



# The prevalence of and factors associated with prior induced abortion among women who gave birth in Victoria, 2010–2019

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**The known:** Although equitable access to sexual and reproductive health care is a National Women's Health Strategy priority, access to abortion care in Australia is uneven.

**The new:** Several socio-demographic factors were associated with a history of abortion among women giving birth in Victoria. During 2010–2019, the proportion who reported abortions declined, primarily among women in major cities. The rate was particularly low among most groups of overseas-born women.

**The implications:** Medical abortion may be overcoming geographic and other barriers to abortion care. More comprehensive data on unintended pregnancies and access to reproductive health services by remoteness and migrant status would better guide reproductive health policy and practice.

In 2022, the United Nations Population Fund (UNFPA) declared unintended pregnancy a global crisis: nearly half of all pregnancies around the world are unintended.<sup>1</sup> While some of these pregnancies are desired, about 73 million pregnancies end in abortion each year.<sup>2,3</sup> In Australia, about 40% of pregnancies are unintended,<sup>4</sup> and the annual abortion rate is estimated to be 17.3 per 1000 women aged 15–44 years,<sup>5</sup> similar to rates in other high resource regions such as Europe and North America.<sup>3</sup> Some planned pregnancies also end in abortion for medical or psychosocial reasons.<sup>6</sup>

Equitable access to sexual and reproductive health care is one of the priorities of the Australian National Women's Health Strategy.<sup>7</sup> However, access to reproductive health care is uneven, particularly abortion care; some areas are deemed "abortion deserts" because of the lack of services.<sup>8,9</sup> The introduction of medical abortion in Australia was expected to alleviate some access problems.<sup>10</sup> The mifepristone–misoprostol combination (MS-2 Step) was listed on the Pharmaceutical Benefits Scheme in 2013, subsidising its cost to women.<sup>10</sup> Although its availability was followed by a 5.1% annual decline in surgical abortion numbers during 2014–18,<sup>5</sup> and higher rates of medical abortion in regional and remote areas than in major cities,<sup>8</sup> about one-third of Australian women still live in areas where medical abortion is unavailable.<sup>8</sup>

Abortion was decriminalised in all Australian jurisdictions by 2022, but the legal situation differs between states and territories.<sup>11</sup> There is no specific national abortion data collection, and most jurisdictions, including Victoria, do not routinely report abortion data.<sup>4,6</sup> Information on the characteristics of women who present for abortion is particularly scarce,<sup>6</sup> placing limits on the investigation of contributing factors and changes in abortion

## Abstract

**Objective:** To assess the prevalence of a history of induced abortion among women who gave birth in Victoria during 2010–2019; to assess the association of socio-demographic factors with a history of induced abortion.

**Study design:** Retrospective cohort study; analysis of cross-sectional perinatal data in the Victorian Perinatal Data Collection (VPDC).

**Setting, participants:** All women who gave birth (live or stillborn) in Victoria, 1 January 2010 – 31 December 2019.

**Main outcome measures:** Self-reported induced abortions prior to the index birth; outcome of the most recent pregnancy preceding the index pregnancy.

**Results:** Of the 766 488 women who gave birth during 2010–2019, 93 251 reported induced abortions (12.2%), including 36 938 of 338 547 nulliparous women (10.9%). Women living in inner regional (adjusted odds ratio [aOR], 0.94; 95% confidence interval [CI], 0.93–0.96) or outer regional/remote/very remote areas (aOR, 0.86; 95% CI, 0.83–0.89) were less likely than women in major cities to report induced abortions. The likelihood increased steadily with age at the index birth and with parity, and was also higher for women without partners at the index birth (aOR, 2.20; 95% CI, 2.16–2.25) and Aboriginal and Torres Strait Islander women (aOR, 1.32; 95% CI, 1.25–1.40). The likelihood was lower for women born in most areas outside Australia than for those born in Australia. The likelihood of a history of induced abortion declined across the study period overall (2019 v 2010: 0.93; 95% CI, 0.90–0.96) and for women in major cities (0.88; 95% CI, 0.84–0.91); rises in inner regional and outer regional/remote/very remote areas were not statistically significant.

**Conclusions:** Access to abortion care in Victoria improved during 2010–2019, but the complex interplay between contraceptive use, unintended pregnancy, and induced abortion requires further exploration by remoteness of residence. Robust information about numbers of unintended pregnancies and access to reproductive health services are needed to guide national sexual and reproductive health policy and practice.

rates with time, as well as the evaluation of interventions and policy changes for improving access.

In Victoria, perinatal information on a range of maternal characteristics are routinely collected, including on induced abortions prior to a given birth.<sup>12,13</sup> Although information about women who are yet to or never give birth is not included in this dataset, it is an important source when assessing factors associated with a history of induced abortion, particularly given the dearth of alternative robust population-based abortion data. Further, the included information has policy and service delivery implications for postpartum and post-abortion contraception,

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including long-acting reversible contraception, for women who wish to avert rapid repeat pregnancies.

We therefore analysed maternity data records to assess the prevalence of a history of induced abortion among women who gave birth in Victoria during 2010–2019, a period marked by changes to abortion care in Australia associated with the introduction of medical abortion,<sup>8</sup> and to explore the association of socio-demographic factors with a history of induced abortion.

## Methods

For our retrospective cohort study, we undertook a secondary analysis of cross-sectional perinatal data in the Victorian Perinatal Data Collection (VPDC).<sup>14</sup> Our report adheres to the REporting of studies Conducted using Observational Routinely-collected health Data (RECORD) guidelines.<sup>15</sup>

Our study population included all women registered as having given birth in Victoria during 1 January 2010 – 31 December 2019. In 2020, 74 617 of 294 369 registered births in Australia were in Victoria (25%).<sup>16</sup> Each birth (live or stillbirth after at least 20 weeks' gestation or with a birthweight of at least 400 g) was treated as an exclusive event, and a pregnancy resulting in more than one birth as a single birth episode, as we did not assess infant outcomes. Abortion-specific surveillance data are not collected in Victoria, but the VPDC includes mandatory items related to obstetric history, including self-reported induced abortions.

## Data collection

The collection of data for mandatory VPDC items commences at enrolment for antenatal care. The self-reported number of induced abortions is a mandatory item for which a valid value must be entered. Birthing services are responsible for submitting data to the VPDC within 30 days of the woman leaving hospital after giving birth and must ensure that the data accurately reflect those recorded in their own information systems. Validation studies have found a high level of agreement between original medical records and VPDC data, including for the data item "previous induced abortions" (2003, 96.1%; 2011, 89.3%).<sup>13</sup>

## Outcomes

The first outcome was the self-reported number of induced abortions prior to the index birth (pregnancies that ended in induced abortion before 20 weeks' gestation; later abortions are not recorded by the VPDC). We counted pregnancies with multiple births as one pregnancy, and coded the "history of induced abortion" as a binary variable for regression analyses. The second outcome was the outcome for the pregnancy preceding the index pregnancy (induced abortion or other: live birth, spontaneous abortion, stillbirth, neonatal death, ectopic pregnancy).

## Independent variables

The socio-demographic characteristics included in our analyses were age group (<20, 20–24, 25–29, 30–34, 35–39, 40 years or older), parity (number of previous pregnancies that ended in live or stillbirths: 0, 1, 2, 3 or more), gravidity (number of known pregnancies, regardless of gestation time, including the index pregnancy: 1, 2, 3, 4 or more), marital status (in a couple relationship [married or de facto] or not in a couple relationship [never married, divorced, widowed, separated]), region of

birth (Australia, or other countries according to the Standard Australian Classification of Countries [SACC]),<sup>17</sup> Indigenous status (binary), and postcode-based socio-economic status (Index of Relative Socio-economic Disadvantage [IRSD] quintiles<sup>18</sup>) and remoteness of residence (based on access to services) at the index birth (Australian Statistical Geography Standard Remoteness Area Structure [ASGS-RA]: major cities, inner regional, outer regional, remote, very remote).<sup>19</sup>

Our dataset was near complete for most variables: fewer than 0.1% missing data for outcome of pregnancy preceding the index pregnancy, age, parity, gravidity, postcode, and country of birth; 0.5% missing data for Indigenous status; and 1.4% missing data for marital status.

## Statistical analysis

We summarise data for characteristics as descriptive statistics. We examined associations between socio-demographic, maternal, and reproductive characteristics and a history of induced abortion in univariate binary and multiple logistic regression analyses; we report odds ratios (ORs) and adjusted ORs (aORs) with 95% confidence intervals (CIs). Adjustment factors were selected according to previous reports<sup>6,20</sup> and in consultation with expert clinicians (authors of this report). We also explored changes in associations between year and induced abortion, with 2010 as the reference point, in univariate and multiple logistic regression analyses; prevalence was age-adjusted to the 2010 population of women of childbearing age in Victoria. We deemed 95% CIs that did not include 1 (one) statistically significant. All analyses were conducted in SPSS Statistics 29 (IBM).

## Ethics approval

The study was approved by the La Trobe University Human Research Ethics Committee (HEC21124). The Consultative Council on Obstetric and Paediatric Mortality and Morbidity (Victoria) approved the analysis of VPDC data.

## Results

A total of 766 488 births were recorded in Victoria during 2010–2019; we excluded 567 records in which data regarding induced abortions were missing (fewer than 0.1%). The proportion of women born in Australia varied by remoteness class (major cities, 55.9%; inner regional, 79.4%; outer regional/remote/very remote, 89.4%). The proportion of women under 30 years of age was smaller in major cities (32.8%; inner regional, 46.9%; outer regional/remote/very remote, 52.0%), as were the proportions living in areas in the two lowest socio-economic status quintiles (25.8%; inner regional, 35.8%; outer regional/remote/very remote, 65.0%) or without partners at the time of the index birth (9.8%; inner regional, 15.8%; outer regional/remote/very remote, 18.9%) (Box 1).

## History of induced abortion

Of the 766 488 women who gave birth in Victoria during 2010–2019, 93 251 (12.2%) reported induced abortions (93 250 of the 514 288 women who reported previous pregnancies, 18.1%). Of the 338 547 nulliparous women (ie, the index birth was their first), 36 938 (10.9%) reported induced abortions: 73 976 (79.3%) had had one, 15 016 (16.1%) two, 3261 (3.5%) three, and 998 (1.1%) four or more abortions.

1 Socio-demographic and pregnancy history characteristics of the women who gave birth in Victoria, 2010–2019

Characteristic	Geographic remoteness*			
	All locations	Major cities	Inner regional	Outer regional/ remote/ very remote
Number of women	766 488	512 669 [66.9%]	208 473 [27.2%]	44 916 [5.9%]
Age group (years)				
Under 20	13 792 (1.8%)	5946 (1.2%)	5982 (2.9%)	1856 (4.1%)
20–24	76 457 (10.0%)	39 933 (7.8%)	28 908 (13.9%)	7561 (16.8%)
25–29	198 802 (25.9%)	121 970 (23.8%)	62 736 (30.1%)	13 975 (31.1%)
30–34	280 312 (36.6%)	196 944 (38.4%)	69 609 (33.4%)	13 602 (30.3%)
35–39	159 743 (20.8%)	119 530 (23.3%)	33 766 (16.2%)	6377 (14.2%)
40 or older	37 107 (4.8%)	28 147 (5.5%)	7419 (3.6%)	1530 (3.4%)
Marital status				
In a couple relationship	665 493 (88.1%)	458 156 (90.2%)	171 833 (84.2%)	35 144 (81.1%)
Not in a couple relationship	89 976 (11.9%)	49 615 (9.8%)	32 139 (15.8%)	8 175 (18.9%)
Region of birth				
Australia	489 665 (64.3%)	284 894 (55.9%)	164 713 (79.4%)	39 962 (89.4%)
Oceania and Antarctica	21 569 (2.8%)	15 281 (3.0%)	5344 (2.6%)	918 (2.1%)
North-West Europe	22 357 (2.9%)	17 133 (3.4%)	4394 (2.1%)	713 (1.6%)
Southern and Eastern Europe	14 235 (1.9%)	12 122 (2.4%)	1958 (0.9%)	142 (0.3%)
Americas	10 428 (1.4%)	8 447 (1.7%)	1748 (0.8%)	218 (0.5%)
Sub-Saharan Africa	13 407 (1.8%)	10 482 (2.1%)	2 648 (1.3%)	266 (0.6%)
North Africa and the Middle East	28 848 (3.8%)	25 299 (5.0%)	3324 (1.6%)	216 (0.5%)
South-East Asia	33 147 (4.4%)	26 867 (5.3%)	5369 (2.6%)	886 (2.0%)
North-East Asia	51 696 (6.8%)	47 201 (9.3%)	4021 (1.9%)	443 (1.0%)
Southern and Central Asia	76 633 (10.1%)	61 819 (12.1%)	13 801 (6.7%)	938 (2.1%)
Indigenous status				
Non-Indigenous	751 981 (98.6%)	505 718 (99.2%)	203 196 (97.9%)	42 654 (95.4%)
Aboriginal or Torres Strait Islander	10 369 (1.4%)	3925 (0.8%)	4363 (2.1%)	2074 (4.6%)
Socio-economic status (IRSD quintile)				
5 (least disadvantaged)	186 093 (24.3%)	162 733 (31.8%)	22 208 (10.7%)	1151 (2.6%)
4	176 001 (23.0%)	121 025 (23.6%)	49 199 (23.6%)	5777 (12.9%)
3	167 231 (21.8%)	96 112 (18.8%)	62 327 (29.9%)	8 792 (19.6%)
2	124 080 (16.2%)	61 370 (12.0%)	46 481 (22.3%)	16 229 (36.1%)
1 (most disadvantaged)	112 037 (14.6%)	70 928 (13.8%)	28 145 (13.5%)	12 964 (28.9%)
Parity				
0	338 547 (44.2%)	238 626 (46.5%)	82 839 (39.7%)	16 829 (37.5%)
1	271 370 (35.4%)	182 017 (35.5%)	74 105 (35.5%)	15 129 (33.7%)
2	102 624 (13.4%)	61 915 (12.1%)	32 804 (15.7%)	7872 (17.5%)
3 or more	53 855 (7.0%)	30 067 (5.9%)	18 709 (9.0%)	5084 (11.3%)
Gravidity				
1	252 200 (32.9%)	177 222 (34.6%)	61 942 (29.7%)	12 833 (28.6%)
2	238 468 (31.1%)	162 584 (31.7%)	62 812 (30.1%)	12 950 (28.8%)
3	138 609 (18.1%)	89 981 (17.6%)	39 869 (19.1%)	8701 (19.4%)

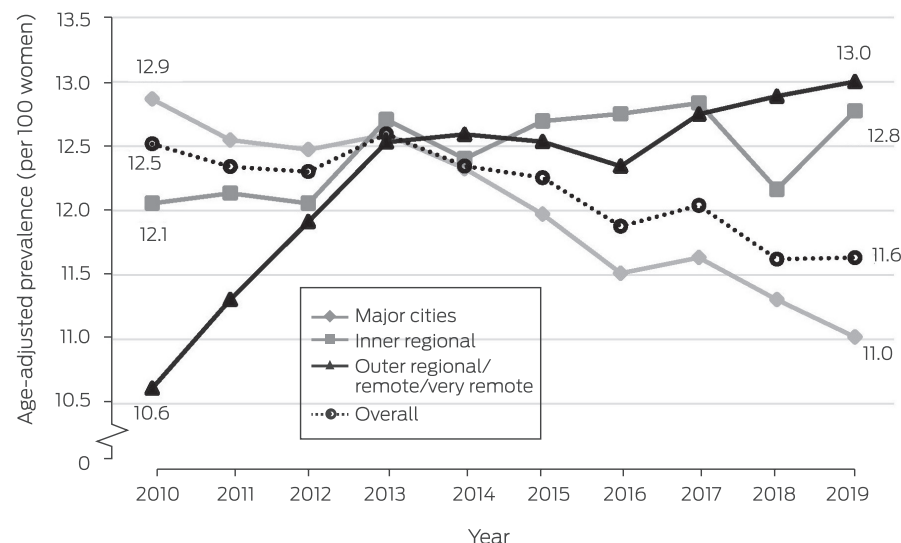
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## 1 Continued

Characteristic	Geographic remoteness*			
	All locations	Major cities	Inner regional	Outer regional/ remote/ very remote
4 or more	137 177 (17.9%)	82 866 (16.2%)	43 837 (21.0%)	10 427 (23.2%)
Third or more birth at age 20–24 years				
Yes	7764 (10.2%)	3417 (8.6%)	3322 (11.5%)	1020 (13.5%)
Induced abortions				
None	673 237 (87.8%)	450 468 (87.9%)	182 768 (87.7%)	39 603 (88.2%)
One	73 976 (9.7%)	49 113 (9.6%)	20 525 (9.8%)	4307 (9.6%)
Two or more	19 275 (2.5%)	13 088 (2.6%)	5180 (2.5%)	1006 (2.2%)
Previous pregnancy ended in abortion <sup>†</sup>				
Yes	45 014/513 455 (8.8%)	31 335/334 884 (9.4%)	11 370/146 321 (7.8%)	2289/32 023 (7.1%)

IRSD = Index of Relative Socio-economic Disadvantage. \* The slight discrepancy between number for all locations and the sum of the numbers by category is caused by missing values for postcode (430 women, 0.06% of data). † Primigravida excluded. ◆

## 2 Annual age-adjusted prevalence of a history of induced abortion at index birth among 766 488 women who gave birth in Victoria, 2010–2019, by residential remoteness



### Changes in prevalence of history of induced abortion by geographic remoteness

During 2010–2019, the age-adjusted prevalence of a history of induced abortion steadily declined among women living in major cities at the time of the index birth, from 12.9 to 11.0 per 100 women; the decline was most marked during 2013–2019. Among women in inner regional areas, it rose from 12.1 to 12.8 per 100 women; in outer regional/remote/very remote areas, the prevalence increased from 10.6 to 13.0 per 100 women, primarily during 2010–2013 (Box 2).

### Socio-demographic characteristics and history of induced abortion

Women living in inner regional (aOR, 0.94; 95% CI, 0.93–0.96) or outer regional/remote/very remote areas (aOR, 0.86; 95% CI, 0.83–0.89) were less likely than those living in major cities to report

Of the 513 455 women who reported previous pregnancies (ie, primigravida excluded) and for whom the outcome of the most recent pregnancy prior to the index birth was known, the preceding pregnancy ended in induced abortion for 45 014 (8.8%) (Supporting Information, figure 1).

Among the 86 011 nulliparous women who reported previous pregnancies, the most recent pregnancy prior to the index birth had ended in induced abortion for 31 413 women (36.5%). Among women who had previously given birth (live or stillbirth) after pregnancies of least 20 weeks' gestation, the most recent pregnancy prior to the index birth had ended in induced abortion for 3.2% (parity 1: 8606 of 271 064; parity 2: 3270 of 102 481; parity 3 or higher: 1719 of 53 843 women; Supporting Information, figure 2).

induced abortions prior to index births during 2010–2019. The adjusted odds of having had an induced abortion were 7–12% higher among women who did not live in areas in the highest socio-economic status quintile than for those who did. The odds were higher for women born in Oceania (aOR, 1.26; 95% CI, 1.21–1.31) or North-East Asia (aOR, 1.04; 95% CI, 1.01–1.07) than for those born in Australia, and lower for all other regions, most markedly for women born in North Africa or the Middle East (aOR, 0.42; 95% CI, 0.40–0.44) or in South-East Asia (aOR, 0.57; 95% CI, 0.54–0.59). The adjusted odds of induced abortion increased steadily with age at the index birth and with parity. Women without partners at the time of the index birth were twice as likely as those with partners to have had abortions (aOR, 2.20; 95% CI, 2.16–2.25); the odds were also higher for Aboriginal and Torres Strait Islander than non-Indigenous women (aOR, 1.32; 95% CI, 1.25–1.40) (Box 3).

**3 Associations between socio-demographic characteristics and history of induced abortion among 766 488 women who gave birth in Victoria, 2010–2019**

Characteristic	Induced abortion	Odds ratio (95% CI)	Adjusted odds ratio* (95% CI)
<b>Age group (years)</b>			
Under 20	973/13 792 (7.1%)	0.59 (0.55–0.63)	0.33 (0.31–0.36)
20–24	9026/76 457 (11.8%)	1.04 (1.02–1.07)	0.80 (0.78–0.82)
25–29	23 296/198 802 (11.7%)	1.03 (1.01–1.05)	0.97 (0.96–0.99)
30–34	31 956/280 312 (11.4%)	1	1
35–39	21 793/159 743 (13.6%)	1.23 (1.21–1.25)	1.23 (1.20–1.25)
40 or older	6185/37 107 (16.7%)	1.56 (1.51–1.60)	1.51 (1.46–1.55)
<b>Parity</b>			
0	36 938/338 547 (10.9%)	1	1
1	33 505/271 370 (12.3%)	1.15 (1.13–1.17)	1.15 (1.13–1.17)
2	14 154/102 624 (13.8%)	1.31 (1.28–1.33)	1.26 (1.24–1.29)
3 or more	8637/53 885 (16.0%)	1.56 (1.52–1.60)	1.44 (1.40–1.48)
<b>Marital status</b>			
In a couple relationship	73 876/665 493 (11.1%)	1	1
Not in a couple relationship	18 073/89 976 (20.1%)	2.01 (1.98–2.05)	2.20 (2.16–2.25)
<b>Indigenous status</b>			
Non-Indigenous	90 872/751 981 (12.1%)	1	1
Aboriginal or Torres Strait Islander	1815/10 369 (17.5%)	1.54 (1.47–1.63)	1.32 (1.25–1.40)
<b>Socio-economic status (IRSD quintile)</b>			
5 (least disadvantaged)	21 978/186 093 (11.8%)	1	1
4	21 548/176 001 (12.2%)	1.04 (1.02–1.06)	1.07 (1.05–1.09)
3	20 964/167 231 (12.5%)	1.07 (1.05–1.09)	1.12 (1.10–1.14)
2	15 104/124 080 (12.2%)	1.04 (1.01–1.06)	1.09 (1.07–1.12)
1 (most disadvantaged)	13 552/112 037 (12.1%)	1.03 (1.00–1.05)	1.08 (1.05–1.11)
<b>Geographic remoteness</b>			
Major cities	62 201/512 669 (12.1%)	1	1
Inner regional	25 705/208 473 (12.3%)	1.02 (1.003–1.03)	0.94 (0.93–0.96)
Outer regional/remote/very remote	5313/44 916 (11.8%)	0.97 (0.94–1.001)	0.86 (0.83–0.89)
<b>Region of birth</b>			
Australia	64 190/489 665 (13.1%)	1	1
Oceania and Antarctica	3510/21 569 (16.3%)	1.29 (1.24–1.34)	1.26 (1.21–1.31)
North-West Europe	2807/22 357 (12.6%)	0.95 (0.91–0.99)	0.97 (0.93–1.01)
Southern and Eastern Europe	1573/14 235 (11.1%)	0.82 (0.78–0.87)	0.84 (0.79–0.89)
Americas	1097/10 428 (10.5%)	0.78 (0.73–0.83)	0.79 (0.74–0.84)
Sub-Saharan Africa	1408/13 407 (10.5%)	0.78 (0.74–0.82)	0.75 (0.71–0.80)
North Africa and the Middle East	1694/28 848 (5.9%)	0.41 (0.39–0.44)	0.42 (0.40–0.44)
South-East Asia	2553/33 147 (7.7%)	0.55 (0.53–0.58)	0.57 (0.54–0.59)
North-East Asia	6808/51 696 (13.2%)	1.01 (0.98–1.03)	1.04 (1.01–1.07)
Southern and Central Asia	7219/76 633 (9.4%)	0.69 (0.67–0.71)	0.78 (0.75–0.80)

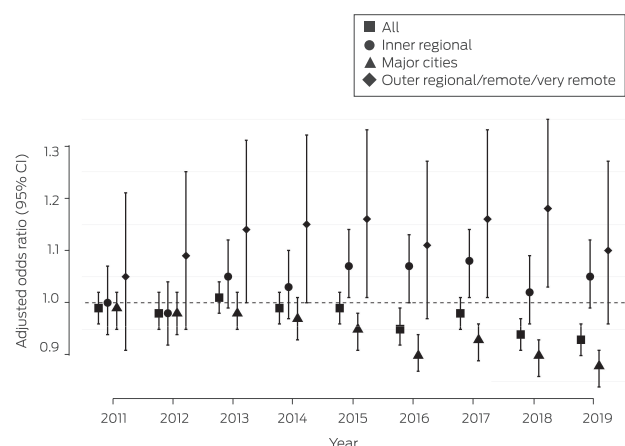
CI = confidence interval; IRSD = Index of Relative Socio-economic Disadvantage. \* Adjusted for age, marital status, indigenous status, residential socio-economic status and remoteness, region of birth, and year of index birth. ◆

Overall, the adjusted odds of having had an induced abortion declined across the study period (2019 *v* 2010: 0.93; 95% CI, 0.90–0.96). It declined among women in major cities (0.88; 95% CI,

0.84–0.91), but rose (albeit not statistically significantly) in inner regional (1.05; 95% CI, 0.99–1.12) and outer regional/remote/very remote areas (1.10; 95% CI, 0.96–1.27) (Box 4).



#### 4 History of induced abortion, by geographic location at time of index birth and year (reference year: 2010): multiple logistic regression analyses\*



CI = confidence interval. \* Adjusted for age, marital status, Indigenous status, residential socio-economic status and remoteness, region of birth, and year of index birth. The outcomes of the univariate binary and multiple logistic regression analyses are included in the Supporting Information, table 1. ♦

## Discussion

We report the first Australian study to examine factors associated with a history of induced abortion in a complete population of childbearing women over ten years. We found that the likelihood of a history of induced abortion was significantly influenced by several socio-demographic factors, and that temporal changes in the prevalence of a history of induced abortion differed by residential remoteness.

The overall decline in the proportion women giving birth who reported prior induced abortions over the 10-year period primarily reflected its decline in major cities, where 67% of the women lived. We found that the adjusted odds of having had an abortion declined among women living in major cities who gave birth in Victoria during 2010–2019, but they rose in regional and remote areas (but not statistically significantly). PBS-subsidised medical abortion became available in 2013,<sup>9</sup> and telehealth consultations for abortion were available in some areas from 2015.<sup>21</sup> The changes we report may indicate improved access to abortion services in non-metropolitan areas, an interpretation consistent with higher medical abortion prescription rates in outer regional and remote Australia than in major cities.<sup>8</sup> An important factor that we could not take into account in our analyses is the higher rate of unintended pregnancy in rural areas.<sup>22</sup>

The overall decline in the prior induced abortion rate we report may be linked with the increased uptake of highly effective long-acting reversible contraception,<sup>23,24</sup> resulting in fewer unintended pregnancies and abortions. Differences in the use of contraception in general and of more effective methods in particular have been reported in Australia, including lower rates among women born in non-English speaking countries.<sup>23</sup> Lower rates have also been reported for Aboriginal and Torres Strait Islander women,<sup>23</sup> but only limited data are available.<sup>4,23</sup> Improving equity of access to effective contraception is important for reducing the number of unintended pregnancies, including those leading to closely spaced births. Other factors that need to be taken into account include intimate partner violence, sexual coercion, and drug and alcohol use.<sup>20,25</sup>

Our finding that a history of abortion was less prevalent among childbearing women born in most regions outside Australia should be interpreted with caution. It could indicate poor access to abortion care in their countries of origin or for overseas-born women in Australia. However, our finding could also be an artefact, as reporting of abortion in some ethnic groups is influenced by the religious or legal status of abortion in their countries of origin, by discomfort about or fear of reporting a stigmatised health behaviour, and by lower English proficiency and the need to use interpreters.

## Limitations

Including all women who gave birth in Victoria during the study period eliminated the risk of selection bias. However, the presumably sizable group of women who have had one or more abortions but never given birth were not included in our analysis. The generalisability of our findings is consequently limited to women who have given birth. The socio-demographic characteristics of the women were current at the time of the index birth, but may not have applied at the time of earlier abortions. Further, we could not assess the effects of other factors linked with induced abortion in Australia, including education and employment, use of less effective contraception, intimate partner violence, risky drinking, use of illicit drugs,<sup>25</sup> financial security, and religious beliefs. Women who gave birth more than once during the study period were included multiple times in our study population, but each birth was treated as an exclusive observation (index birth). Finally, we do not know how many women who had had abortions did not report them.

## Conclusion

Our findings indicate that access to abortion care in Victoria has improved, but the complex interplay between contraceptive use, unintended pregnancy, and induced abortion requires further exploration by remoteness of residence. Robust information about numbers of unintended pregnancies and access to reproductive health services are needed to guide national sexual and reproductive health policy and practice.

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## Supporting Information

Additional Supporting Information is included with the online version of this article.