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Change in prevalence rates for psychological and economic abuse, and controlling behaviors against women by an intimate partner in two cross-sectional studies in New Zealand, 2003-2019

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8 Zealand, 2003-2019
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11 Change in prevalence rates for psychological and economic abuse, and
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13 controlling behaviors against women by an intimate partner in two cross-
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15 sectional studies in New Zealand, 2003-2019
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4 **behaviors against women by an intimate partner in two cross-sectional studies in New**
5 **Zealand, 2003-2019**
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10 **ABSTRACT**
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13 **Objectives** Changes in reported lifetime prevalence of psychological abuse, controlling
14 behaviours and economic abuse between 2003 and 2019, and past 12-month for psychological
15 abuse by an intimate partner were examined.
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21 **Design** Cross-sectional analysis
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24 **Setting and participants** Data came from two surveys of family violence in New Zealand
25 conducted in 2003 and 2019. Respondents were aged 18-64 years old (2003, n=2674 2019
26 n=944).
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30
31 **Main outcome measures** prevalence rates for psychological abuse, controlling behaviours and
32 economic abuse were compared between the two study years using logistic regression.
33 Sociodemographic and economic correlates of each abuse sub-type were investigated.
34 Interactions between sociodemographic factors and the study year for reported prevalence rates
35 were examined.
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44 **Results** There was a reduction in reported past 12-month experience of at least two acts of
45 psychological IPV from 7.7% (95%confidence interval CI=6.8-8.8) in 2003 to 4.8%
46 (95%CI=3.5-6.3) in 2019. The reported lifetime prevalence of at least two acts of controlling
47 behaviours increased from 7.5 (95%CI=6.5, 8.5) in 2003 to 14.1 (95%CI=11.9, 16.5) in 2019.
48 Lifetime prevalence economic IPV also increased from 4.4 (95%CI=3.5, 5.3) in 2003 to 9.5
49 (95%CI=7.5, 11.7) in 2019. Those who were divorced/separated or cohabiting, and those living
50 in the most deprived areas were more likely to report past year psychological IPV, lifetime
51 controlling behaviours and economic abuse. Women with primary/secondary education
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3 reported significantly less past 12-month psychological abuse in 2019 than those in 2003. A
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5 higher proportion of women who were married or cohabited reported controlling behaviours in
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7 2019 compared with 2003.
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10 **Conclusion** The changes in reported past year psychological IPV, and lifetime prevalence of
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12 controlling behaviours and economic abuse from 2003 to 2019 is worth critical evaluation.
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14 Results highlight the importance of measuring multiple forms of IPV independently and can
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16 inform policy makers about gaps in IPV prevention, and response programmes.
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24 **Strengths and limitations of this study**

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27 • The reported study used large, representative samples of women collected in 2003 and
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29 2019.
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31 • Measures of lifetime exposure provide information on overall experience of
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33 psychological abuse, controlling behaviours and economic abuse.
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35 • Regular surveys of violence exposure provide an understanding of the effectiveness of
36
37 population-based policies and programmes.
- 38
39 • Observed changes may reflect societal changes or environmental factors not
40
41 considered in this investigation.
- 42
43 • Self-report of violence exposure, while the gold standard for data collection, may
44
45 underestimate the true prevalence
- 46
47
48 • **Funding statement** This work was supported by the Health Research Council of New
49
50 Zealand (Grant 02/207) for 2003 study and the New Zealand Ministry of Business,
51
52 Innovation and Employment, Contract number CONT-42799-HASTR-UOA for 2019
53
54 study.
- 55
56 • We declare that there is no conflict of interest. The funding organization had no role
57
58 in the design and conduct of the study; in the collection, analysis, and interpretation of
59
60 the data; and in the preparation, review, or approval of the manuscript.

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Introduction

Psychological abuse (also known as emotional abuse), economic abuse and controlling behaviours are tacit but prevalent types of intimate partner violence (IPV), which can result in serious health outcomes, including death.[1–10] However, these types of violence have been historically neglected in research and practice[2,4,11] because the focus has been on gaining recognition about physical and sexual IPV, and the difficulties associated with the measurement of these types of behaviours. More recently, population-based studies assessed the prevalence of recent (past 12-month) and lifetime experiences of psychological, economic abuse and controlling behaviours against women in high-income countries[1,12–14] and low and middle-income countries.[5,15–17]

There is a lack of consensus on how to measure these forms of abuse. For example, some previous research has classified controlling behaviours and economic abuse under the larger umbrella of psychological/emotional abuse[2,6,7,18,19] while others report them separately.[13,20,21] Similarly, there is a lack of consensus on the measurement of economic abuse, with economic control, employment sabotage, and economic exploitation three commonly identified tactics which are not always measured.[22]

Previous research has found a strong correlation between sexual, physical and psychological, and economic forms of abuse[14,23,24] with some suggesting that psychological abuse may precede physical IPV.[25,26] Looking at patterns of change for these types of abuse at different time points can help us understand if they are distinct phenomena. Additionally, comparing results of prevalence rates and risk factors for psychological abuse, controlling behaviours and economic abuse in repeated cross sectional studies can help to a) identify trends, gaps and sociodemographic associates for these types of abuse, independent of physical and sexual IPV, and b) better tailor prevention strategies.

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3 New Zealand is one of a small number of countries [6,27–30] to have conducted repeated
4 population based surveys that include measures of psychological abuse, controlling
5 behaviours and economic abuse. The first survey was conducted in 2003,[31] and the repeat
6 survey was conducted in 2019. Between the two surveys, a series of actions were taken to
7 address family violence including; legislation (e.g. amendments to family violence law and
8 protection for victims act)[32], and prevention campaigns (e.g. the Family Violence: It's not
9 ok national campaign, and ACC-funded mates and dates high schools programme on healthy
10 relationships).[33]
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22 In the current investigation, we seek to understand the impact of population-based strategies
23 on women's experience of psychological abuse, controlling behaviours and economic abuse.
24 It is important to note, however, that in line with the majority of countries who have sought to
25 develop population-based strategies to impact on the prevalence of intimate partner violence,
26 the efforts in Aotearoa New Zealand have also primarily focused on the response to physical
27 abuse. In addition to estimating the change in prevalence estimates, we tested if women's
28 sociodemographic characteristics were associated with each of the outcome variables. To
29 understand which groups of women reported an increase or reduction between the two years,
30 we also explored the interaction between the sociodemographic characteristics and the study
31 year.
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METHODS

Study design, location, and participants

The present study used data from two national cross-sectional studies on family violence conducted in New Zealand in 2003 and 2019. Details on methods for these studies are published elsewhere [31](Fanslow *et al*, *Kotuitui*, 2020). In brief, in the 2003 study women were recruited from Auckland and North Waikato regions, and in the 2019 study women were recruited from Auckland, Waikato, and Northland. Cluster randomization was used for both studies. Meshblock boundaries, provided by Stats NZ, were used as the starting point for recruitment. Meshblocks are smallest statistical units that are used for the Census surveys. Non-residential and short-term residential properties, rest homes and retirement villages were excluded from both surveys.

Ethics approval was received from the University of Auckland human participants ethics committee with references numbers of 2002/199 in 2003, and 2015/ 018244 in 2019 studies.

Patients and Public involvement

Patients or the public were not involved in the design, conduct or reporting or dissemination plans of our research.

Eligibility: Potential participants were household members who had been living in that address for at least one month, aged 18-64 years (for the 2003 study), or 16 years and above (for the 2019 study), and able to speak conversational English. In 2003, 2,674 ever-partnered women aged 18-64 were recruited, and in 2019, 2,888 (n=1464 women, n=1423 men, n=1 other) were recruited. To ensure comparability of the sample populations, only women aged between 18 and 64 years were included in this investigation.

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3 **Data collection** The questionnaire developed for the World Health Organization Multi-
4
5 Country Study on Domestic Violence and Women's Health (WHO MCS) was used to
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7 measure violence against women in both studies.[34]
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10 For selection of individuals within a household, we identified all woman aged over 16 years
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12 residing in the household. Then, we listed these on the random selection form in order of
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14 oldest to youngest. For participants' safety, interviewers only interviewed one randomly
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16 selected woman per household. Participants provided informed consent. No one over the age
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18 of two years was present during the interview. All respondents were provided with a list of
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20 approved support agencies regardless of disclosure status at the conclusion of the face-to-face
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22 interview.
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27 The number of people invited and those who were interviewed and included in each of the
28
29 analyses are presented in flowchart diagram (**Figure 1**). The response rate relative to total
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31 eligible women was 66.9% in 2003 and 63.7% in 2019. The number of ever-partnered
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33 women aged 18-64 years was 2,674 in 2003 and 944 in 2019. For economic abuse, in 2003
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35 questions were asked for currently partnered participants only. To ensure consistency, we
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37 used currently partnered sample for this outcome in 2019. This reduced the total sample size
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39 for economic abuse to 2,123 in 2003 and 802 in 2019, respectively.
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44 **Outcome measures**

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47 Outcome variables are defined in **Supplementary Table 1**. We initially report on the
48
49 prevalence of one or two or more acts for life-time and past-year psychological abuse, as well
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51 as controlling behaviours. Further analyses considers only two or more acts of psychological
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53 abuse and controlling behaviours to distinguish systematic abuse from a one-off incident. We
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55 measured two acts of "economic control" in both surveys. Women who reported having
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57 experienced either or both acts were classified as having experienced economic abuse.
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3 For psychological abuse, past 12-month and lifetime experience was measured at both study
4 years. For controlling behaviours and economic abuse, only lifetime experience of the abuse
5 was measured at both study years.
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10 **Independent variables**

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12 Sociodemographic variables such as age, education, marital status, access to independent
13 source of income and family support were self-reported by respondents. We used the Index of
14 Multiple Deprivation (IMD) to determine area level deprivation.[35] See **Supplementary**
15 **Table 2** for a description of independent variables.
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23 **Statistical analyses:**

24 SAS statistical package (version 9.4) was used for data analyses (SAS Institute, Cary, NC,
25 USA). Missing data including were excluded from all analyses. These include: do not know
26 or do not remember, and no responses.
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33 Using the merged database , first, the study years were compared in terms of
34 sociodemographic variables, independent source of income, area deprivation level, and
35 family support using chi square tests.
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41 Then, the prevalence rates for each outcome were compared between the study years. For
42 each of three abuse types, results are presented as percentages (95%Confidence
43 intervals=CI). Then, to determine if there had been a change in estimated prevalence over
44 time, odds ratio (OR) and 95%CIs for reported experience of each outcome were determined
45 using univariate logistic regression models in the merged database, with the study year as a
46 predictor.
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55 Then, the following steps were taken to address further research questions:
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3 1. The association between each independent variable and each outcome (psychological
4 abuse, controlling behaviour and economic abuse) was identified using univariate
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6 logistic regression models.
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10 2. To determine if the relationship between independent and outcome variables remained
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12 significant across data collection periods, those variables for which a significant
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14 association was identified at the univariate level were included in the multivariate
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16 analyses, including the study year. Potential confounders (e.g. age, education,
17
18 relationship status, independent income, and area deprivation level) were also included
19
20 in multi-variate analyses.
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24 3. To determine if independent variables influenced the prevalence change between the
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26 study years, interaction tests were conducted between each of the significant variables
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28 and study year.
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RESULTS

Sociodemographic differences between study samples are described in **Table 1**. There was a smaller proportion of people aged 55 years and older in the 2003 sample (15.6%) compared with the 2019 sample (25.8%), and a smaller proportion of participants with tertiary education in the 2003 sample (44.5%) compared with the 2019 sample (66.5%). In the 2003 sample, a higher proportion of participants lived in the least deprived areas (34.3%) compared with the 2019 sample (28.6%).

Table 1 Characteristics of ever-partnered women aged 18-64 years in 2003 and 2019 studies of family violence

	2003	2019	p-value
Total sample	2674	944	
Age			<0.001
18-<30	401 (15.0)	115 (12.2)	
30-<45	1219 (45.6)	317 (33.6)	
45-<55	637 (23.8)	268 (28.4)	
>=55	417 (15.6)	244 (25.8)	
Education			<0.001
Primary/secondary	1478 (55.5)	315 (33.5)	
Tertiary	1187 (44.5)	625 (66.5)	
Relationship status			0.79
Married	1685 (63.1)	601 (63.7)	
Cohabiting	574 (21.5)	201 (21.3)	
Divorced/separated/ broken up	353 (13.2)	117 (12.4)	
Widowed/partner died	60 (2.2)	25 (2.6)	
Independent income			<0.001
Yes	2122 (79.4)	696 (73.7)	
No	551 (20.6)	248 (26.3)	
Deprivation			<0.001
Least deprived	914 (34.3)	270 (28.6)	
Moderately deprived	1045 (39.2)	393 (41.6)	
Most deprived	708 (26.5)	281 (29.8)	
Family support			0.35
Yes	2403 (90.1)	855 (91.3)	
No	264 (9.9)	81 (8.6)	

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3 Table 2 shows the reported prevalence of experiencing past 12-month and lifetime
4 psychological abuse by women in 2003 and 2019. There was no significant difference in
5 reported prevalence estimates for lifetime psychological experience between 2003 and 2019.
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10 There was no difference in reported prevalence rates for one act of the past 12-month
11 psychological abuse between 2003 and 2019 (OR=0.84; 95%CI= 0.68, 1.04). There was a
12 significant decrease in reported prevalence rates for two acts of past 12-month psychological
13 abuse from 7.7% in 2003 to 4.8% in 2019 (OR =0.60; 95%CI=0.43, 0.83).
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20 There was a significant increase in the reported prevalence rates for lifetime experience of at
21 least two acts of controlling behaviour from 7.5% in 2003 to 14.1% in 2019 (OR=2.03; 95%
22 CI=1.61, 2.56). Similarly, there was an increase in the reported prevalence rates for lifetime
23 experience of one act of economic abuse from 4.4% in 2003 to 9.5% in 2019 (OR=2.28
24 ;95%CI=1.67, 3.13) (Table 2).
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Table 2 Prevalence of recent (last 12 months) and lifetime psychological violence, lifetime economic abuse, and lifetime controlling behaviour against women aged 18-64 years in two cross-sectional studies in New Zealand and their changes

Violence type	Lifetime n% (95%CI)		Odds ratio 95%CI	Past 12 months n% (95%CI)		Odds ratio 95%CI
	2003	2019		2003	2019	
Psychological abuse (n)	(n=2674)	(n=944)		(n=2674)	(n=944)	
Insulted	1217 45.6 (43.7-47.5)	424 45.0 (41.8-48.2)	0.98 (0.84, 1.13)	368 13.8 (12.5-15.2)	104 11.0 (9.1-13.2)	0.77 (0.61, 0.97)
Humiliated	805 30.2 (28.4-32.0)	306 32.5 (29.6-35.6)	1.12 (0.95, 1.31)	187 7.0 (6.1-8.1)	54 5.7 (4.3-7.4)	0.80 (0.60, 1.10)
Intimidated	705 26.4 (24.7-28.1)	249 26.5 (23.7-29.4)	1.00 (0.84, 1.19)	151 5.7 (6.1-8.1)	24 2.5 (1.6-3.8)	0.43 (0.28, 0.67)
Threatened	501 18.8 (17.3-20.3)	158 16.8 (14.4-19.3)	0.87 (0.72, 1.06)	78 2.9 (6.1-8.1)	10 1.1 (0.5-1.9)	0.36 (0.18, 0.69)
At least one act of abuse	1368 51.2 (49.3-53.1)	494 52.4 (49.2-55.7)	1.05 (0.90, 1.21)	430 16.1 (14.7-17.5)	131 13.9 (11.7-16.3)	0.84 (0.68, 1.04)
At least two acts of abuse	922 34.5 (32.7-36.3)	331 35.1 (32.1-38.3)	1.03 (0.88, 1.20)	207 7.7 (6.8-8.8)	45 4.8 (3.5-6.3)	0.60 (0.43-0.83)
Economic abuse (n)	2123	802				
Taken your money	53 2.5 (1.9, 3.3)	45 5.6 (4.1, 7.5)	2.31 (1.54, 3.46)			
Refused to give money	60	59	2.74 (1.89, 3.97)			

	2.8 (2.2, 3.7)	7.5 (5.7, 9.5)			
At least one act of abuse	93 4.4 (3.5, 5.3)	76 9.5 (7.5, 11.7)	2.28 (1.67, 3.13)		
Controlling Behaviour					
Stopped seeing friends	227 8.5 (7.4, 9.6)	154 16.3 (14.0, 18.9)	2.10 (1.69, 2.62)		
Restricted to contact family	132 4.9 (4.1, 5.8)	84 8.9 (7.2, 10.9)	1.88 (1.42, 2.50)		
Insisted to know where she is	459 17.2 (15.8, 18.7)	186 19.7 (17.2, 22.4)	1.18 (0.98, 1.43)		
At least one act of controlling	532 19.9 (18.4, 21.4)	224 23.7 (21.0, 26.4)	1.25 (1.05, 1.49)		
A least two acts of controlling	200 7.5 (6.5, 8.5)	133 14.1 (11.9, 16.5)	2.03 (1.61, 2.56)		

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3 **Table 3** shows the characteristics of women who reported experiencing at least two acts of
4 lifetime and 12-month psychological abuse.
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8 *For 12-month psychological abuse:* The adjusted odds ratio in the multivariate model shows
9 that after controlling for sociodemographic factors, and area deprivation level, there was still
10 a significant decrease in the reported experience of past 12-month psychological abuse from
11 2003 to 2019 (AOR=0.64; 95%CI=0.45, 0.91).
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18 Age, relationship status and area deprivation level were significantly associated with
19 reporting of two or more past 12-month psychological abuse at the multivariate level. A
20 higher proportion of women aged <45 years reported experience of past 12-month
21 psychological abuse compared with those aged 45 years and older. A higher proportion of
22 those who were cohabiting, or divorced compared with married reported this experience. As
23 well, higher proportion of women who lived in the most deprived areas reported experience
24 of this abuse type compared with women who lived in the least deprived areas.
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35 *For lifetime psychological abuse:* No significant differences were found in reported
36 prevalence rates of lifetime psychological abuse between the two study years, after
37 controlling for sociodemographic factors, area deprivation level, and family support. Women
38 aged 30 years and above were more likely to report having experienced two or more acts of
39 lifetime psychological abuse. As well, those who were cohabiting and those who were
40 divorced/separated were also more likely to report having experienced two/more acts of
41 lifetime psychological abuse. The same was true for those with an independent income as
42 they were more likely to report lifetime psychological IPV experiences compared with those
43 without an independent income. Those who had family support were less likely to report
44 lifetime experience of psychological abuse compared with those without.
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Table 3 Characteristics of women with a past-12 months and lifetime psychological intimate partner abuse in pooled database from two cross-sectional studies in New Zealand

Abuse type	Last 12 months psychological abuse				Lifetime psychological abuse			
	Year	2003	2019	Univariate model	*Multivariate model	2003	2019	Univariate model
Act of abuse	Two/More n (%)	Two/More n (%)	Odds ratio (OR) (95%CI)	OR (95%CI)	Two/more n (%)	Two/more n (%)	OR (95%CI)	OR (95%CI)
Year (ref=2003)	207 (7.7)	45 (4.8)	0.60 (0.43-0.83)	0.65 (0.46, 0.92)	922 (34.5)	331 (35.1)	1.03 (0.88, 1.20)	1.05 (0.88, 1.25)
Age group (years)								
18-<30	50 (12.5)	7 (6.1)	1.00	1.00	134 (33.4)	33 (28.7)	1.00	1.00
30-<45	104 (8.5)	19 (6.0)	0.70 (0.50, 0.97)	0.87 (0.61, 1.23)	435 (35.7)	107 (33.7)	1.14 (0.92, 1.41)	1.76 (1.39, 2.22)
45-<55	34 (5.4)	12 (4.5)	0.43 (0.29, 0.66)	0.58 (0.38, 0.90)	223 (35.0)	99 (36.9)	1.15 (0.92, 1.45)	1.83 (1.41, 2.37)
>=55	19 (4.6)	7 (2.9)	0.33 (0.20, 0.53)	0.46 (0.28, 0.77)	130 (31.2)	92 (38.0)	1.06 (0.83, 1.36)	1.73 (1.31, 2.30)
Education								
Primary/secondary	131 (8.9)	10 (3.2)	1.00	1.00	540 (36.6)	114 (36.4)	1.00	1.00
Tertiary	76 (6.4)	35 (5.6)	0.76 (0.59, 0.99)	0.86 (0.65, 1.13)	380 (23.0)	215 (34.4)	0.85 (0.74, 0.97)	0.89 (0.77, 1.04)
Relationship status								
Married	87 (5.2)	24 (4.0)	1.00	1.00	392 (32.3)	158 (26.3)	1.00	1.00
Cohabiting	66 (11.5)	12 (6.0)	2.19 (1.62, 2.97)	1.81 (1.31, 2.51)	287 (50.0)	90 (45.0)	3.00 (2.53, 3.55)	3.49 (2.89, 4.21)
Divorced/separated/ broken up	54 (15.3)	8 (6.8)	2.98 (2.15, 4.14)	2.77 (1.97, 3.90)	223 (63.2)	75 (64.1)	5.47 (4.43, 6.75)	5.34 (4.30, 6.63)
Widowed/partner died	0	1 (4.0)	0.24 (0.03, 1.71)	0.29 (0.04, 2.15)	19 (32.2)	8 (32.0)	1.49 (0.94, 2.39)	1.33 (0.82, 2.16)
Independent income								
Yes	163 (7.7)	33 (4.7)	0.99 (0.73, 1.35)	0.88 (0.64, 1.21)	777 (36.4)	252 (36.3)	1.44 (1.21, 1.71)	1.23 (1.03, 1.48)
No	44 (8.0)	12 (5.0)	1.00	1.00	148 (26.9)	79 (32.0)	1.00	1.00
Deprivation level								
Least deprived	51 (5.6)	9 (3.3)	1.00	1.00	281 (30.7)	80 (29.7)	1.00	1.00
Moderately deprived	83 (7.9)	22 (5.0)	1.47 (1.06, 2.04)	1.34 (0.96, 1.87)	367 (35.1)	145 (36.9)	1.26 (1.07, 1.48)	1.13 (0.95, 1.35)
Most deprived	73 (10.3)	14 (5.0)	1.81 (1.29, 2.55)	1.46 (1.02, 2.09)	271 (38.3)	106 (37.9)	1.41 (1.18, 1.68)	1.10 (0.91, 1.34)
Having family support								
Yes	187 (7.8)	41 (4.8)	1.05 (0.67, 1.64)	-	811 (33.7)	288 (33.7)	0.69 (0.55, 0.87)	0.72 (0.56, 0.92)
No	20 (7.6)	3 (3.7)	1.00	-	109 (41.3)	37 (46.2)	1.00	1.00

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3 *Odd ratios from logistic regression are calculated from the pooled database.

4 ** Odds ratios are adjusted for age, education, relationship status, deprivation status, independent income, and the year of the study for past 12-month
5 psychological abuse while family support was additionally controlled for the lifetime psychological abuse.
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3 *Lifetime controlling behaviours:* The adjusted odds ratio shows that after controlling for
4 sociodemographic variables, deprivation index and family support, the increase in prevalence
5 rates of reporting two or more acts of controlling behaviours experienced remained
6 significant (from 2003 to 2019; OR=2.5; 95%CI=1.90, 3.27). Those who were cohabiting,
7 divorced or separated, and widowed were more likely to report having experienced
8 controlling behaviours compared with those who were married. Those who lived in the most
9 deprived areas were more likely to report experiencing this abuse type, compared with those
10 who lived in the least deprived areas. Those who had some tertiary education and who had
11 family support were less likely to report lifetime experience of controlling behaviours (**Table**
12 **4**).

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27 *Lifetime economic abuse:* The adjusted odds ratio shows that after controlling for
28 sociodemographic variables and area deprivation level, the reported increase in prevalence
29 rate of one act of economic abuse experience increased from 2003 to 2019 (OR=2.13;
30 95%CI=1.52, 3.00). Those aged 30 years and above, and those who were cohabiting were
31 more likely to report experiencing economic abuse compared with those who were aged
32 below 30 years, and those who were married, respectively. Similar to the previous abuse
33 types, those who lived in the most deprived areas were more likely to report an experience of
34 economic abuse compared with those who lived in the least deprived areas.
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Table 4 Characteristics of people with a lifetime economic abuse, and controlling behaviour against women aged 18-64 years and their changes in two cross-sectional studies in New Zealand

Abuse type	Controlling behaviour % (95%CI)		*Univariate model	**Multivariate model	Economic abuse % (95%CI)		*Univariate model I	**Multivariate model II
	2003	2019			2003	2019		
Year								
Acts of abuse	Two/more	Two/more	Odds Ratio (95%CI)	Odds Ratio (95%CI)	One/ more	One/ more	Odds Ratio (95%CI)	Odds Ratio (95%CI)
	n (row%)	n (row%)			n (row%)	n (row%)		
Year (ref=2003)	200 (7.5)	133 (14.5)	2.03 (1.61, 2.56)	2.50 (1.90, 3.27)	93 (4.4)	76 (9.5)	2.28 (1.67, 3.13)	2.10 (1.49, 2.94)
Age group								
18-<30	36 (9.0)	18 (15.6)	1.00	1.00	16 (5.4)	7 (6.8)	1.00	1.00
30-<45	91 (7.5)	42 (13.2)	0.81 (0.58, 1.13)	1.01 (0.70, 1.45)	51 (5.1)	24 (8.5)	1.02 (0.63, 1.66)	1.83 (1.09, 3.06)
45-<55	43 (6.7)	41 (15.3)	0.87 (0.61, 1.25)	0.99 (0.70, 1.48)	17 (3.3)	25 (10.7)	0.97 (0.57, 1.64)	1.85 (1.05, 3.26)
>=55	30 (7.2)	32 (13.1)	0.89 (0.60, 1.30)	0.77 (0.50, 1.21)	9 (2.9)	20 (10.9)	1.02 (0.58, 1.80)	1.94 (1.05, 3.60)
Education								
Primary/secondary	135 (9.1)	54 (17.1)	1.00	1.00	57 (5.0)	28 (10.9)	1.00	1.00
Tertiary	65 (5.5)	79 (12.6)	0.73 (0.58, 0.92)	0.74 (0.57, 0.96)	35 (3.6)	47 (8.7)	0.89 (0.65, 1.22)	0.83 (0.58, 1.20)
p-value	<0.001	0.06			0.13	0.31		
Relationship status								
Married	45 (2.7)	53 (8.8)	1.00	1.00	55 (3.3)	42 (7.0)	1.00	1.00
Cohabiting	37 (6.4)	40 (19.9)	2.46 (1.80, 3.36)	2.22 (1.59, 3.10)	38 (8.7)	34 (16.9)	2.87 (2.08, 3.94)	2.95 (2.08, 4.18)
Divorced/separated/ broken up	108 (30.6)	36 (30.8)	9.86 (7.44, 13.07)	9.16 (6.81, 12.30)	-	-		-
Widowed/partner died	10 (16.7)	4 (16.0)	4.40 (2.40, 8.08)	4.17 (2.19, 7.93)	-	-		-
Independent income								
Yes	169 (7.9)	102 (14.7)	1.28 (0.96, 1.72)	1.25 (0.91, 1.73)	67 (4.1)	56 (9.4)	0.84 (0.59, 1.20)	0.91 (0.65, 1.28)
No	30 (5.4)	31 (12.5)	1.00	1.00	26 (5.2)	20 (9.8)	1.00	1.00
Deprivation level								
Least deprived	36 (3.9)	29 (10.7)	1.00	1.00	19 (4.4)	20 (8.4)	1.00	1.00
Moderately deprived	76 (7.3)	41 (10.4)	1.52 (1.11, 2.09)	1.19 (0.85, 1.65)	31 (3.7)	26 (7.7)	1.30 (0.85, 1.97)	1.20 (0.79, 1.84)
Most deprived	87 (12.3)	63 (22.4)	3.08 (2.27, 4.17)	2.01 (1.44, 2.80)	43 (8.5)	30 (13.3)	2.81 (1.88, 4.19)	2.32 (1.53, 3.53)
Having family support								
Yes	165 (6.9)	113 (13.2)	0.54 (0.39, 0.74)	0.65 (0.45, 0.93)	84 (4.4)	65 (8.8)	0.79 (0.48, 1.31)	-

Abuse type	Controlling behaviour % (95%CI)		*Univariate model	**Multivariate model	Economic abuse % (95%CI)		*Univariate model I	**Multivariate model II
	2003	2019			2003	2019		
Year								
Acts of abuse	Two/more	Two/more	Odds Ratio (95%CI)	Odds Ratio (95%CI)	One/ more	One/ more	Odds Ratio (95%CI)	Odds Ratio (95%CI)
	n (row%)	n (row%)			n (row%)	n (row%)		
No	35 (13.3)	16 (19.7)	1.00	1.00	8 (4.0)	10 (17.2)	1.00	-

* Odd ratios from logistic regression are calculated from the pooled database.

** Odds ratios are adjusted for age, education, relationship status, deprivation status, independent income, having family support, and the year of the study for controlling behaviours. Family support was not included in the multivariate analysis for the economic abuse.

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3 There was a significant interaction between education status and the study year for the
4 reporting of at least two or more acts of past 12-month psychological abuse. There was a
5 significantly lower proportion of women with primary or secondary education who reported
6 past 12-month psychological abuse between 2003 (8.9%) and (3.2%) 2019. There was no
7 significant difference in reported prevalence rates for women with some tertiary education
8 between 2003 (6.4%) and 2019 (5.4%) (**Table 5**; p-value for interaction=0.02).
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17 Furthermore, there was a significant interaction between relationship status and the study
18 year for reporting of at least two or more acts of controlling behaviours. A higher proportion
19 of women who were married reported experience of controlling behaviours in 2019 (8.8%)
20 compared with 2003 (2.7%), as did women who were cohabiting (19.9% in 2019, and 6.4%
21 in 2003). Although the highest prevalence rates for controlling behaviours were reported by
22 women who were divorced, broken up or separated, the rates were not significantly different
23 between the two survey years (**Table 5**; p-value for interaction<0.001).
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34 No other interactions were significant for reporting of past 12-month psychological abuse, or
35 lifetime controlling behaviours.
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Table 5 Modification effect of education on reporting past 12-month psychological abuse, and relationship status on lifetime controlling behaviours, by the study year

Variable	Level	Past 12-month psychological abuse (≥2 acts)		*Adjusted OR (95%CI)	P value for interaction test	Lifetime controlling behaviours (≥2 acts)		**Adjusted OR (95%CI)	P value for interaction test
		Year 1 N (%)	Year 2 N (%)			Year 1 N (%)	Year 2 N (%)		
Education status	Primary/secondary	131 (8.88)	10 (3.19)	0.35 (0.18, 0.68)	0.02	-	-	-	-
	High education	76 (6.40)	35 (5.60)	0.89 (0.58, 1.35)		-	-	-	-
Marital status	Married	-	-	-		45 (2.7)	53 (8.8)	3.54 (2.90, 5.47)	<0.001
	Cohabiting	-	-	-		37 (6.4)	40 (19.9)	4.67 (2.74, 7.95)	
	Divorced/separated/broken up	-	-	-		108 (30.6)	36 (30.8)	0.94 (0.56, 1.58)	
	Widowed/ partner died	-	-	-		10 (16.7)	4 (16.0)	1.33 (0.34, 5.13)	

*Controlled for age, marital status, independent income, and deprivation level

**Controlled for age, education, independent income, and deprivation level

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DISCUSSION

This study compared the reported prevalence rates for past 12-month and lifetime psychological, economic abuse, and controlling behaviours from an intimate partner experienced by women between two population-based studies conducted in 2003 and 2019. There was no difference in reported lifetime psychological abuse between the two years, with just over a third of women (35%) in both surveys reporting having experienced at least two acts of psychological IPV in their lifetime, however, the proportion of women who reported past 12-month psychological abuse decreased significantly. The lifetime prevalence rate for reporting controlling behaviours doubled from 7.5% in 2003 to 14.5% in 2019. The same was true for the lifetime rate of economic abuse (4.4% in 2003 to 9.5% in 2019).

Overall, these findings are reflective of the results of some international studies,[7,36–38] but not others.[9,39] Comparisons are difficult as few countries have carried out repeat surveys and there are often differences in the measurement tools, and data collection strategies used.

In the current study, the substantive reduction in 12-month psychological abuse between the two study years was reported by women with primary or secondary education. A Swedish cross-sectional study also found a decrease in odds of reporting psychological abuse among those with lower educational status.[37] It is possible that the messaging from national family violence campaigns such as *It's Not Ok* contributed to this decrease.[40]

Importantly, having family support available in an emergency was associated with decreased risk of experiencing lifetime controlling behaviours and psychological abuse in this study.

Other research has also noted the importance of social support as a protective factor against abuse.[27,37] This reinforces the need to take a whole of family approach to addressing violence experience.

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3 The finding of an increase in reports of economic abuse among women aged 30 years and
4 above could be reflective of a greater likelihood of them having joint bank accounts or shared
5 property, business, or other combined finances with their partners, compared with their
6 younger peers. Additionally, greater likelihood of reporting economic abuse could be due to
7 women's greater awareness about the abusive financial behaviours they were experiencing, or
8 as a result of increased likelihood of being employed.[13] However, economic abuse has not
9 been the topic of prevention campaigns in New Zealand.

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12 Finally, the last but not least important association to highlight is the negative impact of
13 living in the most deprived areas which increased odds of reporting lifetime controlling
14 behaviour and economic abuse. This was consistent with previous research[27] and highlights
15 the continuing importance of implementing strategies to increase equity.

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18 **Strengths and future study directions** This study included a large sample of women from
19 two cross sectional studies conducted in 2003 and 2019 on intimate partner violence. It is the
20 first time that two survey samples with matching methods compare three seldomly reported
21 forms of IPV. Future qualitative and quantitative research is warranted to determine if the
22 considerable increase reported in economic abuse and controlling behaviour represents a true
23 change or the result of increased awareness.

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26 **Limitations** The results are based on population samples from 2003 and 2019 with response
27 rates of about 64%. Given that women who experience severe forms of violence are unlikely
28 to feel safe to participate in surveys such as that conducted, it is likely that the reported rates
29 are an underestimate of the true prevalence. In addition, it is possible that changes between
30 the two study years could have originated from other societal, environmental factors that
31 were not included in these analyses.

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3 In summary, the decrease in the reported prevalence of past 12-month psychological abuse is
4 positive and consistent with the decrease in reported 12-month prevalence of physical IPV
5 (Fanslow, *et al.*, *BMJ Open*). Reductions in 12-month prevalence rates suggest that women
6 are more easily able to recognise unsafe relationships, or remove themselves from the violent
7 behaviour.
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15 There have been a series of strategies and campaigns between the two years, with a focus on
16 sexual and physical IPV which may have contribute to a decline in the past 12-month
17 psychological abuse due to raised awareness among women.[41] However, the increase in the
18 prevalence of lifetime controlling behaviour and economic abuse could also signal that there
19 is a change in abusive tactics which are being used by partners who use violence.[42] As
20 controlling behaviours and economic abuse are seldom prosecuted or indeed recognized, the
21 shift in tactics could be advantageous to those who use violence as they carry less risk of
22 penalty.[23,42]
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34 The increase in reported prevalence of economic abuse and controlling behaviours shows that
35 these experiences should be measured separately and not conflated under the umbrella of
36 psychological abuse. This also has relevance from a policy and practice perspective, as it
37 indicates that controlling behaviours and economic abuse need their own recognition and
38 response. Currently, in New Zealand law, they are considered as forms of psychological
39 abuse.[43] It has been suggested that a legislative amendment to the Family Violence Act is
40 needed to recognize economic abuse separately from psychological abuse,[44] however any
41 legislative change would need to be supported by procedural changes that enables
42 prosecution of this form of abuse.[44] Further consideration is required to understand how to
43 effectively prevent violence experience, including impacting on masculine norms.
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3 Given the limited research available on the prevalence and consequences of controlling
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5 behaviour and economic abuse, the sharp increases in these behaviours noted in the present
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7 study suggest that further work is needed to understand the consequences of these behaviours
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9 and to develop appropriate prevention and mitigation strategies.
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13 **Acknowledgments**

14
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19 inception of the study. The two cross-sectional studies from which this study used data are
20 based on the WHO Violence Against Women Instrument as developed for use in the WHO
21 Multi-Country Study on Women's Health and Domestic Violence and has been adapted from
22 the version used in Asia and the Pacific by kNOwVAWdata Version 12.03). It adheres to the
23 WHO ethical guidelines for the conduct of violence against women research
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29 **Contributors:** Janet Fanslow (JF), Pauline Gulliver (PG), contributed to the conception and
30 design of the study. Tracey McIntosh (TM) contributed to the application for funding of 2019
31 study. Ladan Hashemi (LH) managed the data cleaning. LH and Zarintaj Malihi (ZM)
32 conducted the analyses, ZM and JF interpreted the data, drafted the article and revised it. All
33 authors contributed to the manuscript and approved the final version.
34

35 **Ethics approval** was granted by the University of Auckland Human Participants Ethics
36 Committee in 2003 (Ref number: 2002/199) and 2019 (Reference number 2015/ 018244).
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39 **Data availability statement** Data are unavailable due to the confidentiality and sensitivity of
40 the data and Māori data sovereignty.
41

42 **Competing interests** hereby we confirm that all authors read and understood BMJ policy on
43 declaration of interests and have completed the ICMJE uniform disclosure form at
44 http://www.icmje.org/coi_disclosure.pdf and declare that we received: no support from any
45 organisation for the submitted work (or describe if any); no financial relationships with any
46 organisations that might have an interest in the submitted work in the previous three years.
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3 **Figure legend:**
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5 **Figure 1** Flow diagram of included female participants in 2003 and 2019 population sample in
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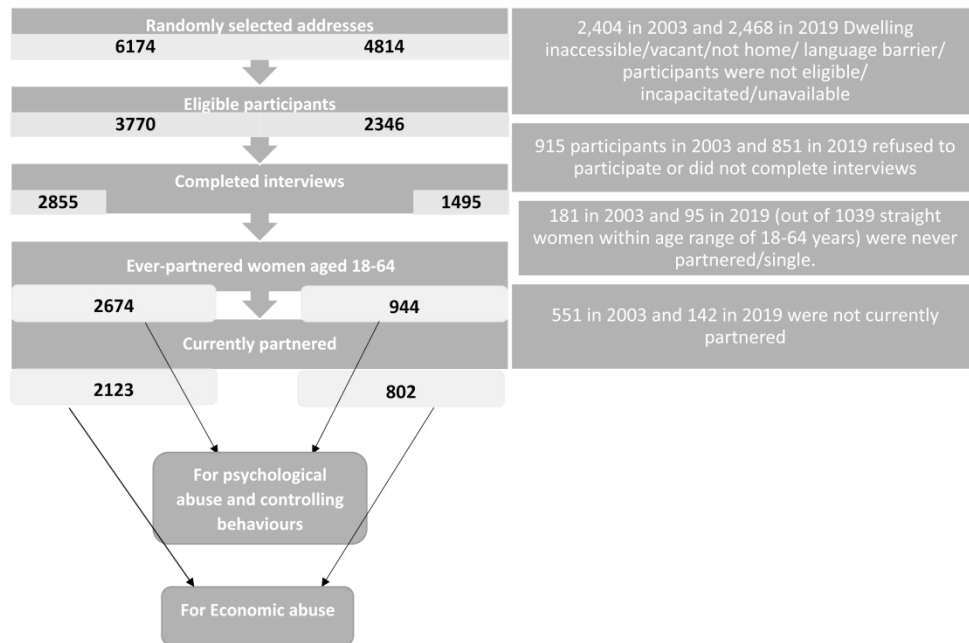


Figure 1 Flow diagram of included female participants in 2003 and 2019 population sample in New Zealand

245x164mm (300 x 300 DPI)

Supplementary Table 1 Measurements of psychological, economic abuse and controlling behavior in 2003 and 2019

		2003	2019
Psychological abuse	Insulted	Has your current husband / partner, or any other partner ever.... Insulted you or made you feel bad about yourself?	Has your current or any previous partner ever done any of the following things? Insulted you or made you feel bad about yourself?
	Humiliated	Belittled or humiliated you in front of other people?	Said or did something that made you feel humiliated in front of other people?
	Intimidated	Done things to scare or intimidate you on purpose (e.g. by the way he looked at you, by yelling and smashing things)?	Did things that made you feel scared or intimidated?
	Threatened	Threatened to hurt you or someone you care about?	Threatened to harm you or someone you care about?
Economic abuse (Currently married / currently living with a man)	Taken money	Has your husband / partner ever taken your earnings or savings from you against your will?	Has any partner ever taken your earnings or savings from you against your will?
	Refused to give money	Does your husband /partner ever refuse to give you money for household expenses, even when he has money for other things?	Has any partner ever refused to give you money for household expenses, even when they have money for other things?
Controlling behavior	Stopped seeing friends	Thinking about your (current or most recent) husband, would you say it is generally true that he: a) tries to keep you from seeing your friends?	Has your current, or any previous partner ever stopped you from seeing your friends?
	Restricted to contact family	Thinking about your (current or most recent) husband, tries to restrict contact with your family of birth?	Has your current, or any previous partner ever Restricted contact with your family?
	Insisted to know where she is	Thinking about your (current or most recent) husband, insists on knowing where you are at all times?	Has your current, or any previous partner ever Insisted on knowing where you are in a way that made you feel controlled or afraid?

Supplementary Table 2 Definitions of economic status and other confounding/ explanatory variables

Variable	Questions
Independent source of income	Incomes from wages or investments, retirement income. It is a binary variable with Yes, and No answers.
Deprivation level	Taken from NZ index of multiple deprivation (IMD) ³⁷ a combination of routinely collected data from government departments and census data in seven domains (i.e. employment, income, crime, housing, health, education, and access to services) to develop a measure of deprivation at the neighborhood level. We classified participants as living in least deprived, moderately deprived, and most deprived areas.
Support from family/ friends	When you need help or have a problem, can you usually count on members of your family for support? Binary answer: Yes, No.

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1-2
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	1-2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3-4
Objectives	3	State specific objectives, including any prespecified hypotheses	4
Methods			
Study design	4	Present key elements of study design early in the paper	1 and 5
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	5
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	5
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	6-7
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	5-7, supplementary tables 1 and 2
Bias	9	Describe any efforts to address potential sources of bias	6
Study size	10	Explain how the study size was arrived at	6
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	6-7
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	7
		(b) Describe any methods used to examine subgroups and interactions	7
		(c) Explain how missing data were addressed	7
		(d) If applicable, describe analytical methods taking account of sampling strategy	NA
		(e) Describe any sensitivity analyses	NA
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	Page 6, Figure 1
		(b) Give reasons for non-participation at each stage	Figure 1
		(c) Consider use of a flow diagram	Figure 1
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Page 6 and page 9, Table 1
		(b) Indicate number of participants with missing data for each variable of interest	Figure 1
Outcome data	15*	Report numbers of outcome events or summary measures	Table 2
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Table 3 and table 4
		(b) Report category boundaries when continuous variables were categorized	NA
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	Table 5
Discussion			
Key results	18	Summarise key results with reference to study objectives	21
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	22
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	23
Generalisability	21	Discuss the generalisability (external validity) of the study results	23
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	2

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

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Change in prevalence of psychological and economic abuse, and controlling behaviors against women by an intimate partner in two cross-sectional studies in New Zealand, 2003-2019

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3 Title: Change in prevalence of psychological and economic abuse, and controlling behaviours
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5 against women by an intimate partner in two cross-sectional studies in New Zealand, 2003-
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3 **Title: Change in prevalence of psychological and economic abuse, and controlling**
4 **behaviours against women by an intimate partner in two cross-sectional studies in New**
5 **Zealand, 2003-2019**
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11 **ABSTRACT**
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14 **Objectives** Changes in reported lifetime prevalence of psychological abuse, controlling
15 behaviours and economic abuse between 2003 and 2019, and past 12-month prevalence of
16 psychological abuse by an intimate partner were examined.
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21 **Design** Cross-sectional analysis.
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24 **Setting and participants** Data came from two surveys of family violence in New Zealand,
25 conducted in 2003 and 2019. Respondents were ever partnered women aged 18-64 years old
26 (2003 n=2673; 2019 n=935).
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31 **Main outcome measures** prevalence rates for psychological abuse, controlling behaviours and
32 economic abuse were compared between the two study years using logistic regression.
33 Sociodemographic and economic correlates of each abuse sub-type were investigated.
34 Interactions were examined between sociodemographic factors and the study year for reported
35 prevalence rates.
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44 **Results** There was a reduction in reported past 12-month experience of two or more acts of
45 psychological IPV from 8.4% (95% confidence interval CI=7.3-9.6) in 2003 to 4.7% (95%
46 CI=3.2-6.2) in 2019. The reported lifetime prevalence of two or more acts of controlling
47 behaviours increased from 8.2% in 2003 (95% CI=7.0, 9.5) to 13.4% in 2019 (95% CI=11.0-
48 15.7). Lifetime prevalence of economic IPV also increased from 4.5% in 2003 (95% CI=3.5,
49 5.5) to 8.9% in 2019 (95% CI=6.7-11.1). Those who were divorced/separated or cohabiting,
50 and those living in the most deprived areas were more likely to report past year psychological
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3 IPV, lifetime controlling behaviours and economic abuse. A higher proportion of women who
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5 were married or cohabiting reported controlling behaviours in 2019 compared with 2003.
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8 **Conclusion** While the reduction in reported past year psychological IPV is encouraging, the
9
10 increase in the lifetime prevalence of controlling behaviours and economic abuse from 2003 to
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12 2019 is worth critical evaluation. Results highlight potential gaps in current IPV prevention
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14 programmes, the need to identify and address underlying drivers of abusive behavior and the
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16 importance of measuring multiple forms of IPV independently.
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24 **Strengths and limitations of this study**

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- 27 • The reported study used large, representative samples of women collected in 2003 and
28 2019.
- 29
- 30 • Measures of lifetime exposure provide information on overall experience of seldom
31 explored forms of IPV, including psychological abuse, controlling behaviours and
32 economic abuse.
- 33
- 34 • Observed changes may reflect societal changes or environmental factors not
35 considered in this investigation.
- 36
- 37 • Self-report of violence exposure, while the gold standard for data collection, may
38 underestimate the true prevalence.
- 39
- 40 • Regular surveys of violence exposure can provide an understanding of the
41 effectiveness of population-based policies and programmes and changes in the overall
42 experience of different types of IPV.
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- 51 • **Funding statement** This work was supported by the Health Research Council of New
52 Zealand (Grant 02/207) for the 2003 study and the New Zealand Ministry of Business,
53 Innovation and Employment, Contract number CONT-42799-HASTR-UOA for the
54 2019 study.
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- We declare that there is no conflict of interest. The funding organizations had no role in the design and conduct of the study; in the collection, analysis, and interpretation of the data; and in the preparation, review, or approval of the manuscript.

For peer review only

Introduction

Psychological abuse (also known as emotional abuse), economic abuse and controlling behaviours are tacit but prevalent types of intimate partner violence (IPV), which can result in serious health outcomes.[1–10] However, historically these types of violence have been neglected in research and practice[2,4,11] because of the focus on gaining recognition of physical and sexual IPV, and the challenges associated with the measurement of these behaviours. More recently, population-based studies have assessed the prevalence of recent (past 12-month) and lifetime experiences of psychological, economic abuse and controlling behaviours against women in high-income countries[1,12–14] and low and middle-income countries.[5,15–18]

At present, there is a lack of consensus on how to measure these forms of abuse. For example, some previous research has classified controlling behaviours and economic abuse under the larger umbrella of psychological/emotional abuse[2,6,7,19,20] while others report these as separate forms of abuse.[13,21,22] Similarly, there is a lack of consensus on the measurement of economic abuse, with economic control, employment sabotage, and economic exploitation three commonly identified tactics but which are not always measured.[23]

Previous research has found a strong correlation between the experience of physical, sexual violence and psychological and economic abuse[14,24,25] with some suggesting that psychological abuse may precede physical IPV.[26,27] Looking at patterns of change for these types of abuse at different time points can help us understand if they are distinct phenomena. Additionally, comparing results of prevalence rates and risk factors for psychological abuse, controlling behaviours and economic abuse in repeated cross sectional studies can help to identify trends, gaps and sociodemographic associates for these types of

1
2
3 abuse, independent of physical and sexual IPV, which may in turn inform the development of
4
5 better prevention strategies.
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9 New Zealand is one of a small number of countries [6,28–31] that has conducted repeated
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11 population based surveys that have included measures of psychological abuse, controlling
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13 behaviours and economic abuse. The first survey was conducted in 2003,[32] and the repeat
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15 survey was conducted in 2019. Between the two surveys, a series of actions were taken to
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17 address family violence including; legislation (e.g. amendments to family violence law and
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19 protection for victims act)[33], and prevention campaigns (e.g. the Family Violence: It's not
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21 ok campaign, and the ACC-funded mates and dates high school programme on healthy
22
23 relationships).[34,35] However, efforts have primarily focused on the recognition of and response
24
25 to physical and sexual abuse.
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29 In the current investigation, we sought to explore if there have been changes in the prevalence
30
31 of women's experience of psychological abuse, controlling behaviours and economic abuse
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33 by intimate partners. In addition, we were interested in testing if any observed prevalence
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35 changes were influenced by changes in women's sociodemographic characteristics. Finally,
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37 to understand if different groups of women reported an increase or reduction between the two
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39 survey waves, we explored interactions between participants' sociodemographic
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41 characteristics and study year.
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METHODS

Study design, location, and participants

The present study used data from two national cross-sectional studies on family violence conducted in New Zealand in 2003 and 2019. The sampling framework was similar in both studies. Details on methods for these studies are published elsewhere [32,36]. In brief, in the 2003 study women were recruited from Auckland and North Waikato regions, and in the 2019 study women were recruited from Auckland, Waikato, and Northland. Cluster randomization was used for both studies. Meshblock boundaries, provided by Stats NZ, were used as the starting point for recruitment. Meshblocks are smallest statistical units that are used for the Census surveys. Non-residential and short-term residential properties, rest homes and retirement villages were excluded from both surveys. Interviewer training and support procedures were comparable across survey waves. The participants recruited for both surveys were broadly representative of women in the New Zealand population [32,36].

Ethics approval was received from the University of Auckland human participants ethics committee with reference numbers 2002/199 in 2003, and 2015/ 018244 in 2019.

Patients and Public involvement

Patients or the public were not involved in the design, conduct or reporting or dissemination plans of the research.

Eligibility: Potential participants were household members who had been living in that address for at least one month, aged 18-64 years (for the 2003 study), or 16 years and above (for the 2019 study), and able to speak conversational English. In 2003, 2,674 ever-partnered women aged 18-64 were recruited, and in 2019, 2,888 (n=1464 women, n=1423 men, n=1

1
2
3 other) were recruited. To ensure comparability of the sample populations, only women aged
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5 between 18 and 64 years were included in this investigation.
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8 **Data collection** The questionnaire developed for the World Health Organization Multi-
9
10 Country Study on Domestic Violence and Women's Health (WHO MCS) was used to
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12 measure violence against women in both studies.[37]
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16 For selection of individuals within a household, interviewers identified all woman aged over
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18 16 years residing in the household. These were listed on the random selection form in order
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20 of oldest to youngest, and interviewers only interviewed one randomly selected woman per
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22 household, for safety reasons. Participants provided informed consent. No one over the age of
23
24 two years was present during the interview. All respondents were provided with a list of
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26 approved support agencies regardless of disclosure status at the conclusion of the face-to-face
27
28 interview.
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32 The number of people invited and those who were interviewed and included in each of the
33
34 analyses are presented in **Figure 1**. The response rate relative to total eligible women was
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36 66.9% in 2003 and 63.7% in 2019. The number of ever-partnered women aged 18-64 years
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38 was 2,674 in 2003 and 944 in 2019. For economic abuse, in 2003 questions were asked for
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40 currently partnered participants only. To ensure consistency, we used the currently partnered
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42 sample for this outcome in 2019. This reduced the total sample size for economic abuse to
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44 2,123 in 2003 and 802 in 2019. Weighting variables were not available for one woman from
45
46 2003 and nine from 2019 which reduced the total analytic sample to 2673 in 2003 and 935 in
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48 2019 for psychological and controlling behaviors outcomes, and 2123 in 2003 and 794 in
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50 2019 for economic abuse outcome.
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55 56 **Outcome measures** 57 58 59 60

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3 Outcome variables are defined in **Supplementary Table 1**. Questions used to assess IPV
4 experience were identical in the two survey waves. We initially report on the prevalence of
5 one or two or more acts for lifetime and past-year psychological abuse, as well as controlling
6 behaviours. Further analyses considered only two or more acts of psychological abuse and
7 controlling behaviours as a proxy for distinguishing a pattern of abuse rather than counting
8 one-off incidents. We measured two acts of “economic control” in both surveys. Women who
9 reported having experienced either or both acts were classified as having experienced
10 economic abuse.
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13 For psychological abuse, past 12-month and lifetime experience were measured at both study
14 years. For controlling behaviours and economic abuse, only lifetime experience of the abuse
15 was measured in both study years.
16
17

18 **Independent variables**

19 Sociodemographic variables such as age, education, relationship status, access to independent
20 source of income and family support were self-reported by respondents. We used the Index of
21 Multiple Deprivation (IMD) to determine area level deprivation.[38] See **Supplementary**
22 **Table 2** for a description of independent variables.
23
24

25 **Statistical analyses:**

26 SAS statistical package (version 9.4) was used for data analyses (SAS Institute, Cary, NC,
27 USA). Missing data were excluded from all analyses. These included: do not know or do not
28 remember, and no responses.
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31 Using the merged database, first, the study years were compared in terms of
32 sociodemographic variables, independent source of income, area deprivation level, and
33 family support using chi square tests.
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3 Then, the prevalence rates for each outcome were compared between the study years. For
4 each of the three abuse types, results are presented as percentages (95% Confidence intervals
5 [CI]). Then, to determine if there had been a change in estimated prevalence over time, odds
6 ratio (OR) and 95% CIs for reported experience of each outcome were determined using
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8 univariate logistic regression models in the merged database, with the study year as a
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10 predictor.
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18 Then, the following steps were taken to address further research questions:
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- 20 1. The association between each independent variable and each outcome (psychological
21 abuse, controlling behaviour and economic abuse) was explored using univariate
22 logistic regression models with pooled data from 2003 and 2019.
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- 25 2. To determine if the relationship between independent and outcome variables remained
26 significant across data collection periods, those variables for which a significant
27 association was identified at the univariate level were included in the multivariate
28 analyses, including the study year. This also allowed us to assess if any changes in
29 independent variables over time influenced prevalence changes between the study
30 years. Potential confounders (e.g. age, education, relationship status, independent
31 income, and area deprivation level) were also included in multivariate analyses.
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- 34 3. To determine if the noted changes in the reported prevalence rates were consistent
35 across population subgroups, interaction terms between each of the independent
36 variables that reached significance and the study year were added to the multivariate
37 regression models.
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53 All analyses were conducted with survey procedures to allow for stratification by sample
54 location (three regions), clustering by primary sampling units (PSU), and weighting of data
55 to account for the number of eligible participants in each household.
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RESULTS

Sociodemographic differences between study samples are described in **Table 1**. There was a smaller proportion of people aged 55 years and older in the 2003 sample (14.7%) compared with the 2019 sample (23.3%), and a smaller proportion of participants with tertiary education in the 2003 sample (44.8%) compared with the 2019 sample (65.2%). In the 2003 sample, a higher proportion of participants had an independent income (80.0%) compared with the 2019 sample (73.0%).

Table 1. Characteristics of ever-partnered women aged 18-64 years in the New Zealand family violence studies, conducted in 2003 and 2019.

	2003	2019	p-value
Total sample	n=2673	n=935	
Age (years)	n (%)*	n (%)	<0.001
18-<30	401 (17.1)	113 (14.9)	
30-<45	1219 (43.5)	316 (31.0)	
45-<55	637 (24.6)	264 (30.8)	
>=55	416 (14.7)	242 (23.3)	
Education			<0.001
Primary/secondary	1477 (55.2)	310 (34.8)	
Tertiary	1187 (44.8)	621 (65.2)	
Relationship status			0.41
Married	1685 (61.5)	598 (63.3)	
Cohabiting	574 (22.1)	196 (21.2)	
Divorced/separated/ broken up	352 (14.3)	116 (12.6)	
Widowed/partner died	60 (2.1)	25 (2.9)	
Independent income			<0.0006
Yes	2121 (79.6)	688 (73.0)	
No	551 (20.4)	247 (27.0)	
Deprivation			0.13
Least deprived	914 (33.6)	269 (26.8)	
Moderately deprived	1045 (38.8)	387 (39.8)	
Most deprived	707 (27.5)	279 (33.4)	
Family support			0.07
Yes	2401 (90.1)	850 (92.2)	
No	265 (9.8)	78 (7.8)	

*Weighted % are presented.

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3 Table 2 shows the reported prevalence of experiencing past 12-month and lifetime
4 psychological abuse by women in 2003 and 2019. There was no significant difference in
5 reported lifetime prevalence estimates for psychological abuse between 2003 and 2019,
6 however, a significant difference was found in reported past 12 month prevalence of
7 experiencing at least one act of psychological abuse between 2003 and 2019 (OR=0.77; 95%
8 CI= 0.61, 0.98) or two acts of psychological abuse, from 8.4% in 2003 to 4.7% in 2019 (OR
9 =0.54; 95% CI=0.37, 0.77).

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20 There was a significant increase in the reported lifetime prevalence rate of at least two acts of
21 controlling behavior, from 8.2% in 2003 to 13.4% in 2019 (OR=1.72; 95% CI=1.32, 2.34).

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23 Similarly, there was an increase in the reported lifetime prevalence rate of one act of
24 economic abuse, from 4.5% in 2003 to 8.9% in 2019 (OR=2.08; 95% CI=1.45, 2.97) (Table
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Table 2. Prevalence of recent (last 12 months) and lifetime psychological violence, lifetime economic abuse, and lifetime controlling behaviour against women aged 18-64 years in two cross-sectional studies in New Zealand and their changes

Violence type	Lifetime n% (95%CI)*		Odds ratio 95%CI	Past 12 months n% (95%CI)		Odds ratio 95%CI
	2003	2019		2003	2019	
Psychological abuse (n)	(n=2673)	(n=935)		(n=2673)	(n=935)	
Insulted	1216 45.8 (43.77-47.90)	420 42.5 (38.72-46.34)	0.87 (0.73-1.04)	368 14.8 (13.27-1.41)	104 11.2 (8.90-13.47)	0.72 (0.56- 0.93)
Humiliated	805 30.1 (28.22-32.00)	303 30.5 (27.13-33.94)	1.02 (0.85-1.22)	187 7.6 (6.47-8.68)	54 5.6 (4.03-7.09)	0.72 (0.51-1.00)
Intimidated	705 26.4 (24.56-28.33)	245 24.8 (21.75-27.91)	0.92 (0.76-1.11)	151 6.3 (5.18-7.34)	24 2.6 (1.52-3.79)	0.41 (0.25-0.66)
Threatened	501 18.6 (16.96-20.20)	155 15.5 (13.08-18.00)	0.81 (0.65-1.00)	78 3.2 (2.43-3.99)	10 1.2 (0.42-1.97)	0.36 (0.18, 0.69)
At least one act of abuse	1367 51.4 (49.37-53.47)	489 49.3 (45.20-53.43)	0.92 (0.76-1.10)	430 17.4 (15.67-19.06)	131 14.0 (11.58-16.40)	0.77 (0.61-0.98)
Two or more acts of abuse	922 34.3 (32.39-36.32)	327 33.2 (29.83-36.60)	0.95 (0.80, 1.13)	207 8.4 (7.25-9.57)	45 4.7 (3.24-6.15)	0.54 (0.37-0.77)
Economic abuse (n)	2123	802				
Taken her money	53 2.7 (1.85-3.48)	45 5.6 (3.70-7.43)	2.15 (1.34-3.46)			
Refused to give money for household expenses	60 2.8 (2.10-3.58)	58 6.6 (4.89-8.40)	2.44 (1.65-3.60)			

At least one act of abuse	93 4.5 (3.47-5.49)	75 8.9 (6.72-11.07)	2.08 (1.45-2.97)			
Controlling Behaviour						
Stopped her from seeing friends	226 9.2 (7.89-10.50)	153 15.5 (13.09,18.00)	1.82 (1.42-2.32)			
Restricted contact with her family	132 5.3 (4.27-6.35)	84 8.5 (6.61-10.46)	1.67 (1.21-2.30)			
Insisted to know where she is in ways that made her feel controlled or frightened	458 18.1 (16.36-19.84)	185 18.9 (16.23-21.68)	1.06 (0.85-1.31)			
At least one act of controlling behaviour	531 20.8 (18.96-22.57)	223 22.6 (19.69-25.53)	1.11 (0.92-1.36)			
Two or more acts of controlling behaviour	199 8.2 (6.98-9.51)	132 13.4 (11.05-15.74)	1.72 (1.32-2.34)			

*Weighted % and 95%Cis are presented.

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3 **Table 3** shows the characteristics of women who reported experiencing two or more acts of
4 lifetime and 12-month psychological abuse.
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8 *For 12-month psychological abuse:* The adjusted odds ratio in the multivariate model shows
9 that after controlling for sociodemographic factors, and area deprivation level, there was still
10 a significant decrease in the reported experience of past 12-month psychological abuse from
11 2003 to 2019 (AOR=0.57; 95%CI=0.40, 0.82).
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18 Age, relationship status and area deprivation level were significantly associated with
19 reporting of two or more past 12-month psychological abuse at the multivariate level. A
20 lower proportion of women aged ≥ 45 years reported experience of past 12-month
21 psychological abuse compared with those aged 30 years and younger. A higher proportion of
22 those who were cohabiting, or divorced compared with married reported this experience. As
23 well, higher proportion of women who lived in the most deprived areas reported experience
24 of this abuse type compared with women who lived in the least deprived areas.
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35 *For lifetime psychological abuse:* No significant differences were found in reported
36 prevalence rates of lifetime psychological abuse between the two study years, after
37 controlling for sociodemographic factors, area deprivation level, and family support. Women
38 aged 30 years and above were more likely to report having experienced two or more acts of
39 lifetime psychological abuse. As well, those who were cohabiting and those who were
40 divorced/separated were also more likely to report having experienced two/more acts of
41 lifetime psychological abuse. As well, those who were cohabiting and those who were
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48 divorced/separated were also more likely to report having experienced two/more acts of
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Table 3. Characteristics of women with a past-12 months and lifetime psychological intimate partner abuse in pooled database from two cross-sectional studies in New Zealand

Abuse type	Last 12 months psychological abuse				Lifetime psychological abuse				
	Year	2003	2019	Univariate model odds ratio (OR) (95%CI)	*Multivariate model AOR (95%CI)	2003	2019	Univariate model OR (95%CI)	*Multivariate model AOR (95%CI)
Act of abuse	Two/More n (%)	Two/More n (%)				Two/more n (%)	Two/more n (%)		
Year (ref=2003)	207 (8.4)	45 (4.7)	0.54 (0.37, 0.77)	0.57 (0.40, 0.82)	922 (34.3)	327 (33.2)	0.95 (0.80, 1.13)	0.97 (0.81, 1.16)	
Age group (years)									
18-<30	50 (14.1)	7 (6.3)	1.00	1.00	134 (33.0)	32 (23.4)	1.00	1.00	
30-<45	104 (8.8)	19 (6.1)	0.68 (0.45, 0.93)	0.79 (0.54, 1.16)	435 (35.8)	107 (33.1)	1.23 (0.98, 1.55)	1.97 (1.52, 2.56)	
45-<55	34 (5.8)	12 (4.2)	0.40 (0.26, 0.62)	0.55 (0.34, 0.86)	223 (34.5)	97 (35.5)	1.21 (0.93, 1.56)	2.10 (1.58, 2.80)	
>=55	19 (4.8)	7 (2.6)	0.30 (0.18, 0.49)	0.44 (0.25, 0.75)	130 (31.6)	91 (36.8)	1.14 (0.88, 1.47)	2.05 (1.54, 2.73)	
Education									
Primary/secondary	131 (9.5)	10 (3.7)	1.00	-	540 (35.9)	113 (33.8)	1.00	-	
Tertiary	76 (7.2)	35 (5.3)	0.76 (0.57, 1.01)	-	380 (32.5)	212 (32.8)	0.88 (0.75, 1.02)		
Relationship status									
Married	87 (5.6)	24 (3.9)	1.00	1.00	392 (23.1)	157 (24.8)	1.00	1.00	
Cohabiting	66 (12.7)	12 (6.0)	2.28 (1.64, 3.18)	1.80 (1.26, 2.58)	287 (49.2)	88 (42.3)	2.91 (2.42, 3.50)	3.74 (3.06, 4.57)	
Divorced/separated/broken up	54 (15.2)	8 (6.8)	2.79 (1.97, 3.95)	2.52 (1.79, 3.54)	223 (60.2)	74 (61.5)	4.96 (3.95, 6.22)	5.10 (4.04, 6.43)	
Widowed/partner died	0	1 (2.9)	0.19 (0.02, 1.38)	0.23 (0.03, 1.70)	19 (30.8)	8 (26.5)	1.34 (0.82, 2.19)	1.27 (0.77, 2.08)	
Independent income									
Yes	163 (8.2)	33 (4.6)	0.98 (0.64, 1.28)	-	773 (36.0)	248 (34.7)	1.41 (1.17, 1.70)	1.20 (0.98, 1.47)	
No	44 (9.3)	12 (5.1)	1.00		148 (27.7)	79 (29.1)	1.00	1.00	
Deprivation level									
Least deprived	51 (6.4)	9 (3.2)	1.00	1.00	281 (31.6)	80 (29.1)	1.00	1.00	
Moderately deprived	83 (8.3)	22 (5.8)	1.37 (0.97, 1.94)	1.28 (0.91, 1.81)	367 (34.6)	141 (36.5)	1.20 (1.01, 1.43)	1.10 (0.91, 1.32)	
Most deprived	73 (11.3)	14 (4.6)	1.68 (1.16, 2.44)	1.45 (1.02, 2.08)	271 (37.5)	106 (32.6)	1.25 (1.02, 1.53)	1.06 (0.85, 1.31)	
Having family support									
Yes	187 (8.4)	41 (4.7)	1.01 (0.63, 1.61)	-	811 (33.8)	285 (31.7)	0.72 (0.56, 0.92)	0.73 (0.56, 1.47)	
No	20 (8.6)	3 (3.3)	1.00	-	109 (39.5)	36 (46.2)	1.00	1.00	

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3 *Odds ratios from logistic regression are calculated from the pooled database.

4 ** Model II odds ratios are adjusted for age, relationship status, deprivation status, and the year of the study for past 12-month psychological abuse while
5 independent income and family support were additionally controlled for the lifetime psychological abuse.
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7 AOR=Adjusted odds ratio
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3 *Lifetime controlling behaviours:* The adjusted odds ratio shows that after controlling for
4 sociodemographic variables, deprivation index and family support, the increase in prevalence
5 rates of reporting two or more acts of controlling behaviours experienced remained
6 significant (from 2003 to 2019; AOR=1.72; 95%CI=1.32, 2.24). Those who were cohabiting,
7 divorced or separated, and widowed were more likely to report having experienced
8 controlling behaviours compared with those who were married. Those who lived in the most
9 deprived areas were more likely to report experiencing this abuse type, compared with those
10 who lived in the least deprived areas (**Table 4**).

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13 *Lifetime economic abuse:* The adjusted odds ratio shows that after controlling for
14 sociodemographic variables and area deprivation level, the reported increase in prevalence
15 rate of one act of economic abuse experience was still significant (AOR=1.84; 95%CI=1.30,
16 2.62). Those aged 30 years and above, and those who were cohabiting were more likely to
17 report experiencing economic abuse compared with those who were aged below 30 years, and
18 those who were married, respectively. Similar to the previous abuse types, those who lived in
19 the most deprived areas were more likely to report an experience of economic abuse
20 compared with those who lived in the least deprived areas (**Table 4**).

Table 4. Characteristics of women reporting lifetime experience of controlling behaviours and economic abuse by their intimate partner, in two cross-sectional New Zealand studies.

Abuse type	Controlling behaviour % (95%CI)		*Univariate model	**Multivariate model	Economic abuse % (95%CI)		*Univariate model I	**Multivariate model II
	2003	2019			2003	2019		
Year								
Acts of abuse	Two/more	Two/more	Odds Ratio (95%CI)	AOR (95%CI)	One/ more	One/ more	OR (95%CI)	AOR (95%CI)
	n (row%)	n (row%)			n (row%)	n (row%)		
Year (ref=2003)	199 (8.2)	132 (18.4)	1.72 (1.32, 2.24)	1.98 (1.47, 2.64)	93 (4.5)	75 (8.9)	2.08 (1.45, 2.97)	1.84 (1.30, 2.62)
Age group								
18-<30	36 (10.0)	18 (13.1)	1.00	1.00	16 (5.9)	7 (8.4)	1.00	1.00
30-<45	91 (7.9)	42 (13.2)	0.83 (0.57, 1.19)	1.06 (0.71, 1.57)	51 (5.3)	24 (7.5)	0.85 (0.49, 1.47)	1.60 (1.30, 2.62)
45-<55	43 (8.0)	41 (14.7)	0.94 (0.63, 1.39)	1.18 (0.76, 1.84)	17 (3.1)	25 (10.2)	0.82 (0.45, 1.46)	1.62 (0.85, 3.08)
>=55	30 (7.4)	31 (12.1)	0.84 (0.55, 1.28)	0.84 (0.50, 1.40)	9 (3.3)	19 (9.5)	0.83 (0.45, 1.55)	1.75 (0.89, 3.45)
Education								
Primary/secondary	134 (9.7)	54 (15.3)	1.00	-	57 (5.2)	28 (10.3)	1.00	-
Tertiary	65 (6.5)	78 (12.5)	0.78 (0.61, 1.00)	-	35 (3.6)	46 (8.1)	0.84 (0.59, 1.18)	-
p-value	<0.001	0.06			0.13	0.31		
Relationship status								
Married	45 (3.1)	53 (8.8)	1.00	1.00	55 (3.4)	42 (6.1)	1.00	1.00
Cohabiting	37 (7.0)	39 (18.9)	2.31 (1.64, 3.24)	2.30 (1.59, 3.33)	38 (8.8)	33 (17.3)	3.07 (2.16, 4.34)	3.22 (2.21, 4.70)
Divorced/separated/ broken up	107 (31.2)	36 (27.7)	8.84 (6.50,12.01)	8.88 (6.42,12.28)	-	-		-
Widowed/partner died	10 (15.2)	4 (11.8)	3.30 (1.79, 6.11)	3.28 (1.65, 6.52)	-	-		-
Independent income								
Yes	168 (7.0)	101 (14.0)	1.18 (0.85, 1.65)	-	67 (4.2)	55 (8.6)	0.79 (0.53, 1.16)	-
No	30 (7.0)	31 (11.7)	1.00	-	26 (5.5)	20 (9.6)	1.00	-
Deprivation level								
Least deprived	36 (4.9)	29 (9.9)	1.00	1.00	19 (2.5)	20 (7.3)	1.00	1.00
Moderately deprived	76 (7.7)	40 (10.1)	1.41 (0.97, 2.04)	1.11 (0.76, 1.63)	31 (3.8)	25 (7.6)	1.37 (0.88, 2.13)	1.29 (0.83, 1.99)
Most deprived	86 (12.9)	63 (20.1)	2.77 (1.92, 4.00)	2.30 (1.59, 2.84)	43 (8.5)	30 (11.8)	2.83 (1.81, 4.42)	2.22 (2.21, 4.70)
Having family support								

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Abuse type	Controlling behaviour % (95%CI)		*Univariate model	**Multivariate model	Economic abuse % (95%CI)		*Univariate model I	**Multivariate model II
	2003	2019			2003	2019		
Year								
Acts of abuse	Two/more	Two/more	Odds Ratio (95%CI)	AOR (95%CI)	One/ more	One/ more	OR (95%CI)	AOR (95%CI)
	n (row%)	n (row%)			n (row%)	n (row%)		
Yes	164 (7.6)	112 (12.6)	0.55 (0.39, 0.79)	0.64 (0.42, 0.96)	84 (4.4)	64 (8.1)	0.70 (0.41, 1.19)	-
No	35 (13.8)	16 (19.7)	1.00	1.00	8 (4.8)	10 (18.2)	1.00	-

* Odd ratios from logistic regression were calculated using the pooled database.

** Odds ratios were adjusted for age, relationship status and deprivation status. For controlling behavior abuse, education status and having family support were also included in the multivariate model.

AOR=Adjusted odds ratio

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3 There was a significant interaction between relationship status and study year for reports of
4 two or more acts of controlling behaviour. A higher proportion of women who were married
5 reported lifetime experience of controlling behaviours in 2019 (8.8%) compared with 2003
6 (3.1%), as did women who were cohabiting (18.9% in 2019, and 7.0% in 2003). Although the
7 highest prevalence rates for controlling behaviours were reported by women who were
8 divorced, broken up or separated, the rates were not significantly different between the two
9 survey years (**Table 5**; p-value for interaction=0.0002).

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12 No other interactions were significant for reports of past 12-month and lifetime psychological
13 abuse, or lifetime economic abuse.
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Table 5. Interaction effects of relationship status on lifetime controlling behaviours, by the study year

Variable	Level	Lifetime controlling behaviours (≥ 2 acts)		*Adjusted OR (95%CI)	P value for interaction test
		Year 1 N (%)	Year 2 N (%)		
Relationship status	Married	45 (3.1)	53 (8.8)	3.54 (2.90, 5.47)	0.0002
	Cohabiting	37 (7.0)	39 (18.9)	4.67 (2.74, 7.95)	
	Divorced/separated/ broken up	107 (31.2)	36 (27.7)	0.94 (0.56, 1.58)	
	Widowed/ partner died	10 (15.2)	4 (11.8)	1.33 (0.34, 5.13)	

*Controlling for age, education, independent income, and deprivation level

DISCUSSION

This study compared women's reports of prevalence rates of past 12-month and lifetime experience of psychological abuse, and the lifetime experience of economic abuse, and controlling behaviours by an intimate partner, as assessed through population-based studies conducted in 2003 and 2019. There was no difference in reported lifetime psychological abuse between the two years, with a third of women (33%-34%) in both surveys reporting having experienced at least two acts of psychological IPV in their lifetime. However, the proportion of women who reported past 12-month psychological abuse decreased significantly. In contrast, the reported lifetime prevalence of controlling behaviours doubled from 8.2% in 2003 to 18.4% in 2019, as did the reported lifetime prevalence of economic abuse (4.5% in 2003 to 8.9% in 2019).

There are three possible explanations for study findings, including: actual changes in perpetrator behavior over time; changes in women's reporting of experience of violent behavior due to changes in awareness of and willingness to report, and changes due to differences in methods, measurement or samples. These are discussed in turn.

There is some evidence that changes in perpetrator behavior may have occurred, as the reduction in the 12-month prevalence of psychological abuse between 2003 and 2019 is consistent with a reduction in 12-month prevalence of physical IPV noted in the same sample (Fanslow et al, BMJ Open, under revision). However, if the differences are based on actual changes in perpetrator behavior, then it also appears that there may have been a shift in the use of abusive tactics within intimate relationships, as indicated by the increase in the reported experience of controlling behaviours and economic abuse.[39] Similar patterns have been observed in intervention studies with men who perpetrate intimate partner violence, with reductions in physical, sexual, and verbal (psychological abuse) violence showing early change,[40] while changes in use of controlling and coercive tactics may be more uneven,

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3 contradictory, and may take more time. [41] As controlling behaviours and economic abuse
4 are seldom prosecuted or indeed recognized, the shift in tactics could be advantageous to
5 those who use violence as they carry less risk of penalty.[23,42] It may also be that
6 controlling behaviours and economic abuse have different drivers, and function differently in
7 relationships than other forms of intimate partner violence.[18]
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15 If the observed changes reflect actual differences in use of these forms of intimate partner
16 violence, then further exploration of the causes of such behavior change are warranted. There
17 have been a series of strategies and campaigns implemented between the two study years,
18 with a focus on sexual and physical IPV, which may have also contributed to a decline in the
19 past 12-month psychological abuse.[41] National efforts such as the Family Violence: It's
20 Not Ok Campaign may have contributed to this decrease, as there is some evidence that it had
21 wide population reach.[40] Of note, however, controlling behaviours and economic abuse
22 were not widely discussed in this prevention campaign. Further work is needed on
23 identifying and addressing the underlying drivers of abusive behavior, such as issues of
24 gender inequality, harmful conceptualizations of masculinity and femininity [42], and
25 unpacking issues of power, control and entitlement. [43,44]
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41 While the increased prevalence of controlling behaviours and economic abuse could have
42 resulted from changes in women's reporting of these experiences (as a function of increased
43 recognition of and/or increased willingness to report such behaviors between 2003 and 2019),
44 this interpretation seems less likely, as changes based solely on women's reporting would
45 likely also have contributed to increased reports of psychological abuse. The increased
46 reports of lifetime economic abuse, particularly among women aged 30 years and older,
47 could also be reflective of other factors, including: greater exposure time (i.e., the women are
48 older, so there is more time in which they may have experienced abuse); a greater likelihood
49 of them having joint bank accounts or shared property, business, or other combined finances
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3 with their partners compared with their younger peers; or increased likelihood of being
4 employed, which could yield more finances to be controlled.[13]
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8 Comparability of methods across the two surveys, including use of identical questions, lends
9 strength to the interpretation that the prevalence changes observed are real. Additionally,
10 while there some differences in the characteristics of the two samples, the adjusted odds ratio
11 showed that after controlling for all socio-demographic factors, the observed differences in
12 prevalence still remained significant.
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20 Additional survey waves would also facilitate confirmation or clarification of the within-
21 population differences observed in the present study. Examples include the substantive
22 increase in controlling behavior from 2003 to 2019 that mainly occurred among those who
23 were married or cohabiting. While consistent with data from previous research[45] further
24 research is needed to determine why this difference may exist. One possibility is that it is an
25 example of “constraint through commitment” related to being constrained by one’s partner to
26 uphold cultural conventions of heterosexual marriage [46]
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37 Other findings from the present study are both consistent with previous research, and
38 theoretically plausible enough to warrant current policy and programmatic action. These
39 include the finding that having family support available in an emergency was associated with
40 decreased risk of experiencing lifetime controlling behaviours, a finding consistent with other
41 research that has noted the importance of social support as a protective factor against
42 abuse.[28,45] Additionally, the finding that those living in the most deprived areas had
43 increased odds of reporting lifetime controlling behaviour and economic abuse is consistent
44 with previous research[28] and highlights the continued importance of implementing
45 strategies to increase equity.
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3 **Limitations** The results are based on population samples from 2003 and 2019 with response
4 rates of about 64%. Given that women who experience severe forms of violence are unlikely
5 to participate in surveys such as that conducted, it is likely that the reported rates are an
6 underestimate of the true prevalence. In addition, it is possible that changes between the two
7 study years could be due to other societal, environmental factors that were not included in
8 these analyses.
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11 Measurement limitations also exist. These include the fact that measurement of forms of
12 abuse for this study were based on a small number of questions for each IPV type. There was
13 also no assessment of experience of economic abuse in the past 12 months, and the overall
14 sample for those reporting economic abuse in 2019 was small. Measurement non-invariance
15 may also limit our ability to accurately assess changes with different groups over time.
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18 **Strengths and future study directions** This study included a large sample of women from
19 two cross sectional studies on intimate partner violence conducted in 2003 and 2019. It is the
20 first time that two survey samples with matching methods have compared three seldomly
21 reported forms of IPV. Future qualitative and quantitative research is warranted to determine
22 if the considerable increase reported in economic abuse and controlling behaviour represents
23 a true change or is the result of increased awareness. Future studies could be strengthened by
24 inclusion of a greater number of questions to assess different abuse types.
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27 **Conclusion**

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29 In summary, the decrease in the reported prevalence of past 12-month psychological abuse is
30 positive and consistent with the decrease in reported 12-month prevalence of physical IPV
31 (Fanslow, *et al.*, *BMJ Open*, *under revision*). The increase in reported prevalence of
32 economic abuse and controlling behaviours shows that these experiences should be measured
33 separately and not conflated under the umbrella of psychological abuse.
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3 This also has relevance from a policy and practice perspective, as it indicates that controlling
4 behaviours and economic abuse need their own recognition and response. Currently, in New
5 Zealand law, they are considered as forms of psychological abuse.[47] It has been suggested
6 that a legislative amendment to the Family Violence Act is needed to recognize economic
7 abuse separately from psychological abuse,[48] however any legislative change would need
8 enhanced understandings of these forms of violence and to be supported by procedural
9 changes that enables prosecution of this form of abuse.[48] Further consideration is required
10 to understand how to effectively prevent violence experience, including impacting on
11 masculine norms.
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24 Given the limited research available on the prevalence and consequences of controlling
25 behaviour and economic abuse, the sharp increases in these behaviours noted in the present
26 study suggest that further work is needed to understand the consequences of these behaviours
27 and to develop appropriate prevention and mitigation strategies. Further survey waves would
28 strengthen understanding of changes of the prevalence of violence that may be occurring the
29 population.
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42 Justice, the Accident Compensation Corporation, the New Zealand Police, and the Ministry
43 of Education, who were part of the Governance Group for Family and Sexual Violence at the
44 inception of the study. The two cross-sectional studies from which this study used data are
45 based on the WHO Violence Against Women Instrument as developed for use in the WHO
46 Multi-Country Study on Women's Health and Domestic Violence and has been adapted from
47 the version used in Asia and the Pacific by kNOwVAWdata Version 12.03). It adheres to the
48 WHO ethical guidelines for the conduct of violence against women research
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55 **Contributors:** Janet Fanslow (JF), Pauline Gulliver (PG), contributed to the conception and
56 design of the study. Tracey McIntosh (TM) contributed to the application for funding of 2019
57 study. Ladan Hashemi (LH) managed the data cleaning. LH and Zarintaj Malihi (ZM)
58 conducted the analyses, ZM and JF interpreted the data, drafted the article and revised it. All
59 authors contributed to the manuscript and approved the final version.
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3 **Ethics approval** was granted by the University of Auckland Human Participants Ethics
4 Committee in 2003 (Ref number: 2002/199) and 2019 (Reference number 2015/ 018244).

5
6 **Data availability statement** Data are unavailable due to the confidentiality and sensitivity of
7 the data and Māori data sovereignty.
8

9 **Competing interests** hereby we confirm that all authors read and understood BMJ policy on
10 declaration of interests and have completed the ICMJE uniform disclosure form at
11 http://www.icmje.org/coi_disclosure.pdf and declare that we received: no support from any
12 organisation for the submitted work (or describe if any); no financial relationships with any
13 organisations that might have an interest in the submitted work in the previous three years.
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For peer review only

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3 **Figure legend:**
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5 **Figure 1** Flow diagram of female participants in the 2003 and 2019 population-based studies
6 of family violence in New Zealand
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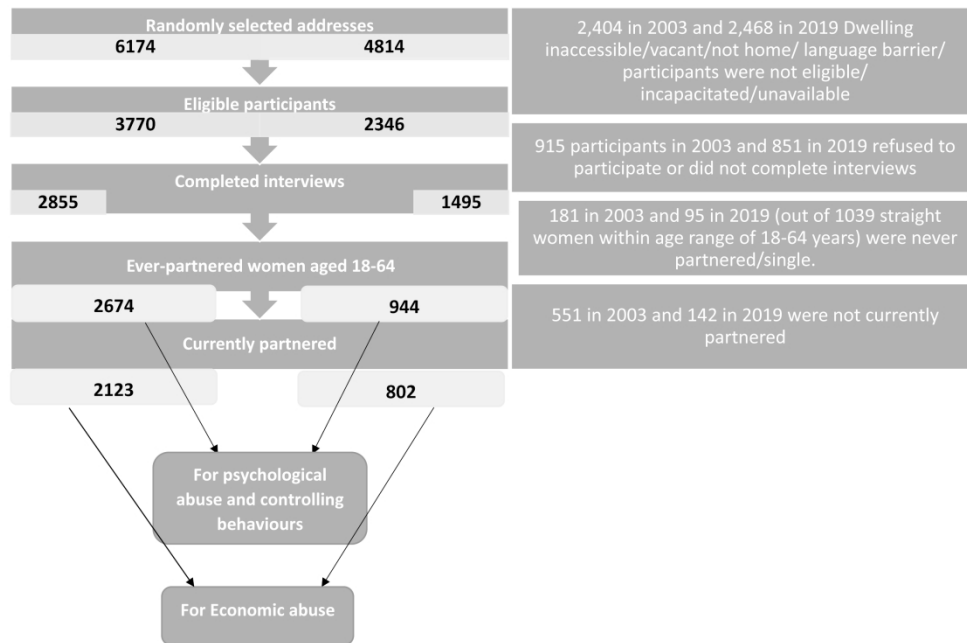


Figure 1 Flow diagram of included female participants in 2003 and 2019 population sample in New Zealand

245x164mm (300 x 300 DPI)

Supplementary Table 1 Measurements of psychological, economic abuse and controlling behavior in 2003 and 2019

		2003	2019
Psychological abuse	Insulted	Has your current husband / partner, or any other partner ever.... Insulted you or made you feel bad about yourself?	Has your current or any previous partner ever done any of the following things? Insulted you or made you feel bad about yourself?
	Humiliated	Belittled or humiliated you in front of other people?	Said or did something that made you feel humiliated in front of other people?
	Intimidated	Done things to scare or intimidate you on purpose (e.g. by the way he looked at you, by yelling and smashing things)?	Did things that made you feel scared or intimidated?
	Threatened	Threatened to hurt you or someone you care about?	Threatened to harm you or someone you care about?
Economic abuse (Currently married / currently living with a man)	Taken money	Has your husband / partner ever taken your earnings or savings from you against your will?	Has any partner ever taken your earnings or savings from you against your will?
	Refused to give money	Does your husband /partner ever refuse to give you money for household expenses, even when he has money for other things?	Has any partner ever refused to give you money for household expenses, even when they have money for other things?
Controlling behavior	Stopped seeing friends	Thinking about your (current or most recent) husband, would you say it is generally true that he: a) tries to keep you from seeing your friends?	Has your current, or any previous partner ever stopped you from seeing your friends?
	Restricted to contact family	Thinking about your (current or most recent) husband, tries to restrict contact with your family of birth?	Has your current, or any previous partner ever Restricted contact with your family?
	Insisted to know where she is	Thinking about your (current or most recent) husband, insists on knowing where you are at all times?	Has your current, or any previous partner ever Insisted on knowing where you are in a way that made you feel controlled or afraid?

Supplementary Table 2 Definitions of economic status and other confounding/ explanatory variables

Variable	Questions
Independent source of income	Incomes from wages or investments, retirement income. It is a binary variable with Yes, and No answers.
Deprivation level	Taken from NZ index of multiple deprivation (IMD) ³⁷ a combination of routinely collected data from government departments and census data in seven domains (i.e. employment, income, crime, housing, health, education, and access to services) to develop a measure of deprivation at the neighborhood level. We classified participants as living in least deprived, moderately deprived, and most deprived areas.
Support from family/ friends	When you need help or have a problem, can you usually count on members of your family for support? Binary answer: Yes, No.

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1-2
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	1-2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3-4
Objectives	3	State specific objectives, including any prespecified hypotheses	4
Methods			
Study design	4	Present key elements of study design early in the paper	1 and 5
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	5
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	5
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	6-7
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	5-7, supplementary tables 1 and 2
Bias	9	Describe any efforts to address potential sources of bias	6
Study size	10	Explain how the study size was arrived at	6
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	6-7
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	7
		(b) Describe any methods used to examine subgroups and interactions	7
		(c) Explain how missing data were addressed	7
		(d) If applicable, describe analytical methods taking account of sampling strategy	NA
		(e) Describe any sensitivity analyses	NA
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	Page 6, Figure 1
		(b) Give reasons for non-participation at each stage	Figure 1
		(c) Consider use of a flow diagram	Figure 1
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Page 6 and page 9, Table 1
		(b) Indicate number of participants with missing data for each variable of interest	Figure 1
Outcome data	15*	Report numbers of outcome events or summary measures	Table 2
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Table 3 and table 4
		(b) Report category boundaries when continuous variables were categorized	NA
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	Table 5
Discussion			
Key results	18	Summarise key results with reference to study objectives	21
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	22
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	23
Generalisability	21	Discuss the generalisability (external validity) of the study results	23
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	2

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.