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Who can leave a partner who uses violence?

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Disclaimer

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Summary haiku
Intimate partner
violence: difficult to leave,
but money can help.

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Executive summary

Overview

We use data from the Growing Up in New Zealand (GUiNZ) longitudinal study to investigate the prevalence and persistence of intimate partner violence (IPV) experienced by New Zealand mothers and identify barriers to victims of IPV leaving their partners.

We find high rates of IPV, especially verbal abuse, and that abuse experienced by individual mothers tends to be moderately persistent.

We find mothers with low access to financial resources face higher barriers to leaving a partner who uses violence than mothers with greater financial resources. This suggests increasing the financial support available to victims of IPV may increase their ability to leave their partners and ultimately attain safety.

Research questions

In this paper we use data from the Growing Up in New Zealand longitudinal study to investigate intimate partner violence (IPV) experienced by expectant mothers and mothers of children up to eight years old in Aotearoa New Zealand. We focus on three research questions:

1) how common are different types of IPV among these mothers,

2) how persistent is the IPV experienced by these mothers[1], and

3) how do barriers imposed by a partner who uses violence, society, and the mother's circumstances hinder her ability to leave the relationship.[2]

This enables us to build a picture of the IPV experienced by mothers of young children, and suggest places where policy may be able to lower the barriers to mothers leaving partners who use violence.

Background

What is intimate partner violence?

IPV can take various forms including physical abuse, emotional abuse, verbal abuse, sexual abuse, financial abuse, and coercive control. It is very common in New Zealand and disproportionately affects women, with 55% of women experiencing physical, sexual,

[1] Abuse can continue after a relationship ends, but because we don't have data on IPV outside relationships, we focus on the persistence of being in a relationship where IPV is occurring.

[2] We focus on mothers who are the victim of IPV (to the extent it is possible to know which partner is the victim) because women are disproportionately likely to be victimised and GUiNZ contains much more consistent data on mothers than on their partners.

psychological, or emotional abuse from a partner in their lifetime. Women in relationships with people who use violence want the violence and abuse to end. To achieve that outcome, they may want to remain in the relationship but have their partner stop the violence, or they may want to leave their partner by ending the relationship. Our primary focus is the latter.[3]

Why leaving a partner who uses violence Is difficult

Leaving a partner who uses violence can be incredibly difficult and dangerous for a range of personal and societal reasons, even more so if a child is involved. A woman who has recently left such a partner is at particularly high risk of being stalked, injured, or even killed by them. By leaving, she may risk her child being ordered into unsupervised contact with or the custody of her partner by the Family Court. She also may not have the financial resources to leave her partner or to avoid homelessness after she leaves. Furthermore, many partners who use violence use manipulation and psychological tactics to force their victims to stay. Additionally, societal pressures including the importance of keeping families together and shame, alongside a lack of societal understanding about IPV or supports available add to the numerous additional reasons that can make leaving very difficult.

Policy background

Recognising the importance of addressing IPV in a more coordinated way, the New Zealand Government set up Te Puna Aonui in 2018, an Interdepartmental Board that coordinates agencies tasked with the whole-of-government approach to family violence and sexual violence. In 2021, they launched Te Aorerekura, the National Strategy to Eliminate Family Violence and Sexual Violence. The strategy's purpose is "to set out a framework to eliminate family violence and sexual violence, to drive government action in a unified way and harness public support and community action. [It also aimed to] increase political and public sector accountability by setting out what the government is committing to do and how it will measure and report on progress." This work is still in its very early stages, and as yet there are no mechanisms in place to measure the success or otherwise of the initiative.

Data and methodology

Data

In this research, we analyse data from the Growing Up in New Zealand (GUiNZ) survey, which set out to obtain information on 6,846 children born between April 2009 and March 2010 in

[3] We do not assume either outcome is preferable in general; the most desirable outcome in any individual situation will depends on the circumstances. In this report we focus on relationships ending and leave studying reductions in the use of violence by individual partners for future research.

Auckland, Waikato, and Counties-Manukau DHBs, and their families. We use data from the survey waves that were conducted antenatally and when the children were approximately 9 months, 54 months, and 8 years old. To examine the persistence of IPV and barriers to leaving, we focus on the period between the antenatal and 9-month surveys and the period between the 54-month and 8-year surveys. When we examine relationships ending over the period between the antenatal and 9-month surveys, we analyse 5,440 mothers with partners in the antenatal period; when we focus on the 54-month to 8-year period, we analyse 3,809 mothers with partners at 54 months.

Methodology

First, we estimate the proportion of mothers who experience each of several types of conflict or IPV in each of the four survey waves, weighting these so our figures are representative of mothers who gave birth to a child between April 2009 and March 2010 while living in Auckland, Waikato, or Counties-Manukau DHB.

Second, we categorise each mother in each survey by whether they are in a relationship, and if so, if it involves no IPV, infrequent IPV, or frequent IPV. Infrequent IPV refers to victims who report experiencing IPV 'almost never' or 'not very often'. Frequent IPV refers to victims who report experiencing IPV 'quite often', 'very often', 'extremely often', or 'all the time'. We then estimate the proportion of the population that moves between each of these states in the two inter-survey periods of interest, again using weights. Some mothers change partners between the start and end of a period of interest, so this analysis sheds light on the persistence of IPV faced by mothers, not faced by mothers within one relationship.

Third, focussing on mothers who are in a relationship at the start of one of the inter-survey periods and for whom we have relationship status at the end of the inter-survey period, we use regression analysis to investigate the personal and relationship characteristics associated with a relationship ending by the end of the period, and how these differ if IPV is present. We refer to the probability a relationship ends if IPV is present minus the probability it ends if IPV is not present as the 'marginal effect of IPV on a relationship ending'.[4] For this analysis, we run probit regressions where the dependent variable is an indicator for the mother's relationship having ended by the end of the period, and control for the characteristics shown to be significantly associated with a relationship ending in general (mother's age, deprivation index, household income, whether couple cohabit, length of cohabitation, whether couple are married, and the mother's work status) and frequency of conflict or IPV. Further, we control for one additional

[4] Note 'marginal effect' is intended in a statistical sense, and does not necessarily imply causality.

characteristic at a time and interact it with IPV, thus allowing the estimated marginal effect of IPV on the probability a relationship ends to vary by that one characteristic.

For the antenatal to 9-month period we focus on physical conflict as a measure of IPV because emotional conflict or emotional abuse measures are not available and verbal conflict is too broad. For the 54-month to 8-year period, when measures of verbal, emotional, and physical abuse are available, we focus on emotional abuse because many violent behaviours perpetrated by partners are not physical, and verbal abuse captures many behaviours we wish to exclude.

We use this analysis to infer the characteristics associated with higher barriers to leaving a partner who uses violence as follows. Compared with where a mother is not experiencing IPV, we expect where a mother is experiencing IPV her relationship may be more likely to end because she is trying to achieve safety away from her partner. However, if there are also higher barriers to ending the relationship, the relationship may not be more likely to end than it would be if IPV were absent.

If, for a specific subpopulation (e.g., women with low qualifications), the marginal effect of IPV on a relationship ending is close to zero, we infer victims in this subpopulation may face higher barriers to ending the relationship. Conversely, if for a different subpopulation the marginal effect of IPV on a relationship ending is positive and much larger, we infer these victims face fewer barriers to ending the relationship. That is, we compare the marginal effect of IPV on a relationship ending for different subpopulations, and infer those with smaller marginal effects face higher barriers to leaving a partner who uses violence.[5]

Limitations of analysis

Our analysis has a number of limitations. First, in the earlier two surveys (antenatal and 9-month surveys), participants are asked about 'within-relationship conflict', not abuse specifically. This means in these survey responses we cannot identify which partner is the perpetrator and which the victim. Second, we are able to measure only imperfectly whether mothers who are in a relationship at both the start and end of a period are in relationships with the same person. Third, we cannot assume the correlations we find are necessarily causal, though we limit our regression controls to predetermined characteristics.

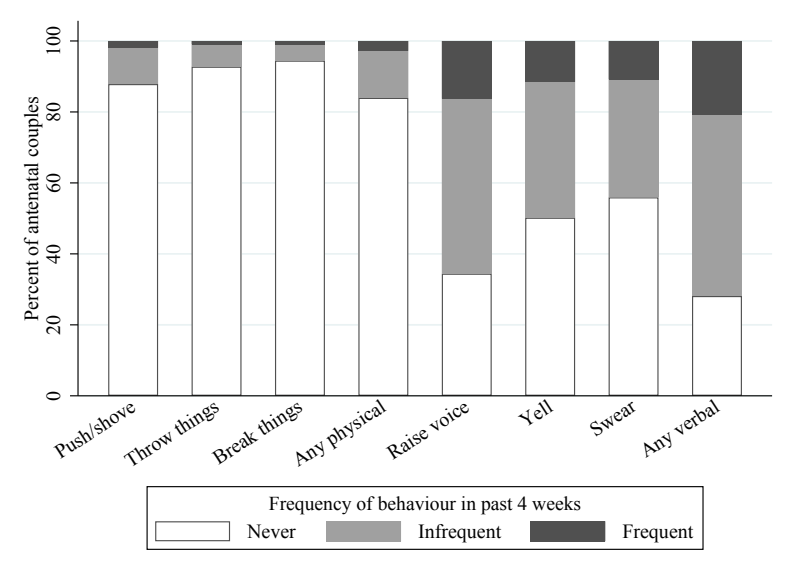
[5] Note when we find a characteristic, such as low education, to be associated with a low marginal effect of IPV on a relationship ending, this does not necessarily mean the characteristic itself *causes* the low marginal effect. It could be that some other circumstance or characteristic that tends to be present in mothers with the characteristic causes the low marginal effect.

Results: How common is intimate partner violence among parents of young children

Prevalence of conflict and IPV among GUiNZ mothers

Antenatally, we find physical conflict in 16 percent of relationships and verbal conflict in 72 percent (see figure below). By 9 months, we find physical conflict in 18 percent of relationships and verbal conflict in 77 percent.

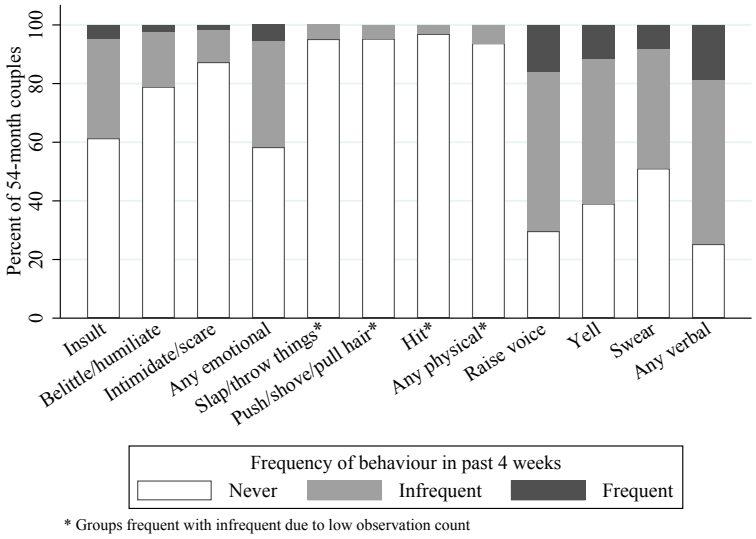
Physical and verbal conflict of couples antenatally



Notes: This figure shows the estimated proportion of couples who experience various types of conflict antenatally. Percentages are based on the mother's reports of conflict and are weighted to be informative about the target population of interest. The category 'any physical' includes pushing/shoving, throwing things, and breaking things; the category 'any verbal' includes raising the voice, yelling, and swearing.

At 54 months, we find 42 percent of mothers in relationships report emotional abuse, 6 percent physical abuse, and 75 percent verbal abuse (see figure below). At 8 years, we find 34 percent of mothers report emotional abuse, 2 percent physical abuse, 34 percent verbal abuse, and 13 percent controlling behaviour.

Emotional, physical, and verbal abuse of mothers at 54 months



Notes: This figure shows the estimated proportion of partnered mothers who experience various types of abuse from their partner when their child is 54 months old. Percentages are based on the mother's reports of abuse and are weighted to be informative about the target population of interest. The categories 'any emotional', 'any physical', and 'any verbal' each aggregate the three preceding types of abuse.

Comparisons of IPV rates between women at different life stages

The New Zealand Crime and Victims Survey (NZCVS), linked to administrative records of when respondents have children, provides the means to compare predicted rates of IPV for partnered women who are pregnant or have young children (such as those included in GUiNZ) to partnered women without children or with older children.[6] Using these data, we run probit regressions of the presence of IPV on the age of the woman's oldest child (if any) and other personal characteristics (survey year, deprivation index, urban nature of the area of residence, mother's age (set of dummy variables for each 2-year band), mother's combination of ethnicities, and regional council of residence).[7]

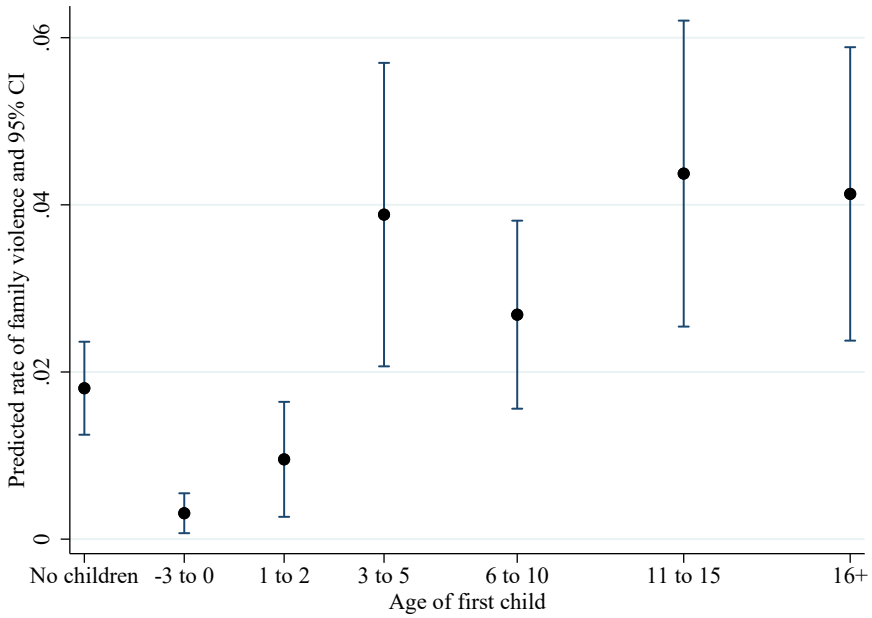
We use these results of regressions to estimate rates of IPV experienced by women at different life stages, assuming average values of the other control variables. This provides a view of how women's IPV victimisation rates differ by life stage. The analysis reveals predicted IPV rates tend to be low for women who do not have children and who will not have a child in the following three years, sitting just under 2 percent (see figure below). These rates are even lower

[6] This survey is a repeated cross-section, so this analysis compares different individuals at different life stages as opposed to looking at how the IPV faced by individuals changes as they move through life stages.

[7] IPV is measured differently here to in our main analysis that uses GUiNZ data. It includes any of the following perpetrated by a current or former intimate partner in the previous year: sexual assault, other assault, harassment or threatening behaviour, damage to their motor vehicle, damage to their household property, damage to their personal property, and robbery.

on average for those who will have a child in the next three years or who have a child aged less than a year, at less than 0.5 percent.[8] However, in the years after the child is born, predicted IPV rate rises before levelling out at around 4 percent for mothers of children aged 3 or older.

NZCVS rates of IPV for women by age of oldest child



Notes: This figure plots the predicted rates of IPV experienced in the past 12 months by women at different life stages, defined by the age of their oldest child. The sample is limited to currently partnered women and those who have had a partner in the previous year. Data are from the NZCVS and Department of Internal Affairs's records of births. The y-axis presents the fraction of mothers, so 0.04 represents 4% of women. Estimates are based on probit regressions of the presence of IPV that control for age of oldest child (categories as illustrated) and other characteristics as described above. The predicted rates shown are calculated for individuals with average values of the other characteristics for each value of child age.

Results: How persistent is intimate partner violence?

In both periods studied, we find that mothers whose relationships at the start of the period involve conflict or IPV are more likely to be single at the end of the period than are mothers who did not report violence in their initial relationships. For instance, 11 percent of mothers in antenatal relationships with frequent physical conflict were single at 9 months, compared with only 4% of mothers in relationships with no physical conflict (see figure below). Mothers in relationships with any type of abuse at 54 months are again more likely to be single at 8 years

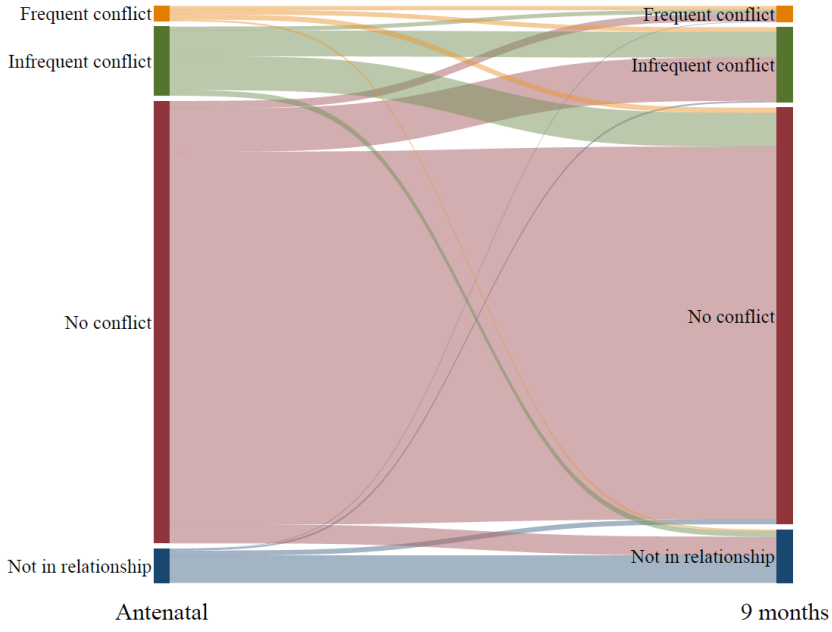
[8] Some prior research has found elevated IPV risk during pregnancy, though other studies have found lower risk during this time. We are unable to examine that explicitly here due to sample size. Furthermore, if partners who already used violence began to use it more during pregnancy, this analysis could not pick up the change because we look only for the presence of IPV, not its intensity.

than are mothers who did not report violence in their relationships (see second figure below for case of emotional abuse).

Many mothers report different frequencies of IPV at the start and end of a period even if they are in a relationship at both points. For example, among mothers who report no physical conflict antenatally, 10 percent report *infrequent* physical conflict at 9 months, and 2 percent report *frequent* physical conflict (see figure below). However, among mothers in a relationship at 54 months who report no physical abuse at that time, only 1 percent report any physical abuse at 8 years.

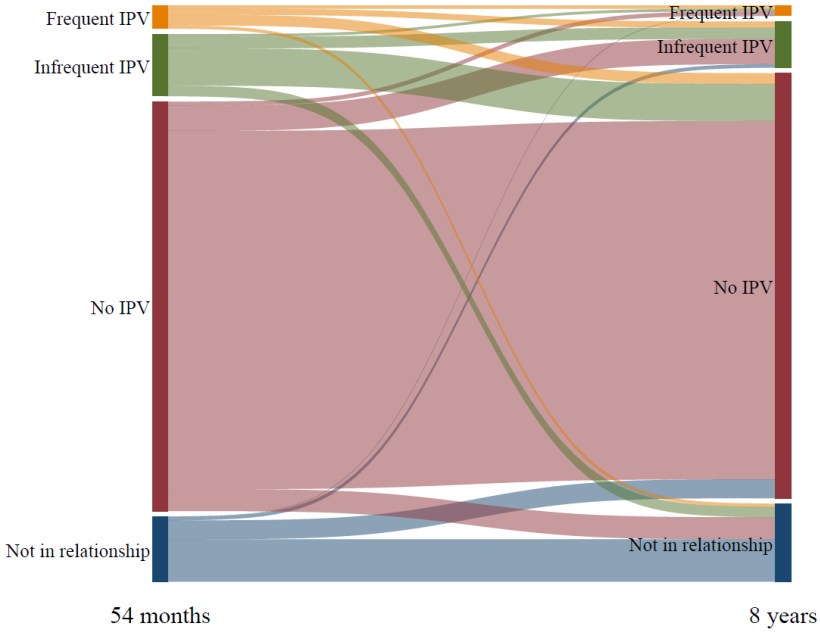
Conversely, among mothers who report frequent physical conflict antenatally, 34 percent report being in a relationship that does not involve any physical conflict at 9 months (though other types of conflict may still be occurring). Among mothers who report any physical abuse at 54 months, only 12 percent still report physical abuse at 8 years. This low percentage may be because the partner at 8 years is a different person to the partner at 54 months, the behaviour was a one-time event, the behaviour stopped, or because the person who inflicted the violence developed a level of control that meant they no longer needed to use physical violence to get what they wanted.

Changes in physical conflict experienced by mothers, antenatally to 9 months



Notes: This figure shows the proportion of mothers who move between physical conflict states between the antenatal survey period and the 9-month survey period. Bar widths represent the proportion of mothers in the state antenatally (left hand side), in the state at 9 months (right hand side), and moving between the pairs of states over this period (centre).

Changes in emotional abuse experienced by mothers, 54 months to 8 years



Notes: This figure shows the proportion of mothers who move between emotional abuse states between the 54-month survey period and the 8-year survey period. Bar widths represent the proportion of mothers in the state at 54 months (left hand side), in the state at 8 years (right hand side), and moving between the pairs of states over this period (centre).

In a similar way, experiences of emotional abuse are not static over time. Among mothers who reported being in a relationship with no emotional abuse at 54 months, 6 percent reported *infrequent* emotional abuse at 8 years and 1 percent reported *frequent* emotional abuse (see figure above). Among mothers who reported frequent emotional abuse at 54 months, only 15 percent still reported frequent emotional abuse at 8 years, 26 percent reported *infrequent* emotional abuse, and 46 percent reported being in a relationship with no emotional abuse. These decreases in abuse could have resulted from a violent partner ceasing their violence, or the mother entering a relationship with a different partner who did not use violence.

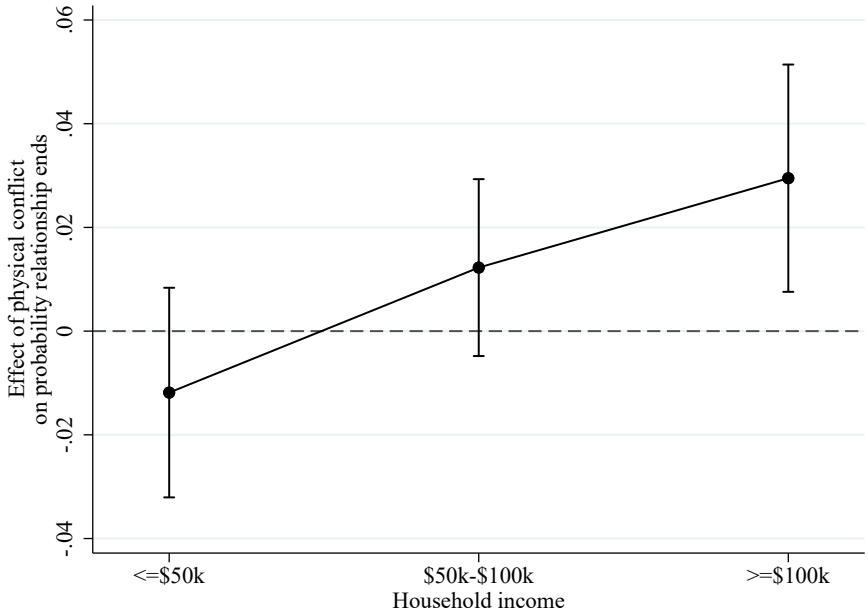
Results: What are the biggest barriers to a victim leaving a partner who uses violence?

We investigated how the marginal effect of IPV on a relationship ending varies with a wide range of mother, partner, and relationship characteristics.[9] The strongest pattern that emerges is that the marginal effect of IPV on a relationship ending is lower for mothers with fewer financial

[9] Following norms in the economics literature, in this section we focus on results that are statistically significant at the 10% level or stronger, and note the significance level of each result.

resources or lower earning potential. We find evidence for this relationship using a range of measures of financial resources: mother's education level, deprivation index, household income, and personal income in the antenatal to 9-month period, and deprivation index in the 54-month to 8-year period.[10] We infer mothers with fewer financial resources are less able to leave violent partners. This is consistent with prior research, which shows women who leave partners who uses violence face a high risk of becoming homeless, and even if a survivor of IPV manages to avoid homelessness, she may struggle to pay for other necessities, especially if she has children.

Heterogeneity by household income in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months



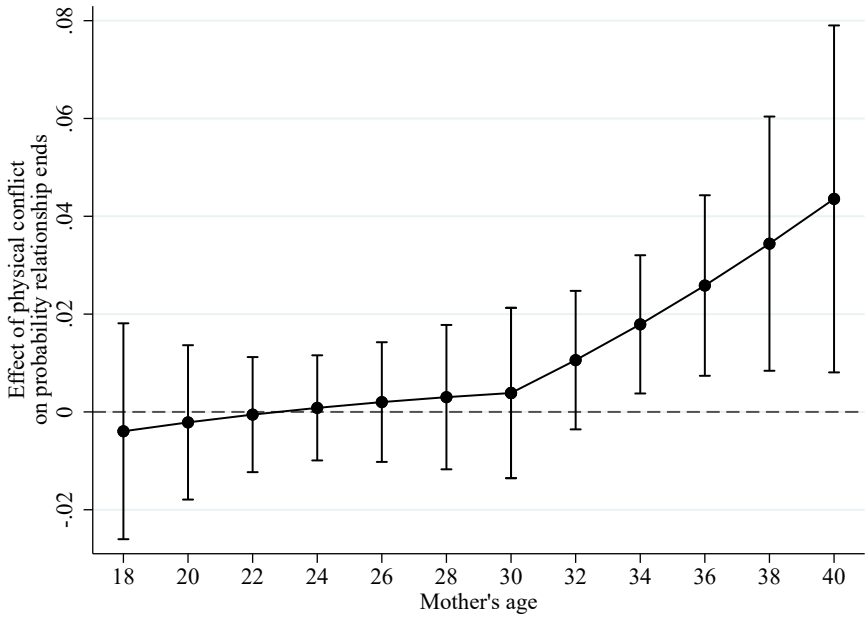
Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers with varying levels of household income, estimated from the regressions described above, which control for a range of personal and relationship characteristics. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient.

We also find a lower marginal effect of IPV on a relationship ending for younger women, those who lack access to a car, mothers with poor physical health, mothers who are not part of a community, and mothers whose partners have low education or earnings.[11] We infer such mothers have comparatively high barriers to leaving a partner who uses violence. We also find a

[10] Results for personal income in the antenatal to 9-month period are significant at the 10% level only, those for deprivation index in the 54-month to 8-year period are significant at the 5% level, and the other results are significant at the 1% level.
[11] Results for age, access to a car, and mothers who are not part of a community are significant at the 10% level; the other results are significant at the 5% level or better.

lower marginal effect of IPV on a relationship ending for mothers who place high importance on maintaining cultural traditions (who are largely non-Europeans).[12] This could be because they face high barriers to leaving a partner who uses violence or because the cultural connections mean their partners are more likely to stop using violence having started, removing the need for them to leave to achieve safety.

Heterogeneity by mother's age in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months



Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers of different ages, estimated from the regressions described above, which control for a range of personal and relationship characteristics. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient. The slope of the predicted line above age 30 is statistically significant at the 10% level, so this be interpreted as only weak evidence of a difference by age in the marginal effect of physical conflict on a relationship ending.

We find very little evidence that most other factors explored matter. Most notably, the variables we investigate that capture mother's access to outside help show little association with the marginal effect of IPV on a relationship ending, though it may still affect her safety and wellbeing. However, this should not be interpreted to mean people on the outside can't help a victim of IPV or can't improve an IPV survivor's wellbeing; fully capturing a mother's access to

[12] This result is significant at the 5% level.

outside help is inherently challenging, and some relationships may exist that are not captured by our data.

Policy recommendations

The rates of IPV we find are very high, particularly for verbal abuse. This speaks to the need for actions at the individual, community, and societal level to prevent such behaviours and encourage respectful behaviour within intimate relationships.

The inferences we draw about the types of mothers who face comparatively high barriers to leaving a partner who uses violence suggest some areas that may be worth considering for policy intervention. However, our analysis was not designed to assess the likely efficacy of different potential policies to assist victims of IPV to leave their partners. Furthermore, it comes with a number of limitations and caveats, due partly to data availability. These recommendations should thus be considered suggestions of areas to investigate, not the final word on the subject.

Our findings suggest financial barriers may be an important hurdle to victims of IPV leaving their partners. This could imply a role for policy to ensure IPV victims have the financial support they need to leave, recover, and rebuild their lives. In particular, our findings suggest IPV victims who live in low-income households or deprived neighbourhoods face particularly high barriers to leaving their partners. This would imply many of the broad array of government policies designed to alleviate poverty may also help lower the barriers to IPV victims becoming safe.

In a more targeted sense, a policy might lower barriers to leaving a partner who uses violence if it provides IPV victims with easy access to wrap-around services that ensure they have safe housing and the other financial support they require. It seems likely that to be effective such support would need to provide quick access to cash for items or services determined necessary by the individual victim-survivor without a lot of bureaucratic hurdles or judgement, as well as a way to transition to an appropriate longer-term benefit. In Victoria, Australia, a policy of this sort has been put in place: the Family Violence Flexible Support Package (FSP). It provides victim-survivors with a lump sum non-refundable grant of up to $10,000.00 each to be used for anything they need to help them get safe and recover. The support services apply to the Family Violence Flexible Support Package fund on the victim’s behalf. The fund is not income tested. A fund like this has the potential to make an immediate difference to women and children's safety.

Benefits for single parents must be generous enough to ensure single mothers who have left partners who use violence have enough money to care for their children without having to

return to their former partners, and this money must be available regardless of whether their partners produce the child support payments they are ordered to pay. Given the nature of coercive control, a woman with an abusive partner often has little choice about whether or not her partner lives with her, and she and her children should not be punished by removal of their benefit for something she cannot control.

Our results also suggest younger mothers may face higher barriers to leaving a partner who uses violence than do older mothers. Previous research has shown many younger women, who may be dating or in casual relationships, do not identify with the language used in family violence campaigns because they don't consider their partners 'family'. Changing the language used in such campaigns could help the messages on how to become safe more effectively reach younger victims of IPV.

Our findings are consistent with mothers who place high importance on maintaining their cultural traditions, who are primarily non-Europeans, facing particularly high barriers to leaving a partner who uses violence, but could also be explained by partners in relationships with such mothers being more likely to stop using violence. Data limitations make it difficult to pin down how ethnic differences and unique inherent cultural values might influence a mother's decision to leave a violent partner. The potential for non-European mothers to face higher barriers to leaving a partner who uses violence suggests the importance of cultural context and sensitivity in support systems and services that aim to assist victims of IPV.

1 Introduction

Intimate partner violence (IPV) is defined by the World Health Organisation as "any behaviour within an intimate relationship that causes physical, psychological or sexual harm to those in the relationship." It takes various forms. These include physical IPV, where partners slap, hit, kick, or beat their victims, verbal IPV, where partners shout or swear at their victims, emotional IPV, where partners intimidate, belittle, or humiliate their victims, psychological IPV, where partners manipulate their victims' way of thinking and view of reality, sexual IPV, where partners force their victims into unwanted sexual acts, economic IPV, where partners threaten their victim's economic security and ability to be self-sufficient by controlling their access to resources (Adams et al., 2008), and coercive control, where partners cumulatively gain power and control over their victims' lives, eroding their autonomy and self-esteem often through intimidation, threats, or humiliation (New Zealand Family Violence Clearinghouse, 2012).

This report focuses on intimate partner violence, which occurs within intimate relationships, rather than on family violence, a broader concept defined by the Family Violence Act 2018 to include violence between any two people who are or have formerly been family members. We recognise IPV can occur in relationships between partners of any genders. However, our focus is on IPV experienced by mothers, the majority of whom are likely to be in opposite-sex relationships. The way we operationalise IPV is constrained by data availability and differs for different parts of our analysis; it does not perfectly align with legal definitions.

IPV is very common, both worldwide and in New Zealand (Fanslow et al., 2010, Fanslow, Hashemi et al., 2021, Fanslow, Malihi et al., 2021). For instance, Fanslow, Malihi et al. (2021) find 28 percent of women experience physical IPV in their lifetime, while 12 percent of women experience sexual IPV. Women are more likely than men to experience more severe physical and psychological consequences of being victims of IPV (Fanslow, Malihi et al., 2022); according to the New Zealand Crime and Victims Survey, over their lifetime, women are three times as likely as men to have experienced offences by a family member (NZCVS, 2023). This disproportionate harm to women that results from IPV is why we focus on IPV victims who are women.

Many IPV survivors are deeply impacted by their experiences. They may suffer a wide range of negative effects such as traumatic brain injury, long term physical injury, PTSD, depression, anxiety, stress, low mental health, low life satisfaction, low functionality, and increased drug use. They may also experience a range of negative impacts resulting from or compounded by the system or societal response to IPV including, homelessness, poverty, debt, social isolation or punishment, ongoing legal proceedings, and victim blaming. Experiences of IPV can also co-occur with violence against children. Even if children do not directly experience

abuse, exposure to IPV between their parents can result in negative consequences. Current thinking recommends keeping the child safe and together with the parent who does not use violence as the option most likely to ensure good outcomes for both the parent and child. Best practice recommendations suggest that external agencies and sources of help should collaborate to take action to contain and respond to the perpetrator of violence, and that the perpetrator should actively engage with non-violence and parenting programmes before seeking to re-establish their parenting relationship with their child (Bancroft et al. 2012; Murphy et al. 2013a; Murphy et al. 2013b).

Despite these evidence-based recommendations, most current recommendations place the onus of responsibility on women who experience IPV to leave the relationship with the partner who uses violence and keep themselves safe, rather than the partner to stop their violent behaviours. Current recommendations often make the assumption that leaving the relationship equates to ending the violence, when in fact it is common for the abuse to continue post-separation, often for many years, and women are more at risk of being killed or seriously injured after separating.

Recommendations that women should leave their violent partner are further complicated by the fact that many victims of partners who use violence do not want to leave their partners, they just want the abuse to stop (Wilson et al. 2019).

Mothers may be forced to stay with a partner who uses violence because staying is safer than leaving; during and after separation from a partner who uses violence, victims of IPV face an increased risk of being stalked, assaulted, or even killed (Cravens et al. 2015; Hill, 2019; Estrellado and Loh, 2019; Warner et al., 2005). Mothers with partners who use violence may also judge staying in the relationship to be safer than leaving for their child, given their partner could be granted unsupervised time with their child or even sole custody (Gutowski and Goodman, 2020).[13] Victims may be forced to stay for a wide range of other reasons, including systemic issues such as the lack of support and resources to assist a mother and her children post separation (Sorsa et al. 2023), and personal reasons including her investment of time and commitment to the relationship, overt dependence on their partner due to various control tactics employed by the partner who uses violence (Barbaro and Raghavan, 2018; Pugh et al. 2018), isolation from friends, family, and coworkers (Jacobson and Gottman, 1998), feelings for her partner, who was likely charming in the early stages of the relationship (Cravens, et al. 2015; Kelly, 2009), social or cultural pressures to keep the family together and keep the child's father

[13] The Family Court is not currently set up to respond in a specialist way to cases involving IPV, therefore it can be manipulated in favour of the partner who uses violence.

in their life (Cravens, et al. 2015; Kelly, 2009), and the hope that her partner will change, because leaving may involve giving up parts of her life.

Studying what helps or hinder women to leave violent relationships may better inform the general public or professionals who may be called on to help victims, such as police, doctors, and MSD front line workers so they can better assist victims of IPV, and also help identify policy levers that can support those with partners who use violence to separate from them. This is particularly important for organisations of which women are particularly mistrustful or from which they have difficulties seeking help.

Using a relationship ending as a desirable outcome for a relationship with a partner who uses violence involves some caveats. The first is that it is only one of the possible desirable outcomes, another being for the violence stop without the relationship ending. Furthermore, a victim may leave their partner and return many times before they finally leave permanently, and leaving doesn't mean the victim is safe. As discussed above, a victim who has recently left a partner who uses violence may be at greater risk. However, relationship breakup, even measured at a single point in time, which is the best we can do here, is an indication the victim has at least temporarily left the day-to-day abuse within the relationship. Her ability to be safe and recover will be dependent on the supports available to her over the longer term.

In this paper, we use Growing Up in New Zealand (GUiNZ) survey data to first quantify how common different types of IPV are during pregnancy and for mothers of young children. We then use the longitudinal nature of the data to investigate how persistent[14] IPV is for mothers, and quantitatively study the factors that assist or hinder a mother to leave a partner who uses violence. Throughout, our primary focus is on mothers who are victims of IPV. We choose this focus because of the gender imbalance in victimisation in terms of both frequency and severity, and the resultant greater physical and mental health consequences for women.

The rest of the paper proceeds as follows. Section 2 briefly summarises the literature on IPV. Section 3 provides some current New Zealand policy context. Section 4 explains the data we use. Section 5 describes our methodology and results for the three parts of the analysis. Section 6 summarises the limitations of the analysis, and Section 7 discusses the findings and concludes.

[14] Abuse can continue after a relationship ends but because we don't have data on IPV outside relationships, we focus on the persistence of being in a relationship where IPV is occurring. Note, however, that Backbone Collective (2020) find that many mothers report the abuse stopped only when there was no contact with the person perpetrating the abuse, which can be incredibly difficult for mothers to achieve in a relationship or post separation.

2 Literature summary

One in 3 (35%) New Zealand women have experienced physical or sexual intimate partner violence in their lifetime. When psychological and emotional abuse are included, this figure rises to 1 in 2 (55%). While IPV can affect any woman, lifetime prevalence differs by ethnicity. One in 2 (58%) Māori women will experience IPV in their lifetime, compared with 1 in 3 (32%) Pacific women, 1 in 10 (11.5) Asian women, and 1 in 3 (34%) European or other ethnic group women (Fanslow et al. 2010). Pregnancy may be a time of particularly high IPV risk (Sonis and Langer, 2008; Yakubovich et al. 2018), though the evidence is somewhat mixed. Thorburn and Arathoon (2023) find, among a sample from Women's Refuge, that 42% of mothers were assaulted by their violent partners while pregnant, and 28% of mothers were either first harmed or suffered more severe harm from their partners while pregnant. Chu et al. (2010) find that 4% of US pregnant women reported being physically abused by a current or former partner, with the strongest predictor of physical violence being if the partner did not want the pregnancy. Further, the Perinatal and Maternal Mortality Review Committee (2022) found suicide to be the largest single cause of maternal death in Aotearoa New Zealand, disproportionately affecting wāhine Māori, with likely risk factors of this outcome being exposure to stressors like relationship difficulties and experiencing violence or abuse. However, Martin et al. (2001) and Saltzman et al. (2003) find in the US physical IPV rates are lower during pregnancy than in the period just before it.

This violence deeply affects survivors. Mellar, Hashemi et al. (2023) found women who are exposed to IPV at any point in their lives are more likely to report adverse health outcomes. In addition to physical effects such as traumatic brain injury (Liu et al. 2020), survivors of IPV may suffer a wide range of negative psychological effects including PTSD, depression, anxiety, stress, low mental health, and low life satisfaction (Brunton and Dryer, 2022; Cations et al., 2020; Pico-Alfonso, 2005; Rowlands et al., 2021). IPV can also lead to low mental health and increased drug use (Freeman and Smith, 2014). Further, the impact of controlling behaviours can lead to entrapment and an inability to participate fully in everyday life, including making choices, parenting the way the victim wants to, and forming connections with others (Stark and Hester, 2018). IPV can also decrease fertility, increase divorce, and increase labour supply (Anderberg et al. 2021). Gedikli et al. (2023) identify three mechanisms for this finding: "(i) women seek employment to reduce their exposure to a violent partner and/or achieve financial self-reliance, (ii) men use violence to extract women's resources (rent extraction) and force them into employment (paid or unpaid), and (iii) the deteriorating effect on women's mental health moderates the relationship between IPV and labour force participation."

Existing research shows that perpetrators of IPV are disproportionately men; men are much more likely to be perpetrators than women, whereas women are more likely to be victims. This pattern is observed in New Zealand too (Fanslow, Hashemi et al, 2022). Furthermore, Swan et al. (2008) find that in the United States, women's use of violence usually occurs only in the context of self-defence. That is, women typically only employ violence to protect themselves in instances where their partner has already been violent. In New Zealand, Fanslow, Hashemi et al. (2022) also find that a high proportion of women (53.4% of their sample) report fighting back against their IPV perpetrator at least once.

The literature proposes two main theories as to why men act with such violence: the feminist theory and the bargaining theory. Both remain contentious and heavily debated. The feminist theory argues that men use domestic abuse as a means of oppressing women and forcing them to conform to the patriarchy. The bargaining model argues instead that IPV is used to remove a woman's bargaining power in their relationships through control, fear, and intimidation (Eswaran and Malholtra, 2011).

Personal risk factors for women becoming victims of IPV internationally and in New Zealand include rurality (Dillon et al. 2015), not being married (or being widowed) (Smith and Weatherburn, 2013), being young (Abramsky et al. 2011; Fitzpatrick et al. 2022; Smith and Weatherburn, 2013), having parents with less than a high-school education (Yakubovich et al. 2018), alcohol or drug abuse (Abramsky et al. 2011; Smith and Weatherburn, 2013; Te Puna Aonui, 2021), personal or financial stress (Bird et al., 2021; Smith and Weatherburn, 2013), poor social networks (Smith and Weatherburn, 2013), experiencing childhood abuse (Abramsky et al. 2011), growing up with domestic violence (Abramsky et al. 2011), experiencing or perpetrating other forms of violence in adulthood (Abramsky et al. 2011), and holding attitudes supportive of wife beating (Abramsky et al. 2011). Being an ethnic minority has also been highlighted as a risk factor (Dhunna et al., 2021; Dobbs and Eruera, 2014; Fanslow et al., 2010; Marie and Fergusson, 2008; Paterson et al., 2020; Wilson et al., 2019).

Women are also at a higher risk of being a victim of IPV if they are in a relationship with a man who is not the father of their children (Kusunoki et al. 2022), are in a serious relationship (especially stayover and cohabiting) (Kusunoki et al. 2022), are cohabitating (Abramsky et al. 2011), have reduced family cohesion (Bird et al., 2021), have a power imbalance in their intimate relationship (Kusunoki et al. 2022), are in non-monogamous or unstable relationship (Abramsky et al. 2011; Kusunoki et al. 2022), or if they become pregnant (particularly unplanned pregnancy) (Sonis and Langer, 2008; Yakubovich et al. 2018).

Some literature has identified employment as another risk factor, though this is contentious. Anderberg et al. (2021) argues that employed women challenge traditional patriarchal roles, making men more likely to be violent against women who challenge norms by earning an income.

Societal factors such as institutional and systemic bias (Te Puna Aonui, 2021), racism, sexism, ableism, ageism, homophobia, transphobia, and other forms of oppression (Te Puna Aonui, 2021), poor system responses (Te Puna Aonui, 2021), and lack of supports for people, carers, whānau, and vulnerable people (Te Puna Aonui, 2021) can also increase the risk of becoming a victim of IPV.

Protective factors against women becoming victims of IPV internationally and in New Zealand include being older, being married, high household income, high personal income, high gender equality in the mother's country of ancestry, secondary education, high socio-economic status, formal marriage, recognised and equitable gender roles and norms for all people, positive community connections and strong social supports, equitable access to resources, choices, and opportunities, support for parenting and care giving, and strong positive cultural identities and associated sense of belonging (Abramsky et al. 2011; Cesur et al. 2022; Farmer and Tiefenthaler (2006); González et al. 2021; Te Puna Aonui, 2021; Yakubovich et al. 2018). In opposition to Anderberg et al. (2021), Chin (2012) argues that employment is a protective factor for women against IPV. They argue increasing women's employment increases women's support networks and household income, increasing their ability to leave a relationship with a partner who uses violence due to increased resources and support.

Existing literature has also identified a number of risk factors that increase the likelihood of men becoming perpetrators of IPV. These include being an ethnic minority, having parents who tend towards an authoritarian, neglectful, and verbally abusive parenting style, exposure to domestic violence during their childhood, alcohol or drug abuse, cohabitation, young age, attitudes supportive of wife beating, having outside sexual partners, experiencing childhood abuse, experiencing or perpetrating other forms of violence in adulthood, institutional and systemic bias, racism, sexism, ableism, ageism, homophobia, transphobia and other forms of oppression, poor system responses, social and economic deprivation and inequalities, and lack of supports for people, carers, whānau, and vulnerable people (Abramsky et al. 2011; Bancroft 2002; Dobbs and Eruera, 2014; Te Puna Aonui, 2021).

Men are less likely to be perpetrators of IPV if they have a secondary education, high socio-economic status, are formally married, have recognised and equitable gender roles and norms, positive community connections, strong social supports, equitable access to resources,

choices, and opportunities, support for parenting and care giving, and a strong positive cultural identity and associated sense of belonging (Abramsky et al. 2011; Te Puna Aonui, 2021). In many cases, the risk of IPV is greatest when both the woman and her partner have risk factors.

Women do not choose to be in relationships with men who use violence. Often, they enter a relationship with a partner who initially treats them well, but subsequently becomes emotionally or physically violent (Hill, 2019). Once a partner begins using violent behaviour, it is difficult for a woman to leave. This can be because of the controlling and threatening behaviour of the partner using violence as well as for situational reasons such as lack of access to support, being isolated from supportive networks and systemic responses that force the woman into continued contact with her former partner.

Partners who use violence can entrap their victims in a range of ways. First, they can use physical violence and threats of retribution to coerce the victim into staying in the relationship lest they be harmed or even killed (Women's Aid, 2022). Leaving a partner who uses violence is the most dangerous time for IPV victims. Between 2009 to 2015, the Family Violence Death Review Committee's Fifth Report Data found that half of women killed by their partner were killed after they left them. Second, partners who use violence can also use psychological abuse to gaslight the victim and distort their perception of reality. This can cause women to question their own self-worth and if the abuse is even happening (Kippert, 2021). This psychological abuse can include threatening suicide to emotionally manipulate their partners into staying in the relationship or doing as they demand (Burden, 2020). Such psychological tools entrap women to the point they feel they cannot physically leave as no one would want them nor believe them (Bloch and Rao, 2002; Garcia-Ramos, 2021). Third, partners who use violence can isolate their victims from the outside world, limiting any support victims might receive and increasing the victim's dependence on them (Stoff et al. 2021). Intervention by outsiders and outside organisations can be integral in helping a victim leave, especially if social support systems are inadequate. Without such support, it may be harder for women to leave a relationship with a violent person (Dillon et al., 2015). Fourth, the partner who uses violence can take control of the finances to control their victim, making it more difficult for women to gather the financial means necessary to leave their partner or to live on after they leave (PCADV, 2022).

Women may also have difficulty leaving a relationship with a partner who uses violence due to their situation. Children can add substantial additional layers of complexity to the possibility of leaving, particularly if the partner who uses violence is father to the children. In many cases, the victim may feel the father has the right to be involved in his children's lives, or that the children benefit from having a relationship with their father (Wilson et al. 2021). Even if

neither is the case, a survivor cannot fully separate her children from their father without court intervention, and a court ruling is not guaranteed to protect children from ongoing contact with a parent who uses violence (Backbone Collective, 2017a). Without an understanding of psychological trauma as a result of abuse, courts may view the victim-survivor as unstable and thus an unsuitable parent, whereas many individuals who use violence within their intimate relationships are skilled at appearing confident and charming. A victim who tries to remove her children from their father who uses violence thus risks their father being awarded unsupervised visitation or even custody over the children (Backbone Collective, 2017a; Hill, 2019). Partners who use violence may threaten to use the courts to gain custody of the children to prevent victims trying to leave; many such partners are excellent at manipulating the Family Court system. Thus mothers may avoid risking their access to their children and their children's safety by remaining in the relationship (Bancroft, 2012; Clements et al. 2021).

"The system" can also play a major role in supporting women to leave or keeping them trapped in the relationship. The ability or inability of the legal system and support agencies to assist women and keep them safe after they leave may be integral to why women remain with partners who use violence (Saxton et al. 2021). A well-functioning Family Court system could lower the barriers to leaving, but too often it instead revictimises women through a combination of underlying racism, gender biases, and a lack of understanding about coercive control, which makes safely leaving a partner who uses violence harder (Meyer, 2011). Further, if the mother and the child both argue against seeing the partner, this can lead to parental alienation accusations, which can undermine the children's safety in the New Zealand Family Court (Mackenzie et al. 2020). Relocation too can be a barrier to leaving for many women who, without sufficient financial means, could face homelessness (Sullivan et al., 2017), or who may be prevented from relocating by the Family Court (Backbone Collective, 2017b). Finally, having to give up too much of their existing lives (Thomas et al., 2015) combined with an emotional investment in their partner (Hill, 2019; Dailey et al., 2022) can contribute to women's inability to leave.

An emerging strand of research has investigated how rates of IPV can be decreased. Aizer (2010) suggests pay parity will decrease the rate of IPV because women will earn more and have more resources to fund leaving. Along similar lines, in a randomised controlled trial Hidrobo et al. (2016) finds cash transfers can reduce controlling behaviours and physical and sexual violence.[15] In New Zealand, Pir et al. (2021) and Backbone Collective (2020) highlight support

[15] A cash transfer is a direct payment of money to an eligible person. It may reduce IPV by reducing financial stressors that lead to disputes, decreasing labour supply, or increasing access to resources like food (Hidrobo et al. 2016).

networks as a key area to improve to reduce IPV. These studies indicate that it is a combination of individual, organisational and policy factors that can influence women's ability to leave partners who use violence. The current New Zealand context led by Te Puna Aonui have devised a "National Strategy to Eliminate Family Violence and Sexual Violence". This National Strategy is described further in the Section 3. Unfortunately, however, at present policy initiatives have struggled to provide women with material support to leave or address systemic barriers to leaving.

We acknowledge it should not be the sole responsibility of the victim to extricate herself from a relationship with a partner who uses violence and keep herself and her children safe from further abuse. In an ideal world, legal, social support, health, financial and other systems would support the victim's exit and ongoing safety and seek to change the behaviour of or contain the person who is using the violent behaviour. However, until that situation is achieved, we need to know what factors might support a woman's ability to safely leave a partner who uses violence.

3 Policy context

The New Zealand Government began identifying state responsibility to address and reduce family violence in the 1980s. Early legislation, such as the Domestic Protection Act 1982, focussed on physical violence between heterosexual couples and allowed for non-violence and non-molestation orders (Domestic Protection Act 1982). The Domestic Violence Act 1995 expanded this reform, broadening the definition of domestic violence to include psychological and sexual abuse, as well as physical violence. It also extended protection under the law to non-partner family members, same sex partners, flatmates, and carers, (Domestic Violence Act 1995). The Domestic Violence (Enhancing Safety) Act 2009 introduced Police Safety Orders which enabled Police to remove offenders from the home in instances where there was insufficient evidence to arrest them on charges under the Domestic Violence Act 1995.

In 2016, the Government began an overhaul of the existing legislation, allocating $130 million to fund and educate police and social workers on how to help people suffering from domestic and family violence (Swarbrick, 2011). In 2018, the Family Violence Act 2018 was passed. This enabled and reorganised the system to be more responsive to domestic abuse. Specifically, it enabled the Domestic Violence Act 1995 to be used to its full extent, giving judges more rights and setting principles for information sharing. Further, the Family Violence Act 2018 led to the formation the Joint Venture for the Elimination of Family Violence and Sexual Violence, now referred to as Te Puna Aonui, an Interdepartmental Executive Board tasked with

co-ordinating the whole-of-government approach to family violence and sexual violence (Te Puna Aonui, 2021).[16] Note the individual agencies continue to operate separately.

In 2021, Te Puna Aonui launched Te Aorerekura, the National Strategy to Eliminate Family Violence and Sexual Violence. Te Aorerekura's purpose is "to set out a framework to eliminate family violence and sexual violence, to drive government action in a unified way and harness public support and community action. [It also aimed to] increase political and public sector accountability by setting out what the government is committing to do and how it will measure and report on progress" (Te Puna Aonui, 2021). It echoed the collaborative approach encouraged by the legislation and long called for by the sector. It also reoriented a focus towards prevention. (Te Puna Aonui, 2021). Te Aorerekura is a 25-year strategy, and as well as system changes, aims to address the underlying social conditions and norms that lead to family violence and sexual violence. It promotes devolution to communities and community solutions to enact change; enables cooperation between government and communities; ensures workforces are appropriately skilled and culturally competent; focuses primarily on prevention; and ensures services work together and are easy to navigate (Te Puna Aonui, 2021).

Te Aorerekura comprises 6 key changes that Government agencies and communities will implement:

1. Facilitate a shift towards strength-based wellbeing: Adopt a strength-based wellbeing approach that integrates prevention, healing and responses through the Tokotoru model and focuses on changing the social conditions that perpetuate harm.
2. Facilitate a shift towards mobilising communities: Support tangata whenua, specialist sectors and communities through sustainable, trust-based relationships and commissioning decisions grounded in Te Tiriti.
3. Facilitate a shift towards skilled, culturally competent and sustainable workforces: Ensure the specialist, general and informal workforces are resourced and equipped to safely respond, heal and prevent, and enable wellbeing.
4. Facilitate a shift towards investment in primary prevention to protect against family violence and sexual violence: Invest in a unifying, Te Tiriti-based primary prevention strengthening model.

[16] Te Puna Aonui describes the collective of 10 government agencies. It includes Accident Compensation Corporation, Department of Corrections, Ministry of Education, Ministry of Health, Ministry of Justice, Ministry of Social Development, New Zealand Police, Public Service Commission, Oranga Tamariki Ministry for Children, and Te Pūni Kokiri Ministry of Māori Development.

5. Facilitate a shift towards safe, accessible, and integrated responses: Ensure accessible, safe and integrated responses meet specific needs, do not perpetuate trauma and hold people who use violence to account.
6. Facilitate a shift towards increased capacity for healing: Increase capacity for healing to acknowledge address trauma for people and whānau (Te Puna Aonui, 2021).

In 2021, in response to these initiatives, Minister Davidson approved $1.578 million to support community-led violence prevention initiatives. These included: programmes that focussed on culture-centred approaches and the development of localised violence prevention initiatives and frameworks; LGBTQIA+ initiatives that included the development of practice guidelines, healthy relationships, consent resources, and awareness campaigns; expanding the Safeguarding Adults from Abuse to safeguard at-risk adults; new violence prevention initiatives for migrant communities; an Age Friendly Fund to support violence prevention needs of older people; and further funding to facilitate future work.

Although the legal and political frameworks surrounding domestic violence have shifted over time towards a greater focus on prevention, support mechanisms, and collaboration between agencies, this paper will focus on what factors help a woman leave a partner who uses violence. Our findings can inform Government policies to help women to leave relationships with partners who use violence.

4 Data

4.1 Growing Up in New Zealand longitudinal study

Our main data source is the Growing Up in New Zealand (GUiNZ) longitudinal study, which has and continues to collect information on 6,846 children born between April 2009 and March 2010 in Auckland, Waikato, and Counties-Manukau DHBs, along with their families. The original sample was selected to be "broadly generalisable to all current New Zealand births in terms of ethnic diversity and markers of parental socioeconomic position" (Morton et al., 2010), though attrition rates have varied by these characteristics. We focus on the survey waves conducted antenatally (approximately 3 months before the child's due date), when the child was 9 months old, when the child was 54 months old, and when the child was 8 years old. Further description of the study can be found at https://www.growingup.co.nz/.

GUiNZ is child-focussed, but information is collected each survey wave on the child's mother or the person acting in a mother role to the child at the time of the survey. We refer to this individual as the 'mother'. Some survey waves also collect information on the current

partner of the 'mother', whom we refer to as the 'partner'. Information on the gender of partners is collected for partners who participate in the 9-month survey only, but is not made available to researchers.[17]

4.2 Analysis samples

Our primary focus is on GUiNZ mothers because women are disproportionately the victims of IPV, mothers are surveyed in more data collection waves than their partners, the sample of mothers is considerably larger than the sample of included partners, and the participation of partners in the survey is contingent on their relationship with the mothers (so they are no longer surveyed if their relationship with the mother ends).

We conduct three different types of analysis using the GUiNZ data, each of which is conducted for more than one survey wave or pair of survey waves. For each piece of analysis we use the largest sample of mothers (and in some cases also their partners) that has the requisite information, meaning our observation counts differ for each piece of analysis.

The first type of analysis is quantification of each type of IPV in a single survey wave. Our primary analysis is of IPV reported by the mother. This requires information on the mother's partnership status in the survey wave and, if she is in a relationship, her report of any IPV occurring in this relationship. We conduct this analysis separately for the antenatal, 9-month, 54-month, and 8-year surveys. When analysing the antenatal and 9-month waves, we also compare the partner's report of IPV in the relationship with the mother's report from the same couple. The survey question in these waves does not ask which partner perpetrates the conflict or abuse, so theoretically the mother and partner are reporting on the same behaviours.

The second type of analysis is quantification of flows between different relationship states in consecutive survey waves, where 'relationship state' refers to whether the mother is in a relationship and, if so, what intensity of IPV (if any) is occurring in the relationship. This requires information on whether the mother is in a relationship in each of the two survey waves and, if so, her report of the intensity of IPV in the relationship. We conduct this analysis for the gap between the antenatal and 9-month surveys and for the gap between the 54-month and 8-year surveys. Here we do not attempt to distinguish mothers who are with the same partner at the start and end of the period from mothers who change partners.[18] Our results are thus

[17] Our analysis should thus be interpreted as capturing IPV experienced by women who have babies, regardless of the gender of their partners.

[18] However, we have reason to believe the number of mothers who change partners between the antenatal and 9-month surveys is trivially low.

informative about the persistence of IPV experienced by mothers, not necessarily the persistence of IPV experienced by mothers within one relationship.

The third type of analysis we conduct is regression analysis of relationships ending between consecutive pairs of surveys. This requires information on the mother's partnership status in each of the two surveys and her report of IPV in her relationship in the first survey. We also use characteristics of the mother and sometimes her partner in the first of the two surveys and the antenatal survey as controls in the regressions. Regressions that use partner characteristics are run on the smaller sample of couples where the partner also participated in GUiNZ. Within the samples we use, some of these control variables have missing values due to item non-response. Where a control variable includes missing values, we replace these missing values with an arbitrary value, and add as a regression control an indicator for the variable being missing. This enables us to use the full sample of eligible mothers even though some did not respond to all questions. In nearly every case the number of missings is trivially small, so this is not expected to meaningfully affect our findings.[19] Again, we conduct this analysis for the gaps between the antenatal and 9-month surveys and between the 54-month and 8-year surveys.

Due to the many different samples used for the different pieces of analysis we conduct, we do not separately describe every sample. Instead, Table 1 provides descriptive statistics that show how the average characteristics of mothers vary when we restrict the sample by requiring partners to be surveyed, reports of IPV to be non-missing, mothers to remain in the survey until the 54-month wave, or the mother's relationship status to be known in the survey after a survey in which she was in a relationship with known IPV status. The observation counts for columns (4) and (6) are our sample counts for the regressions that analyse which factors are associated with a relationship ending (but do not control for partner characteristics).

[19] The number of missings is below 5% for every control variable with only one exception (and below 1% for all but three variables): mother's personal income is missing in 17.6% of cases. In addition, 40.8% of mothers did not respond to questions about their connection to their traditional culture, but these are nearly all statements the question does not apply to them rather than genuine missings.

Table 1: Descriptive statistics

Sample:	Mother in a relationship antenatally		Mother in a relationship antenatally, antenatal IPV status known		Mother in a relationship at 54 months, 54-month IPV status known	
	All	Partner also surveyed	All	Relationship status at 9 months known	All	Relationship status at 8 years known
	(1)	(2)	(3)	(4)	(5)	(6)
Average age of mother (antenatal)	30.2	30.7	30.2	30.3	30.7	31.1
Mother's self-prioritised ethnicity (%)						
European/NZer	55.7	62.4	55.8	57.8	62.2	68.5
Māori	12.9	10.0	12.8	12.3	11.3	9.8
Pasifika	13.7	9.6	13.7	12.7	11.1	7.9
Asian	15.1	15.2	15.2	14.8	13.4	11.9
Other ethnicity	2.6	2.7	2.5	2.4	2.0	1.9
Mother's highest qualification (%)						
No qualifications	6.3	4.4	6.3	5.7	5.0	3.6
Level 1-4	23.3	21.2	23.2	22.6	20.9	19.5
Level 5-6	30.1	28.1	30.1	30.3	29.6	28.8
Level 7	23.6	26.6	23.6	24.1	26.4	28.2
Level 8+	16.7	19.8	16.8	17.2	18.1	19.9
Average deprivation index (antenatal)	5.9	5.6	5.9	5.8	5.7	5.4
Observations	5,836	4,142	5,817	5,440	4,624	3,809

Notes: This table presents unweighted descriptive statistics for six different samples of GUiNZ mothers.

The samples described in Table 1 are as follows. Column (1) is the 5,836 mothers who report being in a relationship in the antenatal wave. This is 85.5% of the full GUiNZ population of 6,822 mothers; some of the mothers who are dropped in column (1) are not in relationships, and the rest have missing relationship status. Column (2) includes the 4,142 mothers who are in a relationship antenatally whose antenatal partners are also surveyed. The large decrease in sample size between columns (1) and (2) occurs because many partners are not surveyed. Column (3) is the 5,817 mothers who were in a relationship antenatally and who report a non-missing IPV status[20] in that survey wave. This sample is only slightly smaller than the column (1) sample, indicating most mothers report whether they've had recent experience of IPV or not. Column (4) further restricts the column (3) sample to mothers whose relationship status at 9 months is known, which results in a 6% decrease in sample size. The column (4) sample is used in our regression analysis of relationship breakup between the antenatal and 9-month surveys. Column (5) is the 4,624 mothers who report being in a relationship in the 54-month survey and who respond to the 54-month IPV question. Column (6) restricts the column (5) sample to mothers who also have known relationship status at 8 years, which results in an 18% decrease in sample size. The column (6) sample is used in our regression analysis of relationships ending between the 54-month and 8-year surveys.

The average age antenatally of all mothers who are in a relationship (column 1) is just over 30, similar to the average age at which New Zealand mothers give birth. Mothers in our first regression sample (column 4) are very similar in age, though those with participating partners are slightly older (column 2), as are those who remain in the survey until later waves (columns 5 and 6).

The most common self-prioritised ethnicity for mothers in relationships antenatally (column 1) is European/New Zealander, with nearly 56% of mothers reporting this ethnicity. Asian is the next most common (15%), followed by Pasifika (14%) and Māori (13%). However, this distribution differs substantially for mothers with partners who participate in GUiNZ (column 2), mothers who respond to the 54-month survey and report being in a relationship (column 5), and especially mothers with the required information to study relationship breakup between 54 months and 8 years (column 6). In each case, the proportion European/New Zealander mothers is higher and the proportions of Māori mothers and Pasifika mothers are lower. Mothers with included partners (column 2) are no less likely to be Asian, but those who are retained until the later survey waves (columns 5 and 6) are less likely. The most extreme shift in ethnic distribution

[20] That is, they respond to the IPV questions asked in the corresponding survey wave, and do not specify they're refusing to answer or do not know.

shown in Table 1 is in column 6, which is our analysis sample for studying relationship breakup between 54 months and 8 years. Here 69% of mothers report being European/New Zealanders, 12% Asian, 8% Pasifika, and 10% Māori. European mothers are thus overrepresented in most of our unweighted analysis samples.

The sample of mothers in a relationship antenatally (column 1) is relatively educated. Only 6% have no qualifications and 40% have a qualification at level 7 (bachelor's degree or equivalent) or above (postgraduate degrees). More educated mothers are more likely to be retained in most of the more restricted samples. At the extreme, only 4% of column (6) mothers have no qualifications and 48% have level 7 or higher qualifications.

Average antenatal deprivation index (which runs on a scale of 1 to 10, with 10 being the most deprived) is 5.9 for the column (1) sample, and tends to fall slightly for the more restricted samples. The biggest change is to column (6), where average deprivation index falls to 5.4. Mothers living in less deprived areas thus tend to be slightly overrepresented in our unweighted analysis samples.

4.3 Conflict and intimate partner violence variables

The intimate partner violence questions included in GUiNZ vary by survey wave. In this section we discuss for each wave how we construct our main IPV measures from the survey questions. In the antenatal and 9-month surveys, we are able to measure only conflict within relationships, not abuse specifically. Conflict differs from abuse in that we do not know which partner is the perpetrator, and includes some behaviours that are not abuse. In the 54-month and 8-year surveys we are able to specifically measure behaviours that may be abuse perpetrated by the mother's partner. Note, in general we use the terms 'abuse' and 'IPV' interchangeably. We consider our 'conflict' variables imperfect measures of IPV, and at times refer to them as such.

All our variables are constructed from survey questions that ask about specific incidents (e.g., a partner pushing you) and how often they occur. This means we have limited information about how patterns of seemingly minor behaviours (e.g., shouting) combine to be considered abuse in the terminology of the Family Violence Act 2018. We thus consider any reported incident to potentially constitute abuse or part of a pattern of abuse, while acknowledging our measures pick up some behaviours that are not abuse.

4.3.1 Conflict variables from the antenatal and 9-month surveys

The antenatal and 9-month survey waves ask both the mother and partner about the frequency of different types of conflict that occurred within the current relationship in the previous four weeks. Our primary focus is on the mothers' reports of conflict. However, in our analysis of the

prevalence of conflict within relationships, we also conduct within-couple comparisons of the conflict reports of mothers and their partners. The main limitation of these questions is that they do not ask which person perpetrated the behaviour.[21] Fanslow, Malihi et al. (2022) find abuse is disproportionately but not solely perpetrated by men.[22] Due to the lack of directionality of the questions, we characterise our measures from these surveys as capturing within-relationship conflict, rather than abuse. In many cases the behaviour captured may be abuse, we just cannot be sure which partner is perpetrating the abuse and which is the victim.[23]

From each of these two survey waves, we use six questions about conflict, which we aggregate into measures of physical conflict and verbal conflict. Physical conflict is constructed from the following three questions about the respondent's interactions with their current partner: during the past four weeks, how often did you (a) push and shove each other when arguing, (b) throw things at each other when arguing, or (c) break things when arguing? Verbal conflict is constructed from the following three questions: during the past four weeks, how often did you (a) raise your voices when arguing, (b) yell at each other when angry, or (c) swear at each other when angry.

For each of the six types of conflict, the respondent is given seven options to describe the frequency of the behaviour, which we aggregate into three categories. Never means the respondent reported that the behaviour did not occur in the previous four weeks. Infrequent aggregates the response categories 'almost never' and 'not very often'. Frequent aggregates 'quite often', 'very often', 'extremely often', and 'all the time'.

To construct the frequency of physical conflict from the three component questions, we take the maximum frequency of any of the component behaviours. Our verbal conflict measure is similarly constructed from its component behaviours. For simplicity, in our regression analysis we code 'never' as 0, 'infrequent' as 1, and 'frequent' as 2, and impose cardinality. Because the verbal conflict measures are relatively broad and capture behaviours that occur for the majority of couples, many of which we would not consider IPV, our analysis focuses primarily on physical conflict.[24] However, we recognise this measure does not capture a range of violent or controlling behaviours that may be perpetrated within a relationship.

[21] This may encourage survey respondents to be more truthful because admitting a behaviour is occurring does not mean they are performing the behaviour, but has the much greater drawback that it does not allow us to identify the perpetrator of the abuse.
[22] Though note we do not restrict partners to be men.
[23] By using the term "conflict", we do not imply the victim-survivor and perpetrator equally participate in the abuse. We acknowledge the dynamic will likely include one perpetrator and one victim, with the perpetrator harming the victim.
[24] The 2-year survey wave asks a range of questions that capture intimate partner violence, but asks these only of the partner. Because IPV reports by the mother are lacking, we do not use these data.

4.3.2 IPV variables from the 54-month survey

The 54-month survey asks the mother (but not the partner, who is not interviewed in this wave) about various types of physical, verbal, and emotional abuse perpetrated by her current partner in the previous four weeks. The physical abuse questions are: During the past four weeks, how often do the following things happen in your relationship? (a) your partner slaps you or throws things at you that could hurt you; (b) your partner pushes or shoves you or pulls your hair; (c) your partner hits you with a fist or something else that could hurt you. The verbal abuse questions are: During the past four weeks, how often do the following things happen in your relationship? (a) your partner raises their voice at you when you are arguing; (b) your partner yells at you when they are angry; (c) your partner swears at you when they are angry. The emotional abuse questions are: During the past four weeks, how often do the following things happen in your relationship? (a) your partner insults you or makes you feel bad about yourself; (b) your partner belittles you or humiliates you in front of other people; (c) your partner does things to scare or intimidate you on purpose.

As in the earlier waves, there are seven response options ranging from 'never' to 'all the time', and we aggregate categories using the maximum frequency among component behaviours to 'never', 'infrequent', or 'frequent', and code these as 0, 1, and 2. Physical abuse is reported very infrequently by mothers at 54 months (which limits our possible statistical power) and does not capture many violent behaviours that are detrimental to the victim; verbal abuse is reported very frequently and includes behaviours such as minor disagreements with raised voices on both sides that we would not term IPV.[25] Our primary focus for this survey wave is thus emotional abuse.

4.3.3 IPV variables from the 8-year survey

The 8-year survey again asks only the mother about various types of abuse perpetrated by her current partner in the previous four weeks. As well as covering the physical, verbal, and emotional abuse covered by the 54-month survey, it also asks about controlling behaviours (which are a part of coercive control). However, rather than asking if each component behaviour (e.g., pushing) is present individually, behaviours are grouped, so there is one question about physical abuse, one about verbal abuse, one about emotional abuse, and one about controlling behaviours.

The five relevant questions are as follows. Think about a time during the past four weeks when you and your partner spent time talking or doing things together. With those times in

[25] This is not to say verbal conflict is always harmless. Verbal abuse is a central component of abuse and control. We suspect it is reported more frequently partly because it is not as stigmatised as other forms of IPV. It remains a very common and effective tool of silencing a partner and frightening them.

mind, please select how often your partner acted in the following ways towards you during the past four weeks: (a) your partner slapped you or threw things at you that could have hurt you; pushed or shoved you or pulled your hair; hit you with a fist or something else that could have hurt you; (b) your partner raised their voice at you when you were arguing; swore or yelled at you when they were angry; (c) your partner made you feel like you couldn't do anything right; sulked or got angry when they didn't get what they wanted; blamed you for their problems; (d) your partner insulted you or made you feel bad about yourself; belittled you or humiliated you in front of other people; did things to scare or intimidate you on purpose; and (e) your partner insisted on knowing where you were at all times; made it hard for you to see your friends and family and got jealous when you did.

Each of these five questions offered the mother five response options: 'never or almost never'; 'not very often'; 'quite often'; 'very often'; and 'extremely often or all the time'. We categorise 'never or almost never' as never, 'not very often' as infrequent, and the remaining three categories as frequent.

We use question (a) as our measure of physical abuse, (b) as our measure of verbal abuse, and (e) as our measure of controlling behaviours. We combine questions (c) and (d) by taking the highest reported frequency to create our measure of emotional abuse. As previously, for some of the analysis we code 'never', 'infrequent', and 'frequent' as 0, 1, and 2 respectively.

Because questions are asked in a more aggregated form at 8 years than at 54 months and because the response 'almost never' is categorised differently in these two waves, the IPV measures at 54 months and at 8 years are not fully comparable.

4.4 Capturing relationships ending

In our analysis of the factors associated with a relationship ending, our desired dependent variable is either a dummy for a relationship that is present antenatally but no longer exists at 9 months, or a dummy for a relationship at 54 months that no longer exists at 8 years. However, the best measures of relationship breakup we can construct from GUiNZ data are not perfect and differ for the two periods between survey waves.

In the antenatal and 9-month surveys, mothers report if they have a partner, and partners are invited to participate in GUiNZ, though not all do. Participating partners are assigned a unique identifier that can be linked between surveys. For mothers with participating partners, we can thus measure perfectly whether each antenatal relationship still exists at 9 months. Among the 3,768 mothers who are in relationships with participating partners *both* antenatally and at 9 months, only a trivial number are in relationships with different partners in the two

survey waves.[26] For mothers with non-participating partners in one or both of these survey waves, we thus assume any mother in a relationship in both waves is in a relationship with the same person. While this assumption is expected to introduce some level of error, we expect the error will be very low.

Relationship data in the 54-month and 8-year surveys are less informative. The partner is not surveyed at 54 months or 8 years, so we cannot use partner identifiers to determine whether a mother in a relationship in both waves is in a relationship with the same person. Furthermore, mothers in a relationship at 8 years are not asked whether this is with the same person as at 54 months. What we do know is whether the mother is in a relationship at 54 months or at 8 years, and whether she moved house between 6 years and 8 years because of a new relationship or a relationship breakup. For mothers who were in a relationship at 54 months, we categorise their relationship as having ended by 8 years if (a) the mother is not in a relationship at 8 years or (b) she reports moving house between 6 and 8 years because of a new relationship or a relationship breakup. Other mothers who are in a relationship at 8 years are considered to be in the same relationship as at 54 months. Of the 4,321 mothers in a relationship at 54 months, 254 (5.9%) reported that they were not in a relationship at 8 years. The measure of relationships ending that we construct using the method described above shows at 8 years 329 of the original 4,321 mothers (7.6%) were no longer with the partner who they were in a relationship with at 54 months. This measure is likely to understate relationships ending to some extent, because the question about moving house covers only a fraction of the time period of interest and not all mothers will necessarily move house if their relationship status changes. It could also misclassify some mothers as having had their relationship end if they moved house due to separating from their partner, but subsequently reconciled with them. The unavoidable error in our measure of relationships ending for this analysis period could introduce some level of bias, so findings for this period should be treated with caution.

5 Methodology and results

In this section we describe the methodologies for and findings from our three main types of analysis. The first, discussed in Section 5.1, is a quantification of the prevalence of various types of conflict and abuse within relationships. The second, discussed in Section 5.2, is a quantification of the persistence of mothers' exposure to IPV. The third, discussed in Section 5.3,

[26] Confidentiality rules for the GUiNZ data prevent us reporting on numbers of individuals below 10, and the number of such mothers is well below 10.

uses regression analysis to explore the factors that are associated with a relationship ending, and how these differ if IPV is present.

5.1 How common are within-relationship conflict and intimate partner violence?

5.1.1 How do rates of IPV for parents of young children compare with rates for couples at other life stages?

Our primary focus in this paper is on IPV among couples who are about to have a child or who have a young child, data on whom is available from GUiNZ. In this section we supplement our analysis of GUiNZ data with analysis of the New Zealand Crime and Victims Survey (NZCVS). In particular, we use regression analysis to estimate how rates of IPV for couples with children vary with the ages of their children, and how they compare with rates of IPV for couples without children.[27] The analysis, which controls for various maternal characteristics including age, enables us to see how rates of IPV change with the age of the oldest child, holding these other characteristics constant.

This NZCVS analysis augments our main analysis in two important ways. First, it allows us to compare IPV rates among couples with young children (the life stage captured by GUiNZ) with IPV rates among couples at other life stages, namely those who do not have children and those with older or adult children.[28] Second, it addresses an important limitation inherent in the GUiNZ data. In particular, because the GUiNZ survey follows one cohort of parents whose children were born in 2009 or 2010 as their children get older, it does not allow us to distinguish time trends from cohort effects. That is, changes in IPV rates over survey waves driven by the child getting older are indistinguishable from changes in IPV driven by broad societal changes over time. In contrast, the repeated cross-sectional nature of the NZCVS enables us to control for when the survey occurred, and thus isolate how the prevalence of IPV changes with life stage.

Although NZCVS data can provide informative comparisons of IPV for adults in different life stages, IPV rates estimated from these data are not comparable to IPV rates estimated from GUiNZ for several reasons. First, the questions about IPV used to generate IPV rates differ in terms of behaviours included, included perpetrators (current partners only or current and past partners) and the period covered (the previous 4 weeks or 12 months). Second, differences in the nature and framing of the two surveys may lead to different willingness to disclose violent

[27] We are unable to present prevalence rates of IPV by child age here due to data confidentiality requirements.
[28] Because the NZCVS asks consistent questions about IPV to parents with children of different ages, whereas GUiNZ asks different questions when the children are different ages, the NZCVS also provides better information on how IPV rates change over time between when the mother is pregnant and when she has an eight-year-old child.

behaviours. Third, the surveys cover and are weighted to be representative of different geographical populations. Fourth, the surveys were conducted in different years.

NZCVS data

The New Zealand Crime and Victims Survey is an annual cross-sectional survey of New Zealanders that collects information on their experiences of crime. It has run annually since 2018, with each wave covering approximately eight thousand adults. The survey draws from the full populations of New Zealanders aged 15 and older who live in a permanent, private dwelling and includes an oversample of Māori. In our analysis we weight observations to be representative of the adult population. Note this differs from our GUiNZ analysis, which aims to capture only parents who had a child in one of three DHBs over the time period of interest.

NZCVS sample construction

We pool data from the first four waves of the NZCVS, which ran between 2018 and 2021, accessed via Statistics New Zealand's Integrated Data Infrastructure (IDI), a large collection of unit record level administrative and survey data from a wide range of government and private data sources. The IDI includes unique person identifiers that enable researchers to link individuals between data sources. We use these to link NZCVS respondents to parent identifiers in the Department of Internal Affairs's births records, enabling us to identify the birth dates of all the children born in New Zealand to NZCVS respondents from 1972 to 2022.[29] We use the earliest birth date of a child to a parent to categorise NZCVS respondents to a "life stage", defined by the age of their oldest child at the time of the survey, running from minus three to 16 or older, with the additional option of "no children".[30,31] We distinguish women who will have their first child in the next three years from women without children who will not have a child in the next three years because women who will shortly have a child are likely to be more comparable in unobservable ways to women who recently had a child. Comparing the two thus gives a more accurate view of how IPV risk faced by individual women might change around the time they have their first child than would comparing IPV rates for women with new children with rates for the full population of women without children.

The four survey waves we use cover a total of 27,693 individuals.[32] From this population, we first drop the 882 individuals who are not linked to the IDI spine. Individuals are not linked to

[29] It appears all births until August 2022 are captured by the births data, as well as the majority of births later in 2022.
[30] The DIA does not collect births data on children born overseas, so respondents whose only children were born overseas will be misclassified as not having children.
[31] Some parents in the later survey waves will have had children two or three years after the survey whose births were not captured by the DIA data. These parents will be incorrectly classified as not having children.
[32] This observation count and all other counts derived from IDI data are randomly rounded to base 3 for confidentiality reasons.

the spine if Statistics New Zealand is unable to identify them with reasonable confidence. Those not linked to the spine are likely to not be linked to the birth records of their children, so we cannot identify their life stage. We then drop the 1,545 individuals whose birth date sourced from the IDI differs from their birth date sourced from the NZCVS by more than a year. These individuals may have been incorrectly linked, so their data cannot be relied on. We then drop the 5,676 individuals who may have had their first child before 1972 (the date from which births records are reliably linked to the parents).[33] We then drop the 111 parents who appear to have had their oldest child before the age of 16 or after the age of 45. These are likely to represent incorrect data linkages. Finally, because our interest is IPV perpetrated by current or recent partners, we drop the 4,005 individuals who report neither currently being in a relationship nor having been in a relationship in the past year.

Because reported IPV rates are so different for men and women, we analyse the two genders separately. The NZCVS collects data on both gender identity and sex assigned at birth. Because the number of people for whom these do not match is too small to analyse without running into confidentiality problems, we focus on those whose gender matches their sex, with a primary focus on women. This process leaves us with 8,673 women and 6,657 men, with 144 individuals excluded because their gender differs from their sex.

NZCVS IPV definition

In the NZCVS, respondents are asked whether in the past 12 months they were the victim of various offences perpetrated by a current or previous partner. We code individuals as experiencing IPV if they respond yes to any of the following: sexual assault, other assault, harassment or threatening behaviour, damage to their motor vehicle, damage to their household property, damage to their personal property, and robbery.

Note the period about which victimisation is asked is longer here (12 months) than in the GUiNZ survey (4 weeks), and the perpetrator here can be a current or past partner, whereas GUiNZ asks about behaviours perpetrated by current partners only.

NZCVS rates of IPV by life stage

In this subsection we conduct regression analysis to estimate how IPV rates vary for women by life stage after controlling flexibly for their age and various other personal characteristics.

Separately for men and women, we run a series of probit regressions where the dependent variable is an indicator for the individual being the victim of IPV in the past year. As

[33] This is based on the assumption that individuals may start having children at age 18, so excludes those born before 1954. Note these are all older adults and are unlikely to have young children, so their exclusion will not meaningfully affect our estimates of IPV among parents of young children.

described above, the sample is individuals whose data are believed to be good quality, who have a partner or had one in the past year. In all the regressions we include as controls a set of dummy variables for the age of the oldest child (with an option for "no children"), a set of dummy variables for the respondent's age (in two-year categories), and dummy variables for survey year. We categorise child ages into unequally sized groups: minus 3 to 0; 1 to 2; 3 to 5; 6 to 10; 11 to 15; and 16 and over. These groups are chosen to separate out child ages for which IPV rates are found to be very different, balanced against maintaining sufficient sample size in each group. We progressively add controls for various other personal characteristics.

The results of these regressions for women are presented in Appendix Table 3. The first column includes these basic controls only. It shows that compared with women who have never had children, IPV rates are lower on average for women who will have their first child in the next three years or who had their first child in the previous year.[34,35] From that point, IPV rates begin to creep up. Mothers with a child aged 3 to 5 have substantially higher IPV rates than women without children, and these rates continue to climb through the first decade and a half of the child's life.

The second column adds controls for ethnicity. The pattern of lower IPV rates for women soon to have children, followed by increasing IPV rates subsequently, remains, but IPV rates are relatively flat after age 5. Subsequent columns add controls for deprivation index, urban nature of the area of residence, and finally Regional Council fixed effects. None of the additional controls have a major impact on the pattern of IPV.

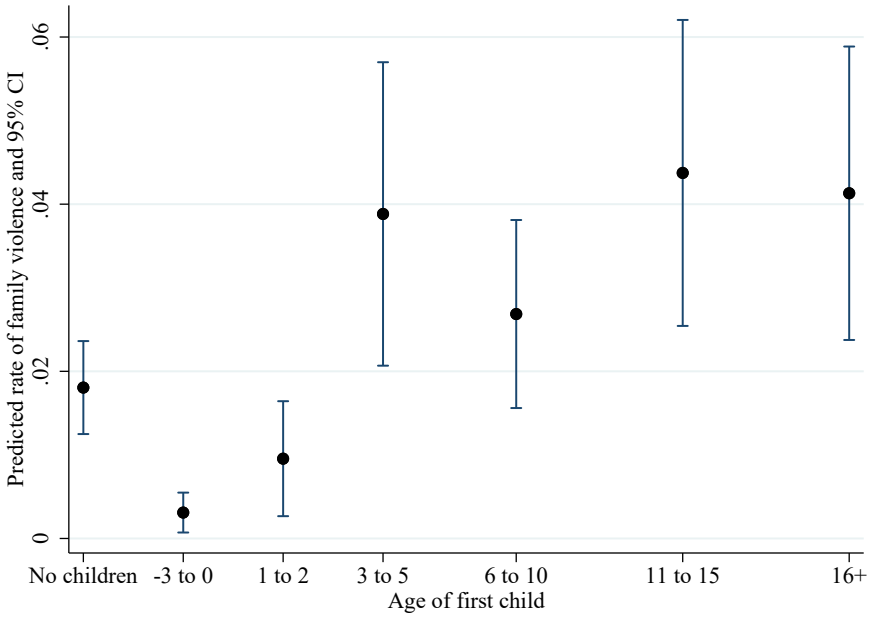
Panel A of Figure 1 plots how the rate of IPV predicted for women in the most fully controlled specification (column 5) varies with the age of the oldest child. It shows that women without children who will not have children in the next three years face a relatively low risk of IPV, just under 2 percent for women with average other characteristics. This risk is even lower on average for those who will have a child in the next three years or who have a child aged less than a year, at less than 0.5 percent. However, IPV risk increases as a woman's oldest child ages. It is around 1 percent for mothers with a one- or two-year-old, and settles in the vicinity of 4 percent for mothers of older children.

[34] Note these regressions control flexibly for the woman's age, among other covariates, so these differences by the child's age are not driven by older children tending to have older mothers.

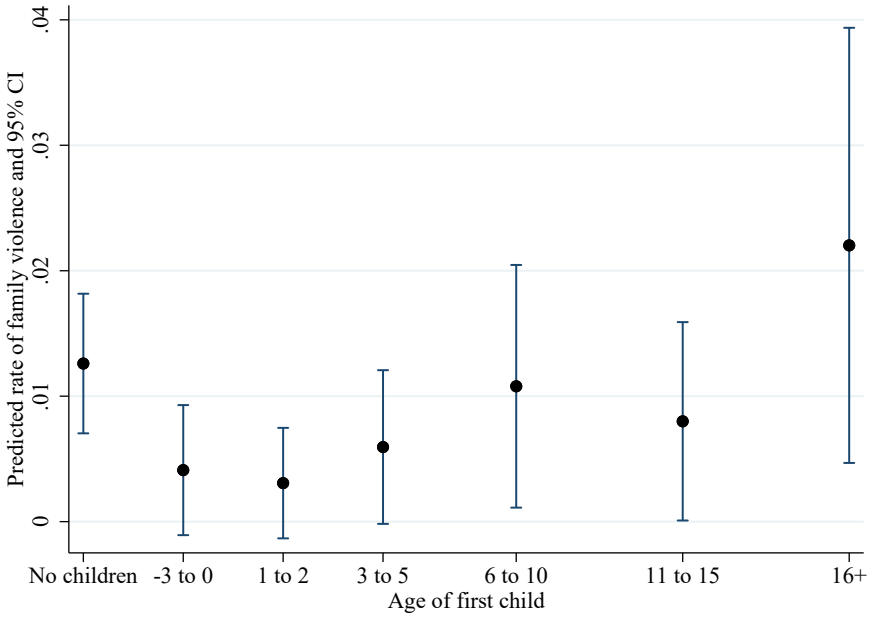
[35] Some prior research has found pregnancy might be a time of high IPV risk (Thorburn and Arathoon, 2023), though other studies have found lower rates of at least physical IPV during pregnancy (Martin et al., 2001, Saltzman et al., 2003). Our sample size is not large enough to separately examine IPV rates during the months women are likely to be pregnant, so we are unable to directly shed light on this question. Note also we are examining here only whether the women report any IPV, not the frequency of violent behaviour. If previously violent partners increased the intensity of their violence during pregnancy, this type of analysis would not be able to pick this correlation up.

Figure 1: NZCVS rates of IPV for women and men by age of oldest child

Panel A: Women



Panel B: Men



Notes: The two panels of this figure plot for women (Panel A) and men (Panel B) the predicted rates of IPV experienced at different life stages, defined by the age of the oldest child. Estimates are based on the fully controlled regressions in column 5 of Appendix Tables 3 and 4.

The coefficients on the survey year dummies are informative about how levels of IPV changed over the period 2018 to 2021. We use 2018 as the omitted category, and find none of the coefficients on these variables are statistically significantly different from zero. This means there is no evidence rates of IPV increased or decreased over the period in question. However,

the period covered by the NZCVS is only four years and occurred later than most of the GUiNZ survey waves we use, so this analysis cannot speak to whether IPV rates changed over the GUiNZ period.

Appendix Table 4 replicates Appendix Table 3, but for men. It shows IPV rates for men vary at most weakly significantly with the age of their oldest child, regardless of the controls included. However, we do see IPV rates were statistically significantly lower in 2021 than in 2018, the culmination of a general downwards trend over the intervening years. Panel B of Figure 1 plots predicted IPV rates for men by the age of their oldest child in the most controlled specification (column 5). It shows the rates of IPV for men with average characteristics are lower than the rates for women, and are particularly low for men who have their first child within the next three years or whose first child is less than 6 years old. Men with no children and those with older children have slightly higher rates.

This analysis of IPV reported in the NZCVS suggests that the GUiNZ antenatal and 9-month surveys both seem to occur at times when we would expect mothers to experience very low rates of IPV, though we acknowledge IPV rates may differ during pregnancy relative to other times when the child is aged -3 to 0 in ways our sample size is too small to pick up. In contrast, the 54-month and 8-year surveys occurred at times when we would expect substantially higher rates of IPV.[36]

5.1.2 Methodology: Weighting approach

In Section 5.1, we use GUiNZ data to estimate the proportion of mothers in a relationship who experience specific types and intensities of IPV at different points in their children's lives. Because GUiNZ mothers are a non-random sample of New Zealand mothers overall, in calculating percentages we weight our observations so our results are informative about a well-defined population of interest. The population of interest we target is mothers with a partner who had a child between April 2009 and March 2010 while living in the Auckland DHB, Waikato DHB, or Counties Manukau DHB, and we weight our sample to be representative of this population in terms of combinations of age, ethnicity, and deprivation index.[37] The best information available on this population comes from the 2013 Census, which was conducted on 5 March 2013, three to four years after the birth of the children. Because we cannot perfectly observe which women in the census meet our criteria for inclusion, we use women aged 15 and

[36] Note also our NZCVS analysis examines only rates of women reporting any IPV, and does not distinguish frequent IPV from infrequent IPV. It thus cannot pick up changes in the frequency of violent behaviours that are already present.

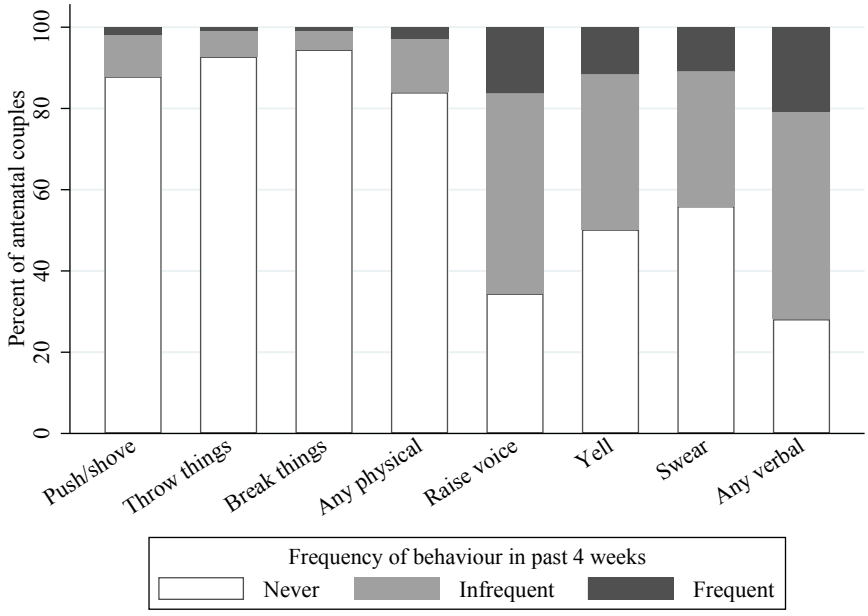
[37] We use the age categories under 25, 25-29, 30-34, 35-39, and 40+, the ethnicities (based on total responses) European only, Pacific and not European, Māori and not European, Asian and not European, MELAA and not European, European and Pacific, European and Māori, and all other ethnicity combinations, and the deprivation indexes 6 and below and 7 and above.

older, whose usual residence 5 years before the census was in one of the three DHBs of interest, who report having given birth to at least one child, and who have in their 2013 family at least one child that is 3 years old.[38]

5.1.3 How common are different types of within-relationship conflict and intimate partner violence, and how do these vary over time?

In this subsection we show how the prevalence of within-relationship conflict and intimate partner violence vary by survey wave and abuse type. Figure 2 plots the weighted antenatal prevalence of mothers' reports of three types of physical conflict within relationships, physical conflict in total, three types of verbal conflict, and verbal conflict in total. The exact numbers underlying this figure, as well as Figures 3 to 5, are presented in Appendix Table 1.[39]

Figure 2: Frequency of within-relationship conflict antenatally



Notes: This figure shows the estimated proportion of couples who experience various types of conflict antenatally. Percentages are based on the mother's reports of conflict and are weighted to be informative about the target population of interest, described in the text. The category 'any physical' includes pushing/shoving, throwing things, and breaking things; the category 'any verbal' includes raising the voice, yelling, and swearing.

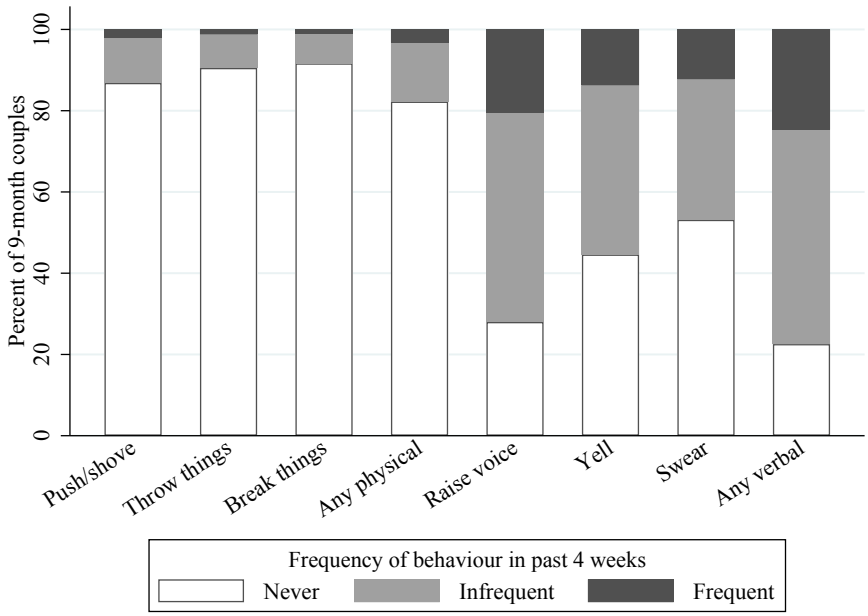
Antenatally, 16% of mothers report infrequent or frequent physical conflict within their relationships, most of which is infrequent. The most common physical conflict behaviour is

[38] These aggregated data were provided by Statistics New Zealand. All person counts were randomly rounded to base 3 for confidentiality reasons, and all counts below 6 were suppressed.
[39] The appendix table shows weighted and unweighted percentages for comparison purposes, whereas the figures plot weighted percentages only.

pushing or shoving, with throwing things at each other and breaking things being less common. Verbal conflict is ubiquitous, with 72% of mothers reporting it at least infrequently, and 21% reporting it frequently. The most common type of verbal conflict is raising voices when arguing. Couples yelling and swearing at each other are both also common.

Figure 3 shows the prevalence of conflict as reported by mothers in the 9-month survey. The overall patterns of conflict reported are very similar to antenatally, but both physical conflict and verbal conflict have become somewhat more common, with any physical conflict increasing from 16% to 18% and any verbal conflict increasing from 72% to 77%.[40] This is in line with existing literature that has found violent behaviours tend to increase when a child is born (Agrawal et al. 2014). This increase is associated with increased perceived stress, depression, reproductive health issues, and infant sleeping problems.

Figure 3: Frequency of within-relationship conflict at 9 months



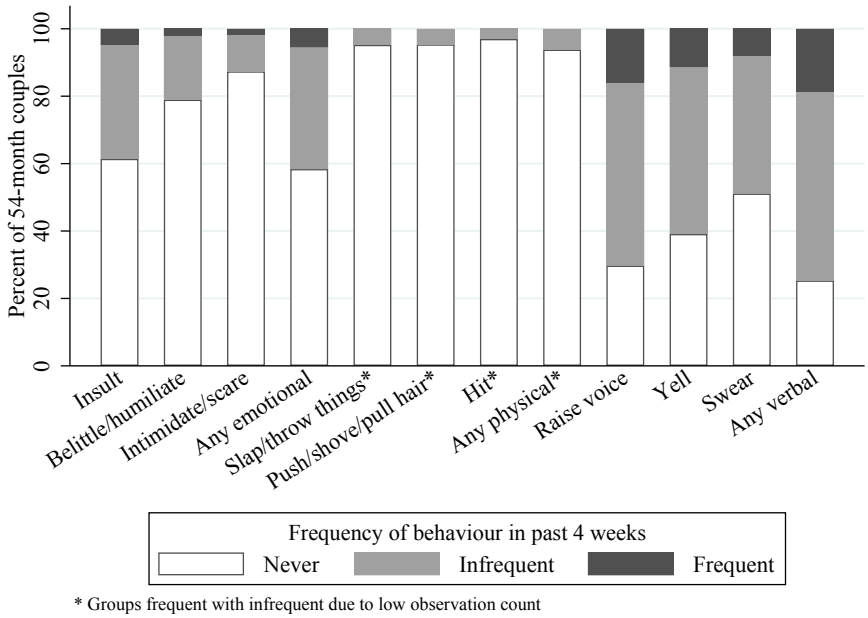
Notes: This figure replicates Figure 2 for the period when the child is 9 months old. See the Figure 2 notes for further details.

Figure 4 shows the weighted percentage of partnered mothers reporting each type of IPV in the 54-month survey. In contrast to reports in the earlier two surveys, these reports are about abusive behaviours perpetrated specifically by the mother's partner. In addition to physical and verbal abuse, this survey wave contains information about emotional abuse. The figure shows

[40] Note the samples of mothers are not the same in the antenatal and 9-month survey, because to be included in our calculation mothers must report being in a relationship in the particular survey wave.

42% of mothers report infrequent or frequent emotional abuse. The most prevalent form of emotional abuse is insulting the mother or making her feel bad about herself. Six percent of the sample reports physical abuse of any frequency. This is lower than in the previous survey waves, likely primarily because of changes in the survey questions, but potentially also because relationships with partners who *do not* use violence are more likely than relationships with partners who *do* use violence to have lasted until the child reached 54 months. Regardless, this rate of physical abuse is higher than rates found in prior research (See Fanslow, Malihi et al. 2021). Total reports of verbal abuse are comparable to the earlier survey waves, at 75%, despite changes in wording. We speculate this consistency between the rates of (non-directional) verbal conflict and (directional) verbal abuse could be because in most couples where one partner raises their voice, yells, or swears at their partner, the partner engages in a similar behaviour in response. See Section 5.1.6 for comparisons between the mother's report of verbal conflict and her partner's report.

Figure 4: Frequency of abusive behaviours at 54 months



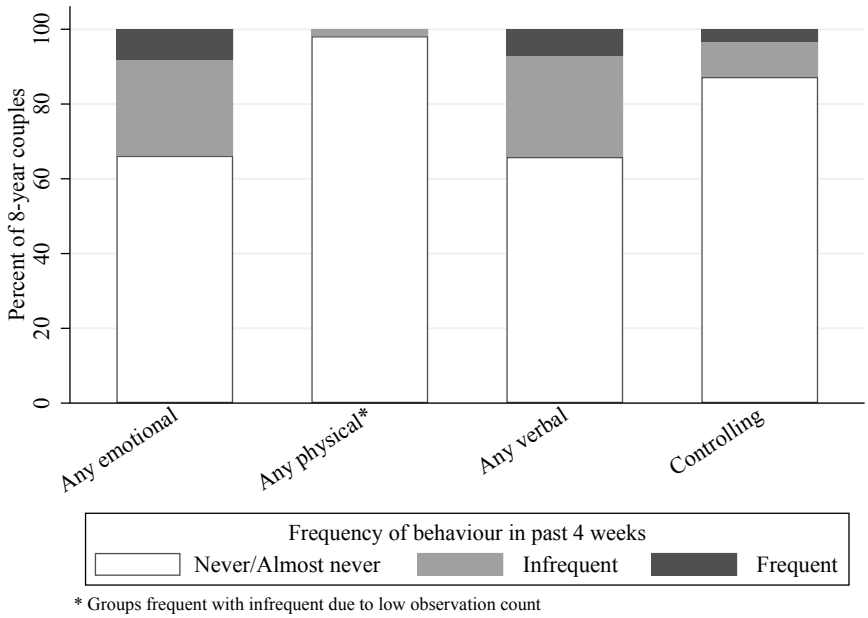
Notes: This figure shows the estimated proportion of partnered mothers who experience various types of abuse from their partner when their child is 54 months old. Percentages are based on the mother's reports of abuse and are weighted to be informative about the target population of interest, described in the text. The categories 'any emotional', 'any physical', and 'any verbal' each aggregate the three preceding types of abuse.

Finally, Figure 5 shows in the 8-year survey 34% of mothers report any emotional IPV, 2% report any physical IPV, and 34% report any verbal IPV.[41] These values are all substantially lower

[41] Note here abuse that occurs 'almost never' is grouped with 'never'.

than in the 54-month wave, though it is unclear how much this is the result of changes in the questions and options for response.[42] The 8-year survey also asks about controlling behaviours; 13% of mothers report experiencing controlling behaviours from their partners.

Figure 5: Frequency of abusive behaviours at 8 years



Notes: This figure shows the estimated proportion of partnered mothers who experience various types of abuse from their partner when their child is 8 years old. Percentages are based on the mother's reports of abuse and are weighted to be informative about the target population of interest, described in the text.

An alternative source of data on the prevalence of IPV is the NZCVS. The NZCVS differs to the GUiNZ survey in several key ways that affect its estimates of IPV. The first is that NZCVS IPV questions cover a longer time frame than GUiNZ questions. Specifically, the NZCVS asks about respondents' experiences with IPV in either the previous 12 months or their lifetime, whereas GUINZ asks about experiences in the previous 4 weeks. This will tend to cause the NZCVS to report higher rates of IPV than GUiNZ. Second, the estimates from the NZCVS cover a representative sample of the New Zealand population, while GUiNZ covers a sample of mothers with young children in three North Island DHBs. Our estimates weight the GUiNZ sample to be representative of mothers who had children in these three DHBs in 2009/10, but these mothers may differ from those elsewhere in the country, and from those who had children in different years or do not have children. These sample differences are likely to drive differences in reported rates of IPV, particularly because prior research has shown pregnant or young mothers

[42] See Section 4.3 for how these variables were constructed.

may be at different risk of IPV compared with other groups. Third, the NZCVS is framed as a survey about crime and victims specifically, whereas GUiNZ overall has more of a health and child development focus. This difference in framing could cause respondents to differently bring to mind and report on their life events. The difference in framing, intended uses of the data collected, or organisation collecting the information may also affect victims' willingness to participate in the survey or to disclose IPV. Finally, the questions posed by the two surveys differ in wording and the exact types of behaviour they attempt to capture, which will naturally lead to differences in responses.

To determine the prevalence of physical IPV, the NZCVS ask respondents "in your whole life, has any partner, or ex-partner, ever deliberately used force or violence on you, or physically harmed you in any way?" To this question, 23% of ever-partnered women answered yes.[43] Using GUiNZ data on physical conflict, we estimate 16% of our target population of mothers experienced physical conflict over a four-week antenatal period, and 18% over a four-week period at 9 months. Given the lifetime focus of the NZCVS question, our GUiNZ estimates (which cover a four-week period) are not inconsistent with the NZCVS statistics. However, we estimate using GUiNZ that 6% of mothers experience physical IPV over a four-week period when their child is 54 months old, and 2% when their child is 8 years. The much lower rates in these survey waves compared with in earlier waves may be related to the wording of the questions, life stage of these mothers, or likely longer duration of most of their relationships at this time (which will be at least 8 years long if the couple got together before the birth of the child).

Additionally, the NZCVS reports 13% of ever-partnered respondents faced a threat to use force or violence made by a current or ex- partner at some point in their life. GUiNZ does not ask about threats specifically, but does ask about various types of verbal and emotional IPV, some of which may be threats of physical violence. Using the GUiNZ survey, we estimate 72% of mothers experienced verbal abuse over a four-week antenatal period, 77% over a similar period when their child was 9 months old, 75% at 54 months, and 34% at 8 years.[44] Emotional abuse questions were asked in the 54-month and 8-year GUiNZ survey waves only; we found prevalence rates of 42% and 34% respectively.

The NZCVS also asked respondents about their experience with control from current or former intimate partners. They found 13% of adults report experiencing controlling behaviours by their intimate partner or a family member in their lifetime. Using the 8-year survey question from GUiNZ, we find approximately 13% of mothers report their partner exhibited controlling

[43] In contrast, less than 10% of men answered yes.
[44] The 8-year prevalence may be so much lower because it excludes abuse that occurred 'almost never' over the period in question.

behaviours in the previous four weeks, though the controlling behaviours described were narrower in the GUiNZ question than in the NZCVS question.

While the GUiNZ survey does not include questions on the prevalence of sexual IPV, the NZCVS does. It finds 2.9 percent of women and roughly a third as many men report ever being sexually assaulted, with 91 percent of sexual assaults being committed by a current or former intimate partner. Fanslow, Malihi et al. (2022) find, among a sample of adults living in Waikato, Auckland, or Northland, 12.4% of women and 2.1% of men report at least one act of sexual IPV in their lifetime.

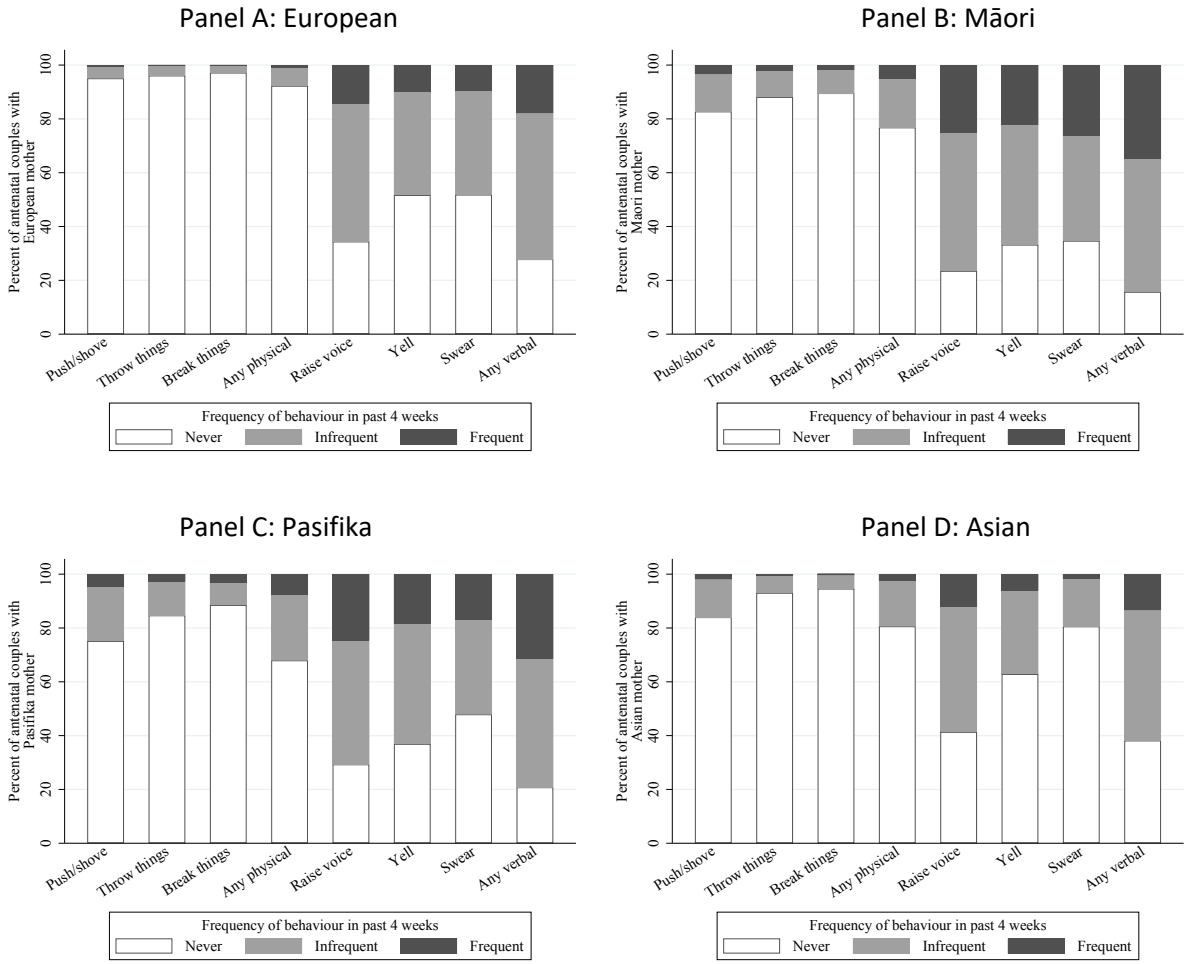
5.1.4 How do within-relationship conflict and intimate partner violence vary by ethnicity?

In this section we compare the rates at which mothers of different ethnicities report conflict or IPV antenatally and at 54 months. Figure 6 replicates Figure 2, which showed percentages of mothers reporting different types of conflict within their relationships antenatally, separately for four common ethnic groupings. Ethnicities are based on total response ethnicity, so each mother is included in all the ethnic groups to which she reports belonging.

We find large ethnic differences in reported rates of IPV. European women report the lowest prevalence of physical conflict of any type (10% report any physical conflict), and Pasifika women report the highest prevalence of physical conflict (30%). Asian and Māori women report rates of physical conflict that fall between these, 19% and 23% respectively. In contrast, Asian women report the lowest rates of verbal conflict (61%) and Māori women the highest (84%), with European as Pasifika women reporting rates of 72% and 79% respectively.

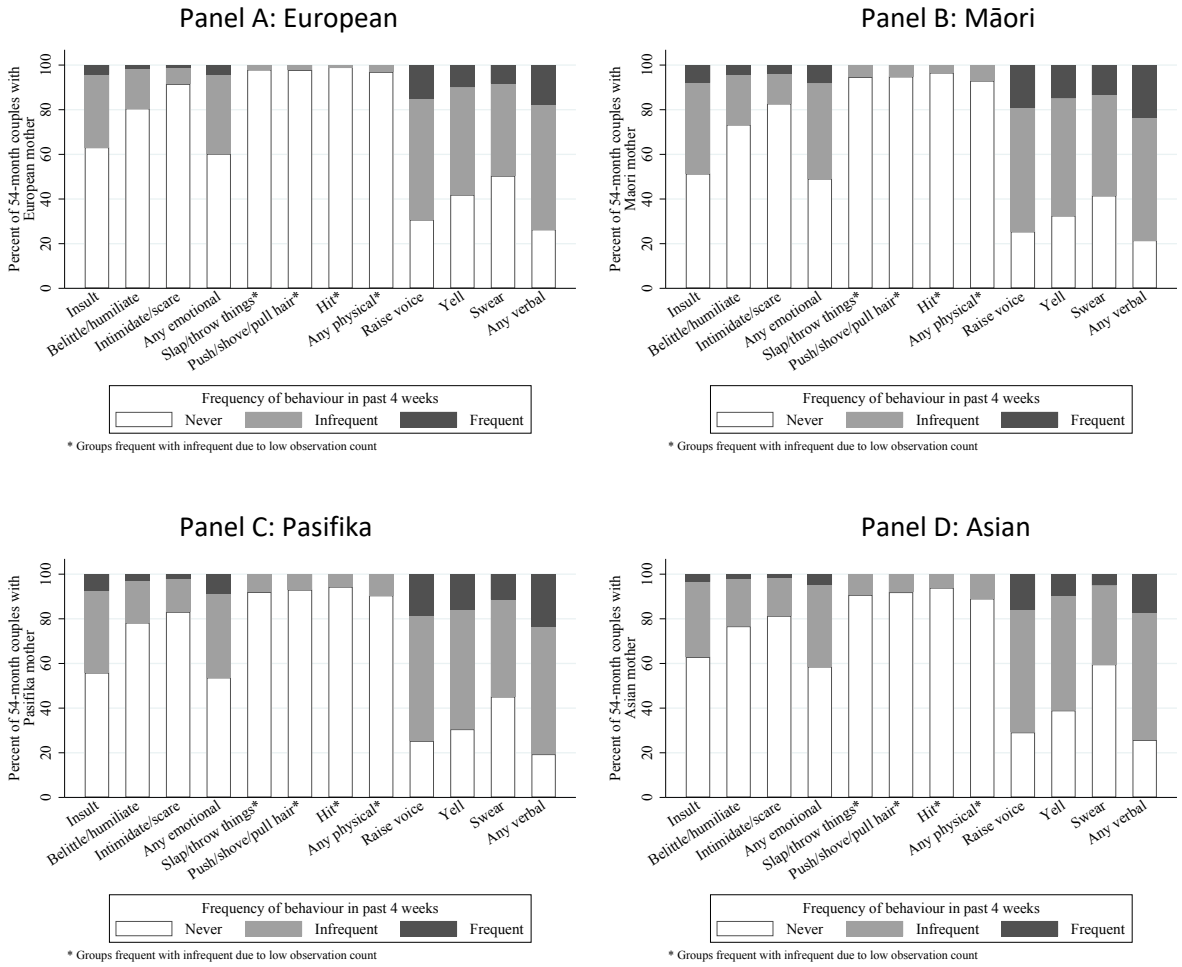
Figure 7 similarly compares reported rates of IPV at 54 months for each common ethnic grouping. Here we are able to measure emotional abuse as well as physical and verbal abuse, though recall the survey questions have changed so responses should not be considered comparable across survey waves. European and Asian mothers report the lowest rates of emotional abuse (40% and 41% respectively report at least infrequent abuse), followed by Pasifika mothers (46%) and Māori mothers (51%). As in the antenatal survey, European mothers report the lowest rate of physical abuse (3%), but now Asian mothers report the highest rate (11%) and Māori and Pasifika mothers report rates of 7% and 9% respectively. Verbal abuse is very commonly reported by mothers of all ethnic groups, ranging from 74% of European and Asian mothers to 78% of Māori mothers and 81% of Pasifika mothers.

Figure 6: Ethnic differences in frequency of within-relationship conflict antenatally



Notes: This figure, which replicates Figure 2 by ethnicity, shows the estimated proportion of couples who experience various types of conflict antenatally separately for mothers of each ethnicity. Mothers are included in each of the ethnic groups to which they report belonging. Percentages are based on the mother's reports of conflict and are weighted to be informative about the target population of interest, described in the text. The category 'any physical' includes pushing/shoving, throwing things, and breaking things; the category 'any verbal' includes raising the voice, yelling, and swearing.

Figure 7: Ethnic differences in frequency of abusive behaviours at 54 months



Notes: This figure, which replicates Figure 3 by ethnicity, shows the estimated proportion of partnered mothers who experience various types of abuse from their partner when their child is 54 months old separately for mothers of each ethnicity. Mothers are included in each of the ethnic groups to which they report belonging. Percentages are based on the mother's reports of abuse and are weighted to be informative about the target population of interest, described in the text. The categories 'any emotional', 'any physical', and 'any verbal' each aggregate the three preceding types of abuse.

These observed differences by ethnicity in reported rates of IPV could result from differences in the perpetration of IPV or differences in the reporting of IPV. Differences in perpetration could arise from cultural differences in gender roles, acceptance of patriarchal norms, and understandings of acceptable behaviour within relationships. They could also be affected by factors such as lack of community or cultural connection, economic stress, and the negative impacts of colonisation. Cultural differences could also affect the propensity to report abuse or the cut-off for how severe abuse must be before it is reported. A cultural aversion to sharing difficulties within an intimate relationship, racism, a sense of shame or the perception of

casting their culture in a bad light, and a lack of community support may make some ethnicities less inclined to report IPV (Satyen et al. 2019; Simon-Kumar, 2019).

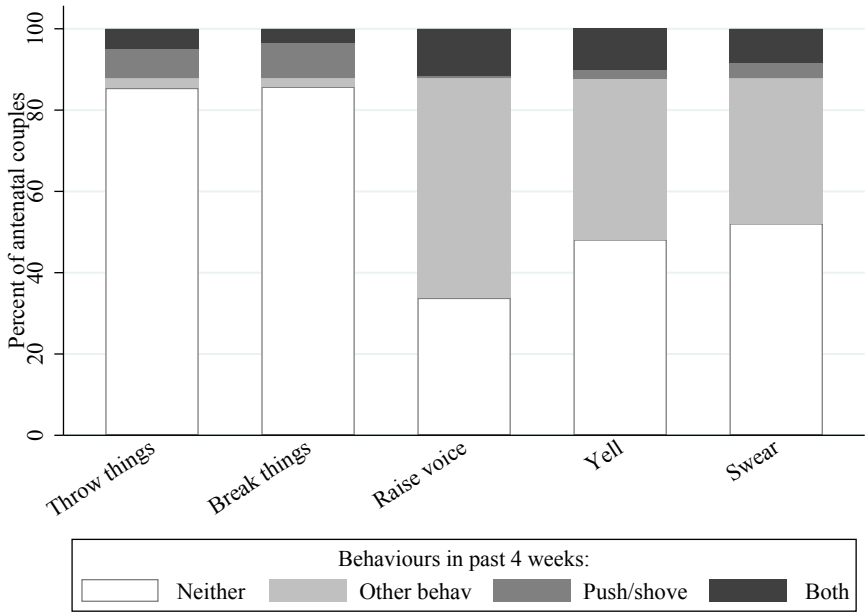
5.1.5 How much overlap is there in different types of within-relationship conflict and intimate partner violence?

This section explores the extent to which mothers who report one specific type of conflict or abuse are the same mothers who report other types of conflict or abuse.

Figure 8 shows the overlap between mothers who antenatally report pushing or shoving in their relationship (arguably the most serious form of conflict about which we have information in this survey wave) and those who report other types of physical conflict and various types of verbal conflict. For each type of conflict that we compare with pushing or shoving, we plot the weighted proportions of mothers who report a) neither type of conflict, b) the conflict type we are comparing only, c) pushing or shoving only, and d) both the comparison conflict type and pushing or shoving. The figure shows moderate overlap between pushing or shoving and the other two types of physical conflict. For both types, a higher proportion of mothers report pushing or shoving and the other behaviour both occurring than the proportion of mothers who report the other behaviour in the absence of pushing or shoving. However, a non-trivial proportion report only the other behaviour.

The three types of verbal conflict are all a lot more common that pushing or shoving, and in each case we see most or all mothers who report pushing or shoving also report the verbal conflict behaviour. The overlap is lowest for swearing; around a third of mothers who report pushing or shoving do not report swearing.

Figure 8: Overlap between pushing/shoving and other types of conflict antenatally

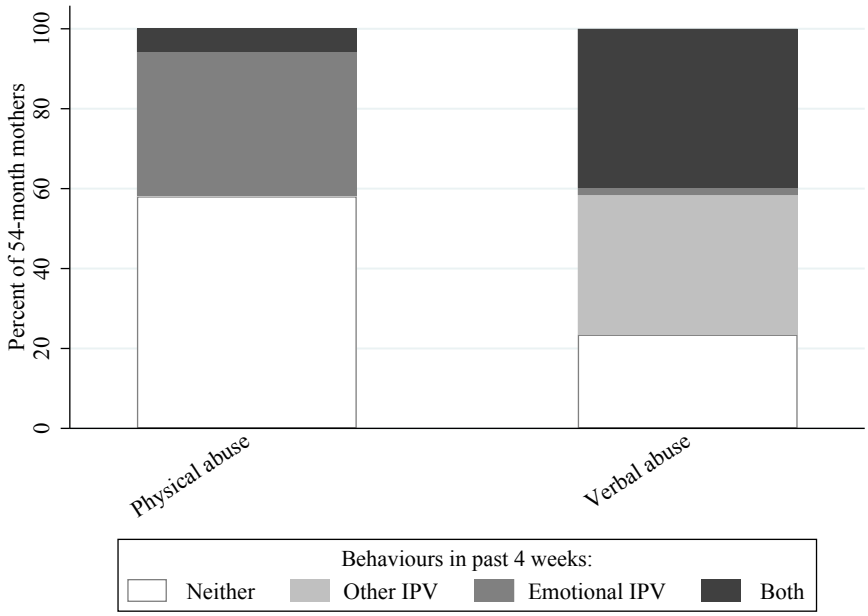


Notes: This figure shows the estimated overlap between couples who experience pushing or shoving antenatally and those who experience a range of other types of conflict at the same date. Each bar shows the overlap between pushing or shoving and one other type of behaviour. Percentages are based on the mother's reports of conflict and are weighted to be informative about the target population of interest, described in the text.

Appendix Figure 1 replicates Figure 8 for mothers of each ethnicity. All ethnicities show moderate overlap between pushing or shoving and the other types of physical conflict, but the degree of overlap between pushing or shoving and some of the verbal conflict behaviours varies more. Ethnic differences are largest for swearing, which may carry different cultural connotations for the different groups. Among Māori and European mothers, essentially all those who report pushing or shoving in their relationship also report swearing. However, around a quarter of Pasifika mothers and nearly two thirds of Asian mothers who report pushing or shoving do not report swearing.

Figure 9 similarly shows the extent of overlap between the mothers who at 54 months report their partner emotionally abuses them and those who report their partner physically or verbally abuses them. It shows nearly all physical abuse is accompanied by emotional abuse, and nearly all emotional abuse is accompanied by verbal abuse.

Figure 9: Overlap between emotional and other types of abuse at 54 months



Notes: This figure shows the estimated overlap between mothers who experience emotional abuse at 54 months and those who experience physical or verbal abuse at the same date. The bars each show the overlap between emotional abuse and one of the other types of behaviour. Percentages are based on the mother's reports of abuse and are weighted to be informative about the target population of interest, described in the text.

Appendix Figure 2 replicates Figure 9 for mothers of each ethnicity. Although the prevalence of each type of abuse differs by ethnicity, the relationships between the types of abuse are very similar. That is, at 54 months nearly all physical abuse is accompanied by emotional abuse, and nearly all emotional abuse is accompanied by verbal abuse.

5.1.6 How closely do mothers' and partners' reports of within-relationship conflict align?

In the antenatal survey wave, both mothers and their participating partners were asked about the presence of various types of conflict within their relationships. In this section we investigate how closely mothers' and partners' reports of within-relationship conflict align. This analysis is limited to the sample of families with participating partners. Note mothers with participating partners are less likely to report conflict with their partners than are mothers whose partners did not participate. This could result from partners being more likely to participate in GUiNZ if their relationship with the mother is harmonious, or from mothers being more comfortable reporting conflict if their partner is not part of the survey.[45]

[45] In the antenatal and 9-month surveys, surveyors asked the IPV questions of mothers and partners in separate rooms at the same time. In the later survey waves, again the questions were asked of the mother in a separate room from the partner, however, mothers were also asked to complete the questions themselves, had the respondent hand back the

The antenatal questions about conflict within the relationship do not ask which partner is doing the behaviour, but rather only ask whether the behaviour is present in the relationship. This means the mother and partner are both being asked to report on whether either partner has done the behaviours in question (as opposed to the mother being asked about the partner's behaviours and the partner being asked about the mother's behaviours). However, the mother and partner may give different reports on the presence of conflict in their relationship for several reasons. First, victims may be more likely to report conflict than those perpetrating the behaviours. Existing research shows people who use violence on their intimate partners tend to deny their patterns of behaviour because of shame, to avoid disrupting their narrative of being a 'nice' guy, or because admitting to using violence means admitting that they cannot 'handle' their partner (Bancroft, 2002; Bancroft and Silverman, 2002). Conversely, victims who are afraid of their partners may be less likely to report the presence of conflict because they are afraid of the consequences if their partner learns what they said. They may also avoid admitting to being victims of abuse because of shame (Thaggard and Montayre, 2019). Second, prior research has found gender differences in the likelihood of a victim reporting the violence against them. Specifically, men are more likely to report violence against them than are women (Kimmel, 2002). Two key reasons for this have been advanced: women are stereotypically more nurturing, so violence perpetrated by them is more noticeable (both by the partners and the mothers themselves);[46] and violence against women is more normalised, and so is often not registered as something worth reporting.[47] Another reason is that both mothers' and partners' reports rely on human recollection, which relies on recollection and interpretation of events, and is fallible. For instance, they may not remember whether a particular incident occurred more or less than four weeks earlier. Finally, women are likely to minimise and under-report their experiences of IPV, while perpetrators of IPV are known to describe themselves as victims (Chan, 2011).

Figure 10 compares mothers' with partners' antenatal reports regarding three types physical conflict, physical conflict overall, three types of verbal conflict, and verbal conflict overall. We find substantial mismatch in mothers' and partners reports of physical conflict for all types of physical conflict. Notably, for every type of physical conflict only the mother reporting the conflict and only the partner reporting the conflict are each more common than both partners reporting the conflict. The converse is true for all types of verbal abuse, with both mother and partner reporting the conflict in at least half the cases when anyone reported the

questionnaire if anyone entered the room, and were not read the questions aloud to further ensure their safety. Mothers may still have refrained from answering the IPV questions though if they felt it endangered them or due to fear.

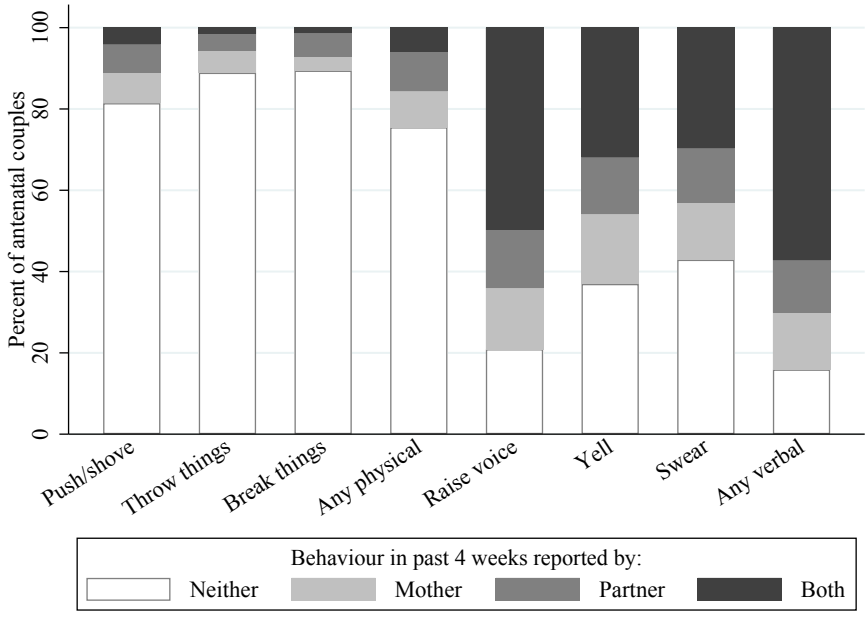
[46] See Kimmel (2002).

[47] On the same basis, we would expect to see a higher prevalence of sexual assault against women, however the GUiNZ survey does not ask about sexual assault.

conflict. One possible reason mothers' and partners' reports align more closely for verbal than for physical conflict is that both victim and perpetrator have less reason to not report verbal conflict, because this type of conflict is more socially acceptable. The victim may feel safer and experience less judgement disclosing an experience of verbal abuse than one of physical abuse, and the perpetrator may feel more open to disclosing verbal abuse because it is generally viewed as 'not as serious' as physical abuse.

Another notable point about Figure 10 is that for most types of conflict the proportion of 'mother only' and 'partner only' reports are quite similar, though in some cases the mother reports slightly more often. The biggest exception is breaking things, which is considerably more commonly reported by partners only than by mothers only.

Figure 10: Similarity between mothers' and partners' reports of conflict antenatally



Notes: This figure shows the estimated overlap between mothers' reports of conflict within their relationships antenatally and their partners' reports of the same conflict. Each bar shows the overlap in reports for a different type of conflict. Percentages are weighted to be informative about the target population of interest, described in the text. The category 'any physical' includes pushing/shoving, throwing things, and breaking things; the category 'any verbal' includes raising the voice, yelling, and swearing.

Appendix Figure 3 replicates Figure 10 separately for mothers of each common ethnic group. Across all ethnicities, we see substantial disagreement between mothers and their partners over whether physical conflict is present. When measured by the percentage of couples who agree conflict is present compared with the percentages where only one partner reports

conflict, the disagreement is greatest for Asian mothers. By this metric, Māori mothers and their partners are in most agreement.

The gender disparity in rates of reported physical violence is also greatest for Asians, with partners substantially more likely than mothers to report each type of physical conflict as well as physical conflict overall. Partners of Māori mothers are also considerably more likely than these mothers to report physical conflict, whereas partners of European and Pasifika mothers are only slightly more likely than these mothers to report physical conflict.

As is the case for the full population, each ethnic group reports substantial agreement over whether verbal conflict is present. This is agreement is again highest for Māori mothers and their partners, though notably here Māori mothers are substantially more likely to report verbal conflict than are their partners, whereas for other ethnicities the rates of reports are more balanced.

5.2 How persistent is intimate partner violence?

In this section we quantify the persistence of IPV experienced by mothers. In pairs of consecutive survey waves, we categorise mothers by whether they are in a relationship, and if so the level of conflict or violence the mother reports in the relationship. We then quantity the percentage of mothers who transition between these different 'IPV states' between consecutive pairs of survey waves. The two periods between survey waves we consider are the year long period between the antenatal and 9-month surveys and the three-and-a-half year long period between the 54-month and 8-year surveys. The first of these two periods has the advantage that it has consistent measures of IPV state available from the pre and post surveys. However, here the data on IPV do not include whether the perpetrator is the mother or her partner and no information on emotional violence is available. The second of the two periods has better measures of IPV, but the IPV questions differ between the pre and post surveys, so the IPV states as measured at the start and end of the period are not entirely comparable.

For both time periods, we do not distinguish whether a mother with partners at both the start and end of the period is in a relationship with the same person at these times or whether she has changed partner during the period in question.[48] Transitions between IPV states are thus informative about the percentage of women in one state (e.g., in a relationship that involves frequent physical conflict) at a particular time who are in another state (e.g., in a relationship

[48] However, as explained in Section 4.4, we have reason to believe nearly all the mothers who are in a relationship both antenatally and at 9 months are in a relationship with the same person at these two times. The regression analysis in the following section does attempt to distinguish continued relationships from new relationships for both studied time periods, but we are unable to do this perfectly.

that does not involve physical conflict) at a later point in time. They do not distinguish how this change occurred (e.g., whether the conflict in the relationship ceased or whether the original relationship ended and a new relationship without conflict formed).

Similarly to in Section 5.1, our objective here in Section 5.2 is to estimate the proportion of mothers in a well-defined target population who move between each IPV state in the time periods under consideration. Our target population is mothers who had a child between April 2009 and March 2010 while living in the Auckland DHB, Waikato DHB, or Counties Manukau DHB, whom we count using 2013 Census data as described in Section 5.1.2. For this analysis, we retain GUiNZ mothers for whom IPV state is known in the survey waves at the start and end of the period of interest. We then weight these observations to match our target population in terms of age, ethnicity, and deprivation index.

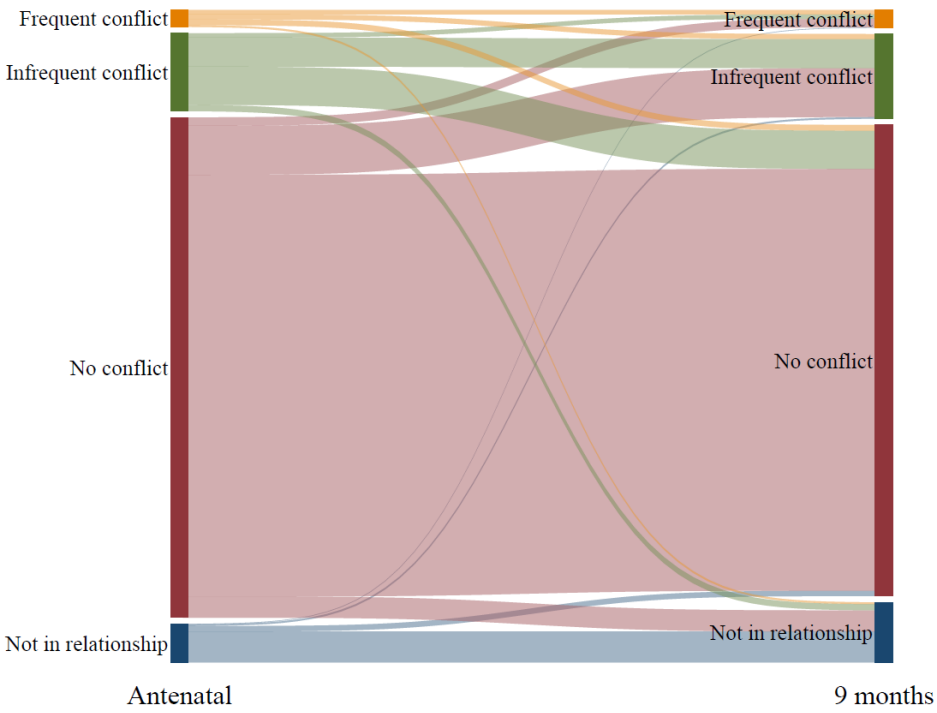
Figure 11 shows transitions between IPV states between the antenatal and 9-month surveys, focussing on physical conflict.[49] The two panels of Figure 12 similarly show transitions between IPV states between the 54-month and 8-year surveys, focussing on emotional abuse (Panel A) and physical abuse (Panel B). Recall the IPV measures at 54 months and 8 years are not fully comparable, so these findings should be interpreted with caution.

The figures show moderate degrees of relationship formation. Among those not in a relationship antenatally, 20% were in a relationship at 9 months. Among those not in a relationship at 54 months, about 35% were in a relationship at 8 years. Some mothers who began a new relationship over the period of interest were experiencing IPV by the end of the period, despite the fact partners who adopt violent behaviours normally begin as loving (Hill, 2019). For the period beginning with the antenatal survey, 22% of new relationships involved infrequent physical conflict by the time the children were 9 months old, and 6% involved frequent physical conflict. These are much higher rates of physical conflict than the average for all relationships at 9 months. Appendix Table 1 shows only 15% of all relationships at 9 months involved infrequent physical conflict and 3% involved frequent physical conflict. The higher rate of physical conflict in new relationships at the 9-month survey may be partially explained by the characteristics of the mothers who were not in relationships antenatally, who had the potential to enter new relationships. These mothers, who constitute 5% of the unweighted GUiNZ sample that reported an antenatal relationship status, are disproportionately likely to be young (their average age is 26.3 compared with 30.2 for partnered mothers) and have low education (only 10.5% have a qualification at level 7 or above, compared with 40.3% of partnered mothers), both characteristics associated with an elevated risk of IPV. New parenthood is also a challenging time

[49] Appendix Table 2 presents the full data behind the figures in this section.

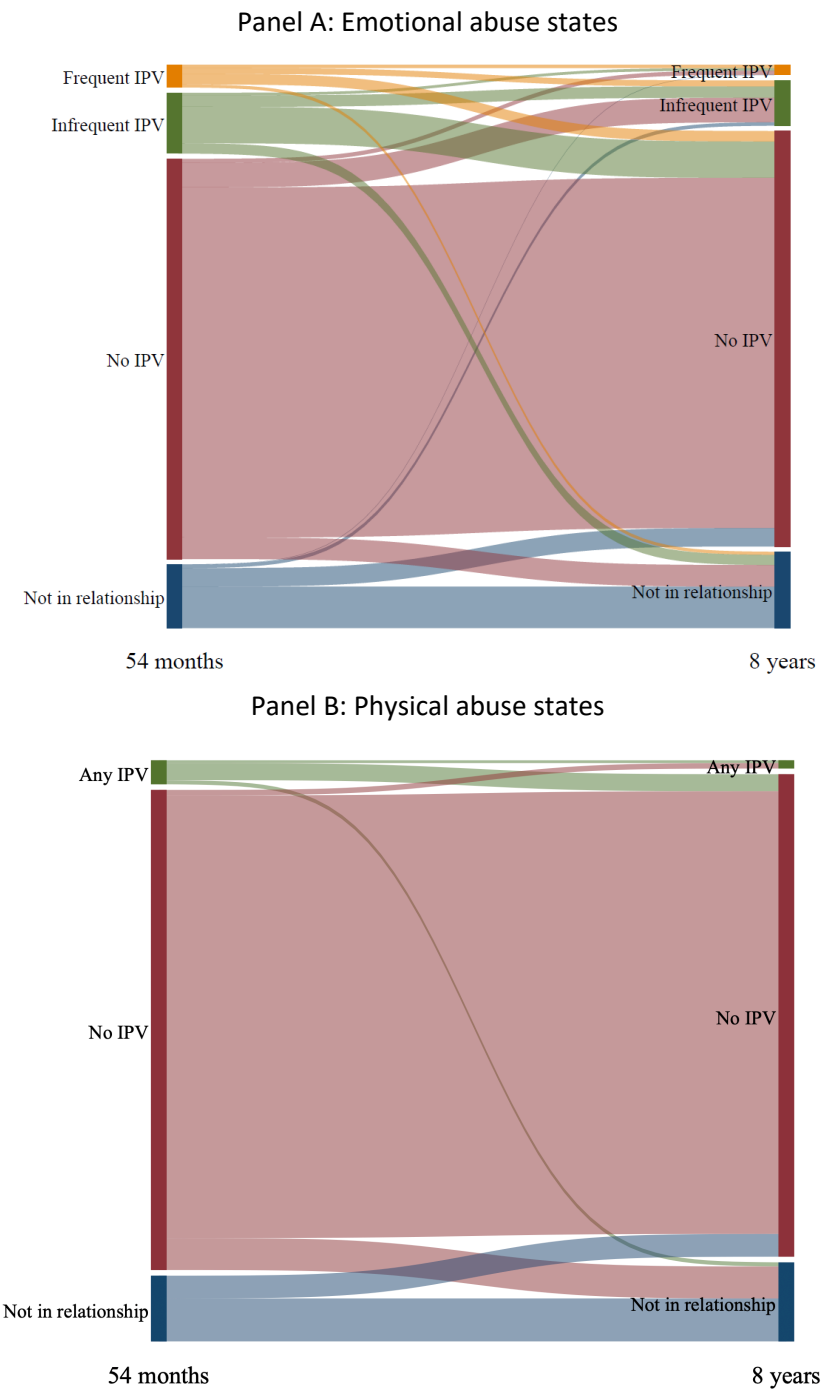
for single mothers, when they are navigating a major life change, may be learning to care for their child, and at the same time may have low or reduced income. Such factors could make them more likely to be predated upon by individuals who use violence. If they begin a new relationship with a partner who is not the biological father of the child, this different family dynamic may also be associated with a higher risk of IPV (Daly and Wilson, 1997).

Figure 11: Transitions between physical conflict states antenatally to 9 months



Notes: This figure shows flows of mothers between IPV states, defined in terms of relationship status and frequency of physical conflict, in the antenatal survey and in the 9-month survey. Line widths are based on mothers' reports of conflict and represent the weighted percentage of mothers in the combinations of states. The weights are calculated to make the population representative of our target population, as described in the text. The numbers behind the figure are given in Appendix Table 2.

Figure 12: Transitions between relationship states 54 months to 8 years



Notes: This figure shows flows of mothers between IPV states, defined in terms of relationship status and frequency of emotional conflict (Panel A) or physical conflict (Panel B), in the 54-month survey and in the 8-year survey. Line widths are based on mothers' reports of conflict and represent the weighted percentage of mothers in the combinations of states. The weights are calculated to make the population representative of our target population, as described in the text. The numbers behind the figure are given in Appendix Table 2. In Panel B, frequent and infrequent abuse are combined due to confidentiality rules. Panel B transitions from 'not in a relationship' to 'any IPV' are represented as 0 for confidentiality reasons, though they are actually positive but very few.

This pattern of new relationships involving above-average levels of conflict or abuse is repeated for physical abuse for relationships that formed between 54 months and 8 years. Three percent of such relationships involve physical abuse at 8 years compared with 2% of relationships in the full population at this time. However, the pattern does not hold true for these relationships in terms of emotional abuse. Sixteen percent of relationships that developed between 54 months and 8 years involved *infrequent* emotional abuse at 8 years, compared with 26% of all relationships at 8 years; 1% of new relationships compared with 8% of all relationships at 8 years involved *frequent* emotional abuse.

The reason for this pattern is unclear. One possibility is that the warning signs for emotional abuse may be clear earlier in a relationship than those for physical abuse, though this seems counterintuitive. Another possibility is that partners who are emotionally but not physically abusive may be easier to leave than those who are emotionally and physically abusive. Alternatively, it could be that the men in the market for a relationship with a woman with a young child have a below-average tendency to be emotionally abusive. Further research is required to understand this pattern.

In each of the periods studied, the rates of partnered mothers becoming single overall were lower than the relationship formation rates of single mothers. In the year between the antenatal and 9-month surveys, 4.9% of partnered mothers became single, and between the 54-month and 8-year surveys 7.2% of partnered mothers became single. In both periods, mothers in relationships that involved conflict or IPV were more likely to become single than mothers in relationships that did not. For instance, 11% of mothers in relationships with frequent physical conflict antenatally were single at 9 months, compared with only 4% of mothers in relationships without physical conflict. Between 54 months and 8 years, 17% of mothers in relationships that involved physical abuse of any frequency became single, compared with 7% of mothers in relationships that did not involve physical abuse. Mothers in relationships with emotional abuse were also more likely to become single over the latter period than mothers in relationships without: among mothers in relationships with frequent or infrequent emotional abuse, 13% and 17% became single respectively, compared with only 5% of mothers in relationships without emotional abuse. It is notable that mothers in relationships with frequent emotional abuse became single less often than mothers in relationships with infrequent emotional abuse. This could be because constant emotional abuse makes leaving more difficult, but the difference is not large and should not be over-interpreted.

Among mothers in relationships at both the start and end of the period under consideration, we see moderate persistence of levels of conflict or abuse for both time periods

and all measures of abuse. However, a high proportion of mothers experience a change in level of abuse. For instance, just over a quarter of mother reporting frequent physical conflict antenatally also reported frequent physical conflict at 9 months, and over a third reported no physical conflict. Very few of these mothers are believed to have changed partners over the period in question. Emotional abuse between 54 months and 8 years is somewhat less persistent: only 15% of mothers reporting frequent emotional abuse at 54 months also reported frequent emotional abuse at 8 years, and 46% reported no emotional abuse. However, based on the number of women who report moving house between 6 and 8 years due to the start or end of a relationship, a higher proportion of mothers were likely to be in relationships with different partners at the start and end of this period.

Abuse also developed for some mothers who previously did not experience abuse. Eleven percent of mothers in relationships without physical conflict antenatally reported physical conflict at 9 months. In the period 54 months to 8 years, 7% of mothers in relationships without emotional abuse reported emotional abuse at the end of the period, and 1% of mothers in relationships without physical abuse reported it at the end of the period. The lower rate of abuse developing between the later pair of survey waves is consistent with abuse tending to develop early in a relationship, and relationships in these later surveys being more mature on average.[50]

One possible contributing factor to the movement between different abuse and conflict levels is that conflict and abuse are measured over only a four-week period. Thus a relationship could have a steady level of abuse over the long run, but be measured as having a changing level of abuse purely because of how the timing of the survey waves coincided with incidents of conflict. Changes in the IPV questions between the 54-month and 8-year survey waves could also contribute. However, previous literature provides ample evidence that partners who initially seem loving and caring can develop abusive behaviours (Hill, 2019). Furthermore, despite the commonly held belief that, once started within a relationship, IPV continues for the duration of the relationship, prior research shows it is common for partners to use violence to cease doing so (Feld and Strauss, 1989, Quigley and Leonard, 1996, Woffordt, 1994). Our finding that a considerable proportion of mothers reported less conflict or abuse at the end of the period than at the start is consistent with this prior literature. Alternatively, in the 54-month to 8-year period, some mothers who reported a decrease in or cessation of abuse may have changed partners. Furthermore, some partners who used violence may have gained such control over

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their partners that they no longer needed to directly use abuse, rather relying on the threat of abuse to get what they wanted (Stark and Hester, 2019).

5.3 What factors are differently associated with a relationship that involves conflict or IPV ending?

In this section we conduct regression analysis that examines the factors associated with a relationship that is present in one survey wave ending before the following survey wave, and how these factors differ for relationships where conflict or abuse is present. We use this to infer the conditions under which a mother in a relationship with a partner who uses violence faces higher or lower barriers to leaving her partner. As previously, we examine relationships ending in two inter-survey periods, antenatal to 9 months and 54 months to 8 years. For the antenatal to 9-month period we focus on physical conflict as our measure of IPV; for the 54-month to 8-year period we focus on emotional abuse.

Section 5.3.1 describes our methodology. Section 5.3.2 presents the results of regressions that investigate the factors associated with any relationship ending over the time periods in question, and Section 5.3.3 presents the results of regressions that examine the factors that are associated differently with the ending of relationships that involve conflict or abuse.

5.3.1 Methodology

We first run a series of probit regressions that explore the characteristics that are associated with an existing relationship ending. These take the form

$$Prob(y_i = 1|x_i) = \Phi(\beta_0 + x_i^T \beta_1) \quad (1)$$

where y_i is a dummy variable that takes the value 1 if the relationship of mother i broke up during the period in question and 0 otherwise, $\Phi(.)$ is the cumulative standard normal distribution function, β_0 and β_1 are coefficients, and x_i is a vector of characteristics of the mother, her partner, and her relationship.[51,52] The vector x_i includes a measure of the IPV reported by the mother at the start of the period on a scale of 0 (abuse never occurs) to 2 (abuse frequently occurs) and various other controls in the different specifications.

[51] As explained in Section 4.4, we are unable to perfectly measure whether a relationship breaks up. Our dependent variables are the best measures of this that can be constructed from the available data.

[52] We choose to use probit regressions, rather than more straightforwardly interpretable ordinary least squares (OLS) regressions, because the probability the dependent variable takes the value 1 is low, 4.9% for the period beginning with the antenatal survey and 7.2% for the period beginning with the 54-month survey. This low proportion of 1s means OLS and probit regressions yield somewhat different results. Following Solon et al., (2010), we do not weight observations. The correlations we find are thus informative about the average mother included in the regression sample.

These regressions show the average association between characteristics of couples and their relationships, including any abuse reported, and the probability the relationship ends. For instance, we expect married couples to be less likely to have their relationship end than unmarried couples. Victims of IPV in types of relationships that have a low probability of ending are more likely to remain with their partners in the long term than are victims in types of relationships that have a high probability of ending. Victims in the former types of relationships may thus require more targeted interventions to enable them to leave their partners.

We run a range of this type of regression for the antenatal to 9-month period and the 54-month to 8-year period. In each case, we progressively add controls that capture the mother's demographics, the household's socioeconomic status, the seriousness of the relationship, the impact of the pregnancy on the relationship, and the mother's potential financial independence, to the extent these are available for the relevant period. All the controls are predetermined, in that they are taken from either the antenatal survey or the survey at the start of the period of interest. For the antenatal to 9-month period, looking at the reduced sample where we also have partner information, we also include controls for partner characteristics.

Because the focus of these regressions is on whether an existing relationship ends, in each case we limit the sample to mothers who were in a relationship at the start of the period. We also require the mother's relationship status to be known at the end of the period and for her IPV report at the start of the period to be non-missing. The samples for the regressions in the two periods are summarized in columns 4 and 6 of Table 1. We do not drop observations with missing covariates other than IPV level. Rather, we include dummy variables that capture these missing data.[53]

A potential concern in these regressions is selective attrition. In particular, if the probability of dropping out of the survey between the start of the period of interest and the end is correlated with the relationship ending over that time, a regression that ignores this selective attrition could be biased. Because changes in relationship status are often accompanied by a change of address, which makes dropping out of the GUiNZ sample more likely, such a correlation is plausible. For those in a relationship involving IPV, leaving might involve taking steps to hide from their partner, which can also make future contact between the researchers and a mother harder. On the other hand, the difficulty of living with abuse from one's partner could also make a mother more likely to drop out of GUiNZ. The data do show modest rates of

[53] As discussed above the percentage of missing data is below 5% in every case but one, and nearly always below 1%, so this choice is unlikely to meaningfully affect our results. The exception is mother's personal income, which is missing for 17.6% of observations. A mother's relationship to her traditional culture is missing for 40.8% of observations, but these are not genuine missings because the question is not relevant for most of these mothers.

dropping out of GUiNZ over each of the periods of interest, and these rates are higher for mothers who reported conflict or IPV. Table 1 shows 5,817 mothers in relationships at the antenatal survey, 5,440 of whom are present in the 9-month survey. This represents a 6.5% loss. The table also shows the 54-month survey includes 4,624 mothers in relationships, 3,809 of whom are still present in the 8-year survey. This is a 17.6% loss.[54] For both sample periods, we experimented with using a Heckman sample selection model that corrects for non-random attrition, and were unable to reject the null that attrition is random conditional on the included covariates. Furthermore, the coefficients of interest were similar regardless of whether we corrected for non-random attrition. For simplicity, we thus run regular probit regressions without the correction.

Having examined the characteristics associated with any relationship ending in Section 5.3.2, in Section 5.3.3 we then run further regressions that examine how the association between IPV and a relationship ending varies with characteristics of the couple and their relationship. Specifically, we run versions of equation (1) that include an interaction between level of IPV and one other covariate at a time, while continuing to control for the other variables that are associated with a relationship ending. These regressions show the characteristics that are associated with the end of a relationship being more sensitive to the presence of abuse.

The rationale for this approach is as follows. IPV reduces wellbeing for mothers and their children. For a mother to become safe, it may be necessary for her relationship to end. However, where IPV exists, leaving the relationship may be more difficult for a range of reasons, such as control by the partner. Compared with where a mother is not experiencing IPV, we expect where a mother is experiencing IPV her relationship may be more likely to end because she is trying to achieve safety. However, if there are also higher barriers to ending the relationship the relationship may be no more likely to end than it would be if IPV were absent.

We refer to the probability a relationship ends if IPV is present minus the probability it ends if IPV is not present as the 'marginal effect of IPV on a relationship ending'.[55] If, for a specific subpopulation (e.g., women with low qualifications), the marginal effect of IPV on a relationship ending is close to zero, we infer victims in this subpopulation may face higher barriers to ending the relationship. Conversely, if for a different subpopulation the marginal effect of IPV on a relationship ending is positive and much larger, we infer these victims face

[54] Attrition between the 54-month survey and 8-year survey is the biggest concern for estimating the associations of interest, but there is also non-trivial attrition between the antenatal survey and 54-month survey. Of the 6,822 total mothers in the antenatal survey, 6,072 participated in the 54-month survey (including those with and without partners at that time). This represents an 11.0% loss. Regressions are informative about the correlates of a relationship ending for the mothers in the regression sample.

[55] Note 'marginal effect' is intended in a statistical sense, and does not necessarily imply causality.

fewer barriers to ending the relationship. That is, we compare the marginal effect of IPV on a relationship ending for different subpopulations, and infer those with smaller marginal effects face higher barriers to leaving a partner who uses violence.

Our variables that capture IPV run from 0 (no IPV) to 2 (frequent IPV), so the increase in probability a relationship ends if frequent IPV is present as opposed to no IPV is twice the marginal effects we present in the figures. For example, a figure that shows a marginal effect of 0.02 for mothers with a certain characteristic indicates the probability those mothers have their relationship end is estimated to be 2 percentage points higher if they report infrequent IPV than if they report no IPV, or 4 percentage points higher if they report *frequent* IPV than if they report no IPV. For perspective, these percentage point differences should be compared with the average probability a relationship ends over each period in question, 4.9 percent for the antenatal to 9-month period and 7.6 percent for the 54-month to 8-year period.

5.3.2 What factors are associated with any relationship ending?

Table 2 presents the results of probit regression analysis that explores the factors that are associated with a relationship ending between the antenatal and 9-month surveys.[56,57] Because these are probit regressions, the magnitudes of the coefficients are not directly interpretable. However, positive coefficients imply a higher probability of the relationship ending, and negative coefficients imply a lower probability. Aside from physical conflict, column 1 includes only basic demographics of the mother. It shows relationships with physical conflict are more likely to end than those without, and this finding is statistically significant. The mother's age is also associated with relationship breakup. Modelling the variable as a piecewise linear function around the age of 30, [58] we find as age increases for mothers under the age of 30, mothers are statistically significantly less likely to break up. For mothers over age 30, age is not significantly associated with relationship breakup. The regression also shows substantial ethnic differences in the probability a relationship ends. Compared with European mothers and those who consider themselves New Zealanders, Māori and Pasifika mothers are both substantially and significantly more likely to have their relationships end. Asian mothers are less likely than European/NZer mothers to have their relationship end, but this difference is not statistically significant. Finally,

[56] We control for physical conflict only, not verbal conflict. The two are highly correlated, though verbal conflict is much more common. Including both leaves us with insufficient statistical power.
[57] For each set of indicator variables we give the omitted category, also referred to as the reference category.
[58] We choose this functional form based on correlations observed in the raw data. By a 'piecewise linear function around the age of 30', we mean we control linearly for age for mothers below the age of 30 and control linearly for age for mothers above the age of 30, but allow the coefficients on age for the two age ranges to differ. We do not allow a discrete jump at age 30 in the probability a relationship ends (and implement this by subtracting 30 from both age control variables). The regression table reports the coefficients on age minus 30 for these two different age ranges.

we find that the probability of a relationship ending tends to decrease as the mother's education increases.

Column 2 retains the column 1 controls and adds variables that capture household financial situation. We find couples living in areas with higher deprivation are significantly more likely to break up, as are couples with antenatal annual household income under $50,000 compared with higher income households. The household financial situation variables explain little of the correlations between relationship breakup and physical conflict, age, and qualifications, indicated by the coefficients on each decreasing only somewhat in magnitude and remaining statistically significant. However, these variables explain a larger portion of the correlation between ethnicity and relationship breakup. Around half the difference in relationship breakup between Māori mothers and European/NZer mothers is explained by household finances, and the whole difference between Pasifika mothers and European/NZer mothers. However, controlling for household finances increases the extent to which Asian mothers are less likely than European/NZer mothers to have their relationships end, conditional on the other characteristics controlled for, and this ethnic difference becomes statistically significant.

Column 3 retains the column 2 controls and adds variables that capture aspects of how committed the relationship is antenatally, namely whether the couple live together, if they are married, and if they cohabit then how long they have lived together.[59] As we might expect, relationships between cohabiting couples, couples who have lived together for longer, and married couples are less likely to end. Adding these controls reduces ethnic differences in the probability of a relationship ending. Notably, now European/NZer mothers, Māori mothers, and Pasifika mothers are all similarly likely to have their relationships end. Asian mothers are still less likely to have their relationships end, but the difference is no longer statistically significant. The coefficient on physical conflict is no longer statistically significant in column 3, though it remains positive.

[59] We cap length of cohabitation at 10 years because raw correlations show additional years of cohabitation over 10 are unrelated to breakup risk.

Table 2: What factors are associated with any relationship ending between the antenatal survey and 9 months?

Dependent variable: Mother not in relationship with antenatal partner at 9 months	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Physical conflict (0-2)	0.137**	0.120*	0.089	0.088	0.078	0.075	0.205**
	(0.065)	(0.065)	(0.069)	(0.069)	(0.070)	(0.068)	(0.101)
Mother's age minus 30 * Mother aged under 30	-0.085***	-0.073***	-0.026**	-0.024*	-0.023*	-0.024**	-0.015
	(0.010)	(0.011)	(0.012)	(0.012)	(0.012)	(0.012)	(0.018)
Mother's age minus 30 * Mother aged over 30	0.010	0.013	0.014	0.013	0.013	0.013	0.018
	(0.014)	(0.015)	(0.016)	(0.016)	(0.016)	(0.016)	(0.023)
Mother's self-prioritised ethnicity (omitted: European/NZer)							
Maori	0.270***	0.148	0.007	0.000	-0.032		
	(0.091)	(0.095)	(0.102)	(0.102)	(0.104)		
Pasifika	0.184**	-0.008	-0.041	-0.049	-0.070		
	(0.094)	(0.103)	(0.112)	(0.112)	(0.113)		
Asian	-0.202	-0.355***	-0.102	-0.108	-0.110		
	(0.125)	(0.130)	(0.144)	(0.145)	(0.146)		
Other or missing	0.048	-0.132	0.144	0.144	0.117		
	(0.237)	(0.247)	(0.245)	(0.245)	(0.247)		
Mother's highest qualification antenatally (omitted: no qualifications)							
Level 1-4	-0.340***	-0.263**	-0.165	-0.166	-0.128		
	(0.116)	(0.117)	(0.124)	(0.124)	(0.126)		
Level 5-6	-0.117	-0.030	-0.019	-0.016	0.014		
	(0.112)	(0.114)	(0.121)	(0.121)	(0.122)		
Level 7	-0.533***	-0.366**	-0.276*	-0.268*	-0.203		
	(0.144)	(0.149)	(0.160)	(0.160)	(0.166)		
Level 8+	-0.603***	-0.424**	-0.361*	-0.354*	-0.282		
	(0.169)	(0.176)	(0.189)	(0.190)	(0.197)		
Deprivation index of mother antenatally		0.040***	0.041***	0.039**	0.040**	0.040***	0.051**
		(0.014)	(0.015)	(0.016)	(0.016)	(0.014)	(0.021)
Household income antenatally (omitted: >=$100k)							
<=$50k		0.394***	0.343***	0.339***	0.273*	0.285**	0.286
		(0.116)	(0.124)	(0.124)	(0.142)	(0.125)	(0.187)
$50k-$100k		0.098	0.144	0.141	0.129	0.138	0.143
		(0.108)	(0.116)	(0.117)	(0.128)	(0.115)	(0.164)
Mother lives with partner antenatally			-0.778***	-0.787***	-0.793***	-0.799***	-0.278
			(0.113)	(0.119)	(0.114)	(0.112)	(0.219)
Partner and mother are married			-0.543***	-0.529***	-0.547***	-0.611***	-0.588***
			(0.096)	(0.097)	(0.097)	(0.088)	(0.131)
Mother's years of cohabitation (capped at 10)			-0.058***	-0.056***	-0.058***	-0.057***	-0.050**
			(0.016)	(0.017)	(0.016)	(0.016)	(0.023)
Pregnancy was planned				-0.067			
				(0.057)			
Relationship more serious since pregnancy				0.054			
				(0.120)			
Mother's antenatal work status (omitted: employed)							
Unemployed					0.227*	0.229*	0.248
					(0.134)	(0.125)	(0.200)
Student					0.162	0.212	0.353*
					(0.162)	(0.136)	(0.182)
Not in the labour force					0.323***	0.326***	0.341**
					(0.102)	(0.089)	(0.134)
Mother's antenatal personal income ($00,000s)					0.205		
					(0.217)		
Mother was manager/professional antenatally					-0.107		
					(0.136)		
Partner's migrant status (omitted: NZ born)							
Migrated to NZ as a child							0.327**
							(0.152)
Migrated to NZ as an adult							-0.278*
							(0.164)
Observations	5,446	5,444	5,435	5,433	5,435	5,435	3,940

Notes: This table presents the results of probit regressions of a relationship ending between the antenatal and 9-month waves. Coefficients and standard errors are presented. The dependent variable is an indicator for the relationship has ended by 9-month survey. The sample is mothers in a relationship antenatally whose relationship status at 9 months is known. Asterisks indicate: * p<0.10, ** p<0.05, *** p<0.01.

Column 4 adds two variables to the regressions. The first is whether the pregnancy was planned and the second is whether the relationship became more serious since the pregnancy. Planning to have a child together is a sign of commitment to a relationship, so we might expect a planned pregnancy to be associated with a lower probability of the relationship ending. The coefficient on this variable is negative, the expected sign, but statistically insignificant. A relationship can sometimes become more committed after pregnancy occurs because the couple feel the best thing for the child is for them to have a more committed relationship, even though they may not have been ready to take this step in the absence of pregnancy. We thus might expect a relationship that became more committed after pregnancy to be more likely to end than one that did not. Again the coefficient is the expected sign, but is not statistically significant.

Column 5 drops the two controls added in column 4 that were not significant, and adds variables that capture the mother's ability to be financially independent, namely her antenatal work status, personal income, and whether she worked antenatally as a manager or professional. Personal income and being a manager or professional are not significantly related to breakup, but mothers who were not in the labour force are significantly more likely to have their relationships end than are employed mothers, with unemployed and student mothers falling between the two. Adding the new controls eliminates the statistical significance of mother's education, which is correlated with work status.

Column 6 retains physical conflict and the significant controls from column 5, namely mother's age, deprivation index, household income, whether the couple live together, whether they are married, the length of cohabitation, and the mother's antenatal work status. These are the controls included in the regressions in Section 5.3.3 that interact physical conflict with various individual and relationship characteristics for the full population of mothers observed antenatally to 9 months.

Finally, column 7 adds to the column 6 controls the only partner characteristic that we found to be significantly associated with a relationship ending, the migrant status of the partner. The results show mothers with partners who migrated to New Zealand as children are more likely to have their relationships end than are mothers with NZ-born partners, but mothers with to partners who migrated to NZ as adults are less likely to have their relationships end. The regression sample here is smaller, because it is restricted to couples where the antenatal partner also participated in GUiNZ. The column 7 controls are the ones we use in Section 5.3.2 in the regressions that interact partner characteristics with physical conflict to predict relationships ending.

Table 3: What factors are associated with any relationship ending between 54 months and 8 years?

Dependent variable: Mother not in relationship with 54-month partner at 8 yrs	(1)	(2)	(3)	(4)	(5)	(6)
Partner emotionally abuses mother (0-2)	0.278***	0.284***	0.312***	0.313***	0.314***	0.318***
	(0.050)	(0.051)	(0.052)	(0.052)	(0.051)	(0.052)
Mother's age at 54 months	-0.290***	-0.258***	-0.234***	-0.248***	-0.281***	-0.252***
	(0.051)	(0.052)	(0.053)	(0.054)	(0.052)	(0.053)
Mother's age at 54 months squared (/100)	0.408***	0.370***	0.341***	0.360***	0.402***	0.363***
	(0.073)	(0.074)	(0.075)	(0.076)	(0.074)	(0.075)
Mother's self-prioritised ethnicity (omitted: European/NZer)						
Maori	0.076	0.005	0.027	0.035		
	(0.099)	(0.103)	(0.104)	(0.105)		
Pasifika	0.100	-0.041	0.009	0.051		
	(0.107)	(0.117)	(0.119)	(0.120)		
Asian	-0.116	-0.172	-0.155	-0.145		
	(0.109)	(0.112)	(0.114)	(0.115)		
Other or missing	-0.118	-0.187	-0.105	-0.131		
	(0.261)	(0.262)	(0.261)	(0.263)		
Mother's highest qualification antenatally (omitted: no qualifications)						
Level 1-4	-0.390***	-0.335**	-0.306**	-0.337**		-0.346**
	(0.145)	(0.146)	(0.150)	(0.151)		(0.150)
Level 5-6	-0.260*	-0.216	-0.199	-0.227		-0.246*
	(0.142)	(0.143)	(0.146)	(0.148)		(0.146)
Level 7	-0.521***	-0.427***	-0.396**	-0.459***		-0.506***
	(0.151)	(0.154)	(0.158)	(0.160)		(0.157)
Level 8+	-0.677***	-0.547***	-0.515***	-0.583***		-0.635***
	(0.163)	(0.167)	(0.170)	(0.174)		(0.171)
Deprivation Index of mother at 54 months		0.019	0.017	0.018	0.026**	
		(0.013)	(0.013)	(0.013)	(0.012)	
Household income at 54 months (omitted: >=$100k)						
<=$50k		0.428***	0.292***	0.363***	0.404***	0.376***
		(0.103)	(0.107)	(0.111)	(0.108)	(0.107)
$50k-$100k		0.057	0.057	0.097	0.113	0.107
		(0.078)	(0.078)	(0.080)	(0.078)	(0.078)
Mother lives with partner at 54 months			-0.895***	-0.885***	-0.880***	-0.899***
			(0.166)	(0.167)	(0.166)	(0.167)
Mother's partner is same at 54 months as at 2 yrs			-0.378**	-0.387**	-0.377**	-0.395**
			(0.165)	(0.166)	(0.164)	(0.166)
Mother is employed at 54 months				0.105	0.164**	
				(0.090)	(0.075)	
Mother is a manager or professional at 54 months				0.136		0.183**
				(0.085)		(0.071)
Observations	3,815	3,815	3,815	3,780	3,818	3,780

Notes: This table presents the results of probit regressions of a relationship ending between the 54-month and 8-year waves. Coefficients and standard errors are presented. The dependent variable is an indicator for the relationship has ended by the 8-year survey. The sample is mothers in a relationship at 54 months whose relationship status at 8 years is known. Asterisks indicate: * p<0.10, ** p<0.05, *** p<0.01.

Having looked in Table 2 at the factors associated with any relationship ending between the antenatal and 9-month waves, in Table 3 we look at the factors associated with any relationship ending between the 54-month and 8-year waves. As Figure 9 showed, nearly all mothers who report physical abuse at 54 months also report emotional abuse, and nearly all who report emotional abuse also report verbal abuse. Of the three abuse measures, we control in Table 3 for emotional abuse only, which captures many serious but non-physical forms of abuse, but is not overly broad.[60]

The regression in column 1 controls for emotional abuse and basic demographics. We find mothers who report being emotionally abused are substantially and significantly more likely to have their relationships end by the 8-year wave. Age is strongly associated with a relationship ending, with the probability of it ending higher among younger and older mothers, and reaching the lowest likelihood of the relationship ending at about 35.5 years old. Ethnicity is not significantly correlated with a relationship ending, but again more educated mothers are less likely to have their relationship end.

Column 2 adds variables that capture household finances to the basic demographics model. In contrast to the antenatal to 9-month regression, here deprivation index is insignificantly (though still positively) associated with a relationship ending. Again, couples whose household income is below $50k are significantly more likely to break up than are higher-income couples. The household variables weaken the correlations between a relationship ending and age and a relationship ending and mother's education, but both remain large and significant. The coefficient on emotional abuse also remains large and significant.

Column 3 adds variables that capture the level of commitment in the relationship at 54 months. These differ from the variables in Table 2 because of data availability. Specifically, we control for whether the couple live together and whether the mother has the same partner as she did at the time of the 2-year survey wave. Consistently with Table 2, both cohabiting and a longer relationship are associated with a lower probability of the relationship ending.

Column 4 adds variables that capture the mother's potential to be financially independent, namely whether the mother is employed at 54 months and whether she is currently working as a manager or professional. We find both are positively associated with the relationship ending, but neither correlation is significant. Our interpretation is that higher income is associated with a higher probability of the relationship ending, where having a job indicates higher income than not having a job, and having a managerial or professional job indicates a higher income than

[60] Because of the correlation between the different measures of abuse, controlling for multiple measures would not leave sufficient statistical power to find associations that were present.

having any other type of job. However, we lack the statistical power to see both these results in one regression. However, if we include either one of these two variables alone it is statistically significant (results not presented). This is consistent with some mothers who are not happy with their partners staying in their relationships largely for financial reasons, though alternative explanations for the correlation are also possible.

Column 5 approximately replicates our preferred specification from Table 2, column 6, for the 54-month to 8-year period. With the exceptions of age and mother's work situation, the stories are similar to in Table 2. Abuse is still associated (now significantly) with a higher probability of the relationship ending. A higher deprivation index is significantly associated with a higher probability of the relationship ending. Household income below $50k is associated with a higher probability of the relationship ending. Cohabitation and a longer relationship (overall or in terms of cohabitation) are associated with a lower probability of the relationship ending. However, the probability a relationship ends falls and then increases again with age, whereas in Table 2 it fell and then levelled out. In Table 2 employed mothers were less likely to have their relationships end, whereas here employed mothers are more likely to have their relationships end. The reasons for this last difference are not immediately clear. One possibility is that the opposite coefficients are driven by different partners making the breakup decision. Recall we are unable to tell which partner drives the decision to break up. It may be that relationships tends to end between the antenatal survey and 9-month survey if the partner opts out of coparenting the child with the mother, which may be easier to do if the mother is not employed and takes on the bulk of childcare responsibilities. In contrast, between the 54-month and 8-year surveys, it could be that breakup is more commonly initiated by the mother, and she is more likely to do so if she can manage financially on her own.

Finally, column 6 of Table 3 keeps only the controls that have statistical significance in column 4, plus the indicator for the mother being a manager or professional, which becomes significant here. This is our preferred specification, and these controls are retained in the regressions for the same period in Section 5.3.2 that interact abuse with various characteristics.

5.3.3 What factors are differently associated with a relationship ending if the partner uses violence?

In this section we explore the couple and relationship characteristics that are associated with IPV more or less strongly predicting a relationship ending. As in the previous section, we study relationships ending between the antenatal and 9-month surveys and also between the 54-month and 8-year surveys. Appendix Tables 3 to 12 present the results of a series of probit regressions of a relationship ending that control for characteristics of the mother and

relationship, the reported level of IPV, and the interaction between IPV and one characteristic at a time. In each regression, our main interest is the coefficient on the interaction term, which tells us how the sensitivity of breakup to IPV, which we refer to as the marginal effect of IPV on a relationship ending, varies with the interacted characteristic.[61] Because coefficients in probit regressions are not directly interpretable and the inclusion of interaction terms complicates interpretation, where the interaction term is statistically significant or otherwise interesting, we also present a graph that shows how the marginal effect of conflict or IPV on a relationship ending varies with the characteristic. We use these results to infer how barriers to leaving a partner who uses violence vary with the interacted characteristic, as described in Section 5.3.1.

We discuss these regression results in thematic groups. Because of the large number of regressions, our primary focus is on the statistically significant results; we describe in more detail all the variables analysed and the insignificant results in Appendix C.[62]

Demographics

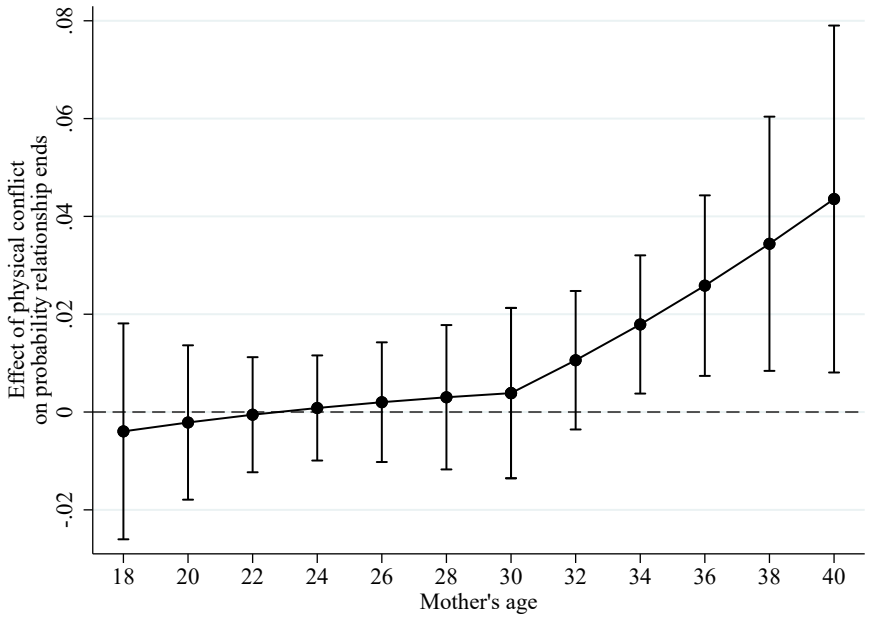
In this section we investigate the how the marginal effect of conflict or IPV on relationship breakup varies with the basic demographic characteristics of the mother, namely age, ethnicity, and highest level of education, and measures of the household socioeconomic status, namely deprivation index and annual income. These regression results are presented in Appendix Table 5 for the antenatal to 9-month period, and in Appendix Table 6 for the 54-month to 8-year period.

For the antenatal to 9-month period, we model mother's age as piecewise linear around age 30, as suggested by correlations in the raw data. The coefficients on age show that in relationships where IPV is not present, the probability of the relationship ending decreases with age before flattening out at age 30.

[61] Note we use the term 'marginal effect' throughout for simplicity, though we do not claim the relationships are necessarily causal. The term is intended in a statistical sense only.

[62] Following the convention in economics, we consider p-values below 0.10 to indicate weak significance, p-values below 0.05 to indicate significance, And p-values below 0.01 to indicate strong significance.

Figure 13: Heterogeneity by mother's age in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months



Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers of different ages. Results are derived from an interaction regression, described above, that also controls for the personal and relationship characteristics shown in column 6 of Table 2. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient.

Figure 13 shows how the marginal effect of physical conflict on a relationship ending varies with the mother's age. Here and in subsequent figures, physical conflict is measured on a scale of 0 to 2, so the expected increase in probability a relationship ends if physical conflict occurs frequently as opposed to never is twice the marginal effect plotted here. The figure shows for mothers under about 32 years old, relationships that involve physical conflict are not significantly more likely to end than are similar relationships that do not involve physical conflict. However, mothers over 32 years old are more likely to have their relationships end if physical conflict is present than if it is not, and the difference in the probability of a relationship ending is larger for older mothers. Over the age of 30, the marginal effect of physical conflict on a relationship ending increases weakly significantly with age. We estimate that mothers aged 40 are more than 8 percentage points more likely to have their relationship end if their relationship involves frequent physical conflict than if it never involves physical conflict.

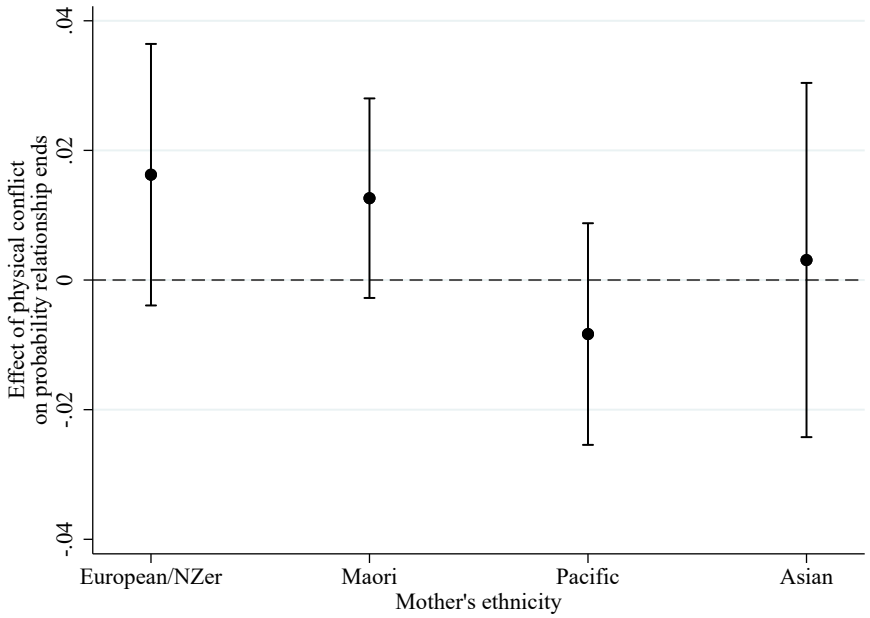
These findings are consistent with younger mothers being less able than older mothers to leave a relationship with a partner who uses violence. Several possible mechanisms could explain this difference. For instance, younger mothers with less life experience may have less of a tendency to frame their partner's behaviour as abusive, or they may have fewer economic

resources and lower earning potential, thus would find it more difficult to manage financially without their partner. Additionally, research has shown that many younger women do not identify with family violence messaging because they do not view their partners as family. This means information about how to recognise abusive behaviour and seek help may not reach them (Backbone Collective, 2020; Malihi et al. 2021; Towns, 2014). Furthermore, younger women report experiencing prejudice and judgement from support agencies, thus may be more fearful of losing custody of their children if they seek help (Bancroft, 2012; Clements et al., 2021).

For the 54-month to 8-year period, we find no significant relationship between age and the marginal effect of IPV on a relationship ending.

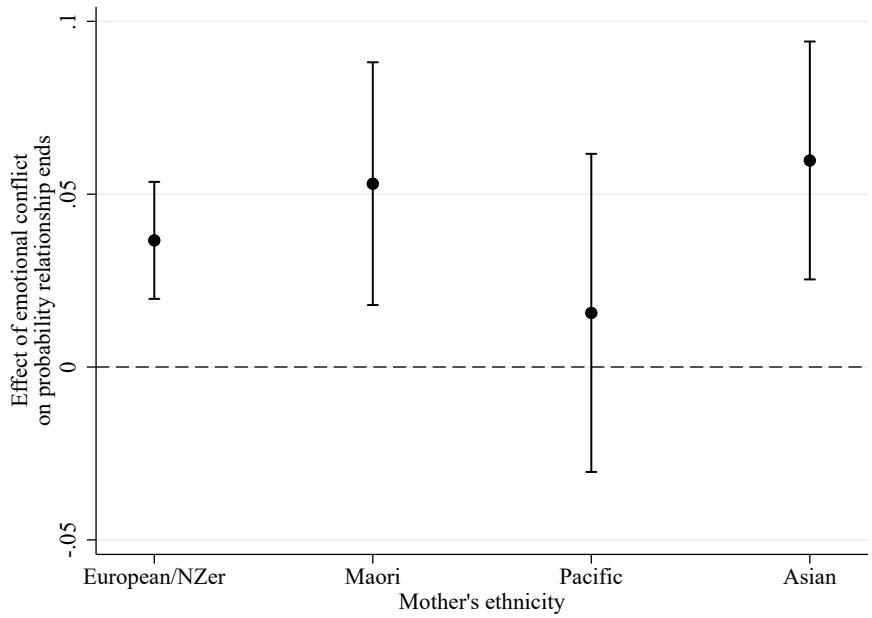
We next consider mother's ethnicity. For the antenatal to 9-month period, we find no significant ethnic differences in the probability a relationship ends among couples without physical conflict. Figure 14 presents the results on how the marginal effect of physical conflict on a relationship ending varies with mother's ethnicity. Although the ethnic differences are not statistically significant at conventional levels, the point estimates suggest physical conflict is more associated with a relationship ending for some ethnicities than others. The relationship exit of both Māori and European mothers appears more sensitive to physical conflict than that of Pasifika and Asian mothers, with both Māori and European mothers around 3 percentage points more likely to have a relationship end if it involves frequent physical conflict than if it involves no physical conflict. Pasifika mothers are the only ethnicity to be less likely to have a relationship end if it has physical conflict than if it does not, though the difference is not statistically significantly different from zero. Figure 15, based on regression (2) in Appendix Table 6, similarly shows the marginal effect of emotional IPV on a relationship ending between 54 months and 8 years is (insignificantly) smaller for Pasifika than for Europeans and Māori, though here it is largest for Asian mothers.

Figure 14: Heterogeneity by mother's ethnicity in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months



Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers of different ethnicities. Results are derived from an interaction regression, described above, that also controls for the personal and relationship characteristics shown in column 6 of Table 2. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient.

Figure 15: Heterogeneity by mother's ethnicity in the effect of emotional abuse on the probability a relationship ends, 54 months to 8 years



Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of emotional abuse on the probability a relationship ends for mothers of different ethnicities. Results are derived from an

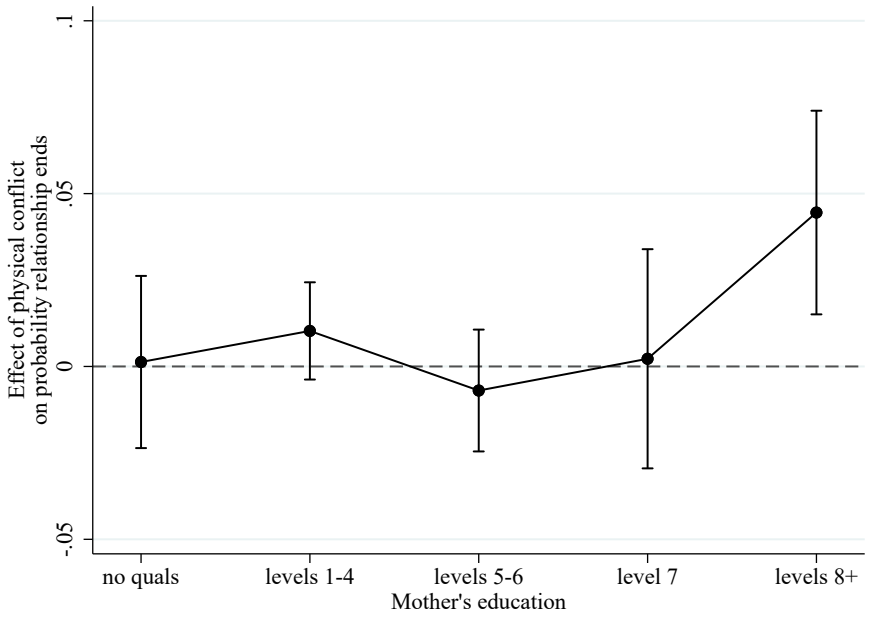
interaction regression, described above, that also controls for the personal and relationship characteristics shown in column 6 of Table 3. Emotional abuse is measured on a scale of 0 to 2, so the marginal effect of going from no abuse to frequent abuse is twice the plotted coefficient.

Ethnic differences in the marginal effect of physical conflict on a relationship ending may be caused by cultural differences in the behaviours that are considered acceptable within a relationship. They could also reflect cultural variation in the importance of keeping the family unit together resulting in pressure on victim-survivors to stay in a relationship and threats of punishment or isolation if they leave the relationship. Alternatively, differences could result from unequal access to culturally appropriate assistance in leaving a relationship with a partner who uses violence, or from racism from support systems and services.

We next consider mother's education. We find more educated mothers not experiencing physical conflict are less likely to have their relationships end between the antenatal and 9-month surveys than are less educated mothers who are otherwise similar. However, the marginal effect of physical conflict on a relationship ending is significantly positive only for mothers with a qualification at level 8 or above (i.e., postgraduate level). This is illustrated in Figure 16. We estimate mothers with qualifications at level 8 or above are nearly 10 percentage points more likely to have relationship with frequent physical conflict end than a relationship without physical conflict, whereas less educated mothers are similarly likely to have their relationships end whether or not physical conflict is present. However, this is not true for relationships ending between 54 months and 8 years. Here, there are no significant differences by education level in the marginal effect of IPV on a relationship ending.

The educational differences in the marginal effect of physical conflict on a relationship ending may be due to mothers with more education having greater access to resources that could help them leave their partner more safely, or higher earning potential that makes separation more financially feasible. Higher education could also affect women's attitudes towards violence. They may feel a right to freedom and safety very strongly and feel justified in pursuing this right.

Figure 16: Heterogeneity by mother's education in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months

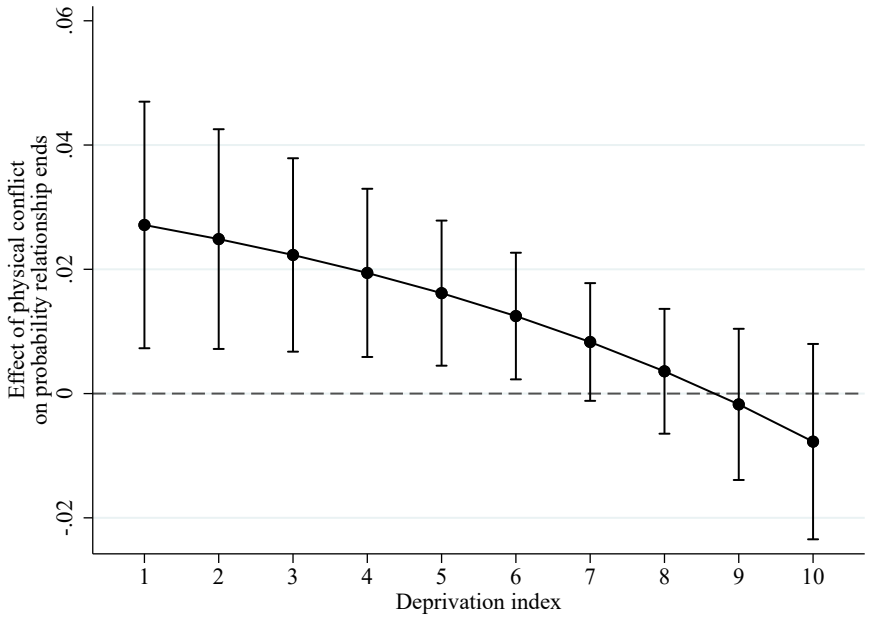


Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers with different levels of education. Results are derived from an interaction regression, described above, that also controls for the personal and relationship characteristics shown in column 6 of Table 2. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient.

We next consider the deprivation index of the area where the mother lives. For the antenatal to 9-month period, Figure 17 show how the marginal effect of physical conflict on a relationship ending varies with mother's deprivation index. It shows mothers who live in areas with low deprivation are more likely to have their relationship end if their relationship involves physical conflict than if it doesn't, but mothers in high deprivation areas are similarly likely to have their relationships end regardless of physical conflict. Regression (4) of Appendix Table 6 similarly shows a similar story for the period 54 months to 8 years.[63]

[63] Differences in the marginal effect of IPV on a relationship ending by deprivation index are statistically significant at the 1% level for the antenatal to 9-month period and at the 5% level for the 54-month to 8-year period.

Figure 17: Heterogeneity by deprivation index in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months



Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers who live in areas with different levels of deprivation. Results are derived from an interaction regression, described above, that also controls for the personal and relationship characteristics shown in column 6 of Table 2. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient.

Different access to resources may help explain these differences by deprivation index. Mothers from less deprived areas may have greater access to money, assistance, or programmes that can help them leave a partner who uses violence. These resources may also make it easier to fight for longer in the Family Court, which prior literature has highlighted as an important factor in enabling a relationship to end.[64]

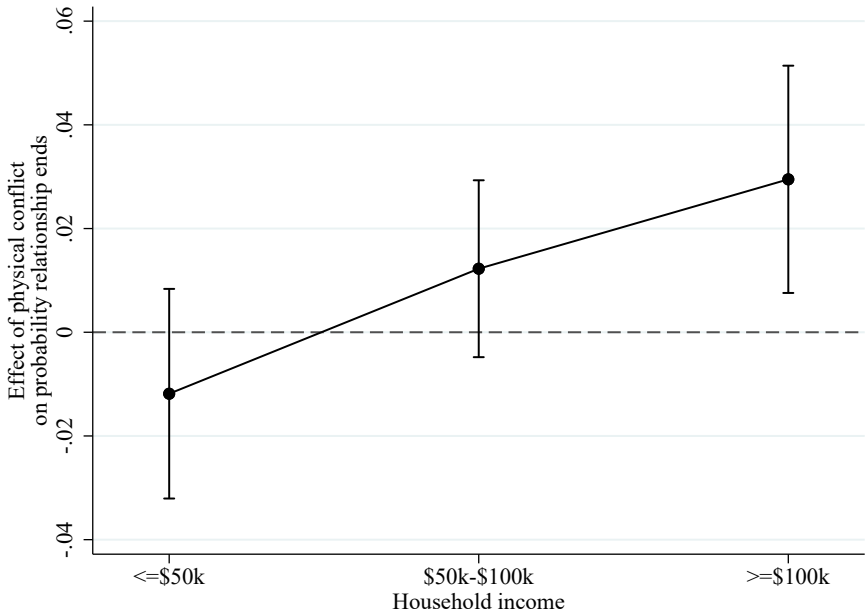
We next consider household income, a measure similar in many ways to deprivation index. Regression results are presented in regression (5) of Appendix Tables 5 and 6 for the two time periods, and plotted in Figure 18 for the antenatal to 9-month period. The figure shows the marginal effect of physical conflict on a relationship ending between the antenatal and 9-month surveys is positive only for high income households, with low-income couples not significantly more likely to end their relationships if physical conflict is present than if it is not.[65] Access to resources is again a possible mechanism for this finding, as discussed in relation to our results on

[64] However, more educated mothers have also stated that they feel discriminated against in Family Court for not looking like a victim (Backbone Collective, 2017). This mechanism would imply the opposite effect of the deprivation index to what we see.

[65] The difference in marginal effect between the lowest and highest income bands is statistically significant at the 1% level.

deprivation index. However, the same story is no longer true for the 54-month to 8-year period, when couples in all income bands are more likely to end their relationships if IPV is present than if it is not.

Figure 18: Heterogeneity by household income in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months



Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers with varying levels of household income. Results are derived from an interaction regression, described above, that also controls for the personal and relationship characteristics shown in column 6 of Table 2. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient.

Regression (6) of Appendix Table 6 explores a third measure of household financial situation, material deprivation, for the period 54 months to 8 years. It finds no statistically significant differences in the marginal effect of IPV on a relationship ending by material deprivation.

Level of commitment in the relationship

Panels A of Appendix Tables 7 and 8 present for the two time periods the results of a set of similar regressions that explore aspects of commitment to the relationship. In one or both of the periods, we consider whether the mother has previous children, whether the couple live together, whether they are married, the length of cohabitation, whether the pregnancy was planned, and whether the relationship became more committed between the time the mother

learned she was pregnant and the antenatal interview. Although many of these variables are strongly associated with a relationship ending overall, none are significantly related to differences in the marginal effect of conflict or IPV on a relationship ending at the 5% significance level.[66] This indicates that, regardless of how committed victims are to the relationship, the relationship is more likely to end if IPV occurs.

Mother's financial reliance on her partner

Panels B of Appendix Tables 7 and 8 present for the two time periods the results of similar regressions that interact measures of the mother's financial reliance on her partner with IPV. A mother with greater earning potential has more ability to support herself and her children if she leaves a relationship with a partner who uses violence, whereas a mother with lower earning potential faces a greater risk of homelessness, and may also be viewed less favourably by a court ruling on custody of the children.[67]

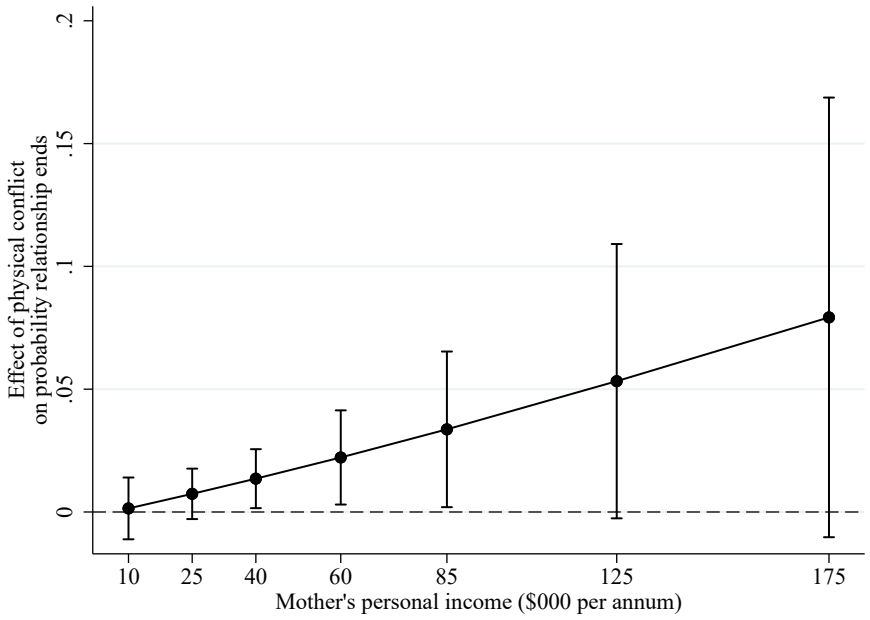
Although our results indicate that some of these measures are significantly associated with the relationships without IPV ending, in only one case does this differ by whether IPV is present, and even here the difference is only weakly significant. Figure 19 shows for the antenatal to 9-month period how the marginal effect of physical conflict varies with the mother's annual earnings. It shows the relationships of mothers with higher incomes are weakly more sensitive to the presence of physical conflict, whereas the relationships of low-income mothers are not significantly more likely to end if physical conflict is present than if it is not.

Higher personal income may give mothers more access to resources that will help them to safely leave a partner who uses violence as well as enabling them to live more materially comfortably after leaving. However, many partners who use violence control the income of their victims, so mothers with such partners may not have independent access to money even if they have high income. The relevance of personal income for leaving a relationship with a partner who uses violence may be more tied to potential earnings after leaving than to the wealth that may have been accumulated while in the relationship. Alternatively or in addition, mothers with higher personal income may feel a stronger right to safety and freedom.

[66] The only variable associated with the marginal effect of IPV on a relationship ending at the 10% significance level (or better) is cohabitation for the antenatal to 9-month period.

[67] Though women who are too well-educated report being discriminated against in the Family Court for not looking like typical victims.

Figure 19: Heterogeneity by mother's personal income in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months



Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers with varying levels of personal income. Results are derived from an interaction regression, described above, that also controls for the personal and relationship characteristics shown in column 6 of Table 2. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient.

Value mother gets from the relationship

Panel A of Appendix Table 9 presents the results of regressions for the antenatal to 9-month period that ask how the marginal effect of physical conflict on a relationship ending varies with measures of the value the mother gets from her relationship. These measures capture the partner's expected contribution to care of the child, the help with the child the mother expects from an alternative source (her friends and family), the degree of positive interaction the mother has with her partner, and whether the mother wouldn't leave her partner due to shame.

We examine three alternative measures of the division of childcare between the mother and her partner. These are the help the mother expects to get from her partner, the level of involvement with the child the mother expects from her partner, and how often the mother expects her partner to care for the child. We hypothesise a mother who expects (or gets) more help from her partner may feel tied to them if she relies on the help. In the absence of physical conflict, a relationship is less likely to end the more helpful the mother reports her partner to be according to any of the three measures. For one of the three measures, this association is

statistically significantly weaker if the relationship involves physical conflict.[68] For the other two measures, the association is *insignificantly* weaker if physical conflict is present.

We also investigate how the help with the child a mother gets from her family and friends is associated with the marginal effect of physical conflict on a relationship ending. We hypothesise a mother who gets more help from others may be less reliant on her partner and more supported to leave the relationship if her partner uses violence. However, this measure is not significantly correlated with a relationship ending, regardless of physical conflict.

Most relationships that involve abuse do not begin with abuse, and partners who use violence can act loving and repentant between outbursts, so relationships with a partner who uses violence may also involve positive interactions. We thus explore how the marginal effect of physical conflict on a relationship ending varies with the mother's positive interactions with her partner. We find relationships with more positive interactions are less likely to end, and this does not significantly differ if physical conflict is present.

Finally, the mother not wanting to separate due to shame adds a psychic and potentially social cost to the relationship ending, and we find it is accordingly associated with a lower probability of the relationship ending. However, again this does not differ significantly if physical conflict is present.

Mother's access to physical and psychological resources

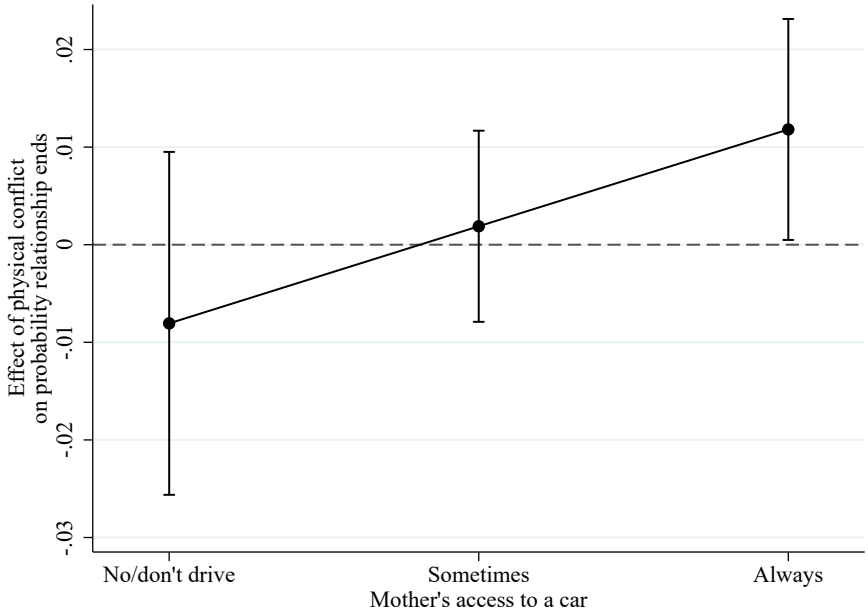
Panel B of Appendix Table 9 and Panel C of Appendix Table 8 present the results of regressions for the two periods that explore how the marginal effect of IPV on a relationship ending differs by the physical and psychological resources to which the mother has access, including rurality, access to a car, physical and mental health, and alcohol use. Leaving a relationship with a partner who uses violence is challenging under any circumstances, but may be particularly difficult if the mother is geographically isolated, lacks transport, or faces physical or mental health challenges. We also look at alcohol use, which may be a coping mechanism to deal with a relationship with a violent partner, but may cause other problems that making leaving harder.

We find no evidence that most of these characteristics significantly affect the marginal effect of conflict or IPV on a relationship ending. The first exception is access to a car. As Figure 20 shows, the marginal effect of physical conflict on a relationship ending is weakly significantly larger for mothers who report having access to a car, meaning they both have one and are able to use it, than for mothers who report they do not. This could be driven by the practicalities of getting away from a dangerous partner, or access to a car could be a proxy for access to other

[68] We don't overinterpret these associations because the help a mother expects from her partner is likely to be closely related to the extent and nature of conflict within the relationship.

types of useful support prior to, during, and after separation. For some mothers, a car may provide the means to physically leave the situation. With a vehicle, a mother can put distance between herself and her former partner, and get to a shelter or relative's house. Additionally, a vehicle is an asset a mother can sell after she leaves, which may help financially. Finally, a vehicle can be a short-term place to sleep with some minimal level of security if no other options are available.

Figure 20: Heterogeneity by mother's access to a car in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months



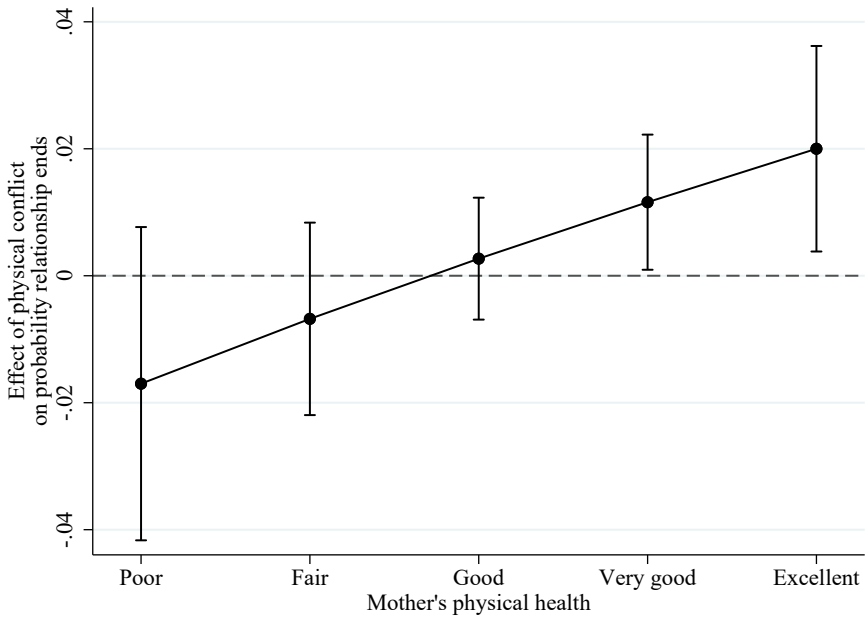
Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers with different levels of access to a car. Results are derived from an interaction regression, described above, that also controls for the personal and relationship characteristics shown in column 6 of Table 2. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient.

The second significant result is for the mother's physical health, though only for the antenatal to 9-month period.[69] As Figure 21 shows, here the relationships of healthier mothers are more likely end if they involve physical conflict than if they do not, whereas the relationships of mothers with low health are not more likely to end if they involve conflict than if they do not. The difference is statistically significant at the 5% level. Several mechanisms may explain the positive relationship between mothers' physical health and a relationship with a partner who

[69] One difference between these periods is that the first nine months of a child's life are a particularly vulnerable time for mothers, so health issues on top of pregnancy, birth, and breastfeeding a new baby would pose a huge mental load.

uses violence ending. First, mothers with poorer health may require more financial assistance or physical care. If this is provided by their partner, leaving the relationship means giving up that care. Mothers with health issues may not have the required support networks available when they leave, further cementing their dependence on their partner who uses violence (Our Watch, 2022). Second, physical health may be part of a feedback loop whereby physical conflict worsens physical health, which in turn makes the victim more vulnerable to physical conflict because they're less able to fight back, more anxious or depressed, and less able to leave. Third, mothers may have better physical health because they are able to see healthcare providers more regularly, and these visits theoretically may offer an avenue to seek help leaving their partner, though in practice rates of identifying IPV in healthcare settings are extremely low. Finally, addressing her health needs might take all the energy and focus of a mother with poor physical health, leaving no capacity to reflect on her relationship and the abuse, seek information and resources, connect with services, formulate a plan, or leave and recover post separation.

Figure 21: Heterogeneity by mother's physical health in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months



Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers with different levels of physical health. Results are derived from an interaction regression, described above, that also controls for the personal and relationship characteristics shown in column 6 of Table 2. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient.

The final significant result is for rurality, but for the 54-month to 8-year period only. In this period, the marginal effect of IPV on a relationship ending is positive for mothers living in urban areas, but close to for mothers living in rural areas. The difference in marginal effect of IPV on a relationship ending is significant at the 10% level only. This is consistent with living in a rural area being a barrier to leaving a partner who uses violence. Rurality could matter for a range of reasons. On the purely physical side, rural areas tend to not be well served by public transport, which makes leaving harder for those without access to a vehicle. They may also offer fewer services and resources such as shelters to which a victim can go. Rurality can also be associated with different social attitudes, such as being more conservative and placing a higher value on family, both of which may act as barriers to leaving. Finally, small-town culture, where residents all know each other and the people to whom a victim might otherwise turn for help are likely to be friends with their partner, might be an additional barrier. However, this effect of rurality is only borderline significant, and is entirely absent for the antenatal to 9-month period.

Mother's access to outside help

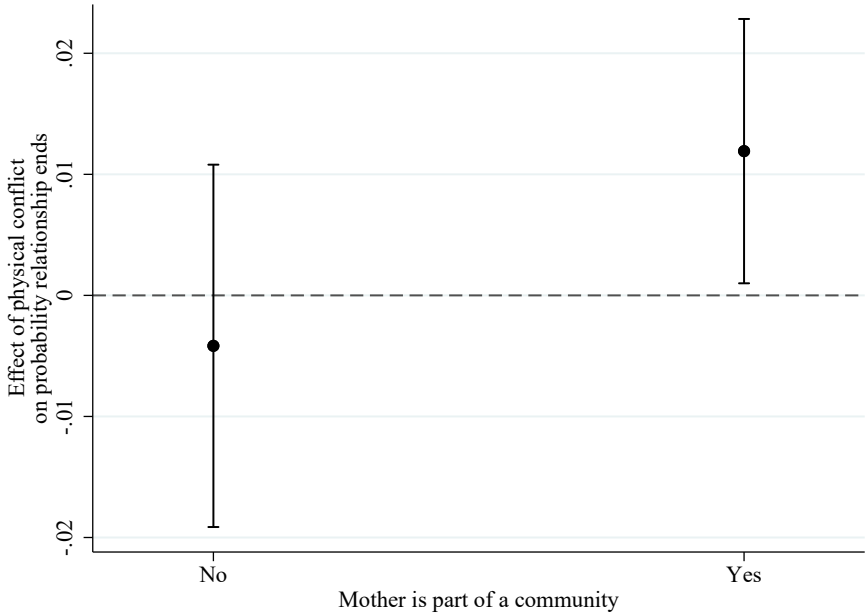
Appendix Tables 10 and 11 present the results of regressions for the two periods that explore how the marginal effect of IPV on a relationship ending differs by the outside help the mother has available. We explore a wide range of variables that capture different aspects of the people the mother might interact with and how helpful they might be in assisting her to leave a relationship with a partner who uses violence. These variables cover the expected helpfulness of the mother's family, her relationship with neighbours and the neighbourhood, her interactions with professionals (doctors, her lead maternity carer, teachers at antenatal classes, her childcare provider), her hours of work or study, and whether she has ever been convicted of a crime. We also include several variables on the partner, namely the extent to which they consider themselves a good guy and their relationship with the neighbours.[70]

We consider six different measures of how close the mother is to her family and how supportive of each other her family members tend to be. A close, supportive family might be more likely to notice abusive behaviours, encourage the victim to leave, and support her to do so. However, the marginal effect of physical conflict on a relationship ending does not differ significantly with any of these variables. A possible explanation is that victims of abuse tend to hide the situation from their families for self-preservation or due to shame, and even if their families do become aware of the situation, they usually lack the knowledge of how to constructively help.

[70] The regressions for partner characteristics rely on the smaller sample of mothers whose partners also participated in GUiNZ, and include the additional controls given in column (7) of Table 2.

We also consider a total of seven variables across the two time periods that capture the mother's connection to her neighbours and neighbourhood. A few of these are significantly related to a relationship ending, but only one, whether the mother in the antenatal period belongs to a community, such as a club, is significantly associated with a difference in the marginal effect of physical conflict on a relationship ending (and only at the 10% significance level).

Figure 22: Heterogeneity by mother's community membership in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months



Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers who do versus don't belong to a community. Results are derived from an interaction regression, described above, that also controls for the personal and relationship characteristics shown in column 6 of Table 2. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient.

Figure 22 shows how the marginal effect of conflict on a relationship ending varies with the mother's membership of a community, which might connect her to people who could help her leave a relationship with a partner who uses violence. It shows the relationships of mothers who are members of a community are more likely to end if they involve physical conflict than if they don't, whereas the same is not true for mothers who are not in a community. This could be considered weak evidence that a victim of abuse might get help from members of a community to which she belongs. For instance, other community members may pick up on physical signs of abuse and encourage or assist the mother to leave the relationship. Belonging to a community

may increase a mother's confidence to leave and help her feel less alone if she does so. However, it could be that victims of abuse are only able to belong to a community if their partner is less controlling, and thus easier to leave. Furthermore, we do not see this same relationship for the most similar variable at 54 months, whether the mother is a member of an ethnic or cultural club.

In the antenatal to 9-month period we consider whether the mother attended antenatal classes, the identity of her doctor (if any) while pregnant, and the type of lead maternity carer she has. In the 54-month to 8-year period we consider the mother's involvement with her child's childcare provider, the type of provider used, and types of interactions she has with the provider. All these variables capture aspects of the mother's interactions with outsiders who may pick up on signs of abuse in her relationship and offer to help, or whom she might approach for help. Among all these variables we find only one interaction with IPV that is significant, and it is significant at only the 10% level. Specifically, the marginal effect of IPV on a relationship ending is close to zero for the few mothers whose children at 54 months are not in regular childcare.[71] The marginal effect of IPV on a relationship ending is weakly significantly greater for mothers whose children attend kindergarten.

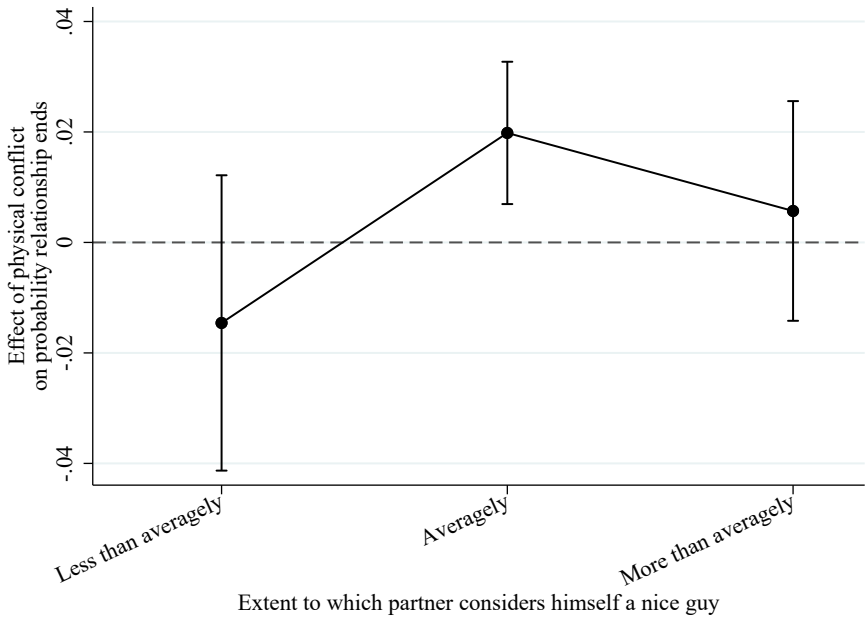
Although most IPV victims who seek to leave their partners do not see formal help, we might expect mothers who have been convicted of a crime to be even more reluctant to approach the authorities for help with a partner who uses violence, or if they do so they may not be believed or may be viewed less sympathetically. In addition, women with criminal convictions have a high rate of lifetime sexual abuse (Bevan, 2017), and this and other past trauma may have damaged their belief that they deserve better than a partner who uses violence. Such factors could act as additional barriers to leaving a partner who uses violence. However, we find no significant relationship between a criminal conviction and a relationship ending between 54 months and 8 years, regardless of whether IPV is present.[72]

Finally, we consider two characteristics of partners that may affect their credibility with outsiders, and thus the credibility of their victims if the partners use violence. The first is the extent to which the partner considers themselves a nice guy.[73] Many people who use violence on their partners put on a charming front outside their relationships, and people who know them might have a hard time believing they use violence at home. This could make leaving harder for their victims because people around them don't believe them, minimise the risk they face, or

[71] However, the few mothers who do not use childcare tend be economically disadvantaged, so this relationship could be driven by access to financial resources.
[72] Though note the number of mothers ever convicted of a crime is low, so statistical power here is limited.

withhold support. To create this variable, we aggregated partner's self-reported agreement on a 5-point scale (1= disagree strongly, 5 = agree strongly) for 9 statements. We added ratings for positive statements and subtracted those for negative statements. The statements were as follows. You see yourself as someone who: is helpful and unselfish with others; starts quarrels, arguments with others; is a reliable worker; can be cold and distant with others; keeps working until things are done; is considerate and kind to almost everyone; is outgoing, sociable; is sometimes rude to others; and likes to cooperate, gets along well with others. We then categorised the summed 'niceness' into three niceness groups: less than average, average, and more than average. We find the marginal effect of physical conflict on a relationship ending is insignificantly different from zero if the partner is low on the "nice guy" scale, but significantly positive if the partner is of intermediate "niceness". The difference between the two is significant at the 5% level. Our results also suggest the marginal effect of physical conflict of a relationship ending could be lower in cases where partners report being nicer than average than in cases where partners report being averagely nice, but the difference is not significant at conventional levels. Figure 23 illustrates these differences.

Figure 23: Heterogeneity by extent to which partner considers themselves a nice guy in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months



Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers whose partner has different views of himself. Results are derived from an interaction regression, described above, that also controls for the personal and relationship characteristics shown in column 7 of Table 2. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient.

Partners who consider themselves less nice than average may be more difficult to leave for several reasons. For instance, they may be more dangerous or threatening to their victim, reducing her ability to leave. They may also come across as more intimidating to others outside the relationship, which could scare them and prevent them from supporting the victim.

The second partner characteristic we consider is whether the partner is good friends with the neighbours. Where this is the case, the mother might expect less help from these neighbours if she looks for assistance to leave. However, we find no significant relationship between the partner's friendship with the neighbours and the marginal effect of physical conflict on a relationship ending.

Mother's trust in and ability to navigate the system

To leave a partner who uses violence, a victim may need to interact with a range of government and non-profit services and organisations. For instance, the police might be called if physical assault occurs, the victim may call a helpline looking for assistance leaving, a women's refuge may be first stop after leaving a violent partner, and separation when a child is present may involve the Family Court. A victim who expects less assistance from such services or is mistrustful of the assistance they can provide, potentially because of poor experiences in the past, may be less likely to reach out and ask for help, and thus less likely to get the aid they need to leave. Similarly, a victim who has difficulty navigating the system, for example because they don't understand New Zealand culture or their English is limited, may be less likely to successfully secure the help they need. This may mean women become entrapped by partners who use violence due to service issues.

Panel A of Appendix Table 12 presents the results of regressions for the antenatal to 9-month period that explore how the marginal effect of physical conflict on a relationship ending differs by the mother's ability to navigate the system and her trust in it. We consider the mother's migrant status, her facility with English, her knowledge of kiwi culture, and three measures of her experiences of ethnic discrimination. We find no statistically significant evidence that the marginal effect of physical conflict on the probability a relationship ends differs by any of these dimensions.

Mother's connection to her traditional culture

Prior research suggests a strong connection to their traditional culture can reduce a person's propensity to commit IPV through instilling a sense of pride, self-worth, and belonging (Te Puna Aonui, 2021). It may also affect a victim's ability to leave a partner who uses violence through several mechanisms. Through engagement in cultural activities within the community, it may give the victim greater opportunities to seek help. However, if the community holds values that

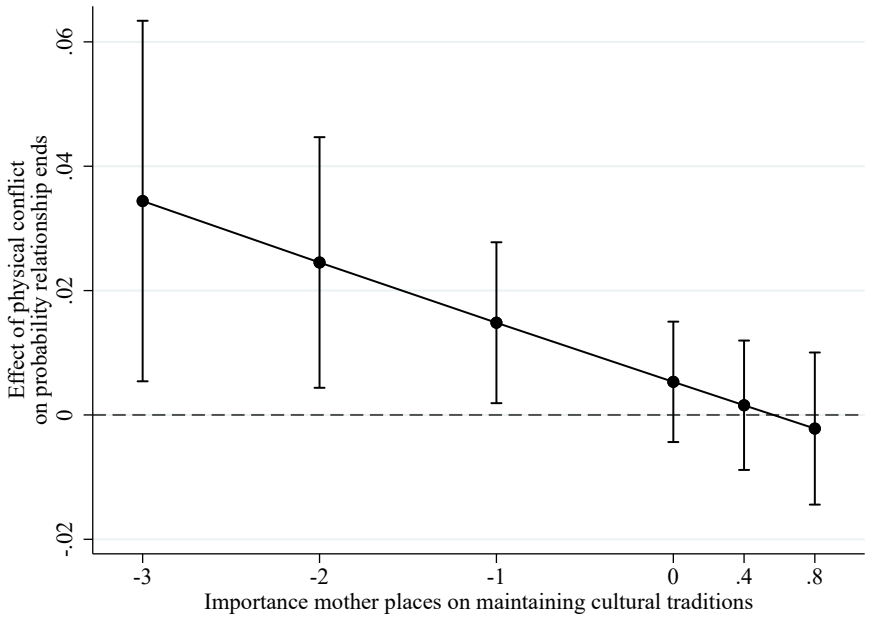
support a husband's right to control his wife, engagement with it might reduce a victim's ability to leave her partner. Alternatively, through boosting the victim's sense of self-worth, cultural connection might empower her to leave an unsafe relationship. Another possibility is that connection to traditional culture, particularly if the partner also feels such a connection, may make a partner who uses violence more likely to stop doing so. This could cause relationships involving IPV to be *less* likely to end because the IPV was more likely to cease.

We consider four aspects of a mother's connection to her traditional culture: her knowledge of her traditional culture, her involvement with traditional cultural activities, her positivity towards her traditional culture, and the importance she places on maintaining cultural traditions.[74] In each case, we find stronger connection to traditional culture is associated with a smaller marginal effect of physical conflict on a relationship ending, though this difference by cultural connection is statistically significant only for the importance the mother places on maintaining cultural traditions.[75] Figure 24 plots this significant relationship.

This result is consistent with several possibilities. One is that mothers who place more importance on cultural traditions facing higher barriers to leaving a partner who uses violence. This could result from traditional attitudes about the importance of family or the acceptability of physical conflict within a relationship, or from victims wanting to avoid bringing shame on their culture (Simon-Kumar, 2019). Another possibility consistent with our results is that connection to culture, particularly if the partner is also strongly connected to their culture, is associated with a higher probability a partner who uses violence ceases to use violence, reducing the need for the victim to leave the relationship.[76]

[74] Most European women do not answer these questions, so are treated as missings in our regressions. However, they are not genuine missings because these questions do not apply to them.
[75] This result is significant at the 5% level.
[76] We did not find statistically significant evidence of such a difference, but relatively low power means we also cannot rule out a sizeable association.

Figure 24: Heterogeneity by importance mother places on maintaining cultural traditions in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months



Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers who place different importance on maintaining cultural traditions. Results are derived from an interaction regression, described above, that also controls for the personal and relationship characteristics shown in column 6 of Table 2. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient. The cultural variable is normalised to have a mean of 0 and a standard deviation of 1.

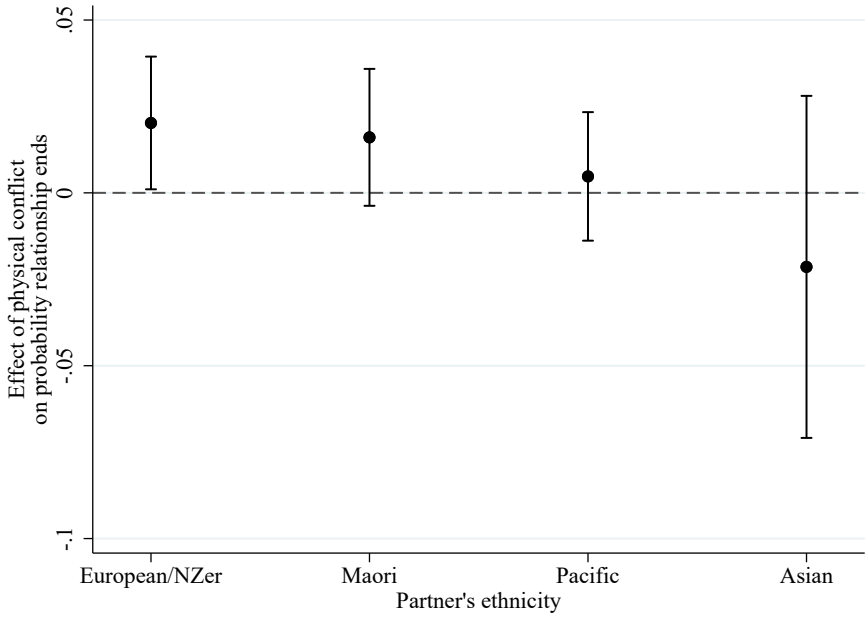
An important caveat to these findings is that traditional cultural attitudes vary with the culture. It may be that some traditional cultures help a victim to leave or help a perpetrator of IPV to stop using it, whereas others do the opposite. Our sample is not large enough to examine how the effects of connection to one's traditional culture differ for mothers of different ethnicities, so we leave this question for future research.

Partner's characteristics

Appendix Tables 13 and 14 investigate how the marginal effect of physical conflict on a relationship ending between the antenatal and 9-month surveys varies with a range of partner characteristics. The sample here is restricted to mothers whose partners also participated in GUiNZ, which, as discussed previously, is a smaller sample with lower rates of reported physical conflict. This leaves us with less statistical power to identify relationships of interest. The extra controls included in these regressions (that are not interacted with physical conflict) are those shown in column (7) of Table 2.

Panel A of Appendix Table 13 considers the partner's demographic characteristics, namely age, ethnicity, and education. We find no significant differences by partner's age in the marginal effect of physical conflict on a relationship ending, and only weakly significant differences by ethnicity. The latter are plotted in Figure 25. The figure suggests the marginal effect of physical conflict on a relationship ending may be higher if the partner is European/NZer or Māori than if they are Asian, with the marginal effect for relationships with Pasifika partners falling between the two. Cultural differences could occur here for similar reasons to those discussed for Figure 15.

Figure 25: Heterogeneity by partner's ethnicity in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months



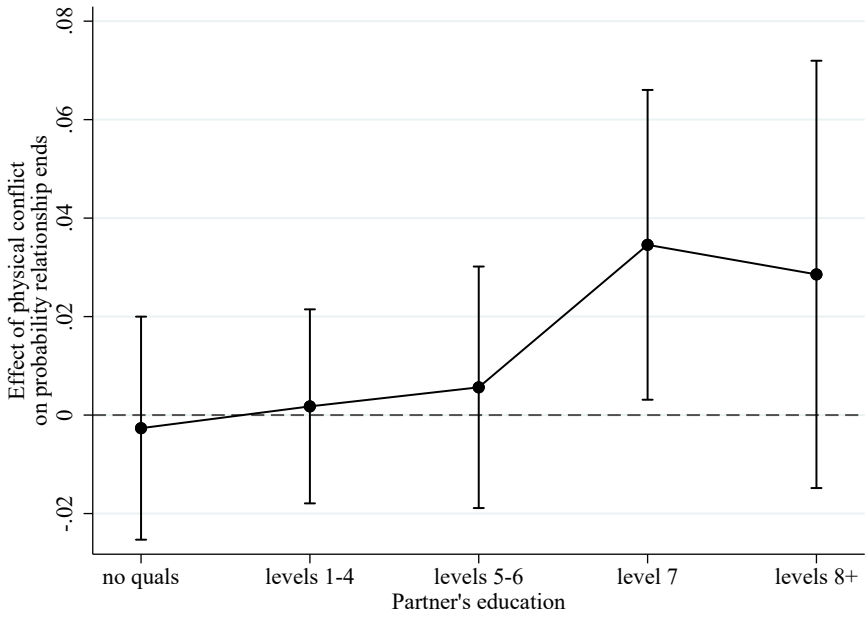
Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers whose partners are different ethnicities. Results are derived from an interaction regression, described above, that also controls for the personal and relationship characteristics shown in column 7 of Table 2. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient.

Figure 26 shows how the marginal effect of physical conflict on a relationship ending varies with partner's education. We find this marginal effect is larger for couples where the partner has

a qualification at level 7 (bachelor's degree or equivalent) or above than for couples where the partner has lower qualifications.[77]

We infer that the victims of more educated partners who use violence face may lower barriers to leaving than do the victims of less educated partners who use violence. One possible explanation is that more educated partners tend to be with more educated mothers, and such mothers are more able to leave a partner who uses violence for the reasons discussed previously.[78] More educated couples may also have more financial resources overall, which a victim might be able to make use of in the process of leaving. Another possibility is that there may be variation by education in the adoption of more traditional gender roles. Less educated individuals are more likely to hold traditional views of gender roles (Rivera-Garrido, 2022), which could disempower such mothers from leaving even when abuse is occurring. A further possibility is that more educated partners may be more attractive to other women, so be more likely to exit a relationship in pursuit of another woman. Finally, in some cases the partner, not the mother, may be the victim, and their greater education and potential earnings may make it easier for them to leave the mother.

Figure 26: Heterogeneity by partner's education in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months



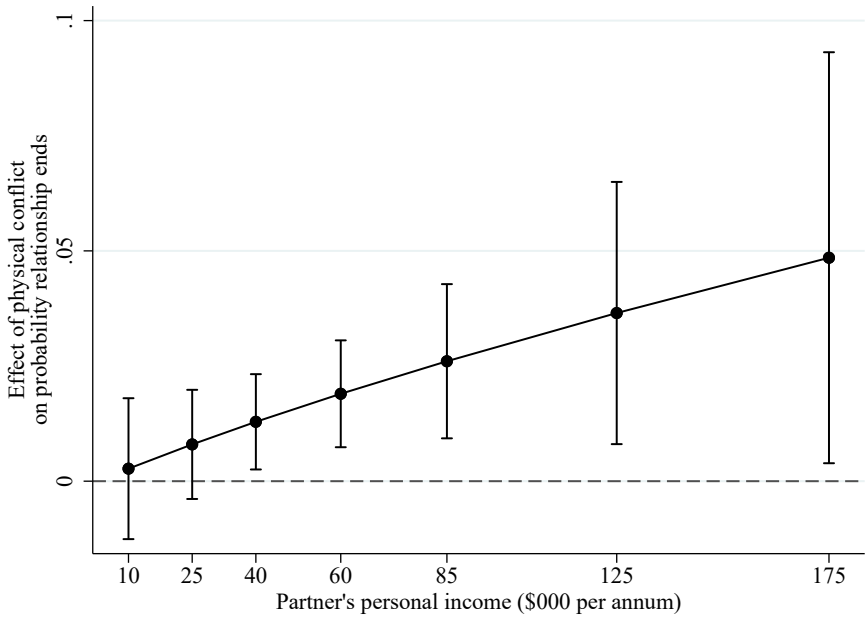
Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers whose partners have different levels of education. Results are derived from an interaction regression, described above, that also controls for the personal and relationship

[77] The marginal effect of physical conflict on a relationship ending is significantly greater at the 5% level when partners have level 7 qualifications than when they have no qualifications.
[78] This regression controls for the mother's education, but does not interact it with IPV.

characteristics shown in column 7 of Table 2. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient.

Next, Panel B of Appendix Table 13 investigates how the marginal effect of physical conflict on a relationship ending varies with the partner's potential to be financially independent, measured by their work status, whether the cost of separation prevents them leaving, their personal income, and their sources of income. The only relationship that is statistically significant at the 5% level is with the partner's personal income, with the marginal effect of conflict on a relationship ending increasing with income. This relationship is illustrated in Figure 27. The potential explanations are similar to those for partner's education.

Figure 27: Heterogeneity by partner's personal income in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months

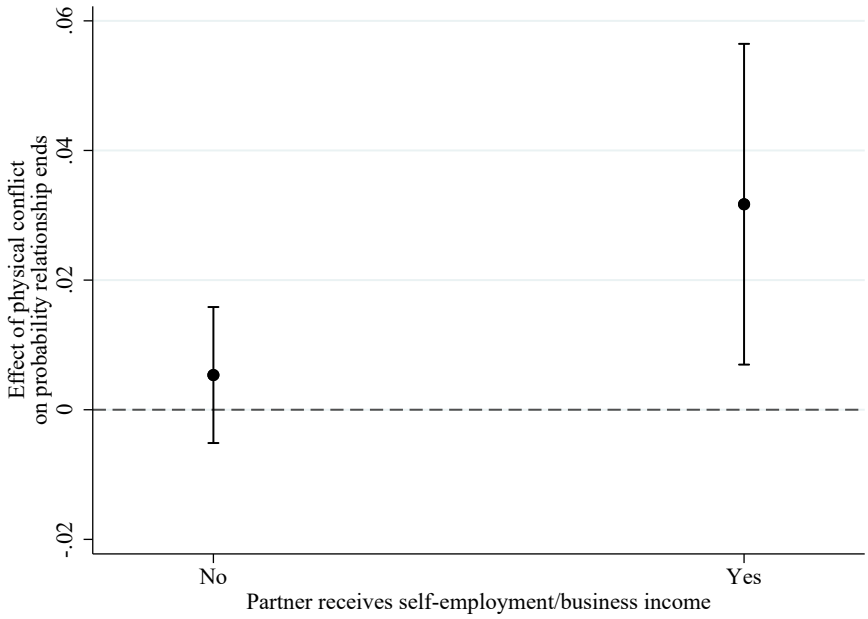


Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers whose partners have different levels of personal income. Results are derived from an interaction regression, described above, that also controls for the personal and relationship characteristics shown in column 7 of Table 2. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient.

Figure 28 shows how the marginal effect of physical conflict on a relationship ending differs by whether the partner receives any income from self-employment or a business. Although the difference between the two is significant at only the 10% level, the point estimates again suggest higher financial resources on the part of the partner are associated with greater

marginal effect of physical conflict on a relationship ending.[79] The other variables relating to the partner's potential to be financially independent that we explore are not significantly associated with the marginal effect of physical conflict on a relationship ending.

Figure 28: Heterogeneity by whether partner is self-employed in the effect of physical conflict on the probability a relationship ends, antenatal to 9 months



Notes: This figure plots the coefficient and 95% confidence interval of the marginal effect of physical conflict on the probability a relationship ends for mothers whose partners do versus don't receive self-employment or business income. Results are derived from an interaction regression, described above, that also controls for the personal and relationship characteristics shown in column 7 of Table 2. Physical conflict is measured on a scale of 0 to 2, so the marginal effect of going from no conflict to frequent conflict is twice the plotted coefficient.

Panel C of Appendix Table 13 explores how the marginal effect of physical conflict on a relationship ending differs by the value the partner gets from the relationship, measured by whether they report they wouldn't separate due to shame and the positive interactions they reports with the mother. We find no statistically significant differences.

Panel A of Appendix Table 14 explores how the marginal effect of physical conflict on a relationship ending differs by the physical and psychological resources to which the partner has access, specifically, measures of physical and mental health and alcohol use. Many women whose partners abuse them report recognising their partners have had difficult lives and struggle

[79] This interpretation relies on the assumption that receiving self-employment income is a sign of higher income overall. It may also be an indication of entrepreneurial drive or capture a characteristic associated with entrepreneurship such as relationship stress.

with multiple issues (Wilson et al., 2021). Women tend to be socialised by society to be nurturers, and people who tend towards violence often take advantage of this by playing the victim (Wilson et al. 2021). For instance, some people who use violence had difficult upbringings or experienced abuse as children, and others may struggle with alcohol or drugs. It's easy for women to buy into the common misconception that posits stress, drugs, and alcohol use cause violence and abuse, meaning that if these issues are fixed, the abuse will stop. Such women may become invested in supporting their partners to heal in the hope this will end their abuse. Unfortunately, this doesn't always happen. Further, a partner with poor physical or mental health may thus be harder to leave, because their victim feels she is abandoning someone who needs her help. However, we find no statistically significant differences.

Finally, Panel B of Appendix Table 14 explores how the marginal effect of physical conflict on a relationship ending differs by the partner's knowledge of "the system", which may affect their ability of manipulate social supports and the legal system to keep their victim tied to them. We consider the partner's migrant status, facility with English, and knowledge of kiwi culture, but find no statistically significant correlations for any of these variables.

6 Limitations

Although GUiNZ data offer a unique opportunity to investigate the development and breakdown of relationships where abuse is occurring, they have several limitations.

The first data limitation is missing data, which can result from non-response to a specific question, a child and their mother dropping out of the study, or a partner choosing not to participate. This limitation and our approaches to dealing with it are discussed in Sections 4.2 and 5.3.1.

The second data limitation is that measures of IPV are self-reported. Our results therefore depend on the accuracy of mothers' and partners' answers. While the GUiNZ survey took great carein the later surveys to collect this information sensitively,[80] some respondents may not have felt comfortable or safe giving honest answers, especially in the earlier surveys. Alternatively, victims may have underreported IPV because they feared retribution if their partner learned their answer, or because they did not interpret their experiences as abuse. The latter is particularly likely in the case of emotional abuse.[81] This suggests the levels of IPV shown in the data should be interpreted as lower bounds.

[80] Refer to Section 5.1.6 for the list of actions surveyors took to ensure mothers' safety.
[81] In addition, some violent individuals may use physical violence rarely if ever, because they have so much control over their victim that physical violence becomes unnecessary.

The third data limitation is that the antenatal and 9-month surveys do not ask which partner conducted the abusive behaviour, just whether it occurred. For instance, a mother might be asked if arguments with their partner involve pushing or hitting, but not whether they or their partner are doing the pushing/hitting. Furthermore, even in later survey waves where directionality is asked, it doesn't necessarily tell us whether the behaviour was abusive or in self-defence.

The fourth data limitation is that no information is available on abusive behaviours that persist after a relationship has ended. Research shows that leaving a relationship with a partner who uses violence is the most dangerous time for women in such relationships, and abuse can continue indefinitely even after a relationship ends.[82] Thus, although we measure relationships ending and interpret them as a positive sign that an IPV victim is closer to being away from their partner, we cannot interpret a survivor who is no longer in a relationship with a person who uses violence as necessarily being safe from them. Rather, she may continue to experience stalking, litigation abuse, and emotional abuse against her and her children.

The fifth data limitation is that the survey provides limited information about the stop-start nature of relationships. It contains information on relationship status at the time of the survey only. This matters because abused partners frequently leave and return to partners who use violence on them many times before separating from them permanently. Research shows that partners who use violence are skilled at pulling their victims back into a relationship with promises of change or through threats and manipulations (Bancroft, 2002). Although we cannot conclude all relationships that have ended at the time of a survey wave have done so permanently, we consider a relationship with a partner who uses violence having ended as a positive indicator of the victim's ultimate ability to leave.

The sixth data limitation, discussed previously in Sections 4.3 and 4.4, is that the survey questions that capture aspects of IPV and relationship transitions between consecutive survey waves are limited in several ways. IPV measures are not always consistent between survey waves, controlling behaviours are not included until the 8-year wave and emotional abuse not until the 54-month wave, and we can measure only imperfectly relationships ending between pairs of survey waves.

The final data limitation is that while the data enable us to determine if a relationship has ended within a certain period, it does not give any information on the situation surrounding the relationship ending. This means we do not know who ended the relationship or why it was ended. We cannot distinguish relationship exit that occurs due to non-IPV reasons, nor can we

[82] Backbone Collective (2020)

see if partners who use violence have ended the relationship as a means of control or because they have begun a relationship with someone else, gone to prison, or died.

7 Conclusions

A high proportion of NZ women will face intimate partner violence (IPV) at some point in their lifetime. In some cases, either through the partner's own efforts or with help, a partner who uses violence will be able to recognise that their behaviour is abusive and change it. However, in many cases the only way for a victim of IPV to become safe in the long term is to leave their partner permanently. However, in the short-term, a decision to separate may sacrifice stability, social connections and other aspects of wellbeing for the victim and her children, and may put them at greater risk for some time, possibly years.

In this paper we used data from the Growing Up in New Zealand (GUiNZ) longitudinal study to investigate the IPV experienced by expectant mothers and mothers of young children, with a focus on three questions. First, how pervasive are different types of IPV among these mothers. Second, how persistent is the IPV experienced by these mothers. Third, what factors are associated with a mother's ability to leave a relationship with a partner who uses violence. GUiNZ data are suited to addressing these questions because they provide a longitudinal view of mothers' relationships, other characteristics, and any IPV they are experiencing. However, the data also have a number of limitations, which we discussed in detail in Section 6.

To put IPV rates for mothers of young children in context, we began by conducting some complementary analysis using the New Zealand Crime and Victims Survey (NZCVS). Here we estimated how IPV rates among women with current or recent partners varied with the age of their oldest child if they had children, and how these rates differed for women without children.[83] We controlled for a range of other characteristics including survey year, age, ethnicity, deprivation index, regional council, and urban nature of their area of residence. We found that, within the NZCVS data, compared with women with no children and who would not have a child in the following three years, women who would have their first child in the subsequent three years or whose first child was under the age of 1 experienced much lower rates of IPV.[84] However, as the oldest child aged, IPV rates increased and soon surpassed rates for women without children, levelling off at around 4 percent by the time the child was three

[83] We used NZCVS data linked to the IDI, so were able to use other longitudinal data sources to identify the age of the oldest child for women with children at the time they responded to the NZCVS and well as which women would have their first child in the three years following the NZCVS survey.

[84] Some prior research has found pregnancy is a time of elevated risk of IPV, but the evidence is mixed. We are unable to draw conclusions specifically on this period because our sample size is too small to isolate it.

years old. We thus expect the antenatal and 9-month GUiNZ surveys to have occurred at points in time when IPV was comparatively low, and the 54-month and 8-year surveys to have occurred when IPV rates were comparatively high.[85] Note however that differences in the population surveyed and the questions used to determine whether IPV was present differ between GUiNZ and NZCVS, so the levels of IPV found in the two are not comparable.

The GUiNZ surveys conducted before the birth of the child and when the child was 9 months old focus on verbal and physical conflict within relationships as opposed to IPV specifically, thus they capture some behaviours that are not abuse. While the wording may have encouraged mothers to openly disclose abusive behaviours occurring in their relationships, it may have also encouraged them to report behaviours that would not be considered abusive and behaviours that they themselves perpetrated. The broadness of these questions is likely one explanation for why we found comparatively high rates of within-relationship conflict in these survey waves. Specifically we found some kind of physical conflict in 16.0 percent of relationships antenatally and 17.8 percent of relationships at 9 months, and verbal conflict in 71.9 percent of antenatal relationships and 77.4 percent of relationships at 9 months.

The 54-month GUiNZ survey focuses more specifically on IPV, and asks questions about emotional IPV as well as physical and verbal IPV. Here we found 41.6 percent of mothers in relationships reported emotional abuse, 6.2 percent physical abuse, and 74.7 percent verbal abuse. The 8-year survey again focuses on IPV and additionally asks about controlling behaviours. However the formulation of the questions differs from at 54 months, so responses are not precisely comparable. Here we found 33.8 percent of mothers reported emotional abuse, 1.8 percent physical abuse, 34.2 percent verbal abuse, and 12.7 percent controlling behaviour.

Taken together, these data suggest rates of IPV in Aotearoa are high, and tend to be higher among couples with children than among couples without children. Rates of verbal abuse in particular are exceptionally high, which suggests this type of behaviour is normalised rather than being recognised as the damaging form of interaction that it is.

The high rate of IPV among parents is particularly concerning, because exposure to IPV in the household has large negative effects on children; in fact, children are considered to be victims of family violence even if the violence is not directed at them. The overall situation speaks to the need for actions at the individual, community, and societal level to prevent such behaviours and support people's abilities to have healthy relationships.

[85] Though it is possible IPV rates during pregnancy differed from IPV rates in the other periods we grouped with pregnancy.

When we compared reports of different types of abuse as categorised in the GUiNZ data, we found physical abuse is almost always accompanied by emotional abuse, and emotional abuse is almost always accompanied by verbal abuse.

In our analysis of the persistence of IPV, for data reasons we focussed on two periods: the period between the antenatal survey wave and the 9-month survey wave, and the period between the 54-month survey wave and the 8-year survey wave. At the start and end of each of the two periods we categorised mothers by whether they were in a relationship and, if so, the level of conflict or IPV reported (none, infrequent, or frequent). We then quantified flows between these different relationship/IPV states over each of the periods in question. Here we did not attempt to identify which mothers had changed partners, so our findings should be interpreted as being informative about the persistence of IPV from current partners faced by mothers, not necessarily faced by mothers within the same relationship.[86]

We found in both periods studied that mothers in relationships that involved conflict or IPV were more likely to be single at the end of the period than were mothers in relationships that did not. For instance, 11% of mothers in antenatal relationships with frequent physical conflict were single at 9 months, whereas only 4% of mothers in such relationships without physical conflict were single at 9 months. We also saw substantial movement between levels of IPV for mothers who were in relationships at the start and end of the period. For instance, among mothers who reported frequent physical conflict in their relationship antenatally, at 9 months over a third reported they were in a relationship with no physical conflict, 30 percent were in a relationship with *infrequent* physical conflict, and only 26 percent were in a relationship with *frequent* physical conflict. However, conflict and IPV measures are based on only the 4-week period leading up to the survey date, so abuse may still be present when no abuse or conflict is reported.

Conflict can also increase. Among mothers who reported no physical conflict in their relationship antenatally, 10 percent and 2 percent reported infrequent and frequent physical conflict respectively at 9 months. Additional insight into the facilitating factors and barriers experienced by women on the various IPV trajectories could be gained through qualitative work. We leave this for future research.

Finally, we used regression analysis to examine the factors associated with a relationship that is present in one survey wave ending before the following survey wave, and how these factors differ for relationships where conflict or abuse is present. We defined the marginal effect

[86] However, we believe the number of mothers who changed partners between the antenatal and 9-month survey was extremely low.

of IPV on a relationship with certain characteristics ending as the probability such a relationship ends if IPV is present minus the probability a relationship with the same characteristics ends if IPV is not present. We assumed subpopulations of mothers for whom this marginal effect is lower face higher barriers to leaving a partner who uses violence than do subpopulations of mothers for whom this marginal effect is higher.

We used these regressions to explore how the effect of IPV on the probability a relationship ends varies with a wide range of predetermined characteristics of the mother, her partner, and the relationship. We explored both maternal and paternal characteristics that can broadly grouped into a range of concepts: the mother's basic demographics, the level of commitment in the relationship, the mother's financial reliance on her partner, the mother's access to physical and psychological resources, the value the mother gets from the relationship, the mother's access to outside help, the mother's trust in and ability to navigate the system, the mother's connection to her traditional culture, the partner's basic demographics, the partner's financial independence, the value the partner gets from the relationship, the partner's access to physical and psychological resources, and the partner's ability to manipulate the system. The GUiNZ study provides a wide range of variables that capture different aspects of these concepts. However, the concepts are captured only imperfectly even by the large range of data available, so in cases where we fail to find a relationship that should not be interpreted to mean the concept does not matter for barriers to leaving a partner who uses violence. Further research may still be necessary.

Several main patterns emerged. First, IPV was associated with a relationship ending only for mothers with greater financial resources; mothers with low financial resources were no more likely to have their relationship end if it involved IPV than if it did not. This suggests financial resources are required for a woman to leave a relationship with a partner who uses violence. The same story emerged from various different measures of financial resources, including mother's education level, deprivation level in the area of residence, household income, and mother's personal income. The results are more consistent across measures of financial resources for the antenatal to 9-month period than for the 54-month to 8-year period, but are still present for deprivation index in the later period.

Prior research shows women who leave a partner who uses violence face a disproportionate risk of becoming homeless, and even if a survivor of IPV manages to avoid homelessness, she may struggle to pay for other necessities, especially if she has children. Lack of financial stability may also be viewed negatively by the Family Court if it is called upon to

make a ruling about custody of the children, so a survivor with low earning potential may be at greater risk of losing custody of her children.[87]

This central result suggests one main way in which policy may be able to help victims of IPV leave their partners: ensure they have the financial support they need to leave. Many government policies designed to alleviate poverty may also help lower the barriers to IPV victims becoming safe. In a more targeted sense, a policy might lower barriers to leaving a partner who uses violence if it provides IPV victims with easy access to wrap-around services that ensure they have safe housing and the other financial support they require. It seems likely that to be effective such support would need to provide quick access to cash for items or services determined necessary by the individual victim-survivor without a lot of bureaucratic hurdles or judgement, as well as a way to transition to an appropriate longer-term benefit (Family Violence Death Review Committee, 2022).

Benefits for single parents must be generous enough to ensure single mothers who have left partners who use violence have enough money to care for their children without having to return to their former partners, and mothers must be able to access the full amount of money to which they are entitled regardless of whether their former partners produce the child support payments they are ordered to pay.

We also found weak evidence young mothers faced particularly high barriers to leaving partners who use violence. This could be for similar reasons to mothers with few financial resources, or may relate to other factors such as not framing their partner's behaviour as abuse, lack of life experience that equips them to deal with the situation, or because young mothers are less likely to be targeted by family violence campaigns because they don't necessarily consider their partners to be family. Changing the language used in such campaigns could help the messages on how to become safe more effectively reach younger victims of IPV.

We found a lack of access to a car was another barrier to leaving a partner who uses violence. A car could provide the physical means to leave the partner, or access to a car could be a proxy for financial resources. Poor physical health too provided a substantial barrier. However, we didn't find any significant relationship for other measures of the mother's physical or mental health, or for an indicator for the mother having a long-term disability.

We found evidence consistent with mothers who place high importance on maintaining their cultural traditions, who are primarily non-Europeans, facing particularly high barriers to leaving a partner who uses violence. However, the same evidence is consistent with a different

[87] However, more income may not always be an advantage. Women with high education or earnings report being discriminated against in the Family Court.

explanation, that cultural connections mean the partners of such mothers are more likely to stop using violence. Data limitations make it difficult to pin down which interpretation, if either, is correct, and how ethnic differences and unique inherent cultural values influence either association.[88] This consideration highlights the importance of cultural context in support systems and services that aim to assist victims of IPV, as well as in programmes for perpetrators of IPV. Survivors of different ethnicities may face culture-specific barriers that must be addressed for them to leave, and culture-specific approaches or interventions may be more effective at helping IPV perpetrators of different ethnicities stop using violence . Furthermore, barriers to leaving a partner who uses violence and the wellbeing of a mother and her children are linked to the wider system. Community-based organisations within their own cultures may be best placed to provide the appropriate support and responses needed.

Another major pattern that emerged is that most of the other types of factors we explored were not significantly correlated with the marginal effect of conflict or IPV on a relationship ending. In particular, we found very little evidence that the mother's access to outside help mattered for her ability to leave a partner who uses violence. This should not be interpreted to mean that people on the outside can't help the victim or that they can't improve an IPV survivor's wellbeing. It may reflect the fact such factors tend to be more subjective and thus difficult to measure precisely, which would create a bias towards finding no significant relationship. In addition, fully capturing a mother's access to outside help is inherently challenging, and associations may exist that are not captured in the available data.

Relatedly, we found very few significant results for the 54-month to 8-year period even when similar variables for the antenatal to 9-month period showed significant results. A contributing factor may be the imperfection in the best measure of a relationship ending we were able to construct. However, it may also be that a high proportion of couples at this point had been together since before the child was born, and if their relationships were going to end due to IPV they would have done so already.

Perhaps surprisingly, we found a higher marginal effect of physical conflict on a relationship ending when the partner was more educated or had higher income. This could be because the mothers in such cases are also more likely to be more educated and have higher earning potential, or for other reasons, such as higher income men being fluid regarding their relationships and more likely to move on to different women.

[88] The sample size was not large enough for us to explore how the relationship between cultural connection and the marginal effect of IPV on a relationship ending differed by the ethnicity of mother.

Even in relationships where frequent physical conflict occurs, the rate of relationships ending when a child was in the picture was relatively low (e.g., less than 11 percent between the antenatal and 9-month surveys). This is consistent with high barriers to leaving a partner who uses violence, even for victims with comparatively high available resources and support. However, it is also consistent with many victims not wanting to leave their partners, potentially for a wide range of reasons. For instance, their partners may stop using violence or they may believe their partners will stop using violence. Over a third of mothers who report antenatally that there is frequent physical conflict in their relationship report there is no physical conflict in their relationship a year later.[89] Improved support services to help people who use violence change their attitudes and problematic behaviours could expand the group of mothers whose partners cease their abusive behaviours (Murphy et al. 2013a; Polaschek, 2016). We leave investigation of the factors that are associated with a person who using violence ceasing the violence for future work.

[89] We can't say for certain other types of abuse are not present, nor that physical abuse won't pick up again, but this does seem a positive sign, and is consistent with prior literature that shows a considerable amount of IPV is transient.

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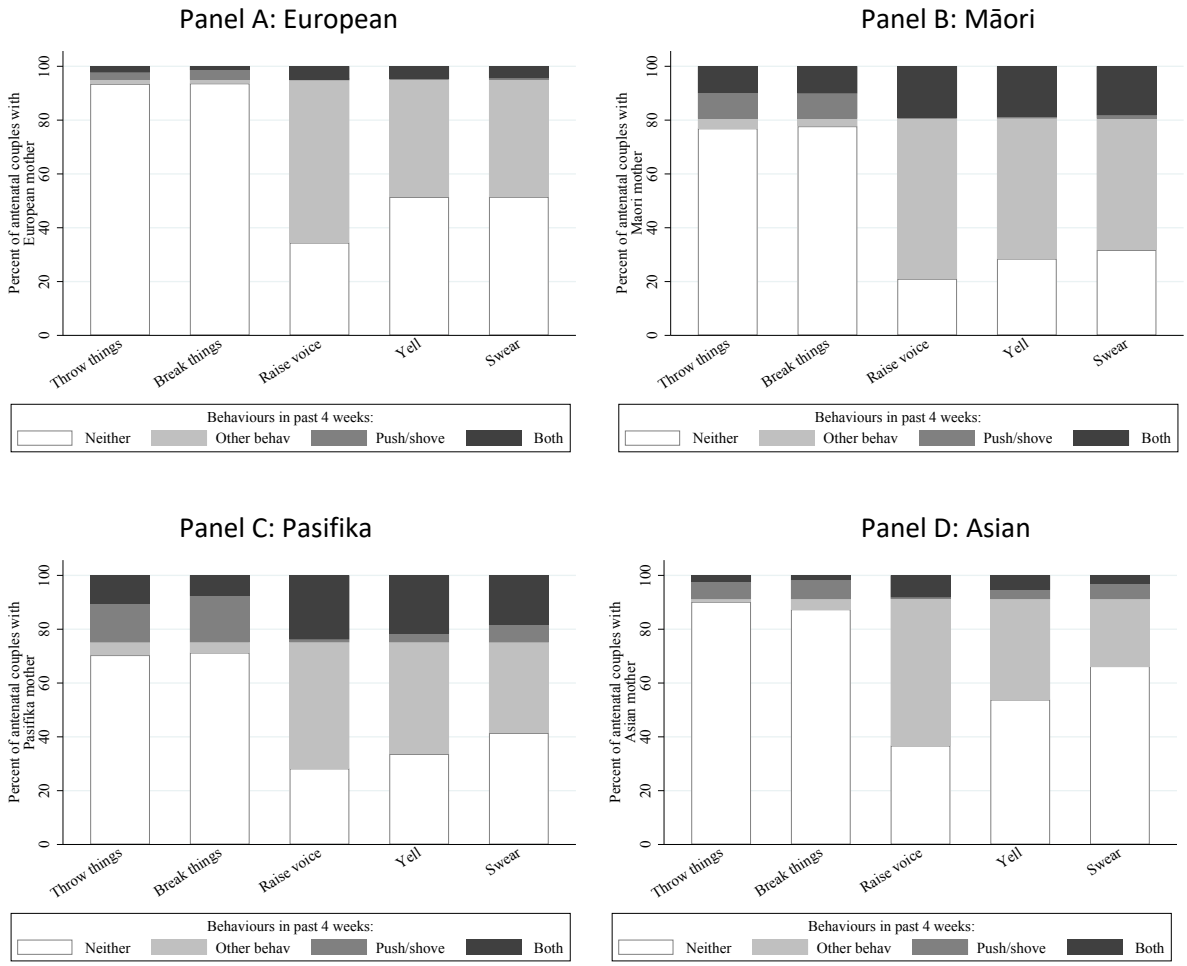
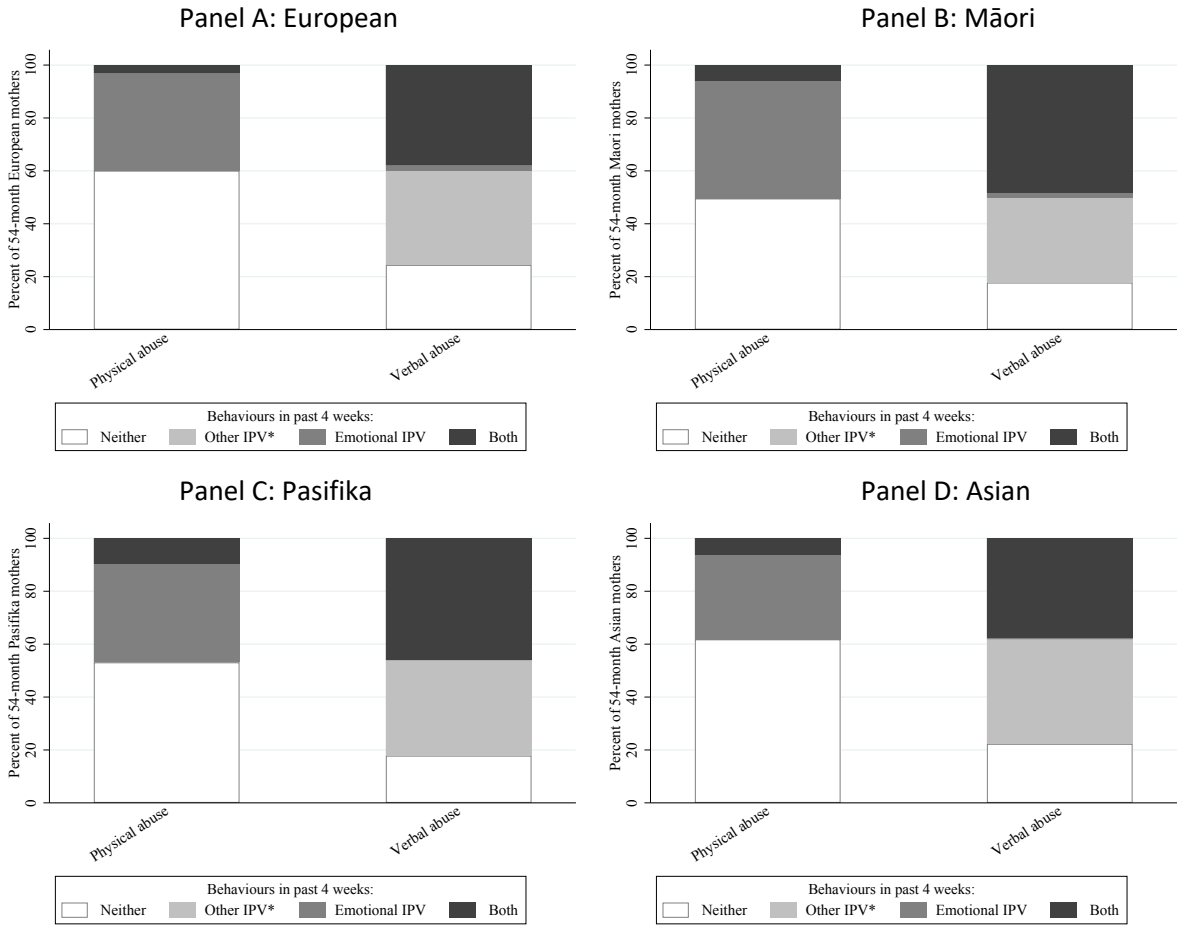
Appendix A: Figures

Appendix Figure 1: Ethnic differences in overlap between pushing/shoving and other types of conflict antenatally



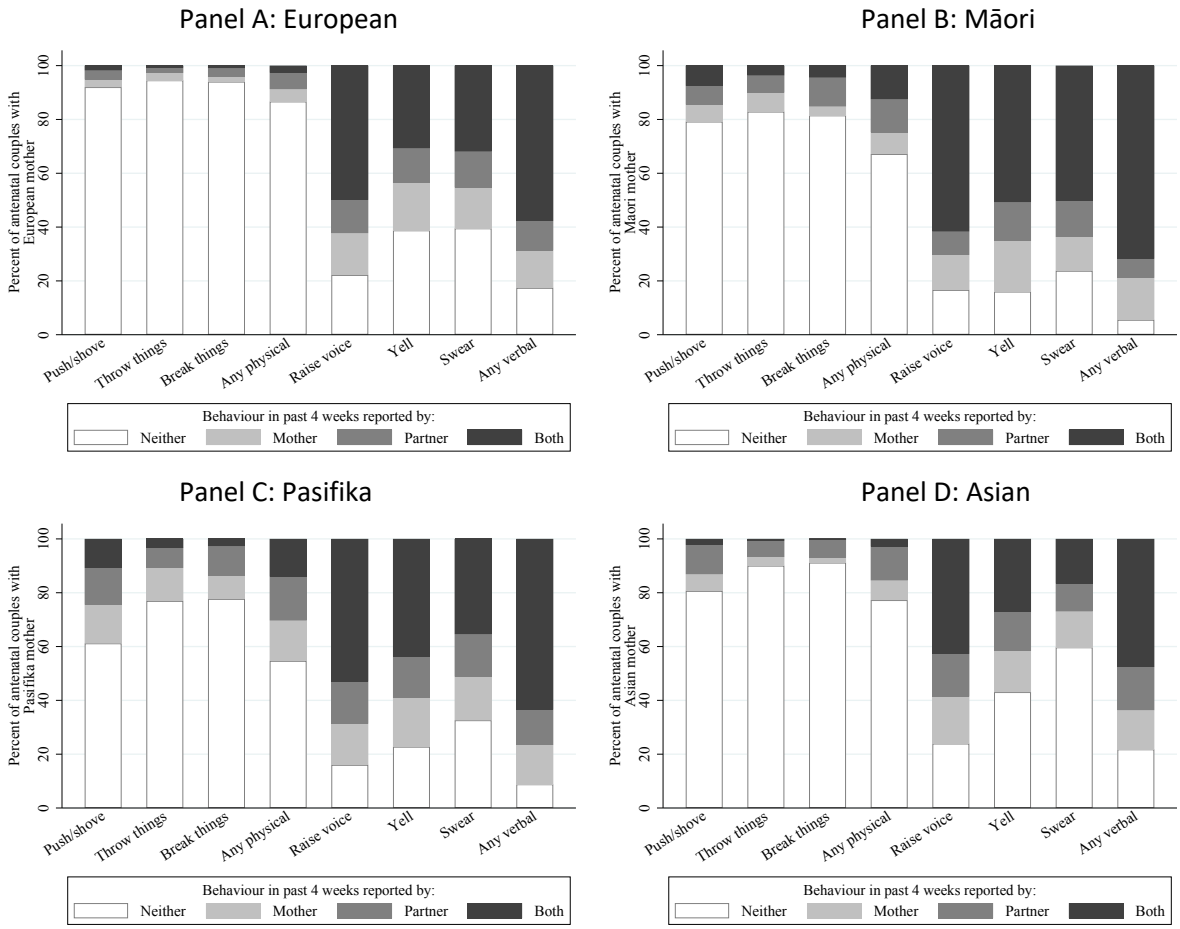
Notes: This figure replicates Figure 8 separately for mothers of each ethnicity. Mothers are included in each of the ethnic groups to which they report belonging. The figure shows the estimated overlap between couples who experience pushing or shoving antenatally and those who experience a range of other types of conflict at the same date. Each bar shows the overlap between pushing or shoving and one other type of behaviour. Percentages are based on the mother's reports of conflict and are weighted to be informative about the target population of interest, described in the text.

Appendix Figure 2: Ethnic differences in overlap between emotional and other types of abuse at 54 months



Notes: This figure replicates Figure 9 separately for mothers of each ethnicity. Mothers are included in each of the ethnic groups to which they report belonging. The figure shows the estimated overlap between mothers who experience emotional abuse at 54 months and those who experience physical or verbal abuse at the same date. The bars each show the overlap between emotional abuse and one of the other types of behaviour. Percentages are based on the mother's reports of abuse and are weighted to be informative about the target population of interest, described in the text. * indicates that in the case of physical abuse (left hand bars) the category 'other IPV' is combined with 'both' to preserve confidentiality because the absolute count of mothers in this category is below 10.

Appendix Figure 3: Ethnic differences in similarity between mothers' and partners' reports of conflict antenatally



Notes: This figure replicates Figure 10 separately for mothers of each ethnicity. Mothers are included in each of the ethnic groups to which they report belonging. The figure shows the estimated overlap between mothers' reports of conflict within their relationships antenatally and their partners' reports of the same conflict. Each bar shows the overlap in reports for a different type of conflict. Percentages are weighted to be informative about the target population of interest, described in the text. The category 'any physical' includes pushing/shoving, throwing things, and breaking things; the category 'any verbal' includes raising the voice, yelling, and swearing.

Appendix B: Tables

Appendix Table 1: Conflict and intimate partner violence reported by the mother

	Percentage of couples displaying frequency of behaviour in past 4 weeks						Observations
	Never		Infrequent		Frequent		
	Unwgtd	Wgtd	Unwgtd	Wgtd	Unwgtd	Wgtd	
Panel A: Antenatal							
Physical conflict:							
Push/shove each other	89.6	87.9	8.9	10.3	1.5	1.8	5,817
Throw things at each other	93.6	92.8	5.6	6.3	0.8	0.9	5,818
Break things when arguing	95.1	94.5	4.1	4.7	0.7	0.9	5,819
Any physical	86.0	84.0	11.7	13.2	2.3	2.8	5,817
Verbal conflict:							
Raise voice when arguing	34.5	34.4	50.0	49.3	15.5	16.2	5,818
Yell at each other	50.9	50.2	38.3	38.3	10.8	11.6	5,818
Swear at each other	56.0	55.9	34.0	33.3	10.0	10.8	5,815
Any verbal	28.4	28.1	52.1	51.2	19.5	20.7	5,813
Panel B: 9 months							
Physical conflict:							
Push/shove each other	89.0	86.8	9.3	11.1	1.7	2.1	5,820
Throw things at each other	91.9	90.5	7.2	8.3	0.9	1.2	5,820
Break things when arguing	92.9	91.6	6.3	7.3	0.9	1.1	5,820
Any physical	84.7	82.2	12.8	14.6	2.5	3.2	5,820
Verbal conflict:							
Raise voice when arguing	28.5	28.0	52.2	51.6	19.2	20.4	5,819
Yell at each other	45.6	44.6	41.9	41.7	12.5	13.7	5,819
Swear at each other	53.0	53.1	35.7	34.6	11.3	12.2	5,820
Any verbal	23.3	22.6	53.5	52.8	23.2	24.7	5,818

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	Percentage of couples displaying frequency of behaviour in past 4 weeks						Observations
	Never		Infrequent		Frequent		
	Unwgtd	Wgtd	Unwgtd	Wgtd	Unwgtd	Wgtd	
Panel C: 54 months							
Emotional abuse:							
Partner insults/makes you feel bad about yourself	62.3	61.4	33.3	33.9	4.4	4.7	4,627
Partner belittles/humiliates you in front of others	79.8	79.0	18.4	18.9	1.9	2.1	4,635
Partner scares/intimidates you on purpose	89.1	87.4	9.5	11.0	1.4	1.7	4,635
Any emotional abuse	59.2	58.4	35.8	36.2	5.0	5.5	4,625
Physical abuse:							
Partner slaps/throws things at you	96.3	95.2	3.4	4.4	0.3	0.4	4,638
Partner pushes/shoves/pulls your hair	96.3	95.4	3.4	4.3	0.3	0.3	4,638
Partner hits you with something that could hurt you #	97.8	97.0	2.2	3.0	-	-	4,638
Any physical abuse	95.1	93.8	4.6	5.8	0.3	0.4	4,638
Verbal abuse:							
Partner raises voice at you when arguing	29.9	29.7	54.6	54.4	15.5	15.9	4,634
Partner yells at you when angry	40.3	39.1	49.1	49.5	10.7	11.3	4,631
Partner swears at you when angry	51.4	51.1	40.8	40.8	7.8	8.1	4,630
Any verbal abuse	25.8	25.3	56.2	56.1	18.0	18.6	4,627
Panel D: 8 years							
Partner insults/belittles/intimidates/sulks/blames you +	69.0	66.2	23.9	25.8	7.1	8.0	4,160
Partner physically abuses you #+	98.7	98.2	1.3	1.8	-	-	4,200
Partner raises voice/yells/swears +	68.4	65.8	25.4	27.2	6.2	7.0	4,193
Partner is controlling +	89.7	87.3	7.9	9.4	2.4	3.4	4,193

Notes: This table shows the percentage of couples in the antenatal (Panel A), 9-month (Panel B), 54-month (Panel C), and 8-year (Panel D) surveys for which the mother reported that conflict or abusive behaviours occured within the relationship never, infrequently, or frequently. Population percentages are given unweighted and weighted as described in Section 5.1.2. # indicates "frequent" has been grouped with "infrequent" for confidentiality reasons. + indicates "almost never" is included with "never" rather than with "infrequent" for data availability reasons.

Appendix Table 2: Transitions between relationship states

Panel A: Physical conflict status changes antenatally to 9 months

		Status at 9 months (% of mothers with antenatal status)					
		Mother not in relationship	Mother in relationship, reporting:				Number of mothers
Antenatal status			No physical conflict	Infrequent physical conflict	Frequent physical conflict	Total	
Mother not in relationship		80.4	14.1	4.3	1.2	19.6	965
Mother in relationship, reporting:	No physical conflict	4.2	84.3	9.8	1.7	95.8	12,535
	Infrequent physical conflict	7.9	49.1	37.3	5.7	92.1	1,951
	Frequent physical conflict	10.6	33.7	29.8	25.9	89.4	422
	Total	4.9	78.3	13.9	2.9	95.1	14,908

Panel B: Verbal conflict status changes antenatally to 9 months

		Status at 9 months (% of mothers with antenatal status)					
		Mother not in relationship	Mother in relationship, reporting:				Number of mothers
Antenatal status			No verbal conflict	Infrequent verbal conflict	Frequent verbal conflict	Total	
Mother not in relationship		80.5	5.1	6.9	7.6	19.5	967
Mother in relationship, reporting:	No verbal conflict	2.4	53.3	37.7	6.6	97.6	4,206
	Infrequent verbal conflict	4.6	11.9	64.5	19.0	95.4	7,627
	Frequent verbal conflict	9.0	3.2	32.2	55.5	91.0	3,073
	Total	4.9	21.8	50.3	23.0	95.1	14,906

Panel C: Emotional abuse status changes 54 months to 8 years

		Status at 8 years (% of mothers with 54-month status)					
		Mother not in relationship	Mother in relationship, reporting:				Number of mothers
54-month status			No emotional abuse	Infrequent emotional abuse	Frequent emotional abuse	Total	
Mother not in relationship		65.2	29.0	5.4	0.4	34.8	1,848
Mother in relationship, reporting:	No emotional abuse	5.4	87.5	6.1	1.0	94.6	11,628
	Infrequent emotional abuse	16.9	60.1	18.7	4.3	83.1	1,761
	Frequent emotional abuse	13.2	45.8	25.9	15.1	86.8	660
	Total	7.2	82.1	8.6	2.1	92.8	14,048

Panel D: Physical abuse status changes 54 months to 8 years

		Status at 8 years (% of mothers with 54-month status)				
		Mother not in relationship	Mother in relationship, reporting:			Number of mothers
54-month status			No physical abuse	Any physical abuse	Total	
Mother not in relationship		64.7	34.2	1.1	35.3	1,850
Mother in relationship, reporting:	No physical abuse	6.7	92.2	1.1	93.3	13,358
	Any physical abuse	17.0	71.2	11.7	83.0	666
	Total	7.2	91.2	1.6	92.8	14,025

Panel E: Verbal abuse status changes 54 months to 8 years

		Status at 8 years (% of mothers with 54-month status)					
		Mother not in relationship	Mother in relationship, reporting:				Number of mothers
54-month status			No verbal abuse	Infrequent verbal abuse	Frequent verbal abuse	Total	
Mother not in relationship		64.9	22.2	10.9	2.0	35.1	1,850
Mother in relationship, reporting:	No verbal abuse	5.1	74.8	17.8	2.3	94.9	9,077
	Infrequent verbal abuse	10.7	44.2	36.6	8.6	89.3	3,234
	Frequent verbal abuse	11.6	21.5	41.6	25.3	88.4	1,742
	Total	7.2	61.2	25.1	6.6	92.8	14,053

Note: The five panels of this figure each show the weighted percentage of mothers transitioning between two different IPV states between consecutive survey waves. Percentages are expressed in terms of the total mothers in the initial state. The number of mothers given for each initial state (row) is the estimated number of mothers in our New Zealand population of interest, described in Section 5.2. In panel D, infrequent and frequent abuse are aggregated for confidentiality reasons.

Appendix Table 3: Rates of IPV for women in the NZCVS by life stage

Dependent variable: Experienced IPV by a current or past partner in the previous 12 months					
	(1)	(2)	(3)	(4)	(5)
Life stage (omitted: no children)					
Oldest child aged -3 to 0 years	-0.687***	-0.745***	-0.760***	-0.757***	-0.736***
	(0.161)	(0.162)	(0.163)	(0.163)	(0.165)
Oldest child aged 1 to 2 years	-0.199	-0.262	-0.271	-0.262	-0.285*
	(0.174)	(0.176)	(0.175)	(0.173)	(0.171)
Oldest child aged 3 to 5 years	0.453***	0.396***	0.387***	0.391***	0.381**
	(0.144)	(0.147)	(0.148)	(0.148)	(0.149)
Oldest child aged 6 to 10 years	0.308**	0.199	0.177	0.181	0.191
	(0.130)	(0.134)	(0.135)	(0.136)	(0.136)
Oldest child aged 11 to 15 years	0.615***	0.467***	0.442***	0.451***	0.445***
	(0.145)	(0.151)	(0.151)	(0.152)	(0.150)
Oldest child aged 16+ years	0.686***	0.465***	0.403***	0.399***	0.414***
	(0.154)	(0.148)	(0.144)	(0.147)	(0.145)
Survey year (omitted: 2018)					
2019	0.068	0.065	0.051	0.061	0.069
	(0.094)	(0.096)	(0.097)	(0.097)	(0.097)
2020	0.079	0.056	0.049	0.048	0.063
	(0.108)	(0.111)	(0.112)	(0.113)	(0.114)
2021	-0.111	-0.146	-0.160	-0.154	-0.158
	(0.096)	(0.099)	(0.100)	(0.100)	(0.100)
Deprivation index (1-10)			0.065***	0.060***	0.063***
			(0.015)	(0.016)	(0.017)
Urban nature of area of residence (omitted: major urban area)					
Large urban area				0.055	0.158
				(0.105)	(0.132)
Medium urban area				0.015	-0.031
				(0.125)	(0.142)
Small urban area				0.016	-0.017
				(0.122)	(0.125)
Rural settlement				0.145	0.254
				(0.213)	(0.225)
Rural other				-0.225	-0.229
				(0.146)	(0.155)
Age fixed effects (2-year bands)	Yes	Yes	Yes	Yes	Yes
Ethnicity combination fixed effects		Yes	Yes	Yes	Yes
Regional Council fixed effects					Yes
Observations	8,322	8,217	8,217	8,202	8,202

Notes: This table presents the coefficients and standard errors from a series of probit regressions of IPV on individual characteristics for women in the NZCVS. The sample is limited to women with a current partner or who had a partner in the last year; it is described fully in the text. Observations are weighted so the sample is representative of the New Zealand population. Asterisks denote: * p<0.10, ** p<0.05, *** p<0.01.

Appendix Table 4: Rates of IPV for men in the NZCVS by life stage

Dependent variable: Experienced IPV by a current or past partner in the previous 12 months	(1)	(2)	(3)	(4)	(5)
Life stage (omitted: no children)					
Oldest child aged -3 to 0 years	-0.400	-0.414	-0.414	-0.420	-0.461*
	(0.265)	(0.273)	(0.273)	(0.262)	(0.261)
Oldest child aged 1 to 2 years	-0.492*	-0.519*	-0.516*	-0.526*	-0.571*
	(0.299)	(0.304)	(0.303)	(0.292)	(0.294)
Oldest child aged 3 to 5 years	-0.199	-0.329	-0.322	-0.326	-0.315
	(0.239)	(0.247)	(0.246)	(0.236)	(0.239)
Oldest child aged 6 to 10 years	0.033	-0.084	-0.081	-0.078	-0.068
	(0.205)	(0.217)	(0.217)	(0.220)	(0.225)
Oldest child aged 11 to 15 years	-0.091	-0.203	-0.199	-0.197	-0.195
	(0.247)	(0.230)	(0.229)	(0.230)	(0.233)
Oldest child aged 16+ years	0.374*	0.255	0.255	0.260	0.256
	(0.223)	(0.222)	(0.221)	(0.219)	(0.226)
Survey year (omitted: 2018)					
2019	-0.047	-0.061	-0.061	-0.069	-0.061
	(0.138)	(0.142)	(0.143)	(0.143)	(0.145)
2020	-0.196	-0.143	-0.146	-0.158	-0.147
	(0.175)	(0.179)	(0.179)	(0.180)	(0.177)
2021	-0.456**	-0.458**	-0.460**	-0.479***	-0.450**
	(0.178)	(0.180)	(0.180)	(0.181)	(0.176)
Deprivation index (1-10)			0.017	0.024	0.037
			(0.021)	(0.021)	(0.022)
Urban nature of area of residence (omitted: major urban area)					
Large urban area				-0.143	0.018
				(0.167)	(0.192)
Medium urban area				-0.350	-0.161
				(0.245)	(0.258)
Small urban area				-0.103	0.076
				(0.208)	(0.189)
Rural settlement				-0.387	-0.072
				(0.368)	(0.360)
Rural other				0.141	0.355*
				(0.170)	(0.197)
Age fixed effects (2-year bands)	Yes	Yes	Yes	Yes	Yes
Ethnicity combination fixed effects		Yes	Yes	Yes	Yes
Regional Council fixed effects					Yes
Observations	5,691	4,761	4,761	4,749	4,512

Notes: This table presents the coefficients and standard errors from a series of probit regressions of IPV on individual characteristics for men in the NZCVS. The sample is limited to men with a current partner or who had a partner in the last year; it is described fully in the text. Observations are weighted so the sample is representative of the New Zealand population. Asterisks denote: * p<0.10, ** p<0.05, *** p<0.01.

Appendix Table 5: What factors are differently associated with a relationship ending between the antenatal and 9-month waves if the partner uses violence? Basic demographics

		Coefficient and standard error on:			
Reg	Control variable	Physical conflict (0-2)	Control variable	Interaction between conflict and control variable	Obs
(1)	Mother's age minus 30 * Mother aged under 30	0.068	-0.028**	0.009	5,435
		(0.156)	(0.013)	(0.020)	
	Mother's age minus 30 * Mother aged over 30		0.002	0.055*	
			(0.018)	(0.032)	
(2)	Mother's self-prioritised ethnicity (omitted: European/NZer)				5,435
	Māori	0.231	-0.032	-0.041	
		(0.141)	(0.114)	(0.185)	
	Pasifika		0.051	-0.353*	
			(0.122)	(0.187)	
	Asian		-0.108	-0.177	
			(0.157)	(0.281)	
	Other or missing ethnicity		0.077	0.055	
			(0.268)	(0.507)	
(3)	Mother's highest qualification (omitted: no qualifications)				5,433
	Level 1-4	0.017	-0.184	0.148	
		(0.165)	(0.144)	(0.202)	
	Level 5-6		0.030	-0.106	
			(0.138)	(0.201)	
	Level 7		-0.244	0.024	
			(0.176)	(0.337)	
	Level 8+		-0.542**	0.868***	
			(0.230)	(0.312)	
(4)	Deprivation Index of mother antenatally	0.615***	0.057***	-0.071***	5,435
		(0.207)	(0.016)	(0.026)	
(5)	Antenatal household income (omitted: >=$100k)				5,435
	<=$50k	0.529***	0.456***	-0.669***	
		(0.188)	(0.140)	(0.221)	
	$50k-$100k		0.216*	-0.345	
			(0.130)	(0.227)	

Notes: This table presents the results of probit regressions of a relationship ending between the antenatal and 9-month waves, allowing the correlation between conflict and break-up to differ by other characteristics. Coefficients and standard errors are presented. The dependent variable is an indicator for the relationship has ended by 9-month survey. The sample is mothers in a relationship antenatally whose relationship status at 9 months is known. Each regression, numbered in first column, includes antenatal physical conflict (on a scale of 0 to 2), one or a set of control variables listed in the second column, and the interactions of these variables with physical conflict. All regressions also include the controls given in column 6 of Table 2 (coefficients not presented). Asterisks indicate: * p<0.10, ** p<0.05, *** p<0.01.

Appendix Table 6: What factors are differently associated with a relationship ending between the 54-month and 8-year waves if the partner uses violence? Basic demographics

		Coefficient and standard error on:			
Reg	Control variable	Emotional abuse (0-2)	Control variable	Interaction between abuse and control variable	Obs
(1)	Mother's age at 54 month interview	1.222	-0.217***	-0.058	3,780
		(1.382)	(0.072)	(0.081)	
	Mother's age at 54 month interview squared (/100)		0.310***	0.089	
			(0.102)	(0.116)	
(2)	Mother's self-prioritised ethnicity (omitted: European/NZer)				3,780
	Māori	0.286***	0.013	0.096	
		(0.066)	(0.143)	(0.149)	
	Pasifika		0.212	-0.182	
			(0.147)	(0.171)	
	Asian		-0.341**	0.303*	
			(0.172)	(0.178)	
	Other or missing ethnicity		-0.304	0.332	
			(0.374)	(0.434)	
(3)	Mother's highest qualification (omitted: no qualifications)				3,780
	Level 1-4	0.247	-0.326*	-0.034	
		(0.211)	(0.194)	(0.240)	
	Level 5-6		-0.324*	0.140	
			(0.189)	(0.227)	
	Level 7		-0.596***	0.163	
			(0.201)	(0.236)	
	Level 8+		-0.577***	-0.121	
			(0.213)	(0.260)	
(4)	Deprivation Index of mother at 54 months	0.547***	0.044***	-0.040**	3,778
		(0.112)	(0.016)	(0.017)	
(5)	Household income at 54 months (omitted: >=$100k)				3,780
	<=$50k	0.296***	0.376***	0.003	
		(0.082)	(0.141)	(0.154)	
	$50k-$100k		0.063	0.079	
			(0.104)	(0.119)	
(6)	Mother's material deprivation at 54 months (0-6)	0.275***	0.023	0.037	3,780
		(0.061)	(0.041)	(0.039)	

Notes: This table presents the results of probit regressions of a relationship ending between the 54-month and 8-year waves, allowing the correlation between conflict and break-up to differ by other characteristics. Coefficients and standard errors are presented. The dependent variable is an indicator for the relationship has ended by the 8-year survey. The sample is mothers in a relationship at 54 months whose relationship status at 8 years is known, for whom partner data are non-missing. Each regression, numbered in first column, includes emotional abuse at 54 months (on a scale of 0 to 2), one or a set of control variables listed in the second column, and the interactions of these variables with emotional abuse. All regressions also include the controls given in column 6 of Table 3 (coefficients not presented). Asterisks indicate: * p<0.10, ** p<0.05, *** p<0.01.

Appendix Table 7: What factors are differently associated with a relationship ending between the antenatal and 9-month waves if the partner uses violence? Level of commitment in relationship and mother's financial reliance on partner

		Coefficient and standard error on:			
Reg	Control variable	Physical conflict (0-2)	Control variable	Interaction between conflict and control variable	Obs
Panel A: Level of commitment in relationship					
(1)	Child is mother's first	0.066	-0.217**	0.009	5,435
		(0.092)	(0.094)	(0.134)	
(2)	Mother lives with partner antenatally	-0.136	-0.911***	0.327*	5,435
		(0.141)	(0.126)	(0.167)	
	Partner and mother are married		-0.572***	-0.166	
			(0.096)	(0.173)	
(3)	Mother lives with partner antenatally	-0.136	-0.897***	0.277	5,435
		(0.141)	(0.127)	(0.185)	
	Mother's years of cohabitation (capped at 10)		-0.057***	0.000	
			(0.017)	(0.028)	
(4)	Mother lives with partner antenatally	-0.039	-0.813***	0.181	5,435
		(0.226)	(0.165)	(0.238)	
	Mother's relationship length if not cohabiting		0.030	-0.035	
			(0.038)	(0.065)	
(5)	Pregnancy was planned	0.063	-0.079	0.032	5,435
		(0.077)	(0.068)	(0.109)	
(6)	Relationship more committed since pregnancy	0.046	0.014	0.209	5,433
		(0.074)	(0.134)	(0.192)	
Panel B: Mother's financial reliance on partner					
(7)	Mother's antenatal work status (omitted: employed)				5,435
	Unemployed	0.122	0.156	0.133	
		(0.129)	(0.147)	(0.200)	
	Student		0.190	0.053	
			(0.155)	(0.257)	
	Not in the labour force		0.369***	-0.173	
			(0.096)	(0.165)	
(8)	Cost of separation prevents mother leaving	0.079	-0.471*	0.138	5,429
		(0.071)	(0.280)	(0.319)	
(9)	Mother's antenatal personal income ($00,000s)	-0.036	-0.027	0.580*	5,435
		(0.120)	(0.227)	(0.338)	
(10)	Mother was manager/professional antenatally	0.050	-0.172	0.199	5,435
		(0.073)	(0.130)	(0.236)	

Notes: This table presents the results of probit regressions of a relationship ending between the antenatal and 9-month waves, allowing the correlation between conflict and break-up to differ by other characteristics. Coefficients and standard errors are presented. The dependent variable is an indicator for the relationship has ended by 9-month survey. The sample is mothers in a relationship antenatally whose relationship status at 9 months is known. Each regression, numbered in first column, includes antenatal physical conflict (on a scale of 0 to 2), one or a set of control variables listed in the second column, and the interactions of these variables with physical conflict. All regressions also include the controls given in column 6 of Table 2 (coefficients not presented). Asterisks indicate: * p<0.10, ** p<0.05, *** p<0.01.

Appendix Table 8: What factors are differently associated with a relationship ending between the 54-month and 8-year waves if the partner uses violence? Level of commitment in relationship, mother's financial reliance on partner, mother's access to physical and psychological resources

		Coefficient and standard error on:			
Reg	Control variable	Emotional abuse (0-2)	Control variable	Interaction between abuse and control variable	Obs
Panel A: Level of commitment in relationship					
(1)	Mother lives with partner at 54 months	0.651**	-0.746***	-0.313	3,780
		(0.326)	(0.216)	(0.258)	
	Mother's partner is same at 54 months as at 2 years		-0.438**	-0.035	
			(0.198)	(0.290)	
Panel B: Mother's financial reliance on partner					
(2)	Mother is employed at 54 months	0.299***	0.094	0.020	3,780
		(0.099)	(0.112)	(0.116)	
(3)	Mother is manager/professional at 54 months	0.356***	0.229**	-0.082	3,780
		(0.071)	(0.092)	(0.103)	
(4)	Mother is self-employed at 54 months	0.316***	0.044	0.009	3,780
		(0.056)	(0.122)	(0.142)	
Panel C: Mother's access to physical and psychological resources					
(5)	Mother lives in rural area at 54 months	0.356***	0.298**	-0.297*	3,778
		(0.055)	(0.122)	(0.166)	
(6)	Mother's physical health at 54 months (0 poor to 4 excellent)	0.145	-0.007	0.046	3,779
		(0.207)	(0.047)	(0.052)	
(7)	Mother's weekly alcoholic drinks at 54 months (omitted: none)				3,780
	<1 drink	0.325***	-0.035	0.099	
		(0.086)	(0.125)	(0.141)	
	1-3 drinks		-0.087	0.042	
			(0.122)	(0.142)	
	4+ drinks		0.226*	-0.174	
			(0.117)	(0.140)	
(8)	Mother ever sought help for alcohol use (54 months)	0.314***	-0.182	0.234	3,779
		(0.052)	(0.434)	(0.405)	

Notes: This table presents the results of probit regressions of a relationship ending between the 54-month and 8-year waves, allowing the correlation between conflict and break-up to differ by other characteristics. Coefficients and standard errors are presented. The dependent variable is an indicator for the relationship has ended by the 8-year survey. The sample is mothers in a relationship at 54 months whose relationship status at 8 years is known, for whom partner data are non-missing. Each regression, numbered in first column, includes emotional abuse at 54 months (on a scale of 0 to 2), one or a set of control variables listed in the second column, and the interactions of these variables with emotional abuse. All regressions also include the controls given in column 6 of Table 3 (coefficients not presented). Asterisks indicate: * p<0.10, ** p<0.05, *** p<0.01.

Appendix Table 9: What factors are differently associated with a relationship ending between the antenatal and 9-month waves if the partner uses violence? Value mother gets from the relationship and mother's access to physical and psychological resources

		Coefficient and standard error on:			
Reg	Control variable	Physical conflict (0-2)	Control variable	Interaction between conflict and control variable	Obs
Panel A: Value mother gets from the relationship					
(1)	Help mother expects from partner (1-6)	-0.803**	-0.269***	0.166***	5,431
		(0.314)	(0.042)	(0.060)	
(2)	Partner's expected involvement with child (0-4)	-0.061	-0.137***	0.048	5,431
		(0.227)	(0.053)	(0.075)	
(3)	How often partner expected to care for child (0-4)	-0.120	-0.153***	0.074	5,429
		(0.214)	(0.046)	(0.071)	
(4)	Help mother expects from own family/friends (mean 0, sd 1)	0.077	0.017	-0.048	5,423
		(0.068)	(0.041)	(0.062)	
(5)	Mother's +ve interactions with partner (0-10)	-0.340	-0.184***	0.040	5,435
		(0.361)	(0.029)	(0.040)	
(6)	Mother wouldn't separate due to shame	0.090	-0.455**	-0.034	5,431
		(0.071)	(0.222)	(0.295)	
Panel B: Mother's access to physical and psychological resources					
(7)	Mother lives in rural area	0.051	0.059	0.379	5,435
		(0.071)	(0.156)	(0.263)	
(8)	Mother has access to a car (0 no to 2 always)	-0.120	-0.032	0.148*	5,434
		(0.130)	(0.055)	(0.081)	
(9)	Mother's physical health (0 poor to 4 excellent)	-0.231	-0.052	0.135**	5,431
		(0.160)	(0.044)	(0.063)	
(10)	Mother has long-term disability	0.069	-0.126	0.098	5,434
		(0.071)	(0.178)	(0.278)	
(11)	Mother ever diagnosed with depression	0.072	0.022	0.035	5,434
		(0.078)	(0.103)	(0.161)	
(12)	Mother ever diagnosed with anxiety/panic attacks	0.099	0.080	-0.264	5,433
		(0.071)	(0.124)	(0.261)	
(13)	Mother's negative feelings in past 4 wks (0-20)	-0.038	0.016*	0.007	5,417
		(0.208)	(0.009)	(0.016)	
(14)	Mother's alcohol use before pregnancy (0 none to 3 4+/wk)	0.025	0.050	0.027	5,432
		(0.126)	(0.036)	(0.056)	
(15)	Mother's alcohol use in first trimester (0 none to 3 4+/wk)	0.101	0.045	-0.034	5,432
		(0.082)	(0.039)	(0.056)	
(16)	Mother's alcohol use in trimesters 2/3 (0 none to 3 4+/wk)	0.088	-0.100	-0.013	5,435
		(0.073)	(0.086)	(0.095)	

Notes: This table presents the results of probit regressions of a relationship ending between the antenatal and 9-month waves, allowing the correlation between conflict and break-up to differ by other characteristics. Coefficients and standard errors are presented. The dependent variable is an indicator for the relationship has ended by 9-month survey. The sample is mothers in a relationship antenatally whose relationship status at 9 months is known. Each regression, numbered in first column, includes antenatal physical conflict (on a scale of 0 to 2), one or a set of control variables listed in the second column, and the interactions of these variables with physical conflict. All regressions also include the controls given in column 6 of Table 2 (coefficients not presented). Asterisks indicate: * p<0.10, ** p<0.05, *** p<0.01.

Appendix Table 10: What factors are differently associated with a relationship ending between the antenatal and 9-month waves if the partner uses violence? Mother's access to outside help

		Coefficient and standard error on:			
Reg	Control variable	Physical conflict (0-2)	Control variable	Interaction between conflict and control variable	Obs
(1)	Mother's family asks for help when needed (1-4)	0.159	-0.013	-0.027	5,432
		(0.261)	(0.050)	(0.080)	
(2)	Mother's family would provide for each other (1-4)	0.413	0.062	-0.095	5,431
		(0.328)	(0.066)	(0.091)	
(3)	Mother's family is very close (1-4)	0.146	-0.063	-0.021	5,434
		(0.311)	(0.058)	(0.087)	
(4)	Mother's family members support each other (1-4)	0.334	0.002	-0.072	5,434
		(0.370)	(0.071)	(0.100)	
(5)	Mother's family members ask each other for advice (1-4)	0.247	-0.057	-0.058	5,432
		(0.234)	(0.050)	(0.073)	
(6)	Closeness/supportiveness of mother's family (1-4)	0.391	-0.038	-0.095	5,433
		(0.393)	(0.080)	(0.115)	
(7)	Mother attended antenatal classes	0.025	-0.059	0.272	5,428
		(0.077)	(0.106)	(0.170)	
(8)	Mother's years living in the neighbourhood	0.000	-0.022*	0.021	5,429
		(0.095)	(0.012)	(0.017)	
(9)	Mother's family/friends live nearby	0.110	-0.065	-0.096	5,428
		(0.084)	(0.083)	(0.141)	
(10)	Mother is good friends with neighbours (1-5)	-0.115	-0.040	0.053	5,434
		(0.262)	(0.039)	(0.068)	
(11)	Mother belongs to a community	-0.056	-0.193**	0.249*	5,429
		(0.102)	(0.083)	(0.135)	
(12)	Mother's connection to neighbourhood (mean 0 sd 1)	0.097	-0.086**	0.076	5,427
		(0.070)	(0.039)	(0.071)	
(13)	Mother's doctor while pregnant (omitted: none)				5,426
	Different doctor to before pregnancy	0.078	-0.021	0.085	
		(0.173)	(0.134)	(0.220)	
	Same doctor as before pregnancy		0.037	-0.035	
			(0.104)	(0.193)	
(14)	Mother's lead maternity carer (omitted: independent midwife)				5,435
	Hospital midwife	0.123	0.025	-0.090	
		(0.085)	(0.112)	(0.184)	
	Obstetrician		-0.430*	0.312	
			(0.221)	(0.343)	
	Other or missing		0.234*	-0.165	
			(0.135)	(0.215)	
	Mother does not have a lead maternity carer		0.122	-0.623	
			(0.232)	(0.472)	
(15)	Extent to which partner considers himself a nice guy (omitted: averagely)				3,933
	Below averagely	0.401***	0.215	-0.672**	
		(0.127)	(0.143)	(0.281)	
	Above averagely		-0.082	-0.297	
			(0.162)	(0.284)	
(16)	Partner is good friends with neighbours (1-5)	0.465	0.107*	-0.070	3,935
		(0.357)	(0.061)	(0.093)	

Notes: This table presents the results of probit regressions of a relationship ending between the antenatal and 9-month waves, allowing the correlation between conflict and break-up to differ by other characteristics. Coefficients and standard errors are presented. The dependent variable is an indicator for the relationship has ended by 9-month survey. The sample is mothers in a relationship antenatally whose relationship status at 9 months is known. Each regression, numbered in first column, includes antenatal physical conflict (on a scale of 0 to 2), one or a set of control variables listed in the second column, and the interactions of these variables with physical conflict. Regressions (1) to (14) also include the controls given in column 6 of Table 2, and regressions (15) and (16) also include the controls given in column 7 of Table 2 (coefficients not presented). Asterisks indicate: * p<0.10, ** p<0.05, *** p<0.01.

Appendix Table 11: What factors are differently associated with a relationship ending between the 54-month and 8-year waves if the partner uses violence? Mother's access to outside help

		Coefficient and standard error on:			
Reg	Control variable	Emotional abuse (0-2)	Control variable	Interaction between abuse and control variable	Obs
(1)	Mother ever convicted of a crime (54 months)	0.321***	0.363	-0.199	3,777
		(0.053)	(0.264)	(0.253)	
(2)	Mother's weekly hours of work/study at 54 months	0.239	0.002	0.002	3,769
		(0.151)	(0.003)	(0.004)	
(3)	Times mother has moved since previous survey (omitted: none)				3,780
	Once	0.299***	-0.074	0.096	
		(0.071)	(0.106)	(0.125)	
	Twice		0.151	-0.085	
			(0.136)	(0.157)	
	Three or more times		0.109	0.037	
			(0.170)	(0.184)	
(4)	Mother is in ethnic/cultural club at 54 months	0.327***	-0.022	-0.027	3,775
		(0.068)	(0.101)	(0.118)	
(5)	Mother is involved with childcare provider at 54 months	0.289***	-0.164*	0.039	3,770
		(0.084)	(0.091)	(0.106)	
(6)	Main type of childcare at 54 months (omitted: kindergarten)				3,780
	ECE	0.420***	0.170*	-0.149	
		(0.094)	(0.101)	(0.118)	
	Other formal		0.324*	-0.149	
			(0.166)	(0.181)	
	Informal		-0.182	0.327	
			(0.333)	(0.366)	
	No childcare used at 54 months		0.935***	-0.474*	
			(0.224)	(0.255)	
(7)	Mother's interactions with childcare staff at 54 months (omitted: other/no communication)				3,778
	Mother meets with childcare staff/home visits	0.248	-0.273	0.082	
		(0.171)	(0.167)	(0.198)	
	Mother has short face-to-face talks with childcare staff		-0.276*	0.076	
			(0.153)	(0.182)	

Notes: This table presents the results of probit regressions of a relationship ending between the 54-month and 8-year waves, allowing the correlation between conflict and break-up to differ by other characteristics. Coefficients and standard errors are presented. The dependent variable is an indicator for the relationship has ended by the 8-year survey. The sample is mothers in a relationship at 54 months whose relationship status at 8 years is known, for whom partner data are non-missing. Each regression, numbered in first column, includes emotional abuse at 54 months (on a scale of 0 to 2), one or a set of control variables listed in the second column, and the interactions of these variables with emotional abuse. All regressions also include the controls given in column 6 of Table 3 (coefficients not presented). Asterisks indicate: * p<0.10, ** p<0.05, *** p<0.01.

Appendix Table 12: What factors are differently associated with a relationship ending between the antenatal and 9-month waves if the partner uses violence? Mother's trust in and ability to navigate the system and connection to her traditional culture

		Coefficient and standard error on:			
Reg	Control variable	Physical conflict (0-2)	Control variable	Interaction between conflict and control variable	Obs
Panel A: Mother's trust in and ability to navigate the system					
(1)	Mother's migrant status (omitted: NZ born)				5,429
	Migrated to NZ as a child	0.075	0.039	-0.108	
		(0.081)	(0.138)	(0.202)	
	Migrated to NZ as an adult		-0.176	0.123	
			(0.121)	(0.185)	
(2)	Mother typically spoke English at home as a child	-0.035	-0.034	0.186	5,426
		(0.116)	(0.103)	(0.143)	
(3)	Mother's knowledge of kiwi culture (mean 1.5 sd 1) if <0	0.050	0.475	0.424	5,430
		(0.139)	(0.289)	(0.542)	
	Mother's knowledge of kiwi culture (mean 1.5 sd 1) if >=0		-0.046	0.031	
			(0.050)	(0.084)	
(4)	Mother's experience of ethnic discrimination (0 none, 1 verbal, 2 physical)	0.085	-0.043	-0.017	5,434
		(0.077)	(0.088)	(0.124)	
(5)	Mother experienced ethnic discrimination by the NZ legal system	0.094	0.243	-0.231	5,432
		(0.071)	(0.188)	(0.240)	
(6)	Number of settings where mother experienced ethnic discrimination (0-6)	0.058	-0.003	0.033	5,435
		(0.079)	(0.054)	(0.077)	
Panel B: Mother's connection to her traditional culture					
(7)	Mother's knowledge of traditional culture (mean 0, sd 1)	0.073	0.047	-0.048	5,435
		(0.073)	(0.049)	(0.069)	
(8)	Mother's involvement in traditional cultural activities (mean 0, sd 1)	0.088	0.031	-0.111	5,435
		(0.073)	(0.051)	(0.069)	
(9)	Mother's positivity towards traditional culture (mean 0, sd 1)	0.079	0.060	-0.106	5,435
		(0.073)	(0.052)	(0.067)	
(10)	Importance mother places on maintaining cultural traditions (mean 0, sd 1)	0.079	0.026	-0.139**	5,435
		(0.073)	(0.051)	(0.067)	

Notes: This table presents the results of probit regressions of a relationship ending between the antenatal and 9-month waves, allowing the correlation between conflict and break-up to differ by other characteristics. Coefficients and standard errors are presented. The dependent variable is an indicator for the relationship has ended by 9-month survey. The sample is mothers in a relationship antenatally whose relationship status at 9 months is known. Each regression, numbered in first column, includes antenatal physical conflict (on a scale of 0 to 2), one or a set of control variables listed in the second column, and the interactions of these variables with physical conflict. All regressions also include the controls given in column 6 of Table 2 (coefficients not presented). Asterisks indicate: * p<0.10, ** p<0.05, *** p<0.01.

Appendix Table 13: What factors are differently associated with a relationship ending between the antenatal and 9-month waves if the partner uses violence? Partner's demographics, financial independence, and value partner gets from the relationship

		Coefficient and standard error on:			
Reg	Control variable	Physical conflict (0-2)	Control variable	Interaction between conflict and control variable	Obs
Panel A: Partner's demographics					
(1)	Partner's age minus 30 * Partner aged uner 30	0.213	-0.037	0.025	3,939
		(0.205)	(0.027)	(0.027)	
	Partner's age minus 30 * Partner aged over 30		-0.005	0.045	
			(0.019)	(0.030)	
(2)	Partner's self-prioritised ethnicity (omitted: European/NZer)				3,924
	Māori	0.437**	0.093	-0.091	
		(0.185)	(0.175)	(0.265)	
	Pasifika		0.175	-0.393	
			(0.185)	(0.257)	
	Asian		0.352	-0.907*	
			(0.242)	(0.541)	
	Other/missing ethnicity		0.031	dropped	
			(0.487)		
(3)	Partner's highest qualification (omitted: no qualifications)				3,936
	Level 1-4	-0.021	-0.521**	0.076	
		(0.251)	(0.205)	(0.340)	
	Level 5-6		-0.247	0.154	
			(0.174)	(0.294)	
	Level 7		-0.541**	0.793**	
			(0.268)	(0.367)	
	Level 8+		-0.398	0.652	
			(0.271)	(0.433)	
Panel B: Partner's financial independence					
(4)	Partner's antenatal work status (omitted: employed)				3,940
	Unemployed	0.245**	-0.106	0.033	
		(0.123)	(0.215)	(0.256)	
	Student		-0.096	-0.288	
			(0.194)	(0.459)	
	Not in the labour force		0.289	-0.569	
			(0.309)	(0.515)	
(5)	Cost of separation prevents partner leaving	0.211**	-0.162	-0.016	3,939
		(0.106)	(0.335)	(0.377)	
(6)	Partner's personal total income in last 12 months, $00,000s	-0.048	-0.365	0.777**	3,940
		(0.172)	(0.249)	(0.322)	
(7)	Partner receives income from employer	0.395*	0.002	-0.248	3,937
		(0.203)	(0.155)	(0.233)	
(8)	Partner receives income from self-employment/business	0.105	0.066	0.429*	3,937
		(0.119)	(0.151)	(0.232)	
(9)	Partner receives income from investments etc	0.166	-0.097	0.522	3,937
		(0.106)	(0.186)	(0.350)	
(10)	Partner receives ACC, unemployment, or sickness benefit	0.232**	0.135	-0.131	3,937
		(0.113)	(0.178)	(0.249)	
Panel C: Value partner gets from the relationship					
(11)	Partner wouldn't separate due to shame	0.220*	0.084	-0.010	3,938
		(0.129)	(0.074)	(0.120)	
(12)	Partner's +ve interactions with mother (0-10)	-0.948	-0.163***	0.121	3,940
		(1.005)	(0.056)	(0.104)	

Notes: This table presents the results of probit regressions of a relationship ending between the antenatal and 9-month waves, allowing the correlation between conflict and break-up to differ by other characteristics. Coefficients and standard errors are presented. The dependent variable is an indicator for the relationship has ended by 9-month survey. The sample is mothers in a relationship antenatally whose relationship status at 9 months is known for whom partner data are non-missing. Each regression, numbered in first column, includes antenatal physical conflict (on a scale of 0 to 2), one or a set of control variables listed in the second column, and the interactions of these variables with physical conflict. All regressions also include the controls given in column 7 of Table 2 (coefficients not presented). Asterisks indicate: * p<0.10, ** p<0.05, *** p<0.01.

Appendix Table 14: What factors are differently associated with a relationship ending between the antenatal and 9-month waves if the partner uses violence? Partner's access to physical and psychological resources and ability to manipulate the system

		Coefficient and standard error on:			
Reg	Control variable	Physical conflict (0-2)	Control variable	Interaction between conflict and control variable	Obs
Panel A: Partner's access to physical and psychological resources					
(1)	Partner's physical health (0 poor to 4 excellent)	0.064	-0.060	0.065	3,939
		(0.223)	(0.066)	(0.096)	
(2)	Partner has a long term disability	0.224**	0.333*	-0.183	3,939
		(0.106)	(0.173)	(0.341)	
(3)	Partner ever diagnosed with depression	0.165	0.318*	0.343	3,939
		(0.110)	(0.171)	(0.298)	
(4)	Partner ever diagnosed with anxiety/panic attacks	0.215**	0.117	-0.253	3,936
		(0.103)	(0.219)	(0.574)	
(5)	Partner's level of drinking (omitted: does not drink)				3,939
	Less than before pregnancy	0.281*	0.324*	-0.090	
		(0.151)	(0.185)	(0.259)	
	The same as or more than before pregnancy		0.348*	-0.205	
			(0.192)	(0.310)	
Panel B: Partner's ability to manipulate the system					
(6)	Partner's migrant status (omitted: NZ born)				3,940
	Migrated to NZ as a child	0.328***	0.413**	-0.307	
		(0.120)	(0.166)	(0.258)	
	Migrated to NZ as an adult		-0.155	-0.551	
			(0.175)	(0.381)	
(7)	Partner typically spoke English at home as a child	0.024	-0.148	0.282	3,940
		(0.171)	(0.178)	(0.211)	
(8)	Partner's knowledge of kiwi culture (mean 1.5 sd 1) if <0	-0.017	-0.235	-0.341	3,928
		(0.234)	(0.294)	(0.352)	
	Partner's knowledge of kiwi culture (mean 1.5 sd 1) if >=0		0.017	0.121	
			(0.076)	(0.124)	

Notes: This table presents the results of probit regressions of a relationship ending between the antenatal and 9-month waves, allowing the correlation between conflict and break-up to differ by other characteristics. Coefficients and standard errors are presented. The dependent variable is an indicator for the relationship has ended by 9-month survey. The sample is mothers in a relationship antenatally whose relationship status at 9 months is known for whom partner data are non-missing. Each regression, numbered in first column, includes antenatal physical conflict (on a scale of 0 to 2), one or a set of control variables listed in the second column, and the interactions of these variables with physical conflict. All regressions also include the controls given in column 7 of Table 2 (coefficients not presented). Asterisks indicate: * p<0.10, ** p<0.05, *** p<0.01.

Appendix C: What factors are differently associated with a relationship ending if the partner uses violence? Detailed description of regressions

In Section 5.3.3 we presented regression results on the factors associated with particularly high barriers to a mother leaving a partner who used violence. There we touched only briefly on the statistically insignificant results. In this section we explain each variable we explored and note the findings even if they were insignificant.

In this section we repeatedly discuss the marginal effect of conflict or IPV on a relationship ending. By this we mean the probability a relationship that includes IPV ends minus the probability a relationship that does not include IPV but is otherwise similar ends. Mothers for whom this marginal effect of conflict or IPV on a relationship ending is smaller or more negative we infer face particularly high barriers to leaving a partner who uses violence on them. Mothers for whom this marginal effect of conflict IPV on a relationship ending is larger we infer face lower (though likely still high) barriers to leaving such a partner.

Demographics

Mother's age

The age of the mother is predicted to be related to the marginal effect of IPV on relationship breakup because age is a proxy for a number of factors that affect a woman's ability to leave a relationship with a partner who uses violence. For instance, the life experience of older women may make them more likely to accurately frame in their own mind a partner's behaviour as abuse. Age could also affect their tolerance of abusive behaviour in a partner or their optimism that they can get their partner to change. Older mothers are also more likely to be more established in their careers, have higher earnings, be more financially stable, and may have greater savings. These factors could increase their ability to cope financially on their own without falling into homeless or other undesirable situations.

Results for this variable for the antenatal to 9-month period are given in regression (1) of Appendix Table 5. We use the age of the mother at the date of the antenatal interview, and impose a piecewise linear functional form with a kink at age 30 based on the raw relationship between age and breakup. The regression results show that in relationships with no IPV, the probability of a relationship ending decreases significantly with mother's age up to age 30 and subsequently remains fairly constant. As Figure 13 shows, the marginal effect of physical conflict on a relationship ending is close to zero for mothers aged under 32, but becomes increasingly positive for older mothers.

Results for this variable for the 54-month to 8-year period are given in regression (1) of Appendix Table 6. Here we include a quadratic in mother's age at the 54-month interview, again based on relationships in the raw data. The regression results show that in relationships with no IPV, the probability of the relationship ending is lowest for women aged 35 and increases somewhat for older and younger women. However, this relationship between age and breakup does not differ significantly when IPV is present.

Mother's self-prioritised ethnicity

The ethnicity of the mother is predicted to be related to the marginal effect of IPV on a relationship ending because it is a proxy for a range of attitudes and access to various types of resources. Mothers of different ethnicities might place a different importance on keeping their family together, have different attitudes about acceptable behaviour between intimate partners, or have different concerns about how leaving might reflect on their culture. They may also have different support from their community to stay in their relationship or leave it, different earning potential and access to savings, and different access to culturally appropriate support to leave their relationship from government and non-profit organisations.

Results for this variable for the antenatal to 9-month period are given in regression (2) of Appendix Table 5. Mothers are categorised by the ethnicity with which they most strongly identify in the antenatal survey. The omitted category is European, to whom we compare Māori, Pasifika, Asian, and mothers of other or missing ethnicity. Regression results show in couples where physical conflict is not reported no ethnicities are significantly different from Europeans in the probability of a relationship ending. Ethnic differences in the marginal effect of conflict on a relationship ending are also generally not statistically significant. The only exception is for Pasifika, for whom the marginal effect of conflict on a relationship ending is significantly smaller than for Europeans at the 10% level.

Results for mother's ethnicity for the 54-month to 8-year period are given in regression (2) of Appendix Table 6. The variable is constructed identically to in the antenatal to 9-month period, and is again based on ethnicity reported in the antenatal survey. Here, in relationships without IPV, Asian mothers are significantly less likely to have their relationships end than European mothers (significant at the 5% level). However, the marginal effect of IPV on a relationship ending is larger for Asian mothers than for European mothers (significant at the 10% level).

Mother's highest qualification

The highest level of education the mother has attained could be related to the marginal effect of IPV on a relationship ending for attitudinal, informational, and resource-related reasons. Women

with higher education may be faster to frame the behaviour of their partner as abusive, less tolerant of abusive behaviours, believe more strongly in the idea that they deserve to be safe and free from abuse, or they could move in social circles where IPV is less normalised. They may also have higher earning potential or more savings that make leaving a partner who uses violence more feasible from a financial standpoint, or be better able to access support to leave their partner from their social networks or government or non-profit organisations. More educated mothers may also be better able to access information on how to get help leaving a partner who uses violence, and better able to navigate the legal system to protect their children and retain custody when they leave their partner.

Results for this variable for the antenatal to 9-month period are given in regression (3) of Appendix Table 5. Mother's education is measured at the time of the antenatal survey, and is categorised into five levels: no qualifications; level 1 to 4; level 5 to 6; level 7; and level 8 or higher. The comparison category in the regression results is no qualifications. The regressions show that in relationships without IPV there is a general trend that more educated mothers are less likely to experience a relationship ending, although the only qualification level with a significantly lower risk of a relationship ending than mothers with no qualifications is mothers with level 8 or above qualifications. The marginal effect of conflict on a relationship ending is significantly higher for mothers with level 8 or above qualifications than for mothers with no qualifications. Mothers with intermediate levels of education are insignificantly different from those with no qualifications in this regard.

Results for mother's education for the 54-month to 8-year period are given in regression (3) of Appendix Table 6. The education variable used here is the same as for the antenatal to 9-month period, and is again measured in the antenatal survey. As for the earlier period, the regression results show that in relationships where no IPV is reported more educated mothers are less likely to have their relationships end. However, here there are no significant differences in the marginal effect of IPV on a relationship ending by the mother's highest level of education.

Deprivation index of mother

The deprivation index of the area in which the mother lives is a rough proxy for the financial situation of the household, but may also be associated with the resources available in the community, such as public transport. By either interpretation, we expect a mother living in a more deprived area to face higher barriers to leaving a partner who uses violence on her.

Results for this variable for the antenatal to 9-month period are given in regression (4) of Appendix Table 5. Deprivation index is based on the characteristics of the area where the mother lives, and runs from 1 (least deprived) to 10 (most deprived). It is measured at the time

of the antenatal survey. To maximise statistical power, we impose linearity on the relationship between deprivation index and breakup. The regression results show that in relationships where no physical conflict is reported, the probability of a relationship ending increases with deprivation (significant at the 1% level). In addition, the marginal effect of conflict on a relationship ending decreases significantly with deprivation, as shown in Figure 17.

Results for deprivation index for the 54-month to 8-year period are given in regression (4) of Appendix Table 6. The variable is constructed similarly here, but is based on where the mother lives at the time of the 54-month survey. Regression results show the same relationship between deprivation and a relationship ending as in the earlier period, though the magnitude of the relationship is somewhat smaller.

Household income

Household income is a more direct measure of the financial resources of a household, though it does not capture differences in savings. Similarly to other measures of financial resources, higher household income it is expected to be associated with a larger marginal effect of IPV on the probability a relationship ends.

Results for this variable for the antenatal to 9-month period are given in regression (5) of Appendix Table 5. Household income is measured for the mother's household for the year leading up to the antenatal survey. For statistical power, we aggregate responses into three categories: less than or equal to $50,000; $50,000 to $100,000; and $100,000 or over. The last of these is the omitted category in the regressions. We find that for relationships where no physical conflict is reported, the probability a relationship ends decreases significantly with household income. In addition, the marginal effect of conflict on a relationship ending increases with household income, from close to 0 for households with incomes of $50,000 or below, to positive for higher-income households. This relationship is shown in Figure 18. The difference in the marginal effect of conflict on a relationship ending for the lowest income households compared with the highest income households is statistically significant at the 1% level.

Results for household income for the 54-month to 8-year period are given in regression (5) of Appendix Table 6. The variable is constructed similarly, but is now based on the mother's household income in the year leading up to the 54-month survey. Again, we see that, in relationships where IPV is not present, the risk of a relationship ending is higher for households with incomes no higher than $50,000 than for households with higher incomes. However, we find no significant differences by household income in the marginal effect of IPV on a relationship ending.

Mother's material deprivation

The material deprivation experienced by the mother is an alternative measure of the resources available in the household, and is expected to affect the probability a relationship ends for the same reasons. This variable is available in the 54-month survey only, so we consider its effect on breakup for the 54-month to 8-year period only. The variable runs on a scale of 0 to 6, and captures the number of types of material deprivation the mother reports in the 54-month survey. The possibly types of material deprivation are: being forced to buy cheaper food so you can pay for other things you need; putting up with feeling cold to save heating costs; using special food grants or food banks because you do not have enough money for food; wearing shows with holes because you cannot afford replacements; going without fresh fruit and vegetables often, so you can pay for other things you need; and receiving help in the form of food, clothes, or money from a community organisation. To maximise statistical power, we impose linearity on the relationship of interest.

Results for this variable for the 54-month to 8-year period are given in regression (6) of Appendix Table 6. They show no statistically significant relationship between material deprivation and a relationship ending for relationships where IPV is not reported, and no significant differences in the marginal effect of IPV on a relationship ending by material deprivation.

Level of commitment in the relationship

Panel A of Appendix Table 7 presents the results of regressions that examine the effect of the level of commitment in the relationship on the marginal effect of physical conflict on the probability a relationship ends between the antenatal and 9-month surveys. A relationship might be considered more committed if the partners have been together for longer or if they have made some specific commitment to each other such as moving in together or getting married. More committed relationships might be expected to be less likely to break up than less committed relationships, but we have no clear prediction for how the marginal effect of conflict varies with relationship commitment. We consider a number of different variables that could be considered to capture aspects of relationship commitment in various combinations. We now discuss each regression specification in turn.

Child is mother's first

Whether the child is the mother's first child could be related to relationship breakup both because it is a proxy for the mother's life stage and the stage of the relationship and because of the direct effects of introducing a child into a previously childless relationship, such as financial

and emotional stress and a shift of the mother's attention away from her partner.[90] However, the direction of its expected correlation with the marginal effect of conflict on a relationship breaking up is unclear.

Results for this variable for the antenatal to 9-month period are given in regression (1) of Appendix Table 7. Whether the child is the mother's first is determined antenatally when the mother is asked if the child is her first child or a subsequent child. The regression results show that in relationships with no physical conflict, the probability of a relationship ending is significantly lower when the child is the mother's first. However, the marginal effect of conflict on a relationship ending is similar regardless of whether the child is the mother's first.

Marital status and cohabitation

Being legally married and cohabitation are both indicators of a more committed relationship, and one that would be more difficult and costly to break up (for instance, because of the necessity at least one partner moves and the challenge of dividing assets). We thus expect married and cohabiting couples to be less likely to end their relationships. However, the expected correlation between these signs of commitment and the marginal effect of IPV on the probability a relationship ends is less clear.

Results from a regression for the antenatal to 9-month period that separately controls for whether the couple are cohabiting and whether they are married, and interacts both variables with physical conflict are given in regression (2) of Appendix Table 7. We use the question "what best describes the nature of your relationship with your current partner?" in the antenatal interview to determine if the mother lives with the partner antenatally. Cohabitation, de facto, married, and in a civil union are recorded as mother lives with partner antenatally. The same question is used to create a binary variable that indicates if the mother and partner are married. The regression results show that in relationships with no conflict, a relationship is significantly less likely to end when the mother lives with her partner antenatally and significantly less likely again when the couple are married. However, the marginal effect of conflict on a relationship ending does not differ by either of these characteristics at conventional significance levels.

Length of cohabitation

Length of cohabitation is another measure of relationship commitment. As with marriage and cohabitation, it is expected to be negatively associated with the probability a relationship ends,

[90] Note there is no requirement that any previous children of the mother were with the same partner, so this variable captures the stage of the current relationship with considerable error. In addition, in some cases the partner may have children from previous relationships, so not all couples will experience the same direct effects of the mother's first child.

but could be associated positively or negatively with the marginal effect of IPV on a relationship ending.

Results from a regression for the antenatal to 9-month period that separately controls for whether the couple are cohabiting and if so the length of their cohabitation (in years capped at a maximum of 10), and interacts both variables with physical conflict, are given in regression (3) of Appendix Table 7.[91] Length of cohabitation is coded as 0 for couples who are not cohabiting.

The regression results show that in relationships with no physical conflict, the probability of the relationship ending decreases significantly as the length of cohabitation increases. However, the marginal effect of conflict on a relationship ending does not differ significantly with length of cohabitation.

Cohabitation and relationship length if not cohabiting

Another aspect of relationship commitment we can measure is the relationship length of couples who are not cohabiting. Similarly to previous measures of relationship commitment, we expect relationship length to be negatively associated with the probability a relationship ends, but could be correlated positively or negatively with the marginal effect of IPV on a relationship ending.

Results from a regression for the antenatal to 9-month period that separately controls for whether the couple are cohabiting and if not then the length of their relationship (in years), and interacts both variables with physical conflict, are given in regression (4) of Appendix Table 7. The regression results show that in relationships with no conflict there is no significant association between relationship length and the probability a relationship ends for couples who are not cohabiting, nor does the marginal effect of conflict on a relationship ending vary significantly with relationship length.

For the 54-month to 8-year period we don't know either the length of cohabitation or the length of a non-cohabiting relationship, but we do know whether the couple were together at 2 years (two-and-a-half years before the start of the period of interest). We thus run a regression that controls for whether the couple are cohabiting and whether they were together at 2 years, and that interacts both variables with IPV. The results of this regression are given in regression (1) of Appendix Table 8. The regression results show that in relationships with no IPV, the probability a relationship ends is significantly lower for mothers who live with their partner and also significantly lower for those who have been with the same partner since the 2-year survey wave. However, these measures of relationship commitment are not significantly associated with the marginal effect of IPV on a relationship ending.

[91] We code all lengths of cohabitation over 10 as 10 because correlations in the raw data show above 10 years length of cohabitation is uncorrelated with breakup overall.

Pregnancy was planned

If the pregnancy was planned is another measure of relationship commitment; couples who plan to have a child together are more committed on average. Similar to previous measures of relationship commitment, we expect that if the pregnancy was planned, the relationship is less likely to end. However, a planned pregnancy could be positively or negatively associated with the marginal effect of IPV on a relationship ending.

Results from a regression for the antenatal to 9-month period that controls for whether the pregnancy was planned, and interacts the variable with physical conflict, are given in regression (5) of Appendix Table 7. The variable is constructed from an antenatal question on whether the couple planned their pregnancy. Among couples for whom no conflict is reported, we find no significant relationship between the pregnancy being planned and the probability of the relationship ending. We also do not find the marginal effect of conflict on the relationship ending differs significantly by whether the pregnancy was planned.

Relationship more committed since pregnancy

If a relationship became more committed after the mother became pregnant (for example, by the couple moving in together), it is possible that the pregnancy was a driving force in the increased level of commitment. Thus, for example, we might expect a cohabiting couple to be more likely to break up if they only started cohabiting about the pregnancy occurred than if they were previously cohabiting. An increase in commitment since the pregnancy could be positively or negatively associated with the marginal effect of IPV on the relationship ending.

Results from a regression for the antenatal to 9-month period that controls for whether the relationship became more serious since pregnancy, and interacts the variable with physical conflict, are given in regression (6) of Appendix Table 7. The variable is constructed from two antenatal questions: “what best describes the nature of your relationship with your current partner?” and “what was your relationship with your baby’s biological father at the time you became pregnant?” We considered the commitment to the relationship to have increased in three cases: 1) if the couple were married at the antenatal survey but the mother’s relationship status at pregnancy was cohabiting, coupled but not living together, dating but not living together, or not in a relationship, 2) if the couple were cohabiting antenatally, but were coupled but not living together, dating but not living together, or not in a relationship when the mother became pregnant, or 3) if the couple were dating but not cohabiting antenatally, but were not in a relationship when the mother became pregnant.

The regression results show no significant association between an increase in commitment since the pregnancy and the probability of breaking up among couples where no conflict is

reported, and no significant association between this variable and the marginal effect of conflict on a relationship breaking up.

Mother's financial reliance on her partner

Panel B of Appendix Table 7 presents the results of regressions that examine the effect of the mother's financial reliance on her partner on the marginal effect of physical conflict on a relationship ending between the antenatal and 9-month surveys; Panel B of Appendix Table 8 presents these for the period between the 54-month survey and the 8-year survey. A mother's financial reliance on her partner is a closely related concept to financial resources, discussed previously. Some variables could be interpreted as measures of either. As with financial resources in the relationship more broadly, we expect a mother who has less financial reliance on her partner to be more able to leave her partner in situations where abuse is occurring, because she is less likely to risk homelessness or other material deprivation if she does leave. We consider a number of different variables that could be considered to capture aspects of the mother's financial reliance on her partner. These differ for the two periods due to data availability. We now discuss each regression specification in turn.

Mother's employment status

A mother who is employed has a source of income independent from her spouse, which could affect her ability to leave a relationship with a partner who uses violence for the same reasons that financial resources might. In addition, employment could be associated with a more independent mindset, more confidence in her ability to be self-sufficient, or more interaction with people outside the relationship who could be sources of help or support to leave. We thus predict the marginal effect of IPV on a relationship ending will be higher for mothers who are employed than for those not employed. Mothers who are students may get the outside connections and potentially confidence, but not the income, so we expect them to fall between mothers who are unemployed or not in the labour force and those who are employed. In the 54-month to 8-year period, we also know whether a mother is self-employed. Self-employment may be an indication of financial independence or self-confidence, either of which we would expect increase the marginal effect of IPV on a relationship breaking up. However, if mothers are self-employed in low-paying occupations out of a lack of other alternatives, the opposite may be true.

Results from a regression for the antenatal to 9-month period that controls for mother's employment status, and interacts these variables with physical conflict, are given in regression (7) of Appendix Table 7. Mother's employment is measured at the time of the antenatal survey,

and is categorised into four groups: employed, unemployed, student, and not in the workforce. The comparison category in the regression results is employed. The regression results show the marginal effect of conflict on a relationship ending does not vary significantly with the mother's employment status.

For the 54-month to 8-year period, we have less detailed information: we know only whether the mother is employed and whether she is self-employed. We thus run two regressions that control for each of these variables, and that interact the variable with IPV. The results of these regression are given in Appendix Table 8. Regression (2) shows the effect of a mother being employed and regression (4) shows the effect of self-employment. The regression results show that in relationships with no IPV, the probability the relationship ends does not vary significantly with mother's employment or self-employment. Similarly, the marginal effect of IPV on a relationship ending does not differ significantly by employment or self-employment.

Cost would prevent mother from separating

Cost preventing a mother from separating is a subjective measure of a mother's financial reliance on their partner. We thus expect it to be negatively associated with the probability a relationship ends, and negatively associated with the marginal effect of IPV on a relationship ending.

Results from a regression for the antenatal to 9-month period that controls for whether the cost of separation would prevent mothers from separating, and interacts it with physical conflict, are given in regression (8) of Appendix Table 7. This variable is derived from the antenatal question that asks mothers the extent to which they agree with the statement, "the material costs of separation, for example housing costs, lower income, would stop me separating from my partner." Their responses are measured on a 5-point scale from strongly disagree to strongly agree. We aggregate responses to an indicator variable that takes the value 1 if the mother reports 'strongly agree' and takes the value 0 otherwise. The regression results show that in relationships with no conflict, mothers who wouldn't separate due to costs are weakly significantly less likely to break up than mothers who don't strongly agree cost is a barrier. However, the marginal effect of conflict on breakup is insignificantly different for mothers who wouldn't separate from their partners due to cost.

Mother's personal income

Mother's personal income is another proxy for her financial reliance on her partner in that mothers with higher personal income may be more capable of affording separation and independent living away from a partner, regardless of whether that partner uses violence. We thus expect such mothers to be more able to separate if they're unhappy in the relationship. We

therefore expect a positive association between mother's personal income and the likelihood of a relationship ending, and also expect the marginal effect of IPV on breakup to be higher for higher income mothers.

Results from a regression for the antenatal to 9-month period that controls for mother's personal income, and interacts it with physical conflict, are given in regression (9) of Appendix Table 7. Mother's personal income is measured antenatally, and categorises a mother's personal total income in the last 12 months before tax into 7 income bands: $0, $1 to $20,000; $20,001 to $30,000; $30,001 to $50,000; $50,001 to $70,000; $70,001 to $100,000; $100,001 to $150,000; and greater than $150,000. We code each using the midpoint of the band and impose linearity. The regression results show that in relationships with no conflict, there is no significant effect of mother's personal income on the probability a relationship ends. However, the marginal effect of conflict on a relationship ending increases weakly significantly with mother's personal income, as shown in Figure 19.

Mother's managerial/professional status

Mother's managerial/professional status is another proxy for a mother's financial reliance on her partner. Mothers who are managers or professionals are likely to have higher incomes than mothers who are not, and thus be more able to leave a partner who uses violence. Being a manager or professional may also be associated with greater self-confidence or a stronger belief that she deserves to be safe. For all these reasons, we expect the marginal effect of IPV on a relationship ending to be higher for mothers who are managers or professions than for mothers who are not.

Results from a regression for the antenatal to 9-month period that controls for mother's managerial/professional status, and interacts it with physical conflict, are given in regression (10) of Appendix Table 7. We use an indicator for the mother reporting her occupation antenatally as either manager or professional. Mothers in other occupations and mothers who do not work antenatally are classified as not manager or professionals. We find no significant relationship between this variable and the relationship ending in cases where no conflict is reported, and no significant relationship between this variable and the marginal effect of conflict on the relationship ending.

For the 54-month to 8-year period, the results of these regression are given in regression (3) of Appendix Table 8. This variable is similarly derived from the mother's occupation at 54 months. The results show mothers who are managers or professionals in relationships with no IPV are significantly more likely to have their relationships end than mothers who are not. The

marginal effect of IPV on a relationship ending, however, is again not significantly different for these mothers.

Value mother gets from the relationship

Panel A of Appendix Table 9 presents the results of regressions that examine the effect of the value a mother gets from the relationship on the marginal effect of physical conflict on a relationship ending between the antenatal and 9-month surveys. Even if her partner uses violence against her, a mother might get certain value from her relationship that she will lose if the relationship ends. For instance, the mother might rely on her partner for childcare, or may enjoy the parts of the relationship when her partner is acting loving and not violent. We expect a mother who gets greater value from her relationship to be less likely to have her relationship end, and potentially for the probability the relationship ends to be less affected by the presence of IPV. We consider a number of different variables that could be considered to capture aspects of the value mothers get from their relationships. We now discuss each regression specification in turn.

Help mother expects from partner

A mother who expects her partner to be more helpful with her baby gives up more assistance with the baby if the relationship ends.[92] We thus expect such relationships to be less likely to end, and for the marginal effect of IPV on a relationship ending to be lower in such cases. However, mothers are likely to expect more help from their partner when the relationship is healthier and their partners use less violence.

Results from a regression for the antenatal to 9-month period that separately for the mother's expectations of help with the child from their partner, and interacts it with physical conflict, are given in regression (1) of Appendix Table 9. The help the mother expects from her partner is determined antenatally using the question, "how helpful do you expect your partner to be when your baby is born?" Mothers can answer on a 6-point scale ranging from 1 – [the partner is] not available – to 6 – extremely helpful. We impose cardinality and a linear relationship between helpfulness and the relationship ending. The regression results show that in relationships with no conflict, the relationship is significantly less likely to end when the mother expects more help from her partner. However, contrary to expectations, the marginal effect of conflict on a relationship ending is larger for mothers who expect more help from their

[92] We use the mother's expectation expressed antenatally of the help she will get from her partner, rather than the realised help she gets at any point, because only expectations are measured at the start of the period of interest. The assumption is that mothers with higher expectations for help will on average get more help, even if mothers' expectations on average are not accurate.

partners. A possible explanation is that, among partners who use the same level of violence, those who are more helpful with the children are easier for their victim to leave.

Partner's expected involvement with child

The partner's expected involvement with the child captures a similar concept to the help with the child the mother expects from her partner.

Results from a regression for the antenatal to 9-month period that controls for partner's expected involvement with the child, and interacts it with physical conflict, are given in regression (2) of Appendix Table 9. The mother's expectations of her partner's involvement with the child is determined antenatally using the question "how involved do you expect your partner will be in the day to day care of your baby?" Mothers can answer on a 5-point scale ranging from 1 – not much of the time – to 4 – all of the time. Again we impose cardinality and linearity. The regression results again show that in relationships with no conflict, a relationship is significantly less likely to end if the mother expects the partner to be more involved with the child. However, we find no significant differences in the marginal effect of conflict on a relationship ending by the mother's expectations of the partner's involvement with the child.

How often partner expected to care for child

How often the partner is expected to care for the child is a third variable that captures a similar concept to the previous two. Results from a regression for the antenatal to 9-month period that controls for how often the partner is expected to care for the child, and interacts it with physical conflict, are given in regression (3) of Appendix Table 9. This variable is determined antenatally using the question "how often do you expect that your partner will be directly responsible for your baby?" Mothers can answer on a 4-point scale ranging from 1 – not much of the time – to 4 – all of the time. We impose cardinality and linearity. The regression results tell the same story as the results for the previous variable, the partner's expected involvement with the child.

Help mother expects from family and friends

We can also measure the help the mother expects with her child from her family and friends. Mothers who get more help with their child from people other than their partners may be less reliant on their partner for help with the child. In addition, they may be able to expect more help from friends and family with other aspects of leaving a partner who uses violence. We thus predict the relationships of such mothers will be more likely to end in the absence of IPV, and the marginal effect of IPV on the probability the relationship ends will be larger for such mothers.

Results from a regression for the antenatal to 9-month period that controls for how much help with the child the mother expects from family and friends, and interacts it with physical conflict, are given in regression (4) of Appendix Table 9. This variable is constructed from 3 antenatal questions: "how helpful do you expect your parents to be when your baby is born?"; "how helpful do you expect your extended family (cousins, brothers and sisters, grandparents etc.) to be when your baby is born?"; and "how helpful do you expect your friends to be when your baby is born?" Mothers answer each of these questions on a 6-point scale ranging from 1 ([partner is] not available) to 6 (extremely helpful). We combine categories 1 (not available) and 2 (not at all helpful), generating a category for mother receives no help. We then sum the mother's answers to these questions (each on a scale of 2 to 6) and normalise the sum to have a mean of 0 and standard deviation of 1. The regression results show that in relationships with no conflict, the probability a relationship ends does not vary significantly with the amount of help the mother expects from her family and friends, nor does the marginal effect of conflict on a relationship ending.

Mother's positive interactions with partner

A different measure of the value a mother gets from her relationship is the self-reported frequency with which she has positive interactions with her partner. Many partners who use violence are not always violent, and may go through loving or remorseful periods between outbursts, which could either be genuine or be attempts to manipulate their partner into staying despite the abuse. A mother who has a lot of positive interactions with her partner may have more to lose if the relationship ends; we thus predict such relationships will be less likely to end, and that the marginal effect of IPV on a relationship ending will be lower for relationships with a lot of positive interactions. However, a variable that captures positive interactions may also be capturing the overall health and quality of the relationship.

Results from a regression for the antenatal to 9-month period that controls for mother's positive interactions with their partner, and interacts it with physical conflict, are given in regression (5) of Appendix Table 9. The variable mother's positive interactions with partner is generated from 5 questions in the antenatal survey: "during the past four weeks, how often did you let each other know you really care about each other?"; "during the past four weeks, how often did you act lovingly and affectionately towards each other?"; "during the past four weeks, how often did you let each other know that you appreciate each other's ideas or the things you do?"; "during the past four weeks, how often did you help the other do something that was important to him/her?"; and "during the past four weeks, how often did you act supportive and understanding towards each other?" Mothers answered each question on a 7-point scale

ranging from 1 (all the time) to 7 (never). We aggregated recoded these classifications into three categories: 0 (never), 1 (not very often and almost never), and 2 (all the time, extremely often, very often, and quite often). We then added the five variables together to create a composite measure that runs from 0 to 10. The regression results show that in relationships with no conflict, the likelihood of breakup significantly decreases as positive interactions increase. However, the marginal effect of conflict on breakup is similar regardless of the frequency of positive interactions.

Mother wouldn't separate due to shame

A mother who wouldn't separate from her partner due to shame gets the value of avoiding that shame from the relationship. We thus expect the relationships of such mothers to be less likely to end, and for the marginal effect of IPV on a relationship ending to be lower for them.

Results from a regression for the antenatal to 9-month period that controls for whether the mother wouldn't separate due to shame, and interacts it with physical conflict, are given in regression (6) of Appendix Table 9. This variable was constructed from the antenatal question that presented mothers with the statement, "the shame or disapproval of separation would stop me separating from my partner" and asked the extent they agreed with it. Answers were on a 5-point scale from strongly disagree to strongly agree. We construct a binary variable from this question that takes the value 1 if the mother strongly agrees with the statement, and 0 otherwise. The regression results show that relationships with no conflict are significantly less likely to end if the mother strongly agrees she wouldn't separate from her partner due to shame. However, the marginal effect of conflict on a relationship ending is similar regardless of the mother's perceptions of the shame of separation.

Mother's access to physical and psychological resources

Panel B of Appendix Table 9 presents the results of regressions that examine the effect of the mother's access to physical and psychological resources on the marginal effect of physical conflict on a relationship ending between the antenatal and 9-month surveys. Panel C of Appendix Table 8 presents related regressions for the 54-month to 8-year period. Physical and psychological resources may take many forms, but they are all expected to expand a victim's options, meaning we predict a victim with more resources is more likely to be able to leave their partner who uses violence. That is, we predict the marginal effect of IPV on a relationship ending will be larger for mothers with more resources. We consider a number of different variables that could be considered to capture aspects of a mother's access to such resources. We now discuss each regression specification in turn.

Rurality

Women who live in a rural area may have lower access to a number of resources such as public transport, libraries where they can get internet access or learn about support services for victims, and women's shelters. Victims in rural areas may be further from friends and family who could support them to leave. In addition, people in small rural communities may all know each other and each other's business, which can be a different type of barrier to leaving a partner who uses violence.

Results from a regression for the antenatal to 9-month period that controls for rurality, and interacts it with physical conflict, are given in regression (7) of Appendix Table 9. The variable for rurality we use is an indicator for whether at the time of the antenatal survey the mother lived in a rural area. The regression results show that relationships with no conflict are not significantly more or less likely to end if the mother lives in a rural area, nor is the marginal effect of conflict on a relationship ending significantly different for these mothers.

For the 54-month to 8-year period, the results of these regression are given in regression (5) of Appendix Table 8. Here rurality is measured at the time of the 54-month survey. These results show relationships with no IPV where the mother lives in a rural area are significantly more likely to end than similar relationships where the mother does not live in a rural area. Furthermore, the marginal effect of IPV on a relationship ending is smaller in rural areas, consistent with rurality being a barrier to leaving a partner who uses violence.

Access to a car

Access to a car may help a mother to physically get away from a partner who uses violence to a safe place, and a car could also provide a place to sleep with some minimal level of security if better options fail after the victim leaves. Note, however, that a more severely controlling partner could restrict their victim's physical access to a car, even if the household owns a car and the victim has a driver's license. Thus access to a car could be a proxy for having a less controlling partner.

Results from a regression for the antenatal to 9-month period that controls for access to a car, and interacts it with physical conflict, are given in regression (8) of Appendix Table 9. Mother's access to a car is determined in the antenatal survey using the question "do you have a motor vehicle available for your personal use?" Mothers could answer using one of four options: do not drive; no; yes, sometimes; and yes, always. To construct our variable for access to a car, we assign the value 0 to 'do not drive' and 'no', 1 to 'sometimes', and 2 to 'always' and impose linearity to maximise statistical power. The regression results show that relationships with no conflict are no more or less likely to end if the mother has access to a car. However, the marginal

effect of conflict on a relationship ending is weakly significantly larger for mothers with access to a car, as illustrated in Figure 20, suggesting lack of access to a car is an additional barrier to leaving a partner who uses violence.

Mother's physical health

Mothers with poor physical health may face additional barriers to leaving a partner who uses violence because dealing with their health issues takes all their energy and focus, leaving none for strategising leaving their partner, their health issues make them more physically or financially reliant on their partner, or their health issues make the physical act of leaving more difficult.

Results from a regression for the antenatal to 9-month period that controls for mother's physical health, and interacts it with physical conflict, are given in regression (9) of Appendix Table 9. The variable is constructed from the antenatal question "thinking about before you became pregnant, in general would you say your health was: poor, fair, good, very good, or excellent?" We code these on a 5-point scale from 0, poor, to 5, excellent, and impose linearity. The regression results show that relationships with no conflict are not significantly more or less likely to end if the mother reports low health. However, the marginal effect of conflict on a relationship ending is statistically significantly larger for mothers who report greater health, suggesting poor health is a barrier to leaving. The relationship is shown in Figure 21.

For the 54-month to 8-year period, the results of these regression are given in regression (6) of Appendix Table 8. The variable here is constructed from a similar survey question asked in the 54-month survey about health at that date. Here we find no significant relationships between health and a relationship ending or health and the marginal effect of IPV on a relationship ending.

Mother has a long-term disability

A disability could be a barrier to a mother leaving a partner who uses violence for similar reasons to poor health. Results from a regression for the antenatal to 9-month period that controls for whether the mother has a long-term disability, and interacts it with physical conflict, are given in regression (10) of Appendix Table 9. The variable is constructed from the antenatal question "do you currently have a disability that is long term, lasting 6 months or more?" The regression results show no significant association between the mother having a disability and the probability the relationship ends, and also no significant relationship between the mother having a disability and the marginal effect of IPV on a relationship ending.

Mother diagnosed with depression

Depression can make everyday activities much harder, and even more so complicated, high-stakes activities such as planning and actioning leaving a partner who uses violence. We thus predict mothers who have been diagnosed with depression to have greater difficulty leaving a partner who uses violence. However, abuse can cause or worsen depression, so mothers who are depressed may tend to be the ones who face worse IPV on average.

Results from a regression for the antenatal to 9-month period that controls for whether the mother has been diagnosed with depression, and interacts it with physical conflict, are given in regression (11) of Appendix Table 9. The variable is constructed from the antenatal question "have you ever at any time in your life had depression diagnosed by a doctor?" Mothers could select one of four options: never; before this pregnancy but not during this pregnancy; before this pregnancy and during this pregnancy; and only during this current pregnancy. We combined the latter three categories into one to create a binary variable for ever being diagnosed with depression. The regression results show that relationships with no conflict are similarly likely to end regardless of whether the mother has been diagnosed with depression, and the marginal effect of conflict on a relationship ending does not vary significantly with depression.

Mother diagnosed with anxiety

Mothers who have been diagnosed with anxiety may face higher barriers to leaving a partner who uses violence for similar reasons to mothers who have been diagnosed with depression.

Results from a regression for the antenatal to 9-month period that controls for whether the mother has been diagnosed with anxiety, and interacts it with physical conflict, are given in regression (12) of Appendix Table 9. The variable is constructed from the antenatal question "have you ever at any time in your life had either anxiety of panic attacks diagnosed by a doctor?" Mothers could give one of four answers: never; before this pregnancy but not during this pregnancy; before this pregnancy and during this pregnancy; and only during this current pregnancy. We combined the latter three categories into one to create a binary variable for if the mother has ever been diagnosed with anxiety. The regression results show that relationships with no conflict are similarly likely to end regardless of whether the mother has been diagnosed with anxiety, and the marginal effect of conflict on a relationship ending does not vary significantly with anxiety.

Mother's negative feelings in the past four weeks

A mother's negative feelings may be a proxy for depression, potentially undiagnosed, or may be associated with low self-esteem or the belief that it is impossible to leave their partner who uses violence. As such, we would expect mothers with more negative feelings might face higher

barriers to leaving a partner who uses violence, However, the negative feelings could also be the result of more severe IPV, which could trigger the mother to attempt to leave.

Results from a regression for the antenatal to 9-month period that controls for the mother's negative feelings, and interacts them with physical conflict, are given in regression (13) of Appendix Table 9. The variable is constructed from six questions: "in the last four weeks, how often have you been upset because of something that happened unexpectedly?", "in the last four weeks, how often have you felt that you were unable to control the important things in your life?", "in the last four weeks, how often have you felt nervous and stressed?", "in the last four weeks, how often have you found that you could not cope with all the things that you had to do?", "in the last four weeks, how often have you been angered because of things that were outside of your control?", and "in the last four weeks, how often have you felt difficulties were so great that you could not overcome them?". Mothers can answer each question on a five-point scale ranging from 0, never, to 4, very often. We sum these to create our variable and treat it as cardinal. The regression results show that a relationship with no conflict is weakly significantly more likely to end if a mother has more negative feelings, but the marginal effect of conflict on a relationship ending is similar regardless of the mother's negative feelings.

Mother's alcohol use

A mother's alcohol use, particularly if she has dependency problems, could pose an additional barrier to leaving a partner who uses violence. For instance, alcohol abuse could make a mother more likely to lose custody of her children if her relationship ended, it might cause her to feel judged by organisations that help IPV victims, or it may make her less capable of planning to leave and executing her plan. However, alcohol can also be used by victims of IPV to self-medicate or temporarily escape their distressing situation, so higher alcohol use could be an indication of worse abuse.

Results from regressions for the antenatal to 9-month period that control for the mother's alcohol use, and interacts it with physical conflict, are given in regressions (14), (15), and (16) of Appendix Table 9. The three regressions control for alcohol use before the mother became pregnant ("before becoming pregnant or before you were aware you were pregnant"), in the first trimester ("in the first three months of pregnancy"), and in trimesters 2 and 3 ("after the first three months of pregnancy") respectively. Each of these variables is constructed from the question: "on average how many drinks of alcohol – beer, wine, spirits – did you drink per week [during the time period]?" Mothers answered these questions numerically, and data were provided in the following categories: did not drink, less than 1 drink, 1-3 drinks, 4-19 drinks, and 20+ drinks per week. We aggregated the last two categories together and imposed that the

differences between the categories were equally spaced. None of the regression results show the probability a relationship ends is significantly associated with the mother's alcohol use, nor do they show the marginal effect of conflict on a relationship ending varies significantly with alcohol use.

Results for regressions for the 54-month to 8-year period that control for aspects of the mother's alcohol use are given in regressions (7) and (8) of Appendix Table 8. In the first case, alcohol use is measured using the 54-month question "on average, how many standard drinks of alcohol (beer, wine, and spirits) do you currently have per week?" Mothers could answer on an eleven-point scale. We aggregate these into four categories: no drinks per week, less than one drink per week, one to three drinks per week, or four or more drinks per week. The omitted category for regression (7) is no alcoholic drinks per week. The regression results show that relationships with no IPV are not significantly more likely to end as the mother's alcohol use increases up to 3 drinks per week, but are weakly significantly more likely to end if the mother drink at least 4 drinks per week. The marginal effect of IPV on a relationship ending does not vary significantly with the mother's alcohol use. Regression (8) in this table controls for an indicator for whether the mother has ever sought help for alcohol use. We find no evidence this is significantly associated with the probability a relationship ends or with the marginal effect of IPV on a relationship ending.

Mother's access to outside help

Appendix Table 10 presents the results of regressions that examine the effect of the mother's access to outside help on the marginal effect of physical conflict on a relationship ending between the antenatal and 9-month surveys. Appendix Table 11 presents the results of similar regressions for the period 54 months to 8 years. In many cases where women manage to leave relationships with partners who use violence, assistance from outside is pivotal in enabling this. This assistance might come from wider family, friends, neighbours, work colleagues, non-profit organisations that help victims, professionals with whom the victim interacts (e.g., doctors in an emergency ward if physical violence injures the victim) or any others with whom the interacts. The nature of the assistance varies widely, and could include helping the victim to frame what her partner is doing as abuse, helping her decide the best decision is to leave, alerting the appropriate authorities of the abuse, providing the victim with information that facilitates her leaving, connecting her with services such as Women's Refuge, assisting with the physical act of leaving, such as by providing transport, or providing accommodation in the immediate aftermath of leaving.

Although GUiNZ data do not include complete information on all the people with whom the mother interacts, it does contain information on some potentially relevant parties who might facilitate a mother leaving a relationship with a partner who uses violence, including family and neighbours. Stronger relationships with such parties are predicted to increase the marginal effect of IPV on relationship breakup. One limitation of this analysis is that partners who use more violence might more severely restrict the access of their victims to outside help. Thus the women with partners who use violence who have more outside connections could be less controlled by their partners than the women with such partners with fewer or weaker outside connections.

We consider a number of different variables that could be considered to capture aspects of a mother's access to outside help. We now discuss each regression specification in turn.

Mother's family asks for help when needed

GUiNZ contains a range of variables on the relationship between the mother and her family. If a mother is close to her family (other than her partner), family members might recognise that abuse is occurring and encourage and help the victim to leave. However, many victims can be excellent at pretending nothing is wrong in their relationship as a defensive measure to protect themselves and their child, so it is not a given that their family will understand the situation.

All the family variables we analyse capture aspects of the same thing and in each case closeness to family is predicted to increase the marginal effect of physical conflict on a relationship ending.

Results for this variable for the antenatal to 9-month period are given in regression (1) of Appendix Table 10. This variable is constructed from the antenatal question: how much do you agree with statement, people in our family/whānau ask each other for help when they need it? Mothers can answer on a four-point scale from never (1) to always (4). We impose cardinality. The regression results show that in relationships with no conflict there is no significant association between a mother's family asking for help when needed and a relationship ending, nor does the marginal effect of conflict on a relationship ending vary significantly with this variable.

Mother's family would provide for each other

Results for this variable for the antenatal to 9-month period are given in regression (2) of Appendix Table 10. This variable is constructed from the antenatal question: how much do you agree with statement, people in our family/whānau provide for each other even if there is very little to go around? Mothers can answer on a four-point scale from never (1) to always (4). We impose cardinality. Again, we find in relationships with no physical conflict there is no significant

association between whether a mother's family would provide for each other and a relationship ending. The marginal effect of conflict on a relationship ending also does not vary significantly with this variable.

Mother's family is very close

Results for this variable for the antenatal to 9-month period are given in regression (3) of Appendix Table 10. This variable is constructed from the antenatal question: how much do you agree with statement, we feel very close to each other in our family/whānau? Mothers can answer on a four-point scale from never (1) to always (4). We impose cardinality. Again, we find in relationships with no IPV there is no significant association between whether a mother's family is very close and a relationship ending. The marginal effect of IPV on a relationship ending also does not vary significantly with this variable.

Mother's family members support each other

Results for this variable for the antenatal to 9-month period are given in regression (4) of Appendix Table 10. This variable is constructed from the antenatal question: how much do you agree with statement, people in our family/whānau support each other at difficult times? Mothers can answer on a four-point scale from never (1) to always (4). We impose cardinality. Again, we find in relationships with no conflict there is no significant association between whether a mother's family members support each other and a relationship ending. The marginal effect of conflict on a relationship ending also does not vary significantly with this variable.

Mother's family members ask each other for advice

Results for this variable for the antenatal to 9-month period are given in regression (5) of Appendix Table 10. This variable is constructed from the antenatal question: how much do you agree with statement, we ask each other for advice about important decisions in our family/whānau? Mothers can answer on a four-point scale from never (1) to always (4). We impose cardinality. The regression results show that in relationships with no conflict there is no significant association between whether a mother's family members ask each other for advice and a relationship ending. The marginal effect of conflict on a relationship ending also does not vary significantly with this variable.

Closeness/supportiveness of mother's family

Results for this variable for the antenatal to 9-month period are given in regression (6) of Appendix Table 10. This variable is constructed by averaging the previous five variables (mother's family asks for help when needed, would provide for each other, is very close, support each other, and ask each other for advice) to generate an overall indicator of the mother's family

closeness/supportiveness. We impose cardinality. The regression results show that in relationships with no conflict there is no significant association between the closeness or supportiveness of the mother's family and a relationship ending. The marginal effect of conflict on a relationship ending also does not vary significantly with this variable.

Mother attended antenatal classes

A high proportion of mothers attend antenatal classes, and even controlling partners might allow their victims to do so. Attendees at such classes might build close relationships with each other as they share their journeys towards parenthood, and this could lead to disclosure of abuse that starts the process toward leaving. Instructors at such classes might also be more alert than average to things that seem wrong in their students' lives, and their professions might make them more likely than average to report suspected abuse to the authorities. We predict attending antenatal classes could increase the marginal effect of IPV on the probability a relationship ends.

Results for this variable for the antenatal to 9-month period are given in regression (7) of Appendix Table 10. This variable is constructed from the antenatal question: have you attended any childbirth preparation classes for this pregnancy? Mothers could answer yes, no – but intend to, and no – don't intend to. We converted this to a binary variable, combining mothers who had not attended antenatal classes at that point but intended to and mothers who did not intend to into one single no category. The regression results show that in relationships with no conflict there is no significant association between whether the mother attends antenatal classes and the relationship ending. The marginal effect of conflict on a relationship ending is larger for mothers who attend antenatal classes, though not significantly.

Mother's years living in the neighbourhood

A mother who has lived in the same neighbourhood for longer is more likely to have closer relationships within the local community, and neighbours who know her well may be more likely to notice abuse occurring and either help or alert the authorities.

Results for this variable for the antenatal to 9-month period are given in regression (8) of Appendix Table 10. It is constructed from the antenatal question: how long have you lived in this neighbourhood include the time living in another house if it was still in the same neighbourhood? Time in the neighbourhood is measured in years. The regression results show that in relationships with no conflict a mother who has been living in the neighbourhood for longer is weakly significantly less likely to have her relationship end. However, the marginal effect of conflict on a relationship ending also does not vary significantly with this variable.

Mother's family/friends live nearby

Physically proximate people may be of more help to a victim of IPV, especially if the partner who uses violence controls her access to transport. However, going to the house of someone who lives nearby doesn't take the victim far from her former partner and could risk harm to those who shelter the survivor of abuse. On balance, we still predict having friends or family living nearby will increase the marginal effect of IPV on a relationship ending.

Results for this variable for the antenatal to 9-month period are given in regression (9) of Appendix Table 10. This variable is constructed from the antenatal question: Why do you live in this neighbourhood: friends/family nearby? Mothers can answer yes or no. The regression results show that in relationships with no conflict there is no significant association between whether mother's family and friends live nearby and the relationship ending. The marginal effect of conflict on a relationship ending also does not vary significantly with this variable.

Mother is good friends with neighbours

If neighbours are good friends with the mother, they might be more likely to notice if abuse is occurring and to intervene to help the mother leave.

Results for this variable for the antenatal to 9-month period are given in regression (10) of Appendix Table 10. This question is constructed from the antenatal question: how much do you agree with the statement "I am good friends with some people in the neighbourhood"? Mothers can answer on a five-point scale from strongly disagree (1) to strongly agree (5). The regression results show that in relationships with no conflict there is no significant association between whether the mother is good friends with her neighbours and a relationship ending. The marginal effect of conflict on a relationship ending also does not vary significantly with this variable.

Mother belongs to a community/club

A mother could build a relationship with members of a club she frequents or community she belongs to, and this could lead her to disclose abuse and receive encouragement and assistance to leave. However, women experiencing more severe abuse and who are less able to leave might also be prevented by their partners from attending a club or participating in a community, so endogeneity could be particularly problematic here.

Results for this variable for the antenatal to 9-month period are given in regression (11) of Appendix Table 10. This variable is constructed using the antenatal question: Some people feel they belong to a community because of things like family ties, a school, where they live, or maybe a church or club. Do you feel you belong to any communities at the moment? Mothers can answer yes or no. The regression results show that in relationships with no conflict there is a significant negative association between mothers being in a community and the relationship

ending, potentially because mothers who are more settled in their relationships may be more likely to participate in communities. The marginal effect of conflict on breakup is positively and weakly significantly larger for mothers who are members of communities. This relationship is illustrated in Figure 22.

The results for a related variable for the 54-month to 8-year period are given in regression (4) of Appendix Table 11. This variable is constructed from the 54-month survey question: How much do you agree or disagree with the following statement – I am active in organisations or social groups that include mostly members of my own ethnic or cultural group? Mothers can answer on a 5-point scale from strongly disagree (1) to strongly agree (5). We recode this into a binary variable, combining the two disagree categories, and combining the two agree categories. Mothers who answer that they neither agree nor disagree with the statement are coded as 0.5, in the middle of the disagree and agree categories. The regression results show that in relationships with no IPV there is no significant association between whether the mother is in an ethnic or cultural club at 54 months and the relationship ending. The marginal effect of IPV on a relationship ending also does not vary significantly with this variable.

Mother's connection to neighbourhood

A mother who is more connected to the people in her neighbourhood may be better able to access support to leave a partner who uses violence, but may reluctant to do so because leaving her partner would mean leaving the neighbourhood she feels connected to. Connection to the neighbourhood could thus either increase or decrease the marginal effect of IPV on a relationship ending.

Results for this variable for the antenatal to 9-month period are given in regression (12) of Appendix Table 10. This variable is constructed from 5 antenatal statements, each of which the mother is asked how much she agrees or disagrees. These are “I would be sorry if I had to move away from the people in my neighbourhood”, “I have a lot in common with people in my neighbourhood”, “my neighbours treat me with respect”, “if I no longer lived here, hardly anyone around here would notice”, and “I have little to do with people in this neighbourhood.” The mother’s answer for each statement is divided by the standard deviation of the statement. These are then combined with the first three (positive) statements added together and the latter two (negative) statements subtracted. The regression results show that in relationships with no conflict the relationships of mothers who are more strongly connected to the neighbourhood are significantly less likely to end. However, the marginal effect of conflict on a relationship ending does not vary with this variable.

Mother's doctor

GUiNZ captures whether the mother has visited a doctor while pregnant, and if so whether she saw the same doctor as before becoming pregnant. Physical abuse might be disclosed to a doctor because a confidential conversation is likely to occur, and because a doctor might pick up on physical signs of abuse.[93] If the mother has known the doctor for longer, she is more likely to have built a stronger relationship with them and is more likely to disclose abuse. However, endogeneity may be an issue if victims who are more severely controlled tend not to be permitted by their partners to visit the doctor.

Results for this variable for the antenatal to 9-month period are given in regression (13) of Appendix Table 10. This variable is constructed from two antenatal questions: have you seen any family doctor of GP since you became pregnant, and is this the same family doctor or GP as the one you saw before you became pregnant? The omitted category for the regression is the mother did not visit a doctor while pregnant; we compare to these mothers those who visited their doctor from before becoming pregnant, and those who visited a new doctor. The regression results for regression (13) show that in relationships with no conflict there is no significant association between the mother's doctor while pregnant and the relationship ending. The marginal effect of conflict on a relationship ending also does not vary significantly with the mother's doctor.

Mother's lead maternity carer

Nearly all women have a lead maternity carer (LMC) for their pregnancy, and these may be different types of professionals, including midwives, obstetricians, and various other types. Different types of LMC might have different levels of training at recognising abuse, and may have more or less time for building personal relationships with the mother that could lead to the disclosure of abuse.

Results for this variable for the antenatal to 9-month period are given in regression (14) of Appendix Table 10. We use mothers with an independent midwife as the omitted category, and compare mothers with a hospital midwife, obstetrician, other or missing LMC, and no LMC. The results show that in relationships with no conflict, the relationships of mothers with obstetricians as their LMCs are weakly significantly less likely to end than the relationships of mothers with independent midwives as their LMCs, whereas the relationships of mothers other or missing types of LMCs are weakly significantly more likely to end. We find no significant difference in the marginal effect of conflict on a relationship ending between mothers with an independent midwife as LMC and any other type of mother. However, the marginal effect of

[93] However, the rate at which abuse is picked up in medical settings is very low in practice.

conflict on a relationship ending is larger for mothers with obstetricians as LMCs than for mothers without LMCs.[94] This could relate to economic advantage and financial resources, with mothers whose LMCs are obstetricians more likely to have high socioeconomic status, and mothers with no LMC more likely to have low socioeconomic status.

Extent to which partner considers himself a nice guy

Many perpetrators of IPV assume a public persona of being very nice people, such that their friends have great difficulty believing they could use violence against their partners. This can increase the barriers to their victim seeking help, because they may expect to not be believed, or may actually not be believed. We thus predict partners who consider themselves nicer to be harder to leave if they use violence. However, partners at the opposite end of the spectrum, for instance who are known to be hot-tempered or violent, might be harder to leave because outsiders are more scared of them and are reluctant to intervene.

Results for this variable for the antenatal to 9-month period are given in regression (15) of Appendix Table 10. This variable was constructed from nine antenatal statements with which partners answered how much they agreed or disagreed with the statements. These statements were as follows: I see myself as someone who is helpful and unselfish with others; I see myself as someone who is a reliable worker; I see myself as someone who keeps working until things are done; I see myself as someone who is considerate and kind to almost everyone; I see myself as someone who is outgoing/sociable; I see myself as someone who likes to cooperate/gets along well with others; I see myself as someone who starts quarrels/arguments with others; I see myself as someone who can be cold and distant with others; and I see myself as someone who is sometimes rude to others. To combine them, the first six were added together, and the last three were subtracted. Lower scores indicated a partner who considered himself to be less of a nice person, and higher scores indicated a partner who considered himself to be more of a nice person. We break the resulting scale into three categories: low, average, and high niceness. The regression results show that in relationships with no conflict, there is no significant association between the niceness of the partner and the probability the relationship ends. However, the marginal effect of conflict on breakup is significantly lower for below-averagely nice partners than for averagely nice partners, suggesting partners who do not consider themselves nice are harder to leave. The marginal effect of conflict on breakup is also lower for above-averagely nice partners than for averagely nice partners, though this difference is not statistically significant. These differences are shown in Figure 23.

[94] We do not formally test for the significance of the sum of these coefficients.

Partner is good friends with neighbours

A partner who is good friends with the neighbours may be harder to leave because the victim may have trouble convincing the neighbours to believe her, or may expect or receive less help from them.

Results for this variable for the antenatal to 9-month period are given in regression (16) of Appendix Table 10. This variable was constructed from the antenatal question asking the partner to what extent they agreed with the statement: I am good friends with some people in the neighbourhood. Partners could answer on a 5-point scale from strongly disagree (1) to strongly agree (5). The regression results show that relationships with no conflict are weakly significantly more likely to end if the partner is better friends with the neighbours. However, we find no evidence that the marginal effect of conflict on a relationship ending varies with this variable.

Mother's criminal status

Although the majority of victims of IPV who seek to leave their partners do not see formal help, we might expect mothers who have been convicted of a crime to be even more reluctant to approach the authorities for help with a partner who uses violence, or if they do so they may not be believed or may be viewed less sympathetically. In addition, women with criminal convictions have a high rate of lifetime sexual abuse, and this and other past trauma may have damaged their belief that they deserve better than a partner who uses violence. Such factors could act as additional barriers to leaving a partner who uses violence.

Results for this variable for the 54-month to 8-year period are given in regression (1) of Appendix Table 11. This variable was constructed from two questions from the 54-month survey: have you ever been convicted of a crime which resulted in a jail sentence, and have you ever been convicted of a crime which did not result in a jail sentence? If mothers answered yes to either question, we recorded in a binary variable that the mother had been convicted of a crime. Note few mothers had been convicted of a crime, so statistical power is low. The regression results show that in relationships with no IPV there is no significant association between a mother's criminal record and the relationship ending. The marginal effect of IPV on a relationship ending is higher for mothers who have been convicted of a crime, but not significantly so.

Mother's hours of work/study

A mother who works or studies more is likely to interact with more people at her place of work or study who might be able to assist her to leave a partner who uses violence. Higher weekly hours of work are also associated with higher income on average, which are also expected to lower barriers to leaving.

Results for this variable for the 54-month to 8-year period are given in regression (2) of Appendix Table 11. This variable was constructed from the mother's hours of work/study at 54-months. The regression results show that in relationships with no IPV there is no association between a mother's hours of work or study and a relationship ending. The marginal effect of IPV on a relationship ending also does not vary significantly with this variable.

Mother's number of moves since previous survey

A mother who has moved more times in recent years is likely to have less strong connections to her current neighbours, so might be less likely to get help from them to leave a partner who uses violence. In addition, moving repeatedly can be an indication of insecure housing and the associated economic disadvantage, with the associated financial challenges to leaving a partner.

Results for this variable for the 54-month to 8-year period are given in regression (3) of Appendix Table 11. This variable was constructed using the 54-month question, how many times have you moved house since your child(ren) was two years old? Mothers can answer using one of five categories: none, one, two, three, or four or more. We re-categorise these into four groupings: mothers have not moved, mothers have moved once, mothers have moved twice, or mothers have moved three or more times. We use mothers who have not moved as the omitted category. The regression results show no significant association between moving and relationships with no IPV ending, and no significant association between moving and the marginal effect of IPV on a relationship ending.

Mother's involvement with childcare provider

A mother who is more engaged with her child's childcare provider may build relationships with people who could help her to leave a partner who uses violence. However, engagement with the childcare provider may also be a sign of economic resources, in that mothers who are stretched financially may not the time or mental resources to contribute without pay to a community organisation.

Results for this variable for the 54-month to 8-year period are given in regression (5) of Appendix Table 11. This variable was constructed from the 54-month survey question: what form of involvement do you have with your early childhood education or care arrangement – none? We converted this question into a binary variable indicating if the mother was involved with her childcare provider or not. The regression results show that relationships with no IPV are weakly significantly less likely to end if the mother is involved with their childcare provider at 54 months. However, the marginal effect of IPV on a relationship ending does not vary with this variable.

Main type of childcare

Childcare may be an opportunity for a mother with a partner who uses violence to seek help, but the ease of this and the help available may vary with the type of childcare. Mothers with different characteristics may also be more likely to use different types of childcare, so correlations could reflect the types of mothers who use the childcare, not just the effects of using the childcare.

Results for this variable for the 54-month to 8-year period are given in regression (6) of Appendix Table 11. This variable was constructed from two 54-month survey questions. The first is, over the past year, has your child been looked after at regular times during the week by anyone other than you? Mothers can answer yes or no to this question, and we re-categorise mothers who answer no as mothers who do not use childcare. The second question is what type of early childhood education or care does your child have for the most ours per week? Mothers can pick from the following answers: kindergarten, early childhood education service/childcare centre or preschool, playcentre, an organised home-based care programme such as Barnados or PORSE, Kohanga Reo, Pacific Islands early childhood centre, nanny (not live-in) au pair or live-in nanny, grandparent, other relative, church creche, other creche, gym or leisure or community centre, or other person (includes friend or neighbour). We recategorize these into five groups; kindergarten, ECE, other formal childcare (Playcentre, an organised home-based care programme, Kohanga Reo, and Pacific Islands early childhood centre), informal childcare (nanny, au pair, grandparent, or any of the remaining categories), and no childcare (answered no to the first question). We use kindergarten as our omitted category.

The regression results show that, among relationships with no IPV, a relationship is weakly more likely to end if the mother uses ECE or other (non-kindergarten) formal childcare than if she uses a kindergarten or informal care, and the relationships of mothers who do not use childcare are significantly more likely to end than the relationships of those who do. Furthermore, the marginal effect of IPV on a relationship ending is weakly smaller for mothers who do not use childcare than for those who use kindergartens. This may be due to the lower economic advantage of mothers who do not use childcare.

Mother's interactions with childcare staff

Mothers who have more in-depth, personal interactions with the staff at their child's childcare provider might have more opportunity to seek help from them in leaving a partner who uses violence, and childcare providers might have a strong tendency to alert authorities if they suspect abuse, particularly if the child may be at risk.

Regression (7) of Appendix Table 11 presents the results of regressions of this variable. The variable is based on the 54-month question what forms of communication are used between you and your early childhood education or care arrangement: no communication, short face-to-face conversations, written entries in a notebook, regular paper or electronic newsletters, noticeboard, learning story or portfolio or child profile book, telephone calls, visits to the home, meetings with staff, emails, social media, online communication boards or portfolios, texts, or organised events. We recategorise mothers into three categories of intensity of interaction with their childcare provider: mother meets with childcare staff or has home visits; mother has short face-to-face talks with childcare staff; and other or no communication with childcare provider. The latter is the omitted category in our regression. The regression results show that among relationship without IPV, the relationships of mothers who do not meet with their childcare providers are more likely to end than the relationships of those who do, and the differences are weakly or almost weakly significant. However, we find no significant relationship with the marginal effect of IPV on a relationship ending.

Mother's trust in and ability to navigate the system

Panel A of Appendix Table 12 presents the results of regressions that examine the effect of the mother's trust in and ability to navigate the system on the marginal effect of physical conflict on a relationship ending between the antenatal and 9-month surveys. It is incredibly difficult for a victim of IPV to leave the situation without outside help. Although various services exist to help victims, they are not necessarily widely understood or trivial to access. A mother with limited English, who is unfamiliar with New Zealand culture, or who is reluctant to approach services because she expects to be discriminated against may be less able to access the assistance she needs to leave. We thus predict the marginal effect of IPV on a relationship ending will be lower for such mothers. We consider a number of different variables that could be considered to capture aspects of mother's trust in and ability to navigate the system in various combinations. We now discuss each regression specification in turn.

Mother's migrant status (omitted: NZ born)

Mothers who migrated to New Zealand as opposed to being born there, particularly if they migrated as adults, are expected to be less familiar with the system and have more trouble getting the help they need. In addition, they may face visa issues if they leave their partners, accept different cultural norms about acceptable behaviour within a relationship, or if they are recent migrants have more limited informal connections within the community that could help them leave a partner who uses violence.

Results from a regression for the antenatal to 9-month period that controls for mother's migrant status, and interacts it with physical conflict, are given in regression (1) of Appendix Table 12. This variable is constructed antenatally using mother's birthplace and if not in New Zealand, the age at which she migrated to New Zealand. We create three categories from this information: mother was born in New Zealand; mother migrated to New Zealand as a child (under age 18); and mother migrated to New Zealand as an adult (age 18 or over). The omitted category is mothers who were born in New Zealand. The regression results show in relationships with no conflict, there is no significant relationship between the mother's migrant status and the likelihood the relationship ends. Furthermore, the marginal effect of conflict on a relationship ending does not vary significantly with the mother's migrant status.

Mother typically spoke English at home as a child

Mothers who have limited English skills or who are uncomfortable speaking English face higher barriers to accessing the help they need if they are in a relationship with a partner who uses violence. English skills are measured in four different ways in the antenatal GUiNZ survey. We use an indicator variable for whether the mother typically spoke English at home as a child, but the alternative measures give very similar results. Results from a regression for the antenatal to 9-month period that controls for if mothers typically spoke English at home as a child, and interacts it with physical conflict, are given in regression (2) of Appendix Table 12. The regression results show that in relationships with no conflict, the probability of the relationship ending does not vary significantly with the mother's English. The marginal effect of conflict on a relationship ending also does not vary significantly with this variable.

Mother's knowledge of kiwi culture

Mothers with better knowledge of kiwi culture may be more able to frame IPV as abuse, more confident to seek help leaving a partner who uses violence, or more knowledgeable of how to seek help and what to expect when they do.

Results from a regression for the antenatal to 9-month period that controls for the mother's knowledge of kiwi culture, and interacts it with physical conflict, are given in regression (3) of Appendix Table 12. The variable was constructed by summing five antenatal questions. These were how knowledgeable are you of kiwi/New Zealand culture and lifestyle, how involved are you in kiwi/New Zealand culture and lifestyle, how do you feel toward kiwi/New Zealand culture and lifestyle, how often do you associate with kiwis/New Zealanders, and how important is it to maintain a kiwi/New Zealand culture and lifestyle? We normalise this variable to have a mean of 1.5 and a standard deviation of 1. Dictated by relationships in the raw data, we impose a piecewise linear relationship, where the probability of breakup varies linearly with the

mother's knowledge of kiwi culture, but the slope of this linear relationship is allowed to differ above and below 1.5 standard deviations below the mean. We allow the interaction with conflict to be piecewise linear in the same way. This makes intuitive sense if knowledge of kiwi culture matters up to some minimum level, but additional knowledge above that level conveys no additional benefit. The regression results show that the probability a relationship with no conflict ends increases substantially but statistically insignificantly as knowledge of kiwi culture increases up to some minimum level, above which the two are unrelated. The marginal effect of conflict on a relationship ending similarly increases substantially but statistically insignificantly as knowledge of kiwi culture increases up to some minimum level, above which point the two are unrelated.[95]

Mother's experience of ethnic discrimination

A mother who has experienced ethnic discrimination may expect or get less assistance from services intended to help victims of IPV. They may worry if they ask for help they won't be believed or their culture won't be respected. This could lead them to not seek out the help they need to leave a violent partner.

We measure a mother's experiences of ethnic discrimination in three ways: whether the mother has ever experienced verbal or physical discrimination; whether the mother has experienced ethnic discrimination by the New Zealand legal system; and the number of types of setting in which the mother has experienced ethnic discrimination. Results from regressions for the antenatal to 9-month period that control for the mother's experiences of ethnic discrimination, and interacts them with physical conflict, are given in regressions (4), (5), and (6) of Appendix Table 12. Our first variable that determines mother's experiences of ethnic discrimination was constructed using the question "have you ever felt you have been a victim of an ethnically motivated attack – that is, verbal or physical abuse to the person or property – in New Zealand?" Mothers could indicate whether each of physical and verbal abuse had occurred, and whether it was in the previous 12 months or not. We combine all affirmative responses regardless of when the abuse occurred. Because essentially all mothers who responded yes to physical abuse also responded yes to verbal abuse, we coded this into three categories: no; verbal only; and physical. We assume cardinality. Our second ethnic discrimination variable was constructed from the question "have you ever felt you have been treated unfairly by the police, the justice system (courts), or the corrections department (prison, community service, periodic

[95] The statistical insignificance of these results means they should not be interpreted as evidence that a mother's knowledge of kiwi culture affects her ability to leave a partner who uses violence. However, the statistical insignificance could be due to a lack of statistical power. Further investigation in this area using a larger data set could yield more insight.

detention, parole, probation) because of your ethnicity in New Zealand? Any mothers who indicated either yes within the past 12 months or yes more than 12 months ago were counted as yes. The final variable we regress counts the number of settings where mothers have experienced ethnic discrimination. This was constructed from six questions where we summed each yes to construct a count out of six. The questions were: "have you ever felt you have been treated unfairly (e.g. treated differently, kept waiting) by a health professional (e.g. doctor, nurse, dentist, etc.) because of your ethnicity in New Zealand?", "have you ever felt you have been treated unfairly at work or been refused a job because of your ethnicity in New Zealand?", "have you ever felt you have been treated unfairly when renting or buying housing because of your ethnicity in New Zealand?", "have you ever felt you have been treated unfairly by the police, the justice system (courts), or the corrections department (prison, community service, periodic detention, parole, probation) because of your ethnicity in New Zealand?", "have you ever felt you have been treated unfairly when asking for loans, a mortgage, hire purchase or credit cards because of your ethnicity in New Zealand?", and "have you ever felt you have been treated unfairly when attending a place of learning because of your ethnicity in New Zealand?" None of these regressions show a statistically significant relationship between the mother's experiences of discrimination and the probability a relationship that does not involve conflict ends. Furthermore, none shows that the marginal effect of conflict on a relationship ending varies significantly with the mother's experiences of discrimination.

Mother's connection to her traditional culture

Panel B of Appendix Table 12 presents the results of regressions that examine the effect of the mother's connection to her traditional culture on the marginal effect of physical conflict on a relationship ending between the antenatal and 9-month surveys. Prior research suggests a strong connection to their traditional culture can reduce a person's propensity to commit IPV through instilling a sense of pride, self-worth, and belonging. Along similar lines, it might make a perpetrator of IPV more likely to stop using violence, which would remove the mother's need to leave the relationship to achieve safety. On the other side, cuutural connection may affect a victim's ability to leave a partner who uses violence through several mechanisms. Through engagement in cultural activities within the community, it may give the victim greater opportunities to seek help. However, if the community holds values that support a husband's right to control his wife, engagement with it might reduce a victim's ability to leave her partner. Alternatively, through boosting the victim's sense of self-worth and belief that she deserves to

be safe and free from abuse, cultural connection might empower her to leave a relationship with a person who uses violence.

The impact of a mother's connection to her traditional culture may vary depending on what her traditional culture is. However, we do not have a large enough sample to examine how this impact varies for different cultures. We consider a number of different variables that could be considered to capture aspects of mother's connection to her traditional culture in various combinations. Each of these variables is primarily but not solely driven by non-European mothers. We now discuss each regression specification in turn.

Mother's knowledge of traditional culture

Results from a regression for the antenatal to 9-month period that controls for the mother's knowledge of her traditional culture, and interacts it with physical conflict, are given in regression (7) of Appendix Table 12. This variable was constructed using the antenatal question "how knowledgeable are you of your traditional culture?" Mothers can answer on a 5-point scale from not at all knowledgeable to very knowledgeable. We normalise to a mean of 0 and a standard deviation of 1. The regression results show the probability a relationship with no conflict ends is not significantly associated with the mother's knowledge of her traditional culture. The marginal effect of conflict on a relationship ending is also similar regardless of the mother's knowledge of her traditional culture.

Mother's involvement in traditional cultural activities

Results from a regression for the antenatal to 9-month period that controls for the mother's involvement in traditional cultural activities, and interacts it with physical conflict, are given in regression (8) of Appendix Table 12. This variable was constructed using the antenatal question "how involved are you in your traditional cultural activities?" Mothers can answer on a 5-point scale from not involved at all to very involved. We normalise to a mean of 0 and a standard deviation of 1. The regression results show the probability a relationship with no conflict ends is not significantly associated with the mother's involvement in traditional cultural activities. The marginal effect of conflict on a relationship ending does not differ significantly with the mother's involvement in traditional cultural activities.

Mother's positivity towards traditional culture

Results from a regression for the antenatal to 9-month period that controls for the mother's positivity towards her traditional culture, and interacts it with physical conflict, are given in regression (9) of Appendix Table 12. This variable was constructed from the antenatal question: "how do you feel about your culture?" Mothers can answer on a 5-point scale from very

negative to very positive. We normalise to a mean of 0 and a standard deviation of 1. The regression results show, as for the previous two variables, the probability a relationship with no conflict ends is not significantly associated with the mother's positivity towards her traditional culture. Similarly, the marginal effect of conflict on a relationship ending does not vary significantly with the mother's positivity towards her traditional culture.

Importance mother places on maintaining cultural traditions

Results from a regression for the antenatal to 9-month period that separately controls for the importance mothers place on maintaining cultural practices, and interacts it with physical conflict, are given in regression (10) of Appendix Table 12. This variable was constructed using the antenatal question: "how important is it for you to maintain your cultural traditions and practices?" Mothers can answer on a 5-point scale from not at all important to very important. We normalise to a mean of 0 and a standard deviation of 1. The regression results show, as for the previous variables, the probability a relationship with no conflict ends is not significantly associated with the importance the mother places on maintaining cultural traditions. However, the marginal effect of conflict on a relationship ending is significantly lower for mothers who place high importance on maintaining cultural traditions. This relationship is shown in Figure 24.

This variable and the three preceding variables capture closely related aspects of a mother's relationship with her traditional culture. Although only this final variable is statistically significantly associated with a smaller marginal effect of conflict on a relationship breaking up, all three other measures of the closeness of mother's relationship with her traditional culture are negatively associated with the marginal effect of conflict on a relationship ending, just not statistically significantly.

Partner's characteristics: demographics

When the mother is the victim of abuse, her ability leave it can depend strongly on the characteristics and behaviour of her partner. In this section and the following sections, we explore the effect on the marginal effect of physical conflict on breakup of a range of partner characteristics, some of which proxy for partner behaviours.

Partner's age

Results for this variable for the antenatal to 9-month period are given in regression (1) of Appendix Table 13. We use the age of the partner at the date of the antenatal interview, and impose a piecewise linear functional form with a kink at age 30 based on the raw relationship between age and breakup. The regression results show that in relationships with no conflict

there is no significant association between partner's age and a relationship ending. The marginal effect of conflict on a relationship ending also does not vary significantly with partner's age.

Partner's self-prioritised ethnicity

As is the case with the mother, the partner's ethnicity may be correlated with their attitudes, such as those about power and gender roles in relationships, and the importance of keeping family together. These attitudes could affect the partner's propensity to use violence, and the ability of the mother to leave if the partner uses violence. Results for the partner's ethnicity for the antenatal to 9-month period are given in regression (2) of Appendix Table 13. Partners are categorised by the ethnicity with which they most strongly identify in the antenatal survey. The omitted category is European, to whom we compare Māori, Pasifika, Asian, and partners of other or missing ethnicity. Regression results show in couples where conflict is not reported no ethnicities are significantly different from Europeans in the risk of the relationship ending. Ethnic differences in the marginal effect of conflict on a relationship ending are also generally not statistically significant. The only exception is for Asian partners, for whom the marginal effect of conflict on a relationship ending is significantly smaller than for Europeans at the 10% level. This is illustrated in Figure 25.

Partner's highest qualification

The level of education of a partner who uses violence could affect the mother's ability to leave for a range of reasons. A more educated partner might be better able to manipulate the system to keep their victim, and be more convincing in their threats to win custody of the children. When a partner who uses violence is more educated than the mother, the power imbalance in the relationship can be greater, which could make leaving more unthinkable for the victim. Alternatively, a less educated partner might feel more threatened by the mother and need to assert their power through greater use of violence, which could make leaving even harder.

Results for this variable for the antenatal to 9-month period are given in regression (3) of Appendix Table 13. Partner's education is measured at the time of the antenatal survey, and is categorised into five levels: no qualifications; level 1 to 4; level 5 to 6; level 7; and level 8 or higher. The omitted category in the regressions is no qualifications. The regressions show that, when conflict is not present, relationships where the partner has no qualifications are more likely to end than relationships where the partner is more qualified, and in some cases the difference is statistically significant. As shown in Figure 26, the marginal effect of conflict on a relationship ending is significantly higher for partners with higher qualification levels.

Partner's characteristics: financial independence

Partner's work status

The partner's work status could matter for several reasons. First, working could be a proxy for the partner having greater financial resources. These might help them manipulate the system or make a court more likely to give them custody of the child in a breakup, decreasing the marginal effect of IPV on a relationship breaking up. Second, working could give the partner greater self-esteem, which might make them less controlling and more able to let their victim go. This would increase the marginal effect of IPV on a relationship breaking up. Third, because working also often takes a person out of the house, a partner who uses violence who worked might leave the mother with more opportunity to physically leave. This would increase the marginal effect of IPV on a relationship ending.

Results for this variable for the antenatal to 9-month period are given in regression (4) of Appendix Table 13. Partner's employment is measured at the time of the antenatal survey, and is categorised into four groups: employed, unemployed, student, and not in the workforce. Employed is the omitted category in the regression. The regression results show no significant difference by partner's work status in the probability a relationship without conflict ends. It also shows no significant difference by partner's work status in the marginal effect of conflict on a relationship ending.

Cost would prevent partner from separating

A partner who feels more financially reliant on the mother might be more reluctant to let her go, decreasing the marginal effect of IPV on a relationship ending. Similarly, the mothers in such situations are likely to also be financially reliant on their partners, thus would find leaving very difficult.

Results for this variable for the antenatal to 9-month period are given in regression (5) of Appendix Table 13. This variable is derived from the antenatal question that asks partners the extent to which they agree with the statement, "the material costs of separation, for example housing costs, lower income, would stop me separating from my partner." Their responses are measured on a 5-point scale from strongly disagree to strongly agree. We aggregate responses to an indicator variable that takes the value 1 if the partner reports 'strongly agree' and takes the value 0 otherwise. The regression results show no significant association between this variable and the probability a relationship without conflict ends, and no significant association between it and the marginal effect of conflict on a relationship ending.

Partner's personal income

The partner's personal income is a more direct measure of their ability to be financially independent. Results for this variable for the antenatal to 9-month period are given in regression (6) of Appendix Table 13. Partner's personal income is measured antenatally, and categorises a partner's personal total income in the last 12 months before tax into 7 income bands: $0, $1 to $20,000; $20,001 to $30,000; $30,001 to $50,000; $50,001 to $70,000; $70,001 to $100,000; $100,001 to $150,000; and greater than $150,000. We code each using the midpoint of the band and impose linearity. The regression results show a negative but insignificant association between this variable and the probability a relationship without conflict ends. However, they show the marginal effect of conflict on a relationship ending is significantly larger in relationships where the partner has higher income. This is illustrated in Figure 27.

Partner's income source

A partner's sources of income may proxy for their income stability and values and attitudes as well as their ability to be financially independent. We separately consider the associations between a relationship ending and whether the partner receives income from four different sources: an employer; self-employment or a business; investments; and ACC, an unemployment benefit, or a sickness benefit.[96] Results for these variables for the antenatal to 9-month period are given in regressions (7) to (10) of Appendix Table 13. The variables for these regression are constructed from the antenatal question: "what are all the ways that you personally got income in the last 12 months ending today?" Partners can select any that apply from the following options: wages, salary, commissions, bonuses, etc. paid by an employer, self-employment or business, interest, dividends, rent, or other investments, regular payments from ACC or a private work accident insurer, NZ superannuation or veterans pension, other superannuation pensions, annuities (other than NZ superannuation, veterans or war pensions), unemployment benefit, sickness benefit, domestic purposes benefit, invalids benefit, student allowance (including scholarships or stipends), other government benefits, government income support payments or war pensions or paid parental leave, support payments from people who do not live in your household, child support payments, or no source of income during that time. For regression (7), we use partner's selection of the wages, salary, commissions, bonuses, etc. paid by an employer as an indicator. For regression (8), we create a dummy for partner's who indicated self-employment or business as an income source. For regression (9), we construct our dummy from partner's answers regarding receiving income from interest, dividends, rent, or other

[96] Note the types of benefits listed here are based on the names in use at the time of data collection. Some of these terms are no longer in use (e.g. the unemployment benefit has been replaced by Jobseeker support).

investments. Finally, regression (10) creates an indicator from this variable which records if partners receive income from ACC, unemployment benefits, or sickness benefits. For none of these variables do we find a statistically significant association between the income source and the probability a relationship without conflict ends. We find the marginal effect of conflict on a relationship ending is weakly significantly greater for relationships where the partner receives self-employment or business income, and insignificantly greater for relationships where the partner receives investment income. The former relationship is illustrated in Figure 28. There is no significant correlation for employment income or benefit income.

Partner's characteristics: value gained from the relationship

Partner wouldn't separate due to shame

A partner who perceives that separation would be shameful has additional motivation to prevent the mother from leaving. We thus predict, among relationships without IPV, relationships where the partner wouldn't separate due to shame are less likely to end than such relationships where the partner does not view separation as shameful. We also predict the marginal effect of IPV on relationship breakup may be smaller if the partner would not separate due to shame.

Results for this variable for the antenatal to 9-month period are given in regression (11) of Appendix Table 13. This variable was constructed from the antenatal question that presented partners with the statement, "the shame or disapproval of separation would stop me separating from my partner" and asked the extent they agreed with it. Answers were on a 5-point scale from strongly disagree to strongly agree. We construct a binary variable from this question that takes the value 1 if the partner strongly agrees with the statement, and 0 otherwise. The regression results show no significant correlation between the partner not wanting to separate due to shame and the probability a relationship without conflict ends. Furthermore, they show no significant association between the marginal effect of conflict on a relationship ending and a partner not wanting to separate due to shame.

Partner's positive interactions with mother

Relationships in which one partner uses violence can still involve positive interactions between partners, whether these are genuine or manipulations on the part of the violent partner. Positive interactions between the two partners mean both give up more if the relationship ends; we thus predict relationships with more positive interactions will be less likely to end, and may have a lower marginal effect of IPV on the probability the relationship ends. It should be noted positive

interactions between the partners when IPV is present could indicate a less controlling partner, which could make leaving for the victim easier.

Results for this variable for the antenatal to 9-month period are given in regression (12) of Appendix Table 13. The variable partner's positive interactions with partner is generated from 5 questions in the antenatal survey: "during the past four weeks, how often did you let each other know you really care about each other?"; "during the past four weeks, how often did you act lovingly and affectionately towards each other?"; "during the past four weeks, how often did you let each other know that you appreciate each other's ideas or the things you do?"; "during the past four weeks, how often did you help the other do something that was important to him/her?"; and "during the past four weeks, how often did you act supportive and understanding towards each other?" Partners answered each question on a 7-point scale ranging from 1 (all the time) to 7 (never). We aggregated recoded these classifications into three categories: 0 (never), 1 (not very often and almost never), and 2 (all the time, extremely often, very often, and quite often). We then added the five variables together to create a composite measure that runs from 0 to 10. The regressions results show that among relationships with no conflict, relationships with more positive interactions between the partners are significantly less likely to end. We find no significant association between positive interactions between partners and the marginal effect of conflict on a relationship ending. However, in terms of point estimates, relationships that involve conflict are similarly likely to end regardless of the positive interactions that occur between partners.

Partner's characteristics: access to physical and psychological resources

Partner's physical health

A partner who uses violence with low physical health may be reliant on their victim for day-to-day living. This can lead to complicated feelings on the part of the victim, who may feel obliged to stay and help. We thus predict low partner health will be associated with a low marginal effect of IPV on the probability a relationship ends.

Results for this variable for the antenatal to 9-month period are given in regression (1) of Appendix Table 14. The variable is constructed from the antenatal question "in general would you say your health was: poor, fair, good, very good, or excellent?" We code these on a 5-point scale from 0, poor, to 4, excellent, and impose linearity. The regression results show no significant association between the partner's health and the probability a relationship without conflict ends. Furthermore, they show no significant association between partner's health and the marginal effect of conflict of a relationship ending.

Partner has a long-term disability

Similarly to a partner with low physical health, a partner with a long term disability could be physically reliant on the mother. Results for this variable for the antenatal to 9-month period are given in regression (2) of Appendix Table 14. The variable is constructed from the antenatal question "do you currently have a disability that is long term, lasting 6 months or more?" The regression results show that among relationships without conflict there is a weakly significant positive association between the partner having a disability and the probability the relationship ends. This could be because one partner having a disability adds stress to a relationship. However, we find no significant association between the partner having a disability and the marginal effect of conflict of a relationship ending.

Partner diagnosed with depression

Similarly to a partner with physical health issues, a partner with mental health issues could be more reliant on the victim. In addition, a partner who uses violence with a history of depression may threaten suicide if their victim leaves to manipulate their victim into staying; a victim may feel guilty about leaving if they believe it will making their partner's depression worse. We thus predict a partner having been diagnosed with depression will be associated with a lower marginal effect of IPV on the probability a relationship ends.

Results for this variable for the antenatal to 9-month period are given in regression (3) of Appendix Table 14. The variable is constructed from the antenatal question "have you ever at any time in your life had depression diagnosed by a doctor?" Regression result show among relationships without conflict the partner being diagnosed with depression is associated with a weakly significantly higher probability of the relationship ending, but partner's depression is not significantly associated with the marginal effect of conflict of a relationship ending.

Partner diagnosed with anxiety

A partner who uses violence who has been diagnosed with anxiety could be more difficult for their victim to leave for similar reasons to a partner with depression. Results for this variable for the antenatal to 9-month period are given in regression (4) of Appendix Table 14. The variable is constructed from the antenatal question "have you ever at any time in your life had either anxiety or panic attacks diagnosed by a doctor?" The regression results show no significant association between the partner's being diagnosed with anxiety and the probability a relationship without conflict ends. Furthermore, they show no significant association between a partner having anxiety and the marginal effect of conflict of a relationship ending.

Partner's drinking habits

The alcohol use of a partner who uses violence could affect the ability of their victim to leave for several reasons. First, if the partner uses violence only when drunk, it might be easier for a victim to hold out hope that their partner 'isn't really like that' and can change. This might cause them to stay longer than they otherwise would, decreasing the marginal effect of IPV on relationship breakup. Second, a violent partner who is regularly drunk might be more unpredictable and thus scarier, making it clearer to their victim that the best decision is to leave. Third, the drinking might be indicative of problems in the partner's past. The victim might feel obligated to stay and help them deal with these issues, or may hope (likely falsely) that if the issues are addressed the abuse will stop. We thus do not have a clear prediction of how the partner's drinking habits will affect the marginal effect of IPV on a relationship ending.

Results for this variable for the antenatal to 9-month period are given in regression (5) of Appendix Table 14. This variable was constructed from the antenatal question: "thinking about how much alcohol you have been drinking, during your partner's pregnancy compared with before the pregnancy, are you drinking: I do not drink, much less, a little less, about the same, a little more, or a lot more. We recode these into three groups. The first is does not drink which is the omitted category in the regressions. The second grouping is drinks less than before the pregnancy which includes partners who answered much less or a little less. The final grouping is drinks the same or more which includes the remaining categories. The regression results show that, among relationships without conflict, regardless of whether the partner drinks more or less than before the pregnancy, a relationship where the partner does drink during the pregnancy is weakly significantly more likely to end that a relationship where the partner does not drink. However, we find no significant association between the partner's drinking and the marginal effect of conflict on a relationship ending.

Partner's characteristics: ability to manipulate the system

The Family Court is not designed to be a specialist court that deals with cases of IPV, thus it is open to manipulation by partners who use violence. Other parts of the system designed to help victims of IPV may also be used against them. In this section we investigate the effect of several partner characteristics that may capture aspects of their ability to manipulate the system.

Partner's migrant status

Partners who were raised in New Zealand or moved to the country when they were young are likely to have a better understanding of New Zealand society and culture in ways that may help them to manipulate the system to retain control over their victims. However, migrants may also

retain some of the norms of their country of origin, which if they are violent could either increase or decrease the ability of their partners to leave, depending on where they come from.

Results for this variable for the antenatal to 9-month period are given in regression (6) of Appendix Table 14. This variable is constructed antenatally using partner's birthplace and if not in New Zealand, the age at which he migrated to New Zealand. We create three categories from this information: partner was born in New Zealand, partner migrated to New Zealand as a child (under age 18), or partner migrated to New Zealand as an adult (age 18 or over). Regression results show that in cases where conflict was not present, compared with partners who were born in New Zealand, those who migrated to New Zealand as children were significantly more likely to have their relationships end. However, we find no significant association between the partner's migration status and the marginal effect of conflict on a relationship ending.

Partner typically spoke English at home as a child

Comfort with speaking English could also affect the partner's ability to manipulate the system. One measure of this is whether the partner typically spoke English at home as a child. Results for this variable for the antenatal to 9-month period are given in regression (7) of Appendix Table 14. We use an indicator variable for whether the partner typically spoke English at home as a child, but the alternative measures give very similar results. The regression results show that among relationships without conflict there is no significant association between the partner having spoken English at home as a child and the probability the relationship ends. Furthermore, we find no significant association between this variable and the marginal effect of conflict of a relationship ending.

Partner's knowledge of kiwi culture

A partner who is more knowledgeable of kiwi culture may be better able to manipulate the system to retain control over their victim. Results for this variable for the antenatal to 9-month period are given in regression (8) of Appendix Table 14. The variable was constructed by summing five antenatal partner questions. These were how knowledgeable are you of kiwi/New Zealand culture and lifestyle, how involved are you in kiwi/New Zealand culture and lifestyle, how do you feel toward kiwi/New Zealand culture and lifestyle, how often do you associate with kiwis/New Zealanders, and how important is it to maintain a kiwi/New Zealand culture and lifestyle? A higher score reflects a greater knowledge of kiwi culture. We normalise this variable to have a mean of 1.5 and a standard deviation of 1, and include it linearly, allowing for a change in slope at 0 (i.e., 1.5 standard deviations below the mean). The regression results show that among relationships without conflict there is no significant association between the partner's knowledge if kiwi culture and the probability the relationship ends. Furthermore, we find no

significant association between this variable and the marginal effect of conflict of a relationship ending. However, the point estimates suggest that when partner knowledge of kiwi culture is low, increasing it does decrease the marginal effect of conflict on the probability the relationship ends, in line with our prediction. This result is not significant partly because statistical power here is relatively low.