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Changes in Canadian contraceptive choices: results of a national survey on hormonal contraceptive use

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Abstract

Background Since the introduction of the birth control pill in 1960, Canadians have been offered a number of different options for hormonal contraceptives, yet oral contraceptives remain the most popular methods. Research from other countries indicates this may be shifting, but the last comprehensive survey of Canadian hormonal contraceptive usage was published in 2009. Therefore, the aim of this study was to determine current hormonal contraceptive usage among pre-menopausal Canadians.

Methods An online survey was distributed to pre-menopausal females aged 19–49 years via a third-party survey company. The survey included questions on respondents' demographics and current and past hormonal contraceptive use. Prevalence of current hormonal contraceptive use was calculated by age. Chi-squared tests were conducted to determine whether there was an association between contraceptive choice and various demographic categories.

Results Responses of 2306 female Canadians (age 33.4 ± 8.1 years) were analyzed and 29% of these respondents were currently using hormonal contraceptives. The most common choices were oral contraceptives (56.4%) and intrauterine device (IUD) (28.4%). Over 30% of hormonal contraceptive users were currently using a long-acting reversible contraceptive method.

Conclusions These findings demonstrate a change in hormonal contraception use, notably an increase in the use of hormonal IUDs from 4 to 28% among Canadian hormonal contraceptive users over the last 15 years. This study also shows a high prevalence of alternative contraceptive options that may influence hormone levels differently than oral forms.

Keywords Contraception, Survey, Canadian women, Hormonal contraceptives

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Background

A source of liberation, the introduction of the first hormonal contraceptive (HC), the birth control pill in 1960 (and subsequent legalization in 1969) [1] allowed Canadians to take more control over when and if they were to get pregnant. According to results from the Canadian Health Measures Survey collected from 2007 to 2011, roughly 1.3 million non-pregnant Canadian women (15–49 years) used some form of oral contraceptive pills (OCP) [2]. However, there are several other HC options (Fig. 1) that have become available or improved over the last 50 years, providing broader reproductive choices. These options can be broken down into two categories: (1) short-acting reversible contraceptives (SARC), the effect of which last from days to months depending on the modality and include OCP, vaginal rings, hormone patches, and hormone injections, and (2) long-acting reversible contraceptives (LARC), which have a longer effect from 3 to 8 years and include the hormonal intrauterine device (IUD) and subdermal implant [3]. The current focus of discussions and research around HC revolve primarily around pregnancy prevention; however, since OCP were approved for use in Canada prior to contraception being legalized, the original designated use of HC was for the treatment of menstrual disorders [4]. Today, HC may be used to treat a number of different medical conditions, including poly-cystic ovarian syndrome(PCOS), endometriosis, and acne [5]. HC may also be used to help manage menstruation by ameliorating symptoms, having bleeding days on a more predictable schedule, or eliminating bleeding altogether [6]. These additional uses mean that female patients who are not at risk of pregnancy (i.e., not having penetrative intercourse with a male partner) could be taking HC, yet many studies evaluating contraception use tend to exclude individuals who have not had intercourse with a male partner within the last six months [7]. For example, in a study published in 2009, of 5591 respondents, 2644 were removed from analysis due to lack of intercourse, or only engaging with female partners [7]. It is unclear how many HC users are excluded from research by following those criteria, but survey results from the United States suggested 58% of OCP users had additional reasons for use beyond pregnancy prevention, and 14% of users were taking OCP exclusively for non-contraceptive purposes [8]. When determining rates of HC use within a population, we should be considering all users, regardless of the reason for use, as HC impacts female physiology beyond pregnancy prevention.

Understanding the influence of exogenous hormones on physiological systems and/or health outcomes is essential for supporting the health of women. There is concern that HC use may negatively influence a women's health, particularly long-term. For example, in a recent systematic review blood pressure was reported to be higher in oral contraceptive pill (OCP) users compared with non-oral, hormonal (IUD, vaginal ring) contraceptive users [9]. In addition, the complexity of accounting for the various hormonal profiles of female participants is often cited as justification for only recruiting male participants in research, but this has led to a dearth of information on the sex differences in prevention, diagnosis, treatment, and management of numerous health conditions [10–12]. Furthermore, HC choices have expanded in recent years, offering more choice to females, yet we do not have current prevalence data of HC use by type to guide what forms of HC should be the focus of future study. Recent research has reported on HC use in Canadians aged 16–24 years [13], but current choices for all female Canadians of reproductive age are not currently

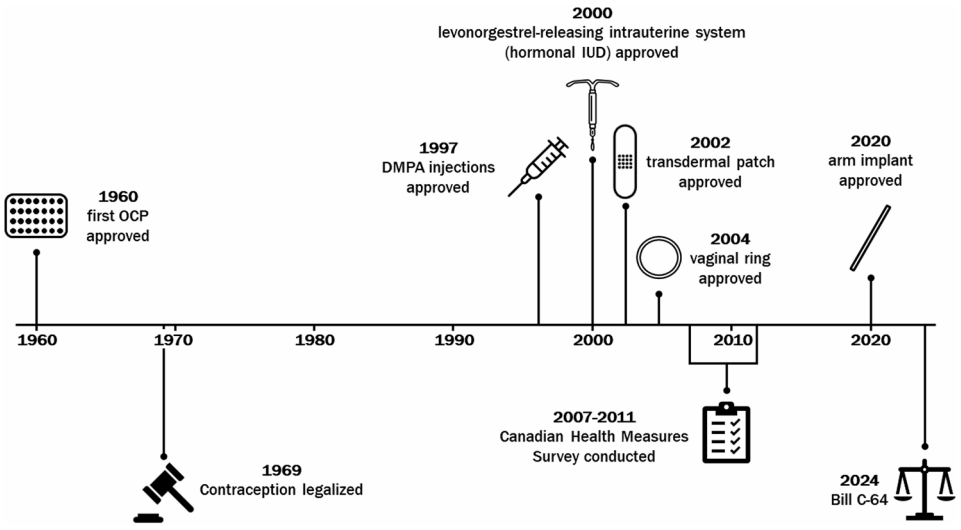

Fig. 1 History of Hormonal Contraception in Canada.

available. This is important because efforts to address knowledge gaps in the literature should focus on the most commonly used HC options in order to gain better understanding of the physiological effects of HC commonly used by Canadians. As such, it is timely to review Canadian hormonal contraceptive choices beyond simply OCP use, and for uses in addition to prevention of pregnancy. Thus, the purpose of this investigation was to determine the prevalence of current HC use among adult Canadian females.

Methods

Ethics approval was obtained by Trinity Western University's Human Research Ethics Board in accordance with the latest Tri-Council Policy Statement and Canadian Association of Research Ethics Boards standards. A national cross-sectional study was conducted in September and October 2021. Of note, these data were collected during the COVID-19 pandemic, which may have impacted access to health care services and accordingly to HC. Recruitment and survey distribution was directed through a third-party survey company (Hosted in Canada Surveys; Nepean, Ontario). The survey was designed as a compilation of three separate studies, each with distinct aims, with a common target population (same inclusion and exclusion criteria) and common theme related to premenopausal health. Details on the complete survey design and results from the first component of the survey have been previously published [14]. Recruitment target was set at 2500 to capture a comparable sample to previous work [7], and census data was used to identify the proportion of the population in each province to ensure we recruited a representative Canadian sample. Individuals assigned female at birth, aged 19–49 years of age were eligible to complete the survey. Screening questions were also included regarding menopause to ensure all respondents were of reproductive age. Respondents were asked questions about their demographics, age at menarche, exercise status, and their history of HC use. Within the Canadian healthcare context, individuals may have prescription drug coverage through universal healthcare distributed through (and therefore can vary by) the provincial government, although HC are not typically covered through these programs. They may also have extended healthcare coverage from several possible sources to cover prescription medication (Table 1) or have no health insurance at all. For those paying the full costs of HC in Canada, expected outgoings are approximately $300 per year for OCP. IUDs, which are effective for five years, cost up to $500 per unit [15]. Since the objective of our study was to determine HC usage, the survey did not ask about non-hormonal methods of contraception. Thus, results indicating IUD use refer only to the hormonal IUD. HC choices were reported by respondents as type (OCP, ring, patch, injection, IUD, implant), and OCP users were asked about sub-type (monophasic, progesterone, biphasic, triphasic, unknown). Types were grouped into HC categories (OCP, other SARC or LARC) for further analysis.

Statistical analysis

Results are reported as mean ± standard deviation (SD) for continuous variables (e.g., age, age of menarche), and prevalence (%) of descriptive outcomes. Sociodemographic factors were considered using chi-square tests to examine relationships between contraceptive choice and age, education, income, insurance status, and self-identified level of physical activity. To ensure valid chi-squared tests, health benefit groups listed in Table 1 were combined into the following categories: (1) No health insurance; (2) provincial coverage; and (3) provincial and extended health. Multiple logistic regression was conducted to examine the combined impact of our demographic variables and contraceptive type. Changes in contraceptive choice relative to the only available previous comprehensive Canadian national dataset [7] were evaluated using Chi-squared tests. As this previous study also included non-hormonal methods, we adapted their data to represent only the hormonal methods when comparing usage relative to our data. Statistical significance was set at $p < 0.05$ and statistical analyses were performed using SPSS V26 software (IBM, Armonk, USA).

Results

Sociodemographic

Demographic data are reported in Table 1, aggregated by current HC users, non-users and total of all respondents. Overall, 2678 responses were received which resulted in data from 2306 Canadian females (mean age 33.4 ± 8.1 years) after removing ineligible responses, illogical data, or respondents that did not complete any of the hormonal contraceptive questions (Fig. 2).

Prevalence of HC use

Of the 2306 respondents with usable data, 29% reported they were currently using some form of HC (current HC users), and 67.7% had used HC at some point in their life (lifetime HC users). For lifetime HC users, the average age at menarche was 12.6 ± 2.4 years, and average age of initial HC use was 18.8 ± 5.1 years.

Profile of lifetime HC users

Associations were demonstrated between lifetime use of HC and several sociodemographic factors. A significant relationship was found between age and lifetime HC use, whereby those who were older were more likely to have used HC at some point in their life ($p < 0.001$). Additionally, in lifetime HC users there was a significant

Table 1 Participant sociodemographics by current hormonal contraceptive use

Characteristic	Prevalence		
	Current HC users 677 [29.4]	Current non-users 1629 [70.6]	Total 2306
Age (y), n = 2306			
19–29	247 [36.5]	565 [34.7]	812 [35.2]
30–39	256 [37.8]	638 [39.2]	894 [38.8]
40–49	174[25.7]	426 [26.1]	600 [26.0]
Ethnic Origin, n = 2305			
European	395 [58.4]	945 [58.0]	1340 [58.1]
East and Southeast Asian	93 [13.8]	242 [14.9]	335 [14.5]
South Asian	26 [3.8]	90 [5.5]	116 [5.0]
African	23 [3.4]	59 [3.6]	82 [3.6]
Latin, Central and South American	25 [3.7]	57 [3.5]	82 [3.6]
Indigenous person of Canada	18 [2.7]	38 [2.3]	56 [2.4]
Middle Eastern	11 [1.6]	29 [1.8]	40 [1.7]
Other	20 [3.0]	37 [2.2]	57 [2.5]
Not Known/ Prefer not to disclose	29 [4.3]	55 [3.4]	84 [3.7]
Indigenous + European	21 [3.1]	32 [2.0]	53 [2.3]
Indigenous + Other Minority	9 [1.3]	32 [2.0]	41 [1.8]
Multiple Minorities	6 [0.9]	13 [0.8]	19 [0.8]
Gender Identity, n = 2297			
Woman	666 [98.4]	1587 [98.0]	2253 [98.1]
Non-binary	7 [1.0]	20 [1.2]	27 [1.2]
Two Spirit	1 [0.2]	5 [0.3]	6 [0.3]
Man	0 [0.0]	3 [0.2]	3 [0.1]
None of the above	3 [0.4]	5 [0.3]	8 [0.3]
Education, n = 2282			
Any High school or equivalent	150 [22.4]	356 [22.1]	506 [22.2]
Any undergraduate	447 [66.6]	1111 [68.9]	1558 [68.3]
Any graduate	74 [11.0]	144 [9.0]	218 [9.6]
Annual Household Income, n = 2191			
$15,000 - $29,999	82 [12.7]	198 [12.8]	280 [12.8]
$30,000 -$49,999	114 [17.6]	259 [16.8]	373 [17.0]
$50,000 - $69,999	110 [16.9]	269 [17.4]	379 [17.3]
$70,000 - $99,999	136 [21.0]	321 [20.8]	457 [20.9]
> $100,000	142 [21.9]	328 [21.3]	470 [21.4]
Do not know/Prefer not to answer	64 [9.9]	168 [10.9]	232 [10.6]
Employment Status, n = 2303			
Employed	481 [71.2]	1161 [71.4]	1642 [71.3]
Unemployed	116 [17.1]	279 [17.1]	395 [17.2]
On leave	38 [5.6]	90 [5.5]	128 [5.6]
Unpaid work	41 [6.1]	97 [6.0]	138 [5.9]
Province of Residence, n = 2297			
Ontario	259 [38.5]	589 [36.2]	848 [38.1]
British Columbia	188 [28.0]	501 [30.8]	619 [27.8]
Quebec	76 [11.3]	196 [12.1]	272 [12.2]
Alberta	69 [10.3]	146 [9.0]	215 [9.7]
Manitoba	22 [3.3]	66 [4.1]	88 [3.9]
Saskatchewan	18 [2.7]	29 [1.8]	47 [2.1]
New Brunswick	18 [2.7]	25 [1.5]	43 [1.9]
Nova Scotia	11 [1.6]	44 [2.7]	55 [2.5]
Newfoundland and Labrador	8 [1.2]	20 [1.2]	28 [1.2]
Prince Edward Island	2 [0.3]	5 [0.3]	7 [0.3]
Yukon	1 [0.1]	1 [0.1]	2 [0.1]
Northwest Territories	0 [0.0]	1 [0.1]	1 [0.1]

Table 1 (continued)

Characteristic	Prevalence		
	Current HC users 677 [29.4]	Current non-users 1629 [70.6]	Total 2306
Nunavut	0 [0.0]	2 [0.1]	2 [0.1]
Access to Health Insurance, n = 2300			
Standard + extended health insurance	338 [50.0]	749 [46.1]	1087 [47.3]
Standard provincial insurance only	216 [32.0]	601 [37.0]	817 [35.5]
No health insurance	103 [15.3]	251 [15.4]	354 [15.4]
Standard + health benefits for indigenous/Inuit peoples	18 [2.7]	24 [1.5]	42[1.8]
Exercise status, n = 2274			
Non-exerciser	265 [39.6]	661 [41.2]	926 [40.7]
Regular exerciser	343 [51.3]	767 [047.8]	1110 [48.8]
Recreational athlete	58 [8.7]	163 [10.2]	221 [9.7]
Competitive athlete	3 [0.4]	14 [0.8]	17 [0.8]

Note: Data are provided as n [%]

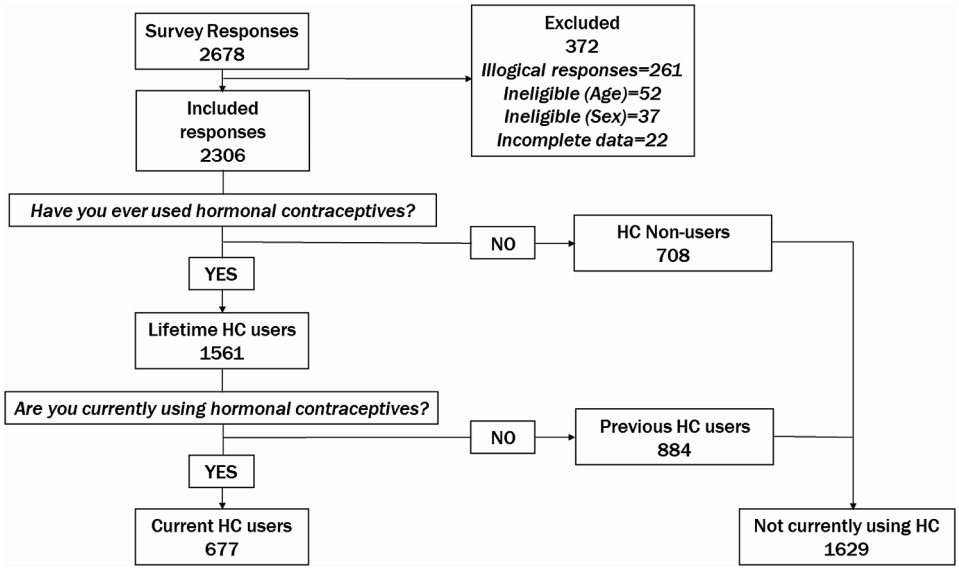

Fig. 2 Classification of respondents by past and current HC use

association between provision of healthcare coverage and lifetime HC use, whereby those with more extensive healthcare coverage were more likely have used HC at some point in their life (provincial and extended health coverage, 72.8%) compared to those with less (provincial coverage only, 65.8%) and no coverage (62.6%) ($p < 0.001$). When considering employment status and lifetime HC use, 70.7% of those who were employed had used HC as some point in their life, compared to 62.3% of those who were unemployed ($p < 0.001$). Household income and lifetime HC use also demonstrated a significant association, where 77.8% of those with a household income over $100k had ever used HC, compared to 65.1% of those with a household income between $15-20k ($p < 0.001$). Lifetime HC use was associated with education level, with those who completed any high school (72.2%) having higher lifetime HC use than those who completed any post-secondary education (69.3%), or any graduate school (57.4%) ($p < 0.001$). For ethnicity, there was a significant relationship between lifetime HC use, where 81.5% of White/European respondents had used HC at some point, followed by Latin (69.5%), Indigenous (65.5%), Black (60.0%), Middle Eastern (50.0%), East/South Asian (43.4%), and South Asian (29.8%) ($p < 0.001$). There was no significant association between lifetime HC use and self-identified exercise status.

Profile of current HC users

There were no significant differences in age, ethnicity, gender identity, educational status, annual household income, employment status, province of residence, or exercise status between current HC users and HC non-users (Table 1). A relationship between healthcare coverage and current HC use was trending towards significance when smaller benefit groups were considered ($p = 0.051$), where those with higher levels of healthcare

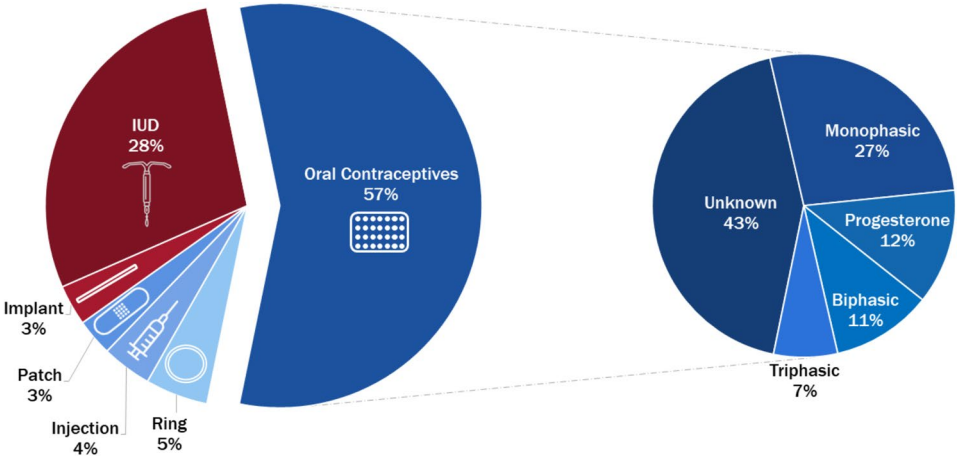

Fig. 3 Current hormonal contraceptive use by type. Red slices indicate long-acting reversible contraceptive (LARC) methods, and short-acting reversible contraceptive (SARC) methods are indicated by blue slices.

Table 2 Prevalence of current hormonal contraceptive types by age

	Contraceptive type	Age (years)			
		19–29	30–39	40–49	Total
		247 [36.5]	256 [37.8]	174 [25.7]	677
SARC	Oral Contraceptive Pill	129 [52.0]	154 [60.1]	99 [56.8]	382 [56.4]
	Unknown	54 [21.5]	66 [25.5]	45[25.9]	165[24.4]
	Monophasic	33 [13.4]	40 [15.7]	30 [17.2]	103 [15.2]
	Progesterone	17 [6.9]	16 [6.3]	14 [8.0]	47 [6.9]
	Biphasic	16 [6.5]	19 [7.5]	6 [3.4]	41 [6.1]
	Triphasic	9 [3.7]	13 [5.1]	4 [2.3]	26 [3.8]
	Ring	16 [6.5]	12 [4.7]	6 [3.5]	34 [5.0]
	Patch	9 [3.7]	6 [2.3]	5 [2.9]	20 [3.0]
	Injection	8 [3.3]	14 [5.5]	5 [2.9]	27 [4.0]
LARC	IUD	75 [30.4]	61 [23.9]	56 [32.2]	192 [28.4]
	Implant	10 [4.1]	9 [3.5]	3 [1.7]	22 [3.2]

Note: Percentage of OCP types are provided in the indented section. Contraceptive types are arranged by category (Short-acting reversible contraceptives [SARC] and Long-acting reversible contraceptives [LARC]) listed vertically in the first column. Data are provided as n [%]

coverage had higher rates of HC use (provincial and extended health coverage, 31.5%) compared to those with less (provincial coverage only, 26.4%) and no coverage (29.1%).

Current prevalence of HC use by category

There were no significant relationships between current HC category (OCP, other SARC, or LARC methods) and age, province, annual household income, employment status, educational status, ethnicity, provision of healthcare coverage, or previous pregnancies. There was a significant relationship between current HC category and whether the respondent engaged in exercise ($p < 0.001$), with 65.9% of LARC users indicating they exercised (141/214), compared to 62.3% of OCP users (238/328) and 40.7% of other SARC users (33/87). Multiple logistic regression was conducted to determine any relationship between contraceptive type and the interaction of demographic variables, but no such relationships emerged.

Current prevalence of HC use by method

The current HC use is shown in Fig. 3, with the two most prevalent HC methods being OCP (57%) and hormonal IUD (28%). Within the OCP category, the formulation is also noted, with 43% of OCP users not knowing the formulation of the pill they are taking. There were no significant relationships between HC method among HC users and age (Table 2), province, annual household income, employment status, educational status, or ethnicity. A significant relationship between level of healthcare coverage and current HC method emerged ($p = 0.04$), where 56.6% of OCP users had extended health coverage (215/380), compared to injection (55.6%,15/27), IUD (50.5%, 97/192), ring (44.1%, 15/34), patch (40%, 8/20), and implant (27.3%, 6/22) users. There was also a significant relationship between current HC methods and whether the respondents exercised or not ($p < 0.001$) with 72.7% of implant users indicating they exercised (16/22), compared to IUD (67.1%, 125/192), OCP (62.3%,

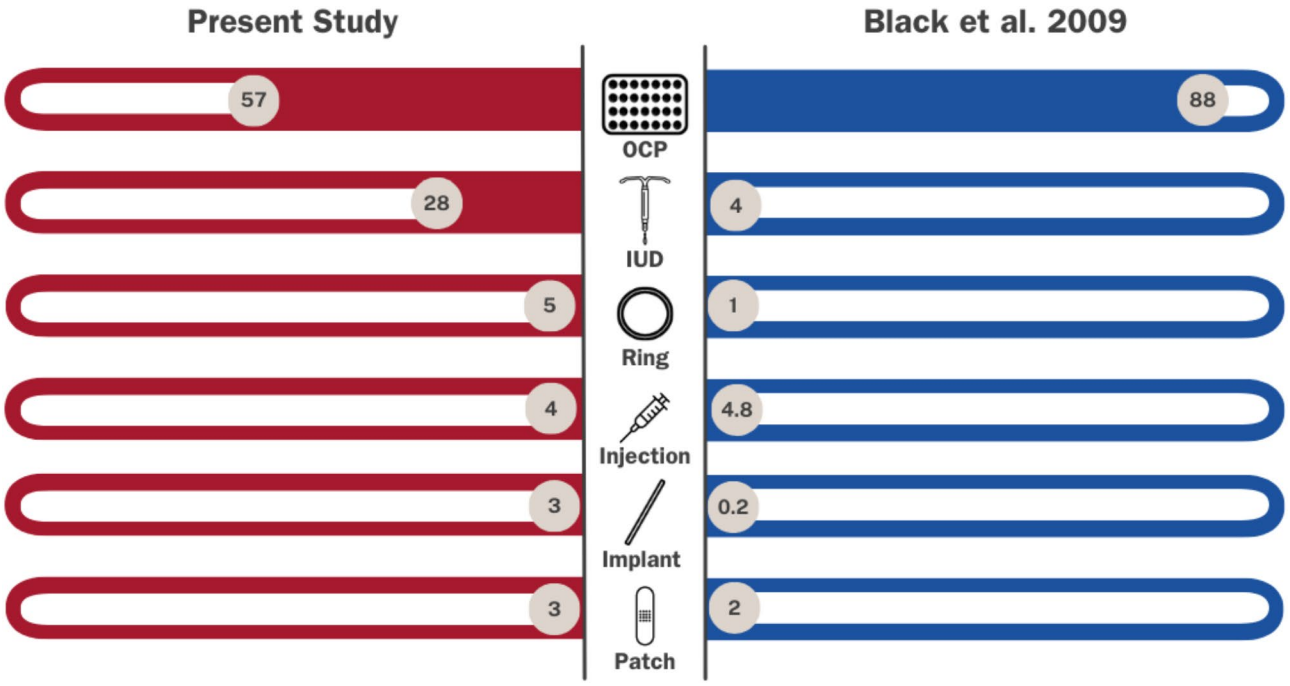

Fig. 4 Prevalence of current hormonal contraceptive use by type compared to previous data. As Black et al. [9] also reported non-hormonal methods in their study, we adapted the percentages above to reflect the proportion within hormonal methods only

238/382), ring (44.1%,15/34) and patch (55%, 11/20) and injection (25.9%, 7/27) users.

Changes in contraceptive choices over time

The average number of different HC types used was 1.3 ± 2.0 per respondent. There was no relationship between past HC method and current HC method of choice. When compared to previous data published in 2009 in a sample of 1170 female Canadians using HC [7], we observed significant differences in HC method use in the two different studies ($p < 0.001$), whereby there were a greater proportion of individuals using the IUD, implant, ring, injections, and patch when compared to the previous study [7] (Fig. 4).

Gender identity and HC use

Our data showed that 44 (1.9%) of respondents did not identify as a woman, and of these 11 were using hormonal contraceptives. We are unable to determine any relationship between gender identity and HC use as all chi-squares were invalid due to low *n* in all but those who identify as women.

Discussion

These findings demonstrate a change in HC use among female Canadians when compared to historical data, notably an increase in the use of IUDs (from 4 to 28% of HC users) and a decrease in OCP (from 88 to 57% of HC users) use over the last 15 years. We also showed that lifetime HC use was more prevalent in older individuals and those with more extensive healthcare coverage and that female exercisers were more likely to use a LARC method. Surprisingly, 43% of those using oral contraceptives did not know the formulation of their contraceptive method, which is concerning considering the health implications of different contraceptive choices [9].

One of the strengths of the present study is that we provide a more complete picture of HC choices in Canada, with the inclusion of HC users regardless of whether they were sexually active in a way that could result in a pregnancy. Previous research has demonstrated that more than one in every ten OCP users indicated they exclusively used HC for non-contraceptive purposes [8]. This data set therefore captures Canadians who have been prescribed HC for a variety of non-contraceptive purposes (including for menstrual cycle management, predictability, or cessation, as well as relief of menstrual symptoms, or treatment of medical conditions such as endometriosis, acne or PCOS) who could have otherwise been excluded from previous research due to their lack of sexual activity or choice of partner.

Changes in preference

Our results reveal a lower prevalence of OCP, and higher prevalence of hormonal IUD use relative to prior reports. When compared to a 2015 study of 16.2% of Canadian females aged 15–49 years [2], the amount of people taking OCP was 5.5% less than what was reported by our

respondents. When looking specifically at Canadians aged 16–24 years, a publication from 2020 noted 51.7% of currently sexually active respondents using OCP, but only 3.6% using IUDs [13]. In our survey, 28% of respondents were using a hormonal IUD. The discrepancy with our results could be due, in part, to the expanded participant pool of our responses by not excluding those who hadn't engaged in intercourse with a male partner, as well as a wider age range of participants. Thus, taken together, the available data suggests IUD usage is increasing among Canadians.

Financial considerations

Cost may be a factor with respect to HC choices among Canadians; when considering income, education, and healthcare coverage, our results show that these demographic considerations may be related to whether someone chooses to take HC. This could indicate that those who are less concerned with the cost or coverage of their prescription are facilitated to continue to use HC. While income was not related to the type of HC respondents reported, the level of healthcare coverage (i.e., whether the prescription cost was likely to be covered) did influence HC use. While each HC type varies in cost, IUDs and implants have greater upfront costs. For those who have extended health coverage that includes prescriptions, this would likely be less of a concern. It is important to note that these responses were collected prior to the British Columbia provincial government announcing full coverage of HC through PharmaCare, followed by the recent announcement by the federal government to provide the same benefits country-wide [16]. This expanded access would allow for the current HC user respondents who only indicated provincial health care access (32%) to have contraceptive costs covered, which was not the case at the time of the survey. Further, with expanded coverage improving Canadian HC access, HC choices can now represent preferences of type over factors such as cost.

Exercise status

Previous research has demonstrated a relationship between HC choice and social groups [17–19]. As we were unable to find any relationships between HC use by method and demographics of our respondents, we sought to find answers for what might motivate Canadians to decide on a particular HC method. We found an association between HC category and whether the respondents were physically active or not, with LARC users reporting the largest proportion of exercisers. This relationship continued down to the level of HC type, whereby more IUD users were exercisers than those taking other forms of HC, indicating that preferences for certain HC methods may relate to priorities of daily living such as exercise. This finding may be interpreted in a few ways. Firstly, Canadians who are exercising, and specifically participating in sports, may take cues from their teammates/social groups on what HC type to use. Secondly, when it comes to sport, many sportswomen have the perception that period symptoms reduce their performance [20]. It is possible that HC could be used to manage periods and symptoms to avoid these concerns. This can also be seen in a military population (often referred to as industrial athletes) whereby menstrual cycle symptoms are a notable concern for female service members [21]. Further research investigating the use of HC within different social groups, and in particular female athletes, could provide more information on how to target contraceptive information to specific groups.

Significance

This analysis of HC use is important for informing research design. When evaluating the physiological effects of HC on health outcomes, most of the literature to date has compared OCP users to non-HC users. Our results suggest researchers must consider incorporating IUD and other LARC methods into their study designs, as they are increasingly common choices. This is particularly important to inform research that aims to investigate both the local and systemic effects of these hormones, whether it be for health concerns such as stroke and cardiovascular disease or cancer risk [22], or in the case of athletes, factors that influence performance [23], as most of the research to date focuses on OCP use. Therefore, investigation into the effects of IUD usage presents a novel direction for future studies.

We demonstrated that those with extended healthcare coverage are more likely to use HC, both among current and lifetime users. As recent federal policy has improved HC access to more Canadians [16], it is important to pair increased research of the physiological effects of different HC methods with increased education and training for physicians in order to have discussions with patients on choosing the method that is best for them. Almost half of Canadian OCP users who responded to our survey do not know the formulation of their OCP, which indicates that better counseling and education of patients is needed, and in order to do so, we must ensure that physicians are receiving appropriate information and education. While research has demonstrated that preferences towards prescribing an IUD are changing [24], research from 2014 indicated that only two-thirds of gynecologists consider the IUD an appropriate option for nulliparous women [25] despite this not being a contraindication for IUD use. There are currently resources available for physicians that provide a strong starting point to provide appropriate recommendations for HC use depending on the needs of the patient [26]. However, further research in needed to expand these resources to include

considerations for specific populations. For example, if female athletes are in fact taking cues from their teammates on the HC options to discuss with their doctor, or inquiring about a method like an IUD that may supress their menstrual symptoms, doctors need to be aware and counsel them that HC use could mask amenorrhea, which can diminish awareness that an athlete is suffering from Relative Energy Deficiency in Sport (REDs) [27].

Limitations

As this survey was limited to respondents in Canada, the present findings are not generalizable beyond the Canadian population. However, these findings may still be informative in other contexts, particularly as it seems the trends we observed may be similar in other countries [28, 29]. The survey was also targeted at adults and therefore cannot be inferred to represent the prevalence of HC use in youth.

By design, we were interested in the rates of HC usage among Canadians to gain a better understanding of total HC users regardless of sexual activity. This focus was to help inform researchers on the common types used in order to better investigate the physiological effects of HC across healthcare fields. Accordingly, this survey did not include any questions regarding the use of non-hormonal contraceptives. Therefore, we are unable to comment on whether Canadians are moving towards or away from the use of non-hormonal methods. Furthermore, as the objective of this project was to describe the prevalence of HC use among Canadians, we did not ask any questions regarding the respondents' reasoning for HC choices and were therefore unable to draw any conclusions on why we have seen a substantial increase in IUD usage over the last 15 years. Further research is needed to help determine how HC users are making their choices to help patients find the best option for them.

Conclusions

We have demonstrated a notable change in the types of HC used among Canadians. With an increase in LARC usage, more research is necessary to better understand the physiological consequences of the various HC methods. The establishment of a regular survey of Canadian HC usage would provide practitioners and researchers alike with a better understanding of choices Canadians are making, in particular as access begins to expand through improved healthcare coverage. Along with being aware of usage rates, it is important that along with expanding contraceptive choices, policy changes, and alterations to healthcare coverage to increase access to contraceptives, researchers continue to investigate the effects of the different HC methods to allow for tailored recommendations by health care providers to the patients' specific needs, such as medical conditions, risk factors, or lifestyle factors. The invention of, and subsequent advancements in, hormonal contraceptives have been a liberation for Canadian women, allowing them to take control of their reproductive choices and with improved research in the area, we can ensure that their choices are well-informed.

Abbreviations

HC	Hormonal Contraceptives
OCP	Oral Contraceptive Pill
IUD	Intra-Uterine Device
LARC	Long-Acting Reversible Contraceptives
SARC	Short-Acting Reversible Contraceptives

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Author contributions

A.T.C and S.L. were responsible for conceptualizing the project. A.J.C., A.T.C., and S.L. formulated the survey questions. A.J.C. performed the data analysis. A.J.C., A.T.C., and V.E.C. contributed interpretation of results. A.J.C., A.T.C., and V.E.C. contributed to the writing of the manuscript. All authors were involved in the editing of the final manuscript.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

This project was granted approval by the Human Research Ethics Board of Trinity Western University (HREB file #21F02) and all participants provided informed consent in order to participate.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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