

Assessing prevalence and trends in contraceptive use of Australian women using a market research dataset

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Acknowledgements

Dr Jessica Botfield offered valuable feedback on an early version of this report.

This research did not receive any specific funding.

The authors declare no conflicts of interest.

Author contributions

SMW undertook data analyses, interpretation and development of tables and figures with the input of KM and DB, and the subsequent drafting of the method, results, discussion and abstract. KM undertook the initial drafting of the introduction. All authors prepared revisions of the text, and have read and approved the final report.

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Abstract

Objective: We describe contraceptive trends at two-year intervals from 2008 to 2016 using a market research data set (*Roy Morgan Single Source*) and seek to evaluate its comprehensiveness, recency and generalisability compared to other Australian data sources. **Methods:** Data on contraceptive use were collected using two survey questions. The responding subsample of women aged 15-49 were weighted to reflect the Australian female population by area, age, and household size. **Results:** Oral contraceptives remain the most common method despite decreases across all age groups. Use of long-acting reversible contraceptives (LARCs), implants and intrauterine devices (IUDs), increased between 2008 and 2016 (from 5.7% to 11.8%, and 5.7% to 12.4% for IUDs and implants, respectively). Respondents under 30 tended to use implants and those 30 and over used IUDs. Both urban and regional areas show an increase in LARC use and a small but generally decreasing trend in condom and oral contraceptive use.

Conclusions: Reported trends mirror those in other established data sources; however, methodological differences regarding non-inclusion of permanent methods may result in discrepancies in absolute values. **Implications for Public Health:** Despite its limitations, the Single Source data are a useful and reliable source of current data on contraceptive use in Australia.

Key words: sexual and reproductive health, contraception, long-acting reversible contraception, LARC

Objective

Four out of five Australian women report having ever used contraception¹ and two thirds report currently using contraception.² Despite widespread use of contraception there are few sources of comprehensive, up to date information on current contraceptive choices made by women. This information gap hampers efforts to ensure equitable access to all contraceptive methods.

Current available data sources on contraception use in Australia include the publicly available Medicare datasets^{3,4} which record the number of contraceptive medications, devices and procedures utilised by women and subsidised by the Australian government. However, these data are not comprehensive as they do not include contraceptives that do not require a prescription such as condoms, nor non-subsidised contraceptive medications or devices. For example, in Australia combined hormonal contraceptive pills and progestogen-only pills are available by prescription only, but not all are subsidised by the government. Similarly, while the progestogen-releasing intrauterine devices (IUDs; Mirena and Kyleena) and the contraceptive implant (Implanon NXT) are subsidised as pharmaceuticals, the copper-bearing IUDs are not. Additionally, Medicare datasets only include statistics for those eligible for government subsidies, effectively excluding users with non-resident status such as international students. These variations and limitations make it difficult to draw firm conclusions about contraceptive use from Medicare datasets.

Other sources of information on contraceptive use include cross-sectional surveys such as the Understanding Fertility Management in Contemporary Australia National Survey⁵ and the Australian Study of Health and Relationships (ASHR)⁶ which record all types of contraception but only provide point prevalence estimates which can quickly date. Longitudinal studies such as the Australian Longitudinal Study on Women's Health⁷

provide insights into how a particular cohort's experience of contraception changes through their life, but this information may not be directly applicable to other cohorts. Another longitudinal study, the Household, Income and Labour Dynamics in Australia Survey (HILDA)⁸ records information on contraception use approximately every three years, however the most recent available data were collected in 2015. Updated data were collected in 2019 but are not yet available.

Privately owned market research companies also undertake data collection in relation to contraceptive use in Australia, primarily via surveys. These surveys may address some of the aforementioned issues regarding comprehensiveness, recency and generalisability that have been identified in other data sources. We sought to assess one such data source, namely the *Roy Morgan Single Source data*, and in doing so describe the use of different types of contraceptives by Australian women and how their use has changed over the period of 2008 to 2016. This analysis provides up to date information regarding prevalence and trends in contraceptive use, including age and urban/rural sub-groups. Information about contraceptive uptake is an important indicator of sexual and reproductive health, and current data are central to informing service delivery, planning, and health promotion initiatives.

Methods

The *Roy Morgan Single Source* data are collected by Roy Morgan Research, a commercially owned market research firm. The Single Source data are continuously collected each week in two parts: an establishment survey followed by self-completion survey materials.

Briefly, establishment surveys are conducted as face-to-face interviews, and are also carried out over the phone for respondents in remote areas.⁹ Respondents then complete a paper-based self-completion survey and receive up to three reminder phone calls to ensure completion. The questions relating to contraception are confined to the self-completion portion of the Single Source data.

Participants are selected from a stratified random sample of households and then one individual per household is interviewed. The strata consist of 514 sampling areas from across Australia of approximately equal population size, and data are weighted to be representative of the national population. Approximately one third of individuals contacted agree to participate and 40 percent return the self-completion materials. Participants are remunerated in the form of a gift card to complete the surveys. Participants can elect to donate the value of their gift card to charity. All survey respondents are also entered into quarterly and annual draws to receive a cash prize.

To measure contraception use, respondents are asked two questions. The first question asks; *'For women only, do you have a need for contraception at least occasionally?'* With three possible responses: 'Yes', 'No', and *'Don't know'*. Those that responded 'Yes' are asked the subsequent question: *'What is or would be your primary method of contraception?'* The provided answer options as written are: abstinence, barrier methods (diaphragm or sponge), condoms, cream/gel/jelly/foam (only offered as an option up until July 2015), IUD, hormonal implant (Implanon), oral contraceptives, patch (only offered as a survey option up until July 2015), rhythm/withdrawal, shot/injection, vaginal ring (e.g., NuvaRing; only offered as a survey option after July 2015), and other. Although barrier methods generally include condoms, the options provided to respondents listed barrier methods in the form of the diaphragm and sponge separately from condoms. The options also did not include permanent methods of contraception (e.g., tubal sterilisation and

partner vasectomy), and did not differentiate between hormonal and non-hormonal IUDs. Despite respondents being asked to identify their *primary* method of contraception, due to the paper-based format of the self-completion materials, respondents were able to tick as many options as they wanted for this question. As such, all selected responses were included in the data set resulting in the total number of selections for specific contraceptive methods being greater than the number of respondents indicating a need for contraception. Those who responded as either 'No' or 'Don't know' for the question about having a need for contraception skipped the subsequent question.

Statistical Analysis

The subsample of women aged 15 to 49 who responded to the question "*do you have a need for contraception at least occasionally?*" was weighted for each year to reflect the Australian female population by area, age and household size. We report the weighted count and proportion of women who reported a need for contraception by year, age group and urban/rural locality. Also, among women who indicated that they were using contraception, we report the proportion who indicated use of each method as their primary method by year, age group, and urban/rural locality.

Results

The number of women included in the contraception subsample ranged from 5,297 in 2008 to 2,640 in 2016 and the response rate ranged from 38% to 23% over the period (see *Table 1*). The proportion of women aged 15 to 49 years who indicated a need for contraception was relatively stable between 2008 and 2016 with a minimum of 42.9% in 2012 and 2014 and a maximum of 44.6% in 2016 (see *Table 2*). The proportion reporting a need for contraception was highest in age groups 20 to 24 years and lower in younger

and older age groups and proportions were similar among women living in capital cities compared to women elsewhere.

Table 1: Summary of sample sizes

Sample sizes for Establishment Surveys, contraception questions, and response rates.

Year	Establishment Survey Sample	Contraception Sub-Sample	Response Rate (%)
2008	14,004	5,297	37.82
2010	12,970	4,200	32.38
2012	13,769	5,061	36.76
2014	12,608	3,575	28.36
2016	11,356	2,640	23.25

In the 2016 Roy Morgan survey, among those indicating a need for contraception, oral contraceptives (37.2%) and condoms (33.9%) were the most commonly used methods, followed by the long-acting reversible contraceptives (LARCs), IUDs (12.4%) and the contraceptive implant (11.8%), followed by the rhythm and withdrawal methods (5.5%), and the contraceptive injection (3.0%). The Roy Morgan survey also included data for less widely used contraceptive methods including the diaphragm and sponge (collectively referred to as barrier methods in the dataset), which has remained consistently low (0.3%-1.0%) since 2008. Roy Morgan also collected data on the vaginal ring for the first time in 2016 with usage at 0.6 percent.

Table 2: The projected population indicating a need for contraception

The projected population that indicated a need for contraception (in thousands) is reported separately by age group, for each of the time points. The number as a proportion of all women in each respective age group is reported in parentheses.

Year	Projected Population '000 (%)							All women 15-49
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
2008	207 (28.7)	429 (60.4)	426 (59.1)	465 (64.7)	360 (45.7)	247 (32.8)	161 (20.5)	2,295 (44.2)
2010	158 (22.4)	432 (56.1)	427 (53.0)	521 (67.0)	371 (46.1)	285 (36.6)	195 (24.3)	2,390 (43.9)
2012	190 (24.9)	438 (56.8)	444 (53.6)	483 (59.1)	357 (45.5)	295 (35.8)	185 (23.5)	2,391 (42.9)
2014	174 (23.0)	445 (57.9)	469 (54.4)	441 (51.4)	378 (48.3)	299 (35.6)	217 (27.7)	2,424 (42.9)
2016	238 (31.2)	410 (55.1)	498 (56.8)	521 (58.6)	291 (36.9)	339 (41.6)	249 (29.9)	2,546 (44.6)

Overall reported use of IUDs and contraceptive implants is low but has increased steadily, approximately doubling since 2008 (from 5.7% to 12.4% for IUDs and from 5.7% to 11.8% for contraceptive implants). Use of the contraceptive injection shows a generally flat trend (4.5%-3.0%) and is less than that of either the IUD or implant (see *Figure 1*). In addition, there was a decline in use of oral contraceptives from 48.2% in 2008 to 37.2% in 2016 whereas use of condoms remained relatively stable across this period at around 35%

Key findings on contraceptive use across age groups are illustrated in *Figure 2*. First, use of oral contraceptives shows a generally decreasing trend from 2008 to 2016 for all age groups except 45-49. Second, a greater proportion of women reported using oral contraceptives or condoms compared to those using LARCs (IUDs and implant) across all years and age groups. Third, use of LARC methods has increased from 2008 to 2016 for all age groups. Finally, there appears to be a relationship between age group and preferred LARC method, with younger age groups (15-19, 20-24, and 25-29) tending to

use the implant, and older age groups (30-34, 35-39, 40-44, and 45-49) tending to use an IUD.

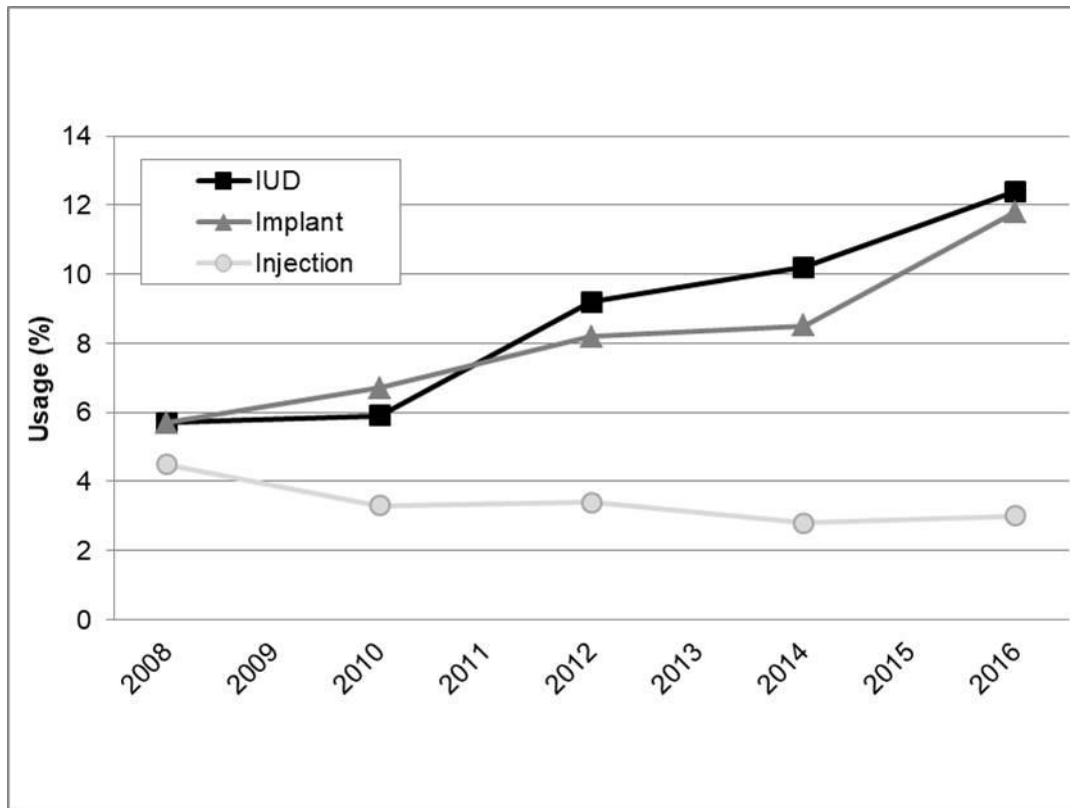


Figure 1: Ten year LARC trends

LARC usage trends from Roy Morgan data for 2008 to 2016 as a proportion of all women with a need for contraception.

RUNNING HEAD: Contraceptive use of Australian women in a market research dataset

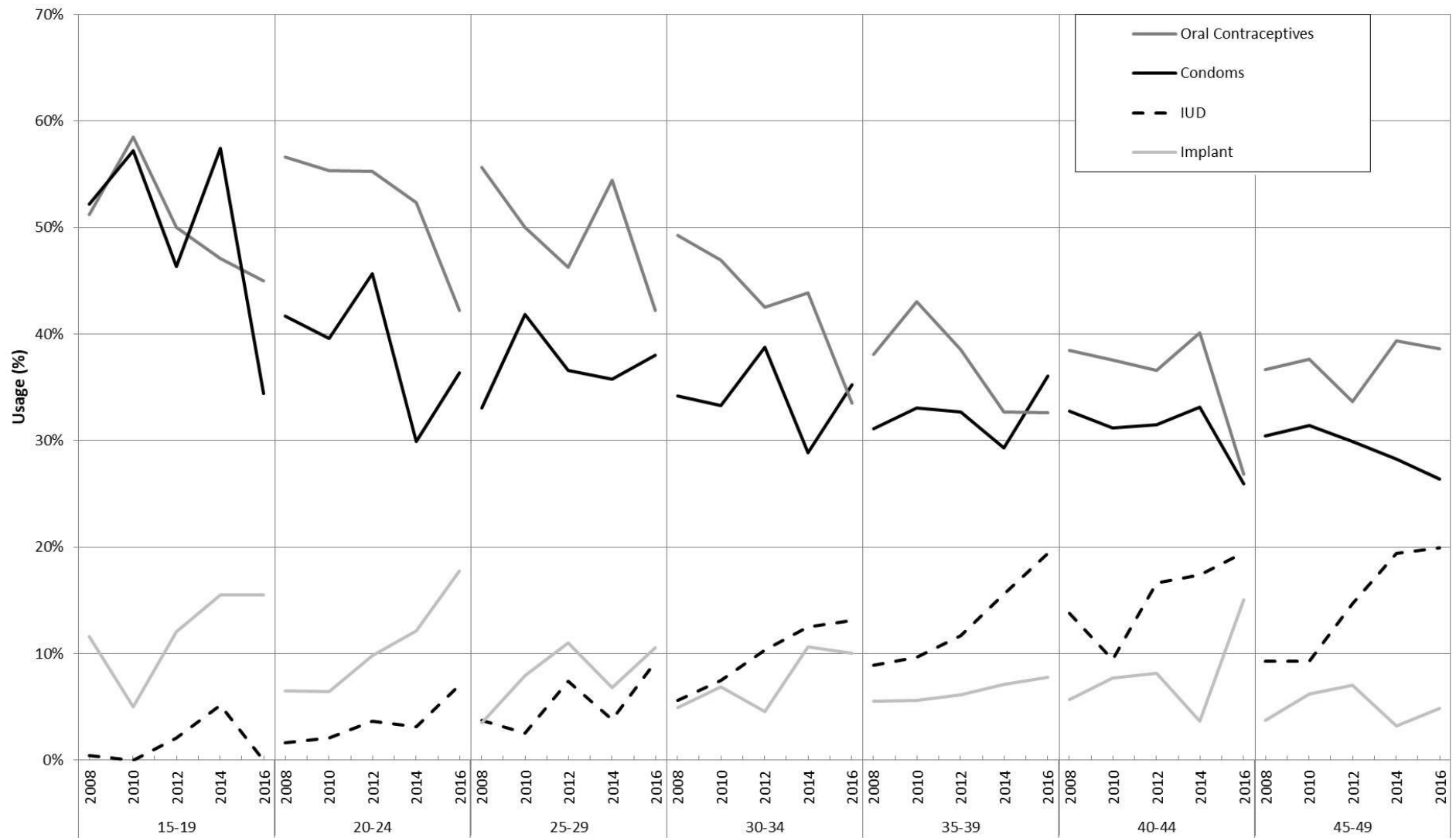


Figure 2: Ten year trends in contraception use by age group

Number of women using contraceptive type in each age group as a proportion of women indicating a need for contraception.

Similar trends in contraceptive use were also seen when comparing rates across capital cities and regional areas (defined using the ABS Greater Capital City Statistical Area [GCCSA], which provides geographical boundaries for capital cities and 'Rest of State' regions for each state; see *Figure 3*). Use of oral contraceptives has decreased between 2008 and 2016 in both capital cities (47.4% - 37.5%) and regional areas (49.7% - 36.6%). Condom use has similarly decreased in both capital cities (36.7% - 34.9%) and regional areas (35.3% - 31.9), though condom use demonstrates a smaller decrease on average compared to oral contraceptives. Implant use has approximately doubled between 2008 and 2016 in both capital cities (5.5% - 11.2%) and regional areas (5.9% - 13.0%) with use slightly higher in regional areas. Use of IUDs has also increased in the period between 2008 and 2016 in both capital cities (5.3% - 12.7%) and regional areas (6.6% - 11.7%) with use slightly higher in capital cities.

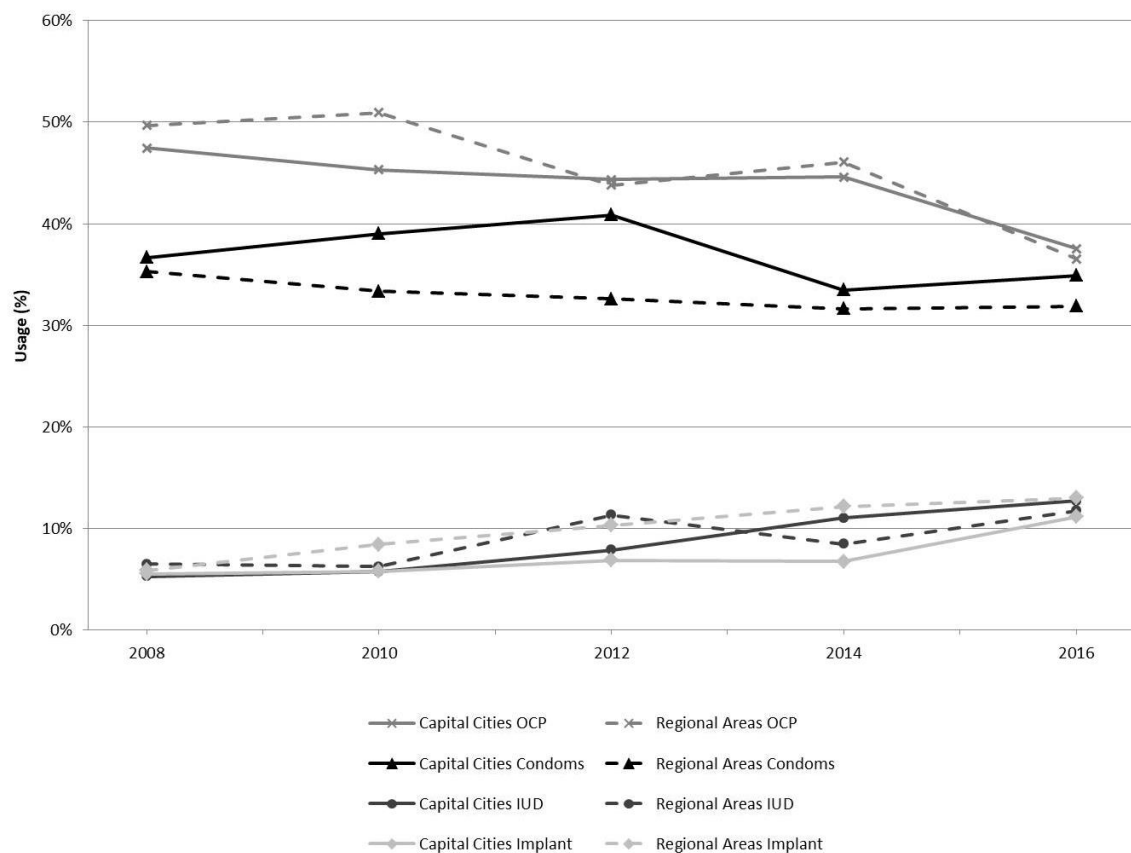


Figure 3: Contraception use in capital cities and regional areas
Number of women using contraceptive type as a proportion of women indicating a need for contraception compared across capital cities and regional areas.

Discussion

Analyses of this dataset show that, among those reporting a need for contraception, the percentage who reported using a long acting method (i.e., IUD or implant) has increased from 11.4% to 24.2% between 2008 and 2016. During this same time the percentage reporting use of oral contraceptive pills has declined from 48.2% to 37.2%. Increases in LARC use and decreases in oral contraceptives were seen across all age groups, however oral contraceptives remain the most frequently reported contraceptive choice by Australian women. Similar trends can be seen when comparing contraception methods between capital cities and regional areas. Both areas have seen a small but generally decreasing trend in use of short term methods including oral contraceptives and condoms, with larger decreases for the former. Use of oral contraceptives tends to be slightly higher in regional areas compared to capital cities whereas use of condoms is higher in capital cities at all time points.

Although condoms are a method of contraception, they can also be used to prevent STI transmission in those using another concurrent contraceptive method. This is known as dual use. Within the Roy Morgan data, due to some respondents selecting multiple contraceptive methods, it is not possible to determine whether decreases in condom use represent a shift from condoms to other methods of contraception or if this decrease reflects a reduction in condom use for STI prevention in a dual use context. However, it is possible that the latter explanation may be the case, as studies suggest that rates of condom use for STI prevention are lower in LARC users compared to those using non-long acting contraceptive methods.^{10–12} This difference appears to be mediated by age and is particularly predominant in adolescent LARC users.^{13,14}

Use of IUDs and contraceptive implants increased from 2008 to 2016 in both regional areas and capital cities. Use of LARC methods tended to be higher in regional areas; however, use of IUDs in capital cities surpassed that of regional areas in 2014 (11.0% and 8.5%, respectively). The most recent data indicate that use of IUDs and contraceptive implants is comparable in both locales.

The general trends seen in the Roy Morgan data mirror those of other published survey-based studies. For example, the Understanding Fertility Management in Contemporary Australia survey shows that those who use IUDs tend to be older and those using oral contraceptives and condoms tend to be younger¹⁵. This clear age gradient can also be seen in the second Australian Study of Health and Relationships (ASHR)² and the 2011 HILDA data¹ with lower use of oral contraceptives and condoms in those over 40 and higher IUD use for those over 30. In addition, a marked increase in use of the contraceptive implant and IUDs can be seen in the Roy Morgan data between 2008 and 2016. This increase is similar to that observed when comparing LARC use between the first ASHR study carried out in 2001/2002 and the second ASHR study in 2012/2013². The 2011 HILDA data also mirror other trends in the Roy Morgan data including that condoms tend to be used more in major cities compared to more rural areas¹ although the difference in condom use between major cities and rural areas observed in the Roy Morgan data has reduced since 2014.

Some differences also exist between the Roy Morgan data and other established data sources. One such difference is in the absolute percentages for type of contraceptive method used between Roy Morgan and ASHR2.² In general, method usage rates tended to be greater in the Roy Morgan data, for example, 9.2%, 8.2%, and 3.4% for the IUD, contraceptive implant, and contraceptive injection, respectively in the Roy Morgan data

compared in 2012 to 6.1%, 4.9%, and 1.5%, respectively in ASHR2.² The differences between the studies in the absolute percentages may be due to differences in the wording of questions and definitions of the population of interest. For example, in the Roy Morgan survey, only women who say they have a need for contraception are included in the question on type of contraception. This may exclude women using a permanent method, either themselves or as a result of partner vasectomy, as it is likely that they would answer 'No' to the filter question about needing contraception and be excluded from the Roy Morgan data set. Alternatively women may have responded 'Yes' and selected 'Other' at the follow up question on contraception type as permanent methods are not provided as an option. However, this is less likely as only 3% for any given year selected this option, which is much less than the 19% of women reporting use of a permanent method in ASHR2.² By comparison, ASHR2² asked women "*In this relationship, is any kind of contraception being used?*". Those who responded 'Yes', were then asked the type of contraception with permanent methods included as a response option. Also, women who responded that they were not using contraception were asked additional questions, which for some respondents elicited the use of a permanent method. This methodological difference results in the Roy Morgan dataset having a comparatively smaller denominator, and thus higher rates of non-permanent methods compared to ASHR2. When women who reported a permanent method are excluded from the ASHR2 percentages, the proportion who reported using an IUD was 7.5% and the implant was 6.1% compared to 9.2% and 8.2% for IUDs and implants, respectively in the Roy Morgan data for 2012. Furthermore, as the Roy Morgan data set may not include women using a permanent method, it likely underestimates the total proportion of women using a method of contraception as 42.9% in 2012 compared to 66% of women in ASHR2.² If the number of women using permanent methods reported in ASHR2 (19%) is combined with the number of women with contraceptive need in the Roy Morgan data, the total number of women using contraception can be estimated as 61.9% - a value much closer to that

estimated in ASHR2.² Despite these differences, the trends of contraception use are consistent across both of the surveys.

The Roy Morgan data provide valuable insights into the trends in choice of non-permanent contraception in Australia. The increasing use of LARC methods suggests that access to these more effective methods are increasing. The higher rate of implant use among younger women may reflect both user and provider preferences in LARC use, and may potentially be a reflection of young women's attitudes and concerns regarding IUDs¹⁶, their lack of awareness about IUDs as a contraceptive method^{16–18}, or perhaps misplaced concerns of clinicians about providing IUDs to young women.^{18,19}

Limitations

Permanent methods are not included in the options of contraceptive methods in the Roy Morgan survey, which suggests that these women may answer 'No' to the filter question *"Do you have a need for contraception at least occasionally?"* as this question is open to interpretation by the respondent. It is therefore not possible to estimate the number of women using a permanent method from this survey. It is also not possible to estimate the number of women who use a dual method of contraception including those who use condoms for STI prevention with another method of contraception as the question in the Roy Morgan survey specifically asks for women to report only the primary method.

It is possible that the follow up question *"What is or would be your primary method of contraception?"* may elicit reports of intended contraceptive use from respondents rather than actual use. However, the wording of this question is not completely inconsistent with other similar surveys. For example, the third British National Survey of Sexual Attitudes

and Lifestyles (Natsal-3)²⁰ used the question “*Which would you say is your most usual [contraceptive] method these days?*” and allowed participants up to three responses.

Finally, the response rates declined at each time point and were relatively low overall, ranging from 38% in 2008 to 23% in 2016. These response rates are not unexpected as response rates are falling for all market research surveys more generally, particularly in both phone and internet formats.^{21,22} Although the Roy Morgan data used here were collected in a written format, participants received up to three follow up phone calls to complete the materials resulting in much higher response rates than some phone-based surveys, which report completion rates around 9% in 2016.²² To account for the relatively low response rates, samples were re-weighted each year to ensure that their representativeness was maintained.

Conclusion

Data collected by Roy Morgan on contraception use in Australia show a number of trends. These trends include a gradually increasing use of LARC methods over the past 10 years, a generally decreasing use of oral contraceptive pills, and an age-related trend in LARC method use. However, overall, oral contraceptive pills and condoms remain the most widely used methods. Despite some limitations in comparability, these patterns of contraceptive use are comparable to other nationally representative studies and provide the most up to date statistics available on contraception use in Australia. The Roy Morgan Single Source data set should be considered as a reliable source of information on use of non-permanent contraceptive methods in the Australian context.

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