Bisexual	1.91	+	
Employment status: Retired	1.72	–	
30–39 years old	1.71	+	

Results for burglary

When considering all potential variables, the factors most closely associated with Māori experiencing a burglary at their household were their feelings of safety, psychological distress and deprivation level. Specifically, Māori adults who were the most likely to experience a burglary at their household were those with lower feelings of safety, those who experienced high levels of psychological distress, and those who lived in more deprived areas (see Table C.7).

Table C.7 Factors most related to Māori victimisation: Burglary (Unspecified model)

Associated factors	Odds ratio	+/-	C-statistic
Feeling of safety: 0 to 6 out of 10 (least safe)	3.68	+	0.69
Feeling of safety: 7 out of 10	2.43	+	
NZDep2013: Quintile 1	2.01	–	
Low level of psychological distress	1.90	–	
Moderate level of psychological distress	1.75	–	

When refining the model to exclude wellbeing and deprivation variables, the factors most closely associated with Māori experiencing a burglary at their household were household composition, household income and age. Specifically, Māori adults who were the most likely to experience a burglary at their household were those living in single-parent, one-person or other multi-person households, those with a household income outside the range of \$10,000–\$20,000 per year, and those aged 40–49 (see Table C.8).

Table C.8 Factors most related to Māori victimisation: Burglary (Specified model)

Associated factors	Odds ratio	+/-	C-statistic
Household composition: Other multi-person household	1.61	+	0.62
Household composition: One parent with child(ren)	1.61	+	
Household income: \$10,001–\$20,000	1.56	–	
40–49 years old	1.48	+	
Household composition: One-person household	1.47	+	

Results for interpersonal violence

When considering all potential variables, the factors most closely associated with Māori adults experiencing a violent interpersonal offence were age and feelings of safety. Specifically, Māori adults who were the most likely to experience a violent offence were those aged 15–49 and those with low feelings of safety (see Table C.9)

Table C.9 Factors most related to Māori victimisation: Interpersonal violence (Unspecified model)

Associated factors	Odds ratio	+/-	C-statistic
20–29 years old	3.94	+	0.76
15–19 years old	3.36	+	
30–39 years old	2.88	+	
Feeling of safety: 0 to 6 out of 10 (least safe)	2.49	+	
40–49 years old	2.23	+	

When refining the model to exclude wellbeing and deprivation variables, the factors most closely associated with Māori adults experiencing a violent interpersonal offence were age and location. Specifically, Māori adults who were the most likely to experience a violent offence were those aged 15–49 and those who did not live in the Auckland region (see Table C.10).

Table C.10 Factors most related to Māori victimisation: Interpersonal violence (Specified model)

Associated factors	Odds ratio	+/-	C-statistic
20–29 years old	4.25	+	0.72
15–19 years old	3.70	+	
30–39 years old	3.13	+	
40–49 years old	2.38	+	
Live in the Auckland region	1.87	–	

C.3 What do the models tell us about Māori victimisation?

The influence of wellbeing factors

When our models of victimisation included wellbeing variables, they came out as highly related to all offence types. As previously suggested, this might be due to the direct effects of victimisation on wellbeing as opposed to wellbeing factors predicting victimisation. However, based on our measures of predictive accuracy, models that included wellbeing variables were better at classifying victims from non-victims than models without these variables. Regardless, more information is needed to understand whether a person's wellbeing can lead to more or less crime experiences, and if it can, how that occurs.

The role of deprivation

As predicted, when measures of deprivation were included in the models, they came out as highly predictive of offences towards households, specifically burglary. When deprivation was excluded from these models, specific components of deprivation, including household composition, household income and employment status, came out as top predictors of experiencing household offences. Together these models suggest that Māori living in more deprived areas are more likely to experience offences towards their household, and those who live alone or who live in single-parent households may be targeted more often for these types of offence. Another factor that may be of importance here but was not able to be included in our models at this time is the severity of neighbourhood issues experienced by respondents. As shown in [Section 5.4](#), the number and intensity of neighbourhood issues experienced is highly related to victimisation, and previous research has shown that these issues are strong predictors of all offence types when included in victimisation models.¹⁷

Age and employment status

Looking at the more refined models which did not include wellbeing or deprivation variables, two of the strongest and most common predictors of victimisation were age and employment status. Māori aged 20–29 are at the highest risk for experiencing crime, and Māori aged 15–29 are at the highest risk of experiencing personal offences and violent interpersonal offences. However, unlike our univariate analyses, these models showed that Māori aged 30–49 are also more likely to experience crime and are among the groups at highest risk for experiencing personal offences and violent interpersonal offences. Although it is unknown why the risk of victimisation suddenly drops at age 50, there are some clues provided by other factors present in the models, including employment status, home ownership, financial stress, partnership status and location (see [Appendix D](#) for full models). For example, if

¹⁷ Ministry of Justice. 2015. *2014 New Zealand Crime and Safety Survey | Te Rangahau o Aotearoa mō te Taihara me te Haumarutanga 2014: Main findings*. <https://www.justice.govt.nz/assets/Documents/Publications/NZCASS-201602-Main-Findings-Report-Updated.pdf>

Māori aged 50+ are far more likely to be retired or have home/caring duties, are living more rurally or own their own home and are under less financial stress, then this might help explain why their risk of victimisation suddenly drops. Future research looking at differences in these factors between different age groups could help to inform whether the stresses and situations that come with different stages of life are key to victimisation risk.

Sexual orientation and region

Finally, the refined models also suggested that Māori who identified as bisexual were among those at the highest risk for experiencing personal offences regardless of age. This pattern is also found in the general population (see [NZCVS Cycle 2](#)), and more research is needed to identify why the risk of victimisation is so high for this particular group. These models also found some regional patterns for victimisation that were not detected in our univariate analyses. Specifically, controlling for a range of other factors, Māori adults living anywhere in the North Island – apart from the Wellington region – were at a lower risk of experiencing personal offences and violent interpersonal offences compared with Māori living in Wellington or the South Island. Future analysis with larger samples might reveal more specific regions at higher or lower risk of victimisation and may provide more insight into why some regions are safer than others. However, it should be noted according to Stats NZ 2018 Census data there are much higher relative proportions of Māori living in the North Island excluding Wellington (28%) compared with Wellington and the South Island (11%), and so the potential for Māori being safer in regions with relatively larger Māori communities needs further investigation.

Appendix D: Full logistic regression models of Māori victimisation

We used backward elimination stepwise logistic regression procedures to model which variables were the best predictors of Māori victimisation across five offence outcomes: all offences, household offences, personal offences, burglary, and interpersonal violence. For each outcome we looked at two types of model (10 models in total). The first type of model was unspecified and included all possible variable sets that had not been suppressed in univariate analyses due to large error estimates. The second type of model was specified and removed all wellbeing and deprivation variables. For the specified models, we also tried to reduce the overlap between sets of similar variables by selecting one set per category. Specifically, we selected one set of income variables, one set of financial stress variables and one set of household composition variables (see below). To make accurate comparisons within each model, all variables were entered in a dichotomous format – for example, age was entered as seven age group variables (15–19, 20–29, 30–39, 40–49, 50–59, 60–64, 65+), and each variable was coded to 1/Yes or 0/No

D.1 Variable selection method

The following step was used to select variables for all unspecified models for each outcome variable:

- **Step 1** – Remove any variables that are suppressed in univariate analysis due to sample size.

The following additional steps were used for selecting variables for the specified models for each outcome variable:

- **Step 2** – Remove variables that overlap by selecting those that are more conceptually relevant or were more highly associated in the unrefined model.
 - Overlapping variables were identified as:
 - household composition, household size, and number of children living in the household
 - household income and personal income
 - financial stress 1 (ability to afford \$300 non-essential item) and financial stress 2 (ability to afford \$500 unexpected expense).
- **Step 3** – Remove wellbeing variables that could be directly affected by victimisation as opposed to predictors of victimisation.

- **Step 4** – Remove deprivation variables as these are variables created from a combination of variables similar to those already in the model.

D.2 List of variables included/excluded for each model

All offences

- Unspecified model – Included all variables in the model including 13 regions.
- Specified model – Included all variables from the unspecified model aside from wellbeing and deprivation variables. Overlapping variables:
 - selected financial stress 1 based on the unspecified model results
 - personal income based on the unspecified model results
 - household composition because it is conceptually a more informative measure of household dynamics.

Household offences

- Unspecified model – Included all variables but used 5 regions as opposed to 13 because Southland and Gisborne were suppressed in the univariate analysis.
- Specified model – Included all variables from the unspecified model apart from wellbeing and deprivation variables. Overlapping variables:
 - selected financial stress 2 because it is a conceptually simpler measure of financial stress; personal income based on the unspecified model results
 - household composition because it is conceptually a more informative measure of household dynamics.

Personal offences

- Unspecified model – Included all variables apart from number of children. Used 5 regions of Aotearoa as opposed to 13 because Southland was suppressed in univariate analysis.
- Specified model – Included all variables from unspecified model apart from wellbeing and deprivation variables, with separate “rest of North Island” regions entered due to results from the unspecified model. Overlapping variables:
 - selected personal income because it is more likely to be associated with personal offences
 - financial stress 2 because it is a simpler measure of financial stress
 - household composition because it is a more informative measure of household dynamics.

Burglary

- Unspecified model – Included all variables apart from number of children. Used 5 regions of Aotearoa as opposed to 13 because multiple regions were suppressed in univariate analysis.

- Specified model – Included all variables from the unspecified model apart from wellbeing and deprivation variables. Overlapping variables:
 - selected household composition because it is a more informative measure of household dynamics
 - household income based on the unspecified model results and because household income will be more relevant to household offences
 - financial stress 2 because it is a simpler measure of financial stress.

Interpersonal violence

- Unspecified model – Included all variables apart from number of children and personal income. Used the 5 regions because multiple regions were suppressed in univariate analysis. Changed older age group to 50 years and over.
- Specified model – Includes all variables from the unspecified model apart from wellbeing and deprivation variables. Overlapping variables:
 - selected household income because personal income was suppressed in univariate analysis
 - selected financial stress 2 because of the unspecified model results
 - selected household composition because it is a more informative measure of household dynamics.

The following abbreviations are used in the tables below.

Abbreviation	Definition
χ^2	chi squared
p	p value
β	standardised regression coefficient
$SE \beta$	standard error for the standardised regression coefficient
Wald χ^2	wald chi-square test statistic
df	degrees of freedom
OR	odds ratio
CI	confidence interval

All offences: Unspecified model

Table D.1 Factors related to Māori victimisation full model statistics: All offences (Unspecified model)

Test	χ^2	df	p
Overall model evaluation			
Likelihood ratio test	446.30	22	<.01
Score test	433.47	22	<.01
Wald test	388.52	22	<.01
Goodness-of-fit test			
Hosmer & Lemeshow	3.94	8	0.86

Note. Cox and Snell $R^2 = 0.09$. Nagelkerke R^2 (**max-rescaled $R^2 = 0.13$**). Kendall's Tau-a = .17. Goodman–Kruskal gamma = .36. Sommer's $D = .36$. c-statistic = .68.

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
Feeling of safety: 0 to 6 out of 10 (least safe)	1.18	0.11	117.60	1	<.01	3.27	2.64	4.05
Four or more children in the household	0.80	0.25	9.81	1	<.01	2.22	1.35	3.66
Feeling of safety: 7 out of 10	0.64	0.11	33.26	1	<.01	1.89	1.52	2.35
20–29 years old	0.55	0.10	32.43	1	<.01	1.73	1.43	2.09
Medium urban area	0.32	0.11	7.91	1	<.01	1.37	1.10	1.71
Household composition: One parent with child(ren)	0.30	0.13	5.52	1	0.02	1.35	1.05	1.74
Two children in the household	0.30	0.14	4.58	1	0.03	1.35	1.03	1.77
Feeling of safety: 8 out of 10	0.29	0.09	9.70	1	<.01	1.33	1.11	1.60
Feeling of safety: 9 out of 10	0.28	0.10	8.11	1	<.01	1.32	1.09	1.60
Partnered, not legally registered	0.27	0.11	6.37	1	0.01	1.31	1.06	1.61

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
40–49 years old	0.26	0.09	8.10	1	<.01	1.30	1.08	1.55
Able to afford \$300 item: Very limited	0.25	0.10	6.47	1	0.01	1.28	1.06	1.55
Major urban area	0.21	0.07	8.99	1	<.01	1.23	1.07	1.40
30–39 years old	0.20	0.10	4.46	1	0.03	1.22	1.02	1.48
NZDep2013: Quintile 3	-0.20	0.09	5.32	1	0.02	0.82	0.69	0.97
Life satisfaction: 10 out of 10	-0.22	0.09	6.49	1	0.01	0.80	0.68	0.95
Employment status: Employed	-0.24	0.09	6.61	1	0.01	0.79	0.66	0.95
Waikato	-0.30	0.10	8.43	1	<.01	0.74	0.61	0.91
Personal income: \$10,001–\$20,000	-0.30	0.10	9.30	1	<.01	0.74	0.61	0.90
Employment status: Home or caring duties	-0.38	0.14	7.47	1	0.01	0.69	0.52	0.90
Low level of psychological distress	-0.61	0.09	44.23	1	<.01	0.54	0.45	0.65
Employment status: Retired	-0.64	0.13	23.50	1	<.01	0.53	0.41	0.68

All offences: Specified model

Table D.2 Factors related to Māori victimisation full model statistics: All offences (Specified model)

Test	χ^2	df	p
Overall model evaluation			
Likelihood ratio test	208.77	15	<.01
Score test	201.67	15	<.01
Wald test	191.91	15	<.01
Goodness-of-fit test			
Hosmer & Lemeshow	9.83	9	0.36

Note. Cox and Snell $R^2 = 0.04$. Nagelkerke R^2 (**max-rescaled $R^2 = 0.06$**). Kendall's Tau-a = .11. Goodman–Kruskal gamma = .25. Sommer's $D = .24$. c-statistic = .62.

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
20–29 years old	0.54	0.09	33.92	1	<.01	3.27	2.64	4.05
Able to afford \$300 item: Very limited	0.35	0.10	13.02	1	<.01	2.22	1.35	3.66
Household composition: One parent with child(ren)	0.33	0.12	7.59	1	0.01	1.89	1.52	2.35
Disabled	0.31	0.14	4.96	1	0.03	1.73	1.43	2.09
40–49 years old	0.30	0.09	11.95	1	<.01	1.37	1.10	1.71
30–39 years old	0.25	0.09	7.63	1	0.01	1.35	1.05	1.74
Partnered, not legally registered	0.24	0.10	5.62	1	0.02	1.35	1.03	1.77
Household ownership: Rented, government (local/central)	0.23	0.10	4.89	1	0.03	1.33	1.11	1.60
Able to afford \$300 item: Couldn't buy it	0.16	0.08	3.90	1	0.05	1.32	1.09	1.60
Employed	-0.23	0.09	6.17	1	0.01	1.31	1.06	1.61
Waikato	-0.27	0.10	7.23	1	0.01	1.30	1.08	1.55

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
Personal income: \$10,001–\$20,000	-0.27	0.10	8.10	1	<.01	1.28	1.06	1.55
Employment status: Home or caring duties	-0.33	0.13	6.31	1	0.01	1.23	1.07	1.40
Rural area	-0.35	0.09	15.87	1	<.01	1.22	1.02	1.48
Employment status: Retired	-0.77	0.13	35.75	1	<.01	0.82	0.69	0.97

Household offences: Unspecified model

Table D.3 Factors related to Māori victimisation full model statistics: Household offences (Unspecified model)

Test	χ^2	df	p
Overall model evaluation			
Likelihood ratio test	374.36	27	<.01
Score test	375.30	27	<.01
Wald test	336.94	27	<.01
Goodness-of-fit test			
Hosmer & Lemeshow	2.60	8	0.96

Note. Cox and Snell $R^2 = 0.08$. Nagelkerke R^2 (**max-rescaled $R^2 = 0.12$**). Kendall's Tau-a = .14. Goodman–Kruskal gamma = .36. Sommer's $D = .36$. c-statistic = .68.

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
Feeling of safety: 0 to 6 out of 10 (least safe)	1.18	0.11	117.60	1	<.01	3.08	2.46	3.85
Four or more children in the household	0.80	0.25	9.81	1	<.01	2.28	1.38	3.77
Feeling of safety: 7 out of 10	0.64	0.11	33.26	1	0.00	1.94	1.54	2.45
Partnered, not legally registered	0.55	0.10	32.43	1	<.01	1.57	1.23	1.99

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
Household composition: One parent with child(ren)	0.32	0.11	7.91	1	0.00	1.47	1.10	1.95
Feeling of safety: 8 out of 10	0.30	0.13	5.52	1	0.01	1.43	1.18	1.75
Four-person household	0.30	0.14	4.58	1	0.00	1.41	1.12	1.78
20–29 years old	0.29	0.09	9.70	1	0.00	1.37	1.13	1.66
Life satisfaction: 0 to 6 out of 10 (least satisfied)	0.28	0.10	8.11	1	0.00	1.33	1.10	1.62
One-person household	0.27	0.11	6.37	1	0.00	1.33	1.09	1.63
Three-person household	0.26	0.09	8.10	1	0.00	1.30	1.06	1.59
Feeling of safety: 9 out of 10	0.25	0.10	6.47	1	0.01	1.30	1.05	1.61
Partnered, legally registered	0.21	0.07	8.99	1	0.02	1.29	1.08	1.55
Life satisfaction: 7 out of 10	0.20	0.10	4.46	1	0.01	1.27	1.05	1.54
40–49 years old	-0.20	0.09	5.32	1	0.01	1.24	1.03	1.48
Rest of North Island	-0.22	0.09	6.49	1	0.02	0.85	0.73	0.99
NZDep2013: Quintile 4	-0.24	0.09	6.61	1	0.03	0.82	0.68	0.99
Employed	-0.30	0.10	8.43	1	0.03	0.77	0.63	0.94
NZDep2013: Quintile 2	-0.30	0.10	9.30	1	0.01	0.76	0.60	0.97
Rural area	-0.38	0.14	7.47	1	0.03	0.76	0.62	0.94
Personal income: \$10,001–\$20,000	-0.61	0.09	44.23	1	0.01	0.75	0.60	0.92
Employment status: Home or caring duties	-0.64	0.13	23.50	1	0.01	0.71	0.53	0.94
Moderate level of psychological distress	-0.37	0.18	4.28	1	0.02	0.69	0.49	0.98
NZDep2013: Quintile 3	-0.46	0.11	18.41	1	0.04	0.63	0.51	0.78
Low level of psychological distress	-0.53	0.15	11.76	1	<.01	0.59	0.44	0.80
Employment status: Retired	-0.68	0.15	21.17	1	0.00	0.51	0.38	0.68
NZDep2013: Quintile 1	-0.70	0.15	23.22	1	<.01	0.50	0.37	0.66

Household offences: Specified model

Table D.4 Factors related to Māori victimisation full model statistics: Household offences (Specified model)

Test	χ^2	df	p
Overall model evaluation			
Likelihood ratio test	158.83	15	<.01
Score test	154.75	15	<.01
Wald test	147.79	15	<.01
Goodness-of-fit test			
Hosmer & Lemeshow	9.37	8	0.31

Note. Cox and Snell $R^2 = 0.03$. Nagelkerke R^2 (**max-rescaled $R^2 = 0.05$**). Kendall's Tau-a = .09. Goodman–Kruskal gamma = .24. Sommer's $D = .24$. c-statistic = .62.

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
Household composition: One parent with child(ren)	0.76	0.16	24.26	1	<.01	2.15	1.58	2.91
Household composition: Multi-family household	0.50	0.18	7.24	1	0.01	1.64	1.15	2.36
Household composition: One-person household	0.48	0.11	19.58	1	<.01	1.62	1.31	2.01
Household composition: One parent with child(ren) and other person(s)	0.46	0.17	7.11	1	0.01	1.59	1.13	2.24
Household composition: Other multi-person household	0.44	0.16	7.55	1	0.01	1.55	1.14	2.13
Partnered, not legally registered	0.42	0.12	12.25	1	0.00	1.52	1.20	1.93
20–29 years old	0.31	0.09	10.90	1	0.00	1.37	1.14	1.65
Household composition: Couple with child(ren)	0.29	0.10	7.79	1	0.01	1.34	1.09	1.64
Household ownership: Rented, government (local/central)	0.28	0.11	6.68	1	0.01	1.33	1.07	1.64
Partnered, legally registered	0.27	0.10	6.82	1	0.01	1.31	1.07	1.60
40–49 years old	0.20	0.09	5.13	1	0.02	1.23	1.03	1.46

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
Employed	-0.30	0.09	10.64	1	0.00	0.74	0.62	0.89
Employment status: Home or caring duties	-0.32	0.14	5.28	1	0.02	0.72	0.55	0.95
Rural area	-0.44	0.10	18.37	1	<.01	0.65	0.53	0.79
Employment status: Retired	-0.85	0.14	35.24	1	<.01	0.43	0.32	0.57

Personal offences: Unspecified model

Table D.5 Factors related to Māori victimisation full model statistics: Personal offences (Unspecified model)

Test	χ^2	df	p
Overall model evaluation			
Likelihood ratio test	278.52	14	<.01
Score test	287.98	14	<.01
Wald test	258.79	14	<.01
Goodness-of-fit test			
Hosmer & Lemeshow	8.48	8	0.39

Note. Cox and Snell $R^2 = 0.06$. Nagelkerke R^2 (**max-rescaled $R^2 = 0.09$**). Kendall's Tau-a = .11. Goodman–Kruskal gamma = .34. Sommer's $D = .33$. c-statistic = .67.

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
15–19 years old	0.70	0.17	17.69	1	<.01	2.00	1.45	2.77
20–29 years old	0.68	0.12	34.68	1	<.01	1.98	1.58	2.48
Feeling of safety: 0 to 6 out of 10 (least safe)	0.55	0.11	26.67	1	<.01	1.73	1.41	2.13
30–39 years old	0.50	0.12	18.48	1	<.01	1.65	1.31	2.07

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
40–49 years old	0.42	0.11	13.38	1	<.01	1.52	1.22	1.90
High level of psychological distress	0.38	0.18	4.68	1	0.00	1.46	1.04	2.06
Feeling of safety: 7 out of 10	0.36	0.11	10.64	1	0.03	1.44	1.16	1.79
Household ownership: Rented, government (local/central)	0.31	0.12	7.08	1	<.01	1.36	1.08	1.71
Auckland	-0.24	0.10	5.15	1	0.01	0.79	0.64	0.97
Rest of North Island	-0.25	0.09	7.49	1	0.02	0.78	0.66	0.93
Small urban area	-0.25	0.12	4.11	1	0.01	0.78	0.61	0.99
Life satisfaction: 10 out of 10	-0.34	0.10	10.51	1	0.04	0.71	0.58	0.87
Employment status: Retired	-0.44	0.16	7.67	1	<.01	0.64	0.47	0.88
Low level of psychological distress	-0.58	0.11	25.21	1	0.01	0.56	0.45	0.70

Personal offences: Specified model

Table D.6 Factors related to Māori victimisation full model statistics: Personal offences (Specified model)

Test	χ^2	df	p
Overall model evaluation			
Likelihood ratio test	177.39	14	<.01
Score test	173.83	14	<.01
Wald test	163.60	14	<.01
Goodness-of-fit test			
Hosmer & Lemeshow	6.52	8	0.59

Note. Cox and Snell $R^2 = 0.04$. Nagelkerke R^2 (max-rescaled $R^2 = 0.06$). Kendall's Tau-a = .09. Goodman–Kruskal gamma = .27. Sommer's $D = .27$. c-statistic = .64.

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
20–29 years old	0.71	0.12	37.71	1	<.01	2.03	1.62	2.55
15–19 years old	0.65	0.16	15.90	1	<.01	1.92	1.39	2.64
Bisexual	0.65	0.23	7.71	1	0.01	1.91	1.21	3.03
30–39 years old	0.53	0.12	21.47	1	<.01	1.71	1.36	2.14
40–49 years old	0.45	0.11	15.57	1	<.01	1.56	1.25	1.95
Household ownership: Rented, government (local/central)	0.41	0.12	12.35	1	<.01	1.51	1.20	1.89
Large urban area	-0.24	0.11	4.97	1	0.03	0.79	0.64	0.97
Auckland	-0.28	0.10	7.95	1	<.01	0.75	0.62	0.92
Rural area	-0.28	0.12	5.90	1	0.02	0.75	0.60	0.95
Able to meet \$500 unexpected expense: Yes	-0.30	0.09	12.32	1	<.01	0.74	0.63	0.88
Employment status: Home or caring duties	-0.30	0.14	4.72	1	0.03	0.74	0.56	0.97
Waikato	-0.37	0.13	8.20	1	<.01	0.69	0.53	0.89
Small urban area	-0.41	0.13	10.04	1	<.01	0.66	0.52	0.86
Employment status: Retired	-0.54	0.16	11.65	1	<.01	0.58	0.43	0.79

Burglary offences: Unspecified model

Table D.7 Factors related to Māori victimisation full model statistics: Burglary offences (Unspecified model)

Test	χ^2	df	p
Overall model evaluation			
Likelihood ratio test	310.00	22	<.01
Score test	326.35	22	<.01
Wald test	288.51	22	<.01
Goodness-of-fit test			
Hosmer & Lemeshow	8.38	8	0.40

Note. Cox and Snell $R^2 = 0.07$. Nagelkerke R^2 (**max-rescaled $R^2 = 0.11$**). Kendall's Tau-a = .10. Goodman–Kruskal gamma = .39. Sommers's $D = .39$. c-statistic = .69.

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
Feeling of safety: 0 to 6 out of 10 (least safe)	-1.78	0.21	71.07	1	<.01	3.68	2.82	4.79
Feeling of safety: 7 out of 10	1.30	0.14	92.36	1	<.01	2.43	1.83	3.23
Feeling of safety: 8 out of 10	0.89	0.14	37.66	1	<.01	1.66	1.29	2.14
Household composition: One parent with child(ren)	0.51	0.13	15.59	1	<.01	1.50	1.11	2.03
40–49 years old	0.41	0.15	7.05	1	0.01	1.45	1.14	1.83
Feeling of safety: 9 out of 10	0.37	0.12	9.49	1	<.01	1.44	1.10	1.90
Household composition: Other multi-person household	0.37	0.14	6.83	1	0.01	1.40	1.02	1.92
20–29 years old	0.34	0.16	4.34	1	0.04	1.37	1.07	1.75
Life satisfaction: 0 to 6 out of 10 (least satisfied)	0.31	0.13	6.23	1	0.01	1.34	1.07	1.67
30–39 years old	0.29	0.11	6.48	1	0.01	1.32	1.04	1.68
Partnered, not legally registered	0.28	0.12	5.04	1	0.02	1.31	1.01	1.69

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
Household composition: One-person household	0.27	0.13	4.22	1	0.04	1.31	1.07	1.59
Life satisfaction: 10 out of 10	0.27	0.10	7.17	1	0.01	1.27	1.01	1.60
Auckland	0.24	0.12	4.33	1	0.04	1.23	1.02	1.49
65 years old and over	0.21	0.10	4.73	1	0.03	0.71	0.52	0.95
Household income: \$100,001–\$150,000	-0.35	0.15	5.27	1	0.02	0.69	0.53	0.91
Personal income: \$10,001–\$20,000	-0.37	0.14	7.01	1	0.01	0.68	0.53	0.87
NZDep2013: Quintile 3	-0.39	0.12	9.78	1	<.01	0.68	0.53	0.85
NZDep2013: Quintile 2	-0.39	0.12	10.73	1	<.01	0.67	0.50	0.88
Moderate level of psychological distress	-0.41	0.14	8.23	1	<.01	0.57	0.39	0.84
Low level of psychological distress	-0.56	0.19	8.29	1	<.01	0.53	0.38	0.73
NZDep2013: Quintile 1	-0.64	0.16	15.32	1	<.01	0.50	0.35	0.71

Burglary offences: Specified model

Table D.8 Factors related to Māori victimisation full model statistics: Burglary offences (Specified model)

Test	χ^2	df	p
Overall model evaluation			
Likelihood ratio test	130.26	12	<.01
Score test	130.60	12	<.01
Wald test	125.13	12	<.01
Goodness-of-fit test			
Hosmer & Lemeshow	12.03	8	0.15

Note. Cox and Snell $R^2 = 0.03$. Nagelkerke R^2 (max-rescaled $R^2 = 0.05$). Kendall's Tau-a = .07. Goodman–Kruskal gamma = .25. Sommers's $D = .25$. c-statistic = .62.

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
Household composition: Other multi-person household	1.18	0.11	117.60	1	<.01	3.08	2.46	3.85
Household composition: One parent with child(ren)	0.80	0.25	9.81	1	<.01	2.28	1.38	3.77
40–49 years old	0.64	0.11	33.26	1	0.00	1.94	1.54	2.45
Household composition: One-person household	0.55	0.10	32.43	1	<.01	1.57	1.23	1.99
Household ownership: Rented, government (local/central)	0.32	0.11	7.91	1	0.00	1.47	1.10	1.95
20–29 years old	0.30	0.13	5.52	1	0.01	1.43	1.18	1.75
30–39 years old	0.30	0.14	4.58	1	0.00	1.41	1.12	1.78
Able to meet \$500 unexpected expense: Yes	0.29	0.09	9.70	1	0.00	1.37	1.13	1.66
Household income: \$100,001–\$150,000	0.28	0.10	8.11	1	0.00	1.33	1.10	1.62
Rural area	0.27	0.11	6.37	1	0.00	1.33	1.09	1.63
Employment status: Retired	0.26	0.09	8.10	1	0.00	1.30	1.06	1.59
Household income: \$10,001–\$20,000	0.25	0.10	6.47	1	0.01	1.30	1.05	1.61

Interpersonal violence offences: Unspecified model

Table D.9 Factors related to Māori victimisation full model statistics: Interpersonal violence (Unspecified model)

Test	χ^2	df	p
Overall model evaluation			
Likelihood ratio test	416.72	17	<.01
Score test	434.43	17	<.01
Wald test	357.49	17	<.01
Goodness-of-fit test			
Hosmer & Lemeshow	5.24	8	0.73

Note. Cox and Snell $R^2 = 0.09$. Nagelkerke R^2 (**max-rescaled $R^2 = 0.17$**). Kendall's Tau-a = .10. Goodman–Kruskal gamma = .51. Sommer's $D = .51$. c-statistic = .76.

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
20–29 years old	1.37	0.15	85.28	1	<.01	3.94	2.95	5.28
15–19 years old	1.21	0.20	35.64	1	<.01	3.36	2.26	5.01
30–39 years old	1.06	0.15	47.74	1	<.01	2.88	2.13	3.88
Feeling of safety: 0 to 6 out of 10 (least safe)	0.91	0.13	46.16	1	<.01	2.49	1.91	3.24
40–49 years old	0.80	0.16	26.65	1	<.01	2.23	1.65	3.03
Partnered, not legally registered	0.57	0.16	12.90	1	<.01	1.76	1.29	2.40
Non-partnered	0.47	0.12	16.36	1	<.01	1.60	1.27	2.01
Feeling of safety: 7 out of 10	0.42	0.15	7.65	1	<.01	1.52	1.13	2.05
Feeling of safety: 9 out of 10	0.39	0.13	8.55	1	0.01	1.48	1.14	1.92
Employed	0.31	0.12	7.12	1	<.01	1.36	1.09	1.70
Able to meet \$500 unexpected expense: Yes	-0.29	0.11	6.44	1	0.01	0.75	0.60	0.94

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
Household ownership: Rented, private	-0.33	0.15	4.98	1	0.01	0.72	0.54	0.96
Life satisfaction: 10 out of 10	-0.36	0.15	5.92	1	0.03	0.70	0.53	0.93
Rest of North Island	-0.41	0.11	13.14	1	0.01	0.67	0.54	0.83
Auckland	-0.58	0.14	18.12	1	<.01	0.56	0.43	0.73
Household ownership: Owned (including with mortgage)	-0.59	0.15	15.30	1	<.01	0.55	0.41	0.74
Low level of psychological distress	-0.77	0.12	43.51	1	<.01	0.46	0.37	0.58

Interpersonal violence offences: Specified model

Table D.10 Factors related to Māori victimisation full model statistics: Interpersonal violence (Specified model)

Test	χ^2	df	p
Overall model evaluation			
Likelihood ratio test	298.21	13	<.01
Score test	291.91	13	<.01
Wald test	256.27	13	<.01
Goodness-of-fit test			
Hosmer & Lemeshow	7.72	8	0.46

Note. Cox and Snell $R^2 = 0.06$. Nagelkerke R^2 (**max-rescaled $R^2 = 0.12$**). Kendall's Tau-a = .09. Goodman-Kruskal gamma = .45. Sommer's $D = .45$. c-statistic = .72.

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
20–29 years old	1.45	0.15	98.44	1	<.01	4.25	3.19	5.66
15–19 years old	1.31	0.20	42.89	1	<.01	3.70	2.50	5.47

Factor	β	SE β	Wald χ^2	df	p	OR	95% CI OR	
							Lower	Upper
30–39 years old	1.14	0.15	57.66	1	<.01	3.13	2.33	4.20
40–49 years old	0.87	0.15	32.13	1	<.01	2.38	1.77	3.22
Employment status: Not employed not actively seeking work	0.61	0.22	7.66	1	0.01	1.85	1.20	2.85
Partnered, not legally registered	0.56	0.15	13.36	1	<.01	1.76	1.30	2.38
Non-partnered	0.53	0.11	21.60	1	<.01	1.70	1.36	2.12
Household ownership: Rented, government (local/central)	0.41	0.15	7.64	1	0.01	1.50	1.13	2.01
Employed	0.31	0.12	7.35	1	0.01	1.37	1.09	1.72
Household ownership: Owned (including with mortgage)	-0.29	0.11	7.17	1	0.01	0.75	0.60	0.93
Able to meet \$500 unexpected expense: Yes	-0.40	0.11	12.88	1	<.01	0.67	0.54	0.83
Rest of North Island	-0.42	0.11	14.96	1	<.01	0.66	0.53	0.81
Auckland	-0.63	0.13	21.86	1	<.01	0.53	0.41	0.70

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