Knowledge and practice of hormonal contraceptives among females aged 18–45 in 3 districts of Belize. Is prescription still a barrier to contraceptives?

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Abstract

Aims: Hormonal contraceptives have been used to prevent unwanted pregnancies, reduction of maternal and infant mortalities, and enhancements of women economic productivity. Demands for contraceptives are mainly dependent on the knowledge and access to contraceptives by women of childbearing age. Prescriptions only access to contraceptives, have been considered as barriers to contraceptives, and many countries are making efforts to remove that barrier. This study examined the knowledge, practice, and access to hormonal contraceptives with a view to provide vital information to review or strengthen current contraceptives policies in the country of Belize.

Methods: A descriptive cross-sectional study designed was employed to collect data from 381 women aged 18–45 in 3 districts of the country of Belize. A well-structured modified questionnaire was used for data collection. Data were entered and analysed using Statistical Package for Social Sciences (SPSS) version 25 and Epi-Info, respectively. Data are presented and described by means of frequency tables, percentages, mean, and standard deviations.

Results: The mean age of the participants was 24 ± 0.9 years, with 98% being knowledgeable of hormonal contraceptives. 87 percent of women reported using hormonal contraceptives, with 47% indicating oral contraceptives. About 70% of the women experienced side effects with contraceptives, and the most common side effect reported was weight gain (36%). Finally, 75% of participants reported obtaining hormonal contraceptives using prescriptions, while 77% of the respondents indicated that hormonal contraceptives should still be obtained through prescriptions.

Conclusion: The results of this survey showed that women aged 18–45 who participated in the study were aware and familiar with hormonal contraceptives. Women had access to contraceptives and were using hormonal contraceptives majorly for the prevention of pregnancy. Prescription was not seen to be a barrier to accessing contraceptives among the women studied, possibility because of active school advocacy for contraceptive use and the literacy level of the study participants.

Introduction

In 1999, a nationwide family health survey (FHS) of 3,613 women aged 15 to 49 was conducted in Belize with the aim of providing useful data for the development of sustainable programs to improve the quality of women in the country [1]. The survey reported 92% oral contraceptive usage while 88% and 85% use injectable contraceptives and condoms, respectively. Access to hormonal contraceptives in Belize requires prescriptions, but presently, it is a common practice for women in Belize to access hormonal contraceptives without a prescription. The last accessible data on a national survey on contraceptive usage in Belize was in 1999 [1]. There is a need for an updated survey to present current realities in the use of contraceptives as a means to prevent unwanted pregnancies, improve school attendance, enhancements of women economic productivity, and reduction of maternal morbidity and mortality [2].

Hormonal contraceptives are effective in preventing pregnancies when used appropriately. They reliably prevent pregnancies by a singular or combinatorial mechanism depending on the contraceptive being used [3]. Majorly, hormonal contraceptives produce their effect by effectively preventing ovulation [4]. Others hinder the implantation of fertilized eggs in the womb, while the rest causes the production of thick and sticky cervical mucus, thereby preventing the ease of sperm motility and subsequent prevention of the sperm reaching the eggs[4]. A number of hormonal contraceptives are available, but all have similar effects in preventing pregnancies by influencing hormonal levels. The most common forms of hormonal contraceptives include the vaginal ring, oral contraceptives, hormone-releasing contraceptive coils, and contraceptive skin patches [2,5]. A few adverse effects have

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been reported with hormonal contraceptives. Mild adverse effects reported include breast tenderness, nausea, vomiting, decreased libido, headaches, mood swings, and vaginal yeast infections or spotting menstrual periods. The risk of developing thrombosis and certain cancers are some of the serious adverse effects reported. Women aged 40 years and above seem to have higher risks of adverse effects when compared to those of younger women. Regardless of these adverse effects, hormonal contraceptives have the advantages of preventing pregnancies, relieving premenstrual and menstrual pain, and reducing the incidence of acne while improving skin health [4].

The population division of the United Nations Department of Economic and Social Affairs, reported a 63% increase in global use of traditional and modern contraceptives by women of reproductive age [2]. The report further stated that 58% of women used modern contraceptive methods in 2017, making modern contraceptives the most used contraceptives globally by 92%. Worldwide, an increase in the number of women of reproductive age coupled with increased awareness of contraceptive usage is expected to cause an escalation in contraceptive use. This increase is projected to rise from 778 million women in 2017 to 798 million in 2030 [2]. The demand for modern contraceptive methods for family planning was reported to have increased among women to 78% in 2017 when compared with 75% in 2000.

Furthermore, in 2016, the World Bank collection of development indicators reported Belize's contraceptive prevalence among women aged 15-49 to be 51.4% (Trading Economics). The prevalence of contraceptive use was high because the reproductive population (aged 15-49) in Belize is currently estimated to be about 47% of the total population [1]. Despite the high percentage of reproductive population and the seeming demand for contraceptives, access to hormonal contraceptives in Belize is by prescription only. This might create barriers to contraceptive access leading to intermittent or complete abandonment of hormonal contraceptive use [6,7]. Studies have demonstrated that women of childbearing age using hormonal contraceptives are capable of determining their suitability to use hormonal contraceptives using self-screening tools [4,7-9].

Based on the numerous evidence supporting women of childbearing age to have access to contraceptives without prescriptions, the ACOG [7] committee Opinion number 788 of October 2019 provided a strong recommendation and support for hormonal contraceptives to be made available over the counter, while prescription restrictions are removed. The report concluded that increased access provides continuation rates as compared to prescription-only access. Also, women prefer to access the hormonal contraceptives over the counter as compared to using prescriptions [7]. Without ease of access to hormonal contraceptives, unintended pregnancies and sexually transmittable diseases will increase public health concerns [10,11].

In Belize, despite the apparent increase in the reproductive age population1 and the seemingly prescription restrictions to access hormonal contraceptives, women still access contraceptives with or without prescriptions. A hormonal contraceptive can be obtained at any hospital, clinic, or health centre at no cost to the woman. Women can also purchase contraceptives from most pharmaceutical stores over the counter. The prescription barrier to hormonal contraceptives, therefore, has been a debatable issue to the point that recently the American College of Gynaecologist presented a strong opinion in support of allowing women to access contraceptives without the obstacle of a prescription [7].

This study therefore was conducted to examine the knowledge and practice of hormonal contraceptives among women of childbearing age (18-45) in 3 districts of the country of Belize. The study was also designed to identify if prescription was a barrier to accessing contraceptives. Finally, the study intends to provide some information on hormonal contraceptives that might assist in reinforcing national programs and strategies on hormonal contraceptives in Belize.

Methods

Study population

A descriptive cross-sectional study design was employed for this survey and was carried out in 3 districts of the country of Belize. Women of childbearing age (aged 18-45) were the population of the study. The 3 districts for the study were randomly selected as representation districts for data collection. Belize, Cayo, and Orange Walk districts were selected, and data were collected from May to November 2019.

Sample size determination

A sample size of 381 females aged 18-45 was obtained using Fisher's formula with 95% confidence level and a precision of 0.05 [12]. Further adjustment to the sample size was made for a 10% nonresponse. Women for the study were selected from households within the selected districts of the study.

Sampling technique

A multistage and stratified sampling technique was employed in this study. In the first instance, the districts were selected randomly then stratified into towns/cities. The sample size was proportionally distributed between districts and towns/cities within the districts. The representative samples were selected from towns/cities. Lastly, in each town or city women aged 18-45 were stratified based on age range and from each stratum, a section of the women was randomly selected to participate in the study based on the inclusion criteria. 127 samples were collected from each district making a total of 381 women for the 3 selected districts.

Data collection

Data were collected using a self-administered questionnaire. The development of the questionnaire followed a review of a number of studies and modified for the current survey [13-16]. The developed questionnaire was first pre-tested among 30 women and identified ambiguity corrected. Basic respondent's socioeconomic characteristics such as sex, age, marital status, and educational status were included in the first section of the questionnaire. The second section of the questionnaire included 13 items on hormonal contraceptive access, knowledge, and attitude. The third section of the questionnaire explored the practices and experiences of hormonal contraceptive use. The section had 10 items included. Experts from the Faculty of Health Sciences University of Belize reviewed the questionnaire for face and content validity after it was pretested.

Inclusion and exclusion criteria

Women between the ages of 18 and 45 residing in the 3 selected districts of Belize were included in the study. Women who were willing to participate and gave voluntarily informed consent were included in the study. Women who were not willing to participate and did not give informed consent were excluded from the study.

Ethical consideration

The study was approved by the Faculty of Health Sciences. All ethical issues related to the conduct of the study were strictly observed.
throughout the entire study. Informed consent was obtained from the participants before they were included in the study. Participation was voluntary with full right to withdraw at any point in the study without penalty. Assurance of confidentiality and anonymity of the data was provided and ensured throughout the study period [17]. The research was strictly conducted in accordance with the ethical standards as laid down in the 2013 Declaration of Helsinki ethical standards [18].

Data analysis and management

Data were entered and analysed using Statistical Package for Social Sciences (SPSS) version 25 [19] and Epi-Info [20], respectively. Descriptive statistics were majorly applied to assess the distribution of the variables. Frequency tables, percentages, mean, and standard deviations were used to present the results in tables and charts. P < 0.05 was set as the level of significance. Variables with a p-value < 0.05 during the bivariable analysis were fitted to multiple logistic regression analysis. Further, adjusted odds ratio (AOR) with 95% CI and p-value less than 0.05 were used to determine variables significantly associated with self-access to hormonal contraceptives.

Results

The mean age of the participants was 24 ± 0.9 years. The majority (53%, 202) of the participants reported belonging to the Mestizo ethnic group, while Creole, 25.7% (98), Maya 7.6% (29), and Garifuna 6.8% (26). Other ethnicities were represented by 6.8% (26) made up the rest of the participants. The socioeconomic factors of the respondents are presented in table 1. The majority (35.7%) were single, while about 27% were in a common law relationship while 25% were married. Participants were asked about their religious affiliation and the majority (49.1%) of the participants were Catholics with evangelicals and Pentecostals represented by 27% and 5.2%, respectively. The educational status of the respondents indicated majority (64.3%) had attained tertiary-level education, while about 30% had completed primary school education. 52.2% were gainfully employed, while 26.2% were students (Table 1).

Table 1. Socioeconomic factors of the participants (n=381)

| Marital status | Frequency | Percentage |
|----------------|-----------|------------|
| Single         | 136       | 35.7       |
| Common Law     | 102       | 26.8       |
| Married        | 96        | 25.2       |
| Separated      | 28        | 7.3        |
| Divorced       | 5         | 1.3        |
| Religious affiliation |         |          |
| Catholics      | 187       | 49.1       |
| Evangelicals   | 104       | 27.3       |
| Pentecostals   | 20        | 5.2        |
| Other          | 66        | 17.3       |
| Education      |           |            |
| No formal education | 1       | 0.3        |
| Primary        | 22        | 5.8        |
| Secondary      | 113       | 29.7       |
| Tertiary       | 245       | 64.3       |
| Employment     |           |            |
| Unemployed     | 32        | 8.4        |
| Student        | 100       | 26.2       |
| Employed       | 199       | 52.2       |
| Housewife      | 50        | 13.1       |

Table 2. Knowledge of hormonal contraceptives (n=381)

| Aware/know of HC | Frequency | Percentage (%) |
|------------------|-----------|----------------|
| Yes              | 373       | 97.9           |
| No               | 8         | 2.1            |
| Sources of information |       |                |
| Media            | 39        | 10.2           |
| Family           | 53        | 13.9           |
| School           | 91        | 23.9           |
| Clinic           | 80        | 21             |
| Friends          | 41        | 10.8           |
| Other            | 12        | 3.1            |
| No response      | 6         | 1.6            |
| Multiple sources | 59        | 15.5           |
| Duration of HC knowledge |     |                |
| Less than 1 year | 48        | 12.6           |
| 2-5 years        | 119       | 31.3           |
| 6-9 years        | 60        | 15.7           |
| 10 years and above | 152       | 39.9           |
| No response      | 2         | 0.5            |
| What to consider in the choice of HC |     |                |
| How it works     | 78.8      | 20.70%         |
| Ease of use      | 112.8     | 29.60%         |
| Affordability    | 112.4     | 29.50%         |
| Adverse effect   | 77        | 20.20%         |
| Knowledge of if contraceptives are safe |     |                |
| Yes              | 309       | 81.1           |
| No               | 72        | 18.9           |
| What contraceptives are used for |     |                |
| Prevent unwanted pregnancies | 191     | 50.1           |
| Family Planning  | 163       | 42.8           |
| Emergency Contraceptive | 1     | 0.3            |
| Other            | 26        | 6.8            |
| Contraceptive Known by Participant |     |                |
| Oral Pills       | 128       | 33.6           |
| Injections       | 100       | 26.2           |
| Vaginal ring     | 1         | 0.3            |
| Implants         | 28        | 7.3            |
| Condoms          | 8         | 2.1            |
| Multiple responses | 108       | 28.3           |
| No response      | 8         | 2.1            |
| Knowledge on contraceptives side effects |     |                |
| Yes              | 326       | 85.6           |
| No               | 14        | 3.7            |
| Sources of contraceptives |     |                |
| Pharmacy         | 135       | 35.4           |
| Hospital         | 33        | 8.7            |
| Clinic           | 79        | 20.7           |
| Friends          | 21        | 5.5            |
| Multiple responses | 107      | 28.1           |
| No response      | 6         | 1.6            |
| Opinion on if HC should be prescribed or not |     |                |
| Yes              | 293       | 76.9           |
| No               | 88        | 23.1           |

Mestizo ethnics (26.2%), school (24%), clinic (21%), and friends (11%) as sources of knowledge on hormonal contraceptives (HC). Some participants indicated multiple sources (15.5%) of information for hormonal contraceptives. All participants reported having knowledge of hormonal contraceptives. The knowledge of HC ranged from less than a year (13%), 2-5 years (31.3%), 6-9 years (16%), and 10 years and above (40%). The ease of use (30%) and affordability were, respectively
reported as considerations for choosing hormonal contraceptives. Other considerations included how the contraceptive works (21%) and side effects (20.2%) associated with the contraceptive. Participant’s knowledge of contraceptive safety revealed that the majority (81.1%) were knowledgeable of hormonal contraceptive safety, while about 19% were not aware if they were safe or not. The purpose of which contraceptives were used was reported to be prevention of pregnancy (50%) and family planning (43%). Oral contraceptives were reported to be the most common (34%) hormonal contraceptives known to participants. Other reported contraceptives were injectable (26%), implants (7.3%), vaginal ring (0.3%), and some (28%) chose more than one option. Further probing on the knowledge of participants on whether HC produces side effects, indicated that 86% believe they cause side effects with only 3.7% reporting that HC does not cause side effects. Finally, the participants reported that HC could be obtained from the pharmacy (35.4%), hospital (8.7%), and clinic (21%). Many (28%) respondents chose more than one source for contraceptives (Table 2).

Table 3 shows hormonal contraceptive practices among Belizean women aged 18–45. 87% of the women reported having used a hormonal contraceptive while 13.4% indicated not use hormonal contraceptives. Of the 13.4% who reported not using hormonal contraceptives, 9.2% stated concerns about side effects as the reason while 2.5% indicated they were not sexually active. Religious beliefs (0.5%), abstinence (0.5%), and postpartum tubal ligation (0.5%) were the other reasons given for not practicing contraception with hormones. Oral contraceptives were the major hormonal contraceptive reported (47%) by the participants, while prevention of pregnancy (58.4%) was the foremost reason given for hormonal contraceptive practice. Table 3 also presents data indicating that 64% of the women surveyed were at the time survey using hormonal contraceptives, with the majority (51.4%) indicating having been using contraceptives for 2-9 years. 77 percent of the respondents opined that hormonal contraceptives should be prescribed, while 23% indicated that they should access contraceptives without prescriptions.

### Table 3. Hormonal contraceptive practice (n=381)

| If participant used contraceptive before | Frequency | Percentage (%) |
|----------------------------------------|-----------|----------------|
| Yes                                    | 330       | 86.6           |
| No                                     | 51        | 13.4           |
| Reason for not using contraceptive (n=51) |           |                |
| Not sexually active                     | 10        | 19.6           |
| Concern about side effects             | 35        | 68.6           |
| Postpartum tubal ligation              | 2         | 3.9            |
| Religious belief                       | 2         | 3.9            |
| Abstinence                              | 2         | 3.9            |
| Type of contraceptive used             |           |                |
| Oral Pill                              | 178       | 46.7           |
| Injection                              | 80        | 21             |
| Emergency Contraceptive                | 20        | 5.2            |
| Implants                               | 15        | 3.9            |
| Vaginal ring                           | 7         | 1.8            |
| Female condom                          | 28        | 7.3            |
| None                                   | 2         | 0.5            |
| No response                            | 51        | 13.4           |
| Reason for using contraceptives         |           |                |
| Prevent pregnancy                      | 222       | 58.4           |
| Irregular menstruation                 | 29        | 7.6            |
| Skin condition                         | 51        | 13.5           |
| Irregular bleeding                     | 18        | 4.7            |
| Family planning                        | 1         | 0.3            |
| Other                                  | 8         | 2.1            |
| No response                            | 51        | 13.4           |
| How long since you have been using HC  |           |                |
| Less than 1 year                       | 94        | 24.7           |
| 2-5 years                              | 111       | 29.1           |
| 6-9 years                              | 85        | 22.3           |
| 10 years and above                     | 40        | 10.5           |
| No response                            | 51        | 13.4           |
| Currently using contraceptives         |           |                |
| Yes                                    | 244       | 64             |
| No                                     | 86        | 22.6           |
| No response                            | 51        | 13.4           |

### Table 4. Experience with contraceptives (n=381)

| Types of contraceptive used | Frequency | Percent (%) |
|------------------------------|-----------|-------------|
| Skip                         | 86        | 22.6        |
| Microgynon (oral)            | 55        | 14.4        |
| Diane 35 (oral)              | 26        | 6.8         |
| Femiane (                    | 15        | 3.9         |
| Microdot                    | 2         | 0.5         |
| Qlaira                       | 5         | 1.3         |
| Yasmin                       | 26        | 6.8         |
| Yaz (oral)                   | 24        | 6.3         |
| Novular                      | 1         | 0.3         |
| Noristerat (2-month inj)     | 11        | 2.9         |
| Depo Provera (3-month inj)   | 35        | 9.2         |
| Nomagest (inj)               | 7         | 1.8         |
| Mesigyna (inj)               | 11        | 2.9         |
| Implanon (sub dermal)        | 20        | 5.2         |
| Mirena (vaginal)             | 5         | 1.3         |
| Meexggest                    | 1         | 0.3         |
| No response                  | 51        | 13.4        |

| How HC was prescribed         | Frequency | Percent (%) |
|------------------------------|-----------|-------------|
| Prescribed                    | 284       | 74.5        |
| OTC                          | 45        | 12          |
| No response                   | 52        | 13.5        |

| Frequency of HC intake        | Frequency | Percent (%) |
|------------------------------|-----------|-------------|
| Regularly                    | 211       | 55.4        |
| Not regularly                | 117       | 30.7        |
| No response                  | 53        | 13.9        |

| Experienced side effects with HC | Frequency | Percent (%) |
|----------------------------------|-----------|-------------|
| Weight gain                      | 136       | 35.7        |
| Acne                             | 31        | 8.1         |
| Tiredness                        | 17        | 4.2         |
| Irregular bleeding               | 32        | 8.4         |
| Dizziness                        | 1         | 0.3         |
| Mood changes                     | 19        | 5           |
| Absence period                   | 28        | 7.4         |
| Bruising                         | 4         | 1.3         |
| No response                      | 113       | 29.7        |

| Response to side effects         | Frequency | Percent (%) |
|----------------------------------|-----------|-------------|
| Sought medical attention         | 133       | 35          |
| Sought Pharmacist advice         | 62        | 16.2        |
| Sought a friends/online counsel  | 65        | 17.1        |
| Stopped taking HC                | 70        | 18.3        |
| No response                      | 51        | 13.4        |

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Husaini DC (2020) Knowledge and practice of hormonal contraceptives among females aged 18-45 in 3 districts of Belize. Is prescription still a barrier to contraceptives?
Table 4 presents reported data on types of hormonal contraceptives used, if it was prescribed to the participants, frequency of intake, side effects experienced, and how participants responded to hormonal contraceptive side effects. As indicated in Table 3, most of the hormonal contraceptives used by the participants were oral pills. Some of the oral pills reported were Microgynon (14.4%), Diane 35 (6.8%), and Yasmin (6.8%). Depo Provera was the major injectable (9.2%) reported by the participants. Virginal (Mirera 1.3%) and sub-dermal (Implanon 5.2%) were also reported by the respondents. While the majority (75%) of the respondents reported obtaining contraceptives through prescription, 55.4% practiced hormonal contraception regularly. Approximately 70% experienced side effects such as weight gain (36%), irregular bleeding (8.4%), acne (8.1%), and absence of menstruation (7.4%) were all reported. Among those who reported experiencing side effects with hormonal contraception, 35% of them sought medical attention, 16.2% sought counselling from a pharmacist while 18.3% stopped taking the hormonal contraceptive.

Discussion

Knowledge and practices of hormonal contraceptives have continued to increase in both developed and developing countries globally. Even though the practice of hormonal contraceptive practice was high among youths, women of reproductive age generally use hormonal contraceptives for various reasons. No statistically significant variations in knowledge and practice of hormonal contraceptives were seen among the districts or ethnicities of the participants.

In the present study, the knowledge and practice of hormonal contraceptives was evaluated among women of reproductive age 18-45. The mean age of the participants 24 ± 0.9 years. The mean age of hormonal contraceptive users observed in this study was a good indication that younger women are actively involved in the use of hormonal contraceptives. Most reported studies on contraceptives targeted women between the ages of 15 and 49 [22]. Socioeconomic factors, religion, prevention of pregnancies or sexually transmittable diseases, educational and employment status, and access to contraceptive services are some of the factors that make women to seek contraceptives.

The results of our study showed that the majority of the participants were single (36%). Also, about 27% and 25% of the respondents were in a common law or marital relationship, respectively (Table 1). Previous studies [21] on unmarried women and unplanned pregnancies in the United States reported that women who have single partners are more likely to use contraceptives that are most effective, control the choice of contraceptive method used, and not likely to indulge in sex in combination with drugs. The study further stated that such unmarried women are more likely to indulge in unprotected sex. Almost half (49%, P < 0.05) of the respondents were Catholics. Multivariate logistic analysis of the independent effects (unadjusted) shows the odds of hormonal contraceptive usage among Catholics was 22.32 times higher than that of Pentecostals. Overall, religion did not seem to be a barrier to the use of hormonal contraceptives by women in the current study. Similar studies in other countries have shown religion as a factor influencing contraceptive use among women [22-24]. Respondents in the current study had attained a significant level of educational status, with the majority (64%) having a tertiary-level educational qualification. A significant association was seen among educated women with tertiary education when compared to women with secondary education. A woman with tertiary education had a 22% higher chance of using hormonal contraceptives than a woman with primary school education (AOR: 1.23, 95% CI: 1.12-1.32). Sex education in Belizean schools promotes the use of contraceptives more than abstinence. Education has been reported in many other studies as a marker for contraceptive usage [25-29].

With regard to the knowledge of contraceptives, about 98% of the respondents reported being knowledgeable about hormonal contraceptives; however, when asked about the types of contraceptives, 2% reported condoms (Table 2). This response was insignificant in terms of women unaware of hormonal contraceptives. The level of awareness of hormonal contraceptives seen in this study is in line with a recent study on family planning in the southern Belize [16]. The study reported that 87.2% of women were aware of injectable depot progesterone, while about 81% indicated knowledge of oral contraceptive pills. In the current study, about 47% of the women reported using oral pills, while 21% used the injectable (Table 3). This result is in line with a previous SIB's country-wide survey [1], where the survey reported 92% oral contraceptive use, while 88% and 85% use injectable contraceptives and condoms, respectively, in a country-wide survey. The media, family, school, or friends were the commonly reported sources of hormonal contraceptives information by the survey participants. The level of awareness of hormonal contraceptives in this study was seen to be high among the participants, the results corroborate similar studies both in Belize [16] and other countries [30]. Other studies have shown that women have poor or low knowledge of contraceptives among the population studied [31-33]. Similarly, the results of this study showed not only that women have knowledge of contraceptives, but also that women demonstrated having a good knowledge of the hormonal contraceptives available in the market. Some of the respondents reported being familiar with both oral pills (34%), injections (26%), and implants (7%).

The results of our study further showed that in addition to being knowledgeable about hormonal contraceptives. The reasons given by respondents for using hormonal contraceptives are in line with previously reported studies [22-24]. Prevention of pregnancy (58%), irregular menstruation (12.3%), and skin conditions (16%) were reported by the respondents (Table 3). The respondents obtained their contraceptives through prescriptions (75%) and regularly (55%) use contraceptives (Table 4). Only a few (12%) reported obtaining their hormonal contraceptives over the counter. The results of this study, therefore, did not show prescription as a barrier to accessing hormonal contraceptives in Belize. This is contrary to the position of the American College of Gynecologist as well as other reports in support of their position that women prefer to access the hormonal contraceptives over the counter as compared to using prescriptions7. Although increased access provides continuation rates as compared to prescription only access, the participants of the current study did not report prescription as a barrier to access [7]. Without ease of access to hormonal contraceptives, unintended pregnancies and sexually transmittable diseases will increase public health concerns [10,11,34,35]. A direct relationship therefore exists between contraceptive use and reduction in maternal and infant mortality. The increased access rate seen in this study could be attributed to the high literacy level of respondents as well as the advocacy of contraceptive use in schools.

Out of the about 47% of the women who reported using oral contraceptives also indicated provided the names of oral contraceptives they use: Microgynon (14%), Diane 35(7%), Femiane (4%), Yasmin (7%), and Yaz (6%) were some of the oral contraceptives mentioned by the respondents (Table 4). The common injectable hormonal contraceptives mentioned by the participants included Depo Provera (9%), Noristerat (3%), Nomagest (2%), and Mesigyna (3%). The
knowledge of hormonal contraceptives by the participants could make it possible for them to access the contraceptives directly over the counter, thereby overcoming the barriers of a prescription. Only about 23% of the women interviewed did not remember the names of the hormonal contraceptives they were currently taking.

Side effects with contraceptives have been reported as a major cause of contraceptive stoppages. Contradiction with our findings, reports from other countries indicate that women stopped the use of contraceptives when they experienced side effects. In Nepal, for instance, more than 50% of women studied stopped using contraceptives within 12 months of usage. Similarly, 22.3% of women using over the counter oral contraceptives reported side effects as compared with 30.4% of women who attended clinics, as reported by the Border Contraceptive Access Study. Equally in Columbia, 51% of over-the-counter contraceptive users and 44.4% of clinic contraceptive users both reported side effects in the use of oral contraceptives. The results of our survey showed that 70% of the women experienced side effects with hormonal contraceptives. Weight gain (36%) was the most common side effect experienced by the participants. None of the respondents reported more serious side effects, such as thromboembolism or thrombophlebitis. Additionally, respondents did not stop using contraceptives because of side effects; rather, they sought some professional counsel. Only 18% of the survey participants stopped using contraceptives because of side effects (Table 4). The level of education of the participants in this study and the level of hormonal advocacy in schools was probably associated with the level of contraceptive use in the current study. Providing a high level of education regarding contraceptives and their side effects to women have shown that such women are likely going to continue using contraceptives despite their side effects.

Finally, the results of this study showed that 13% of women did not use hormonal contraceptives. Concerns about side effects, not sexually active, postpartum tubal ligation, religious beliefs, and abstinence were the reasons given for not using contraceptives.

Conclusion

Hormonal contraceptives have been used to prevent unwanted pregnancies, decrease maternal and infant morbidity, and mortality and enhance women productivity. Access to hormonal contraceptives improves continuity in usage and reduces the negative consequences that arise when they are not accessed.

In this study, women had access to contraceptives with prescriptions and did not consider obtaining contraceptives with a prescription as a barrier to access. The participants of the study also had remarkable knowledge about hormonal contraceptives, their names, and side effects. The study participants had tertiary-level education as their measure of literacy status. The possible explanation for the high knowledge and practice seen in this study could be attributed to the high advocacy of contraceptives in Belize's schools and the literacy levels of the participants. Despite being knowledgeable about contraceptive side effects, participants still use contraceptives as a measure for preventing pregnancies. The religion of the participants did not seem to present a barrier to contraceptive usage in this survey.

From the results of current study, we recommend that advocacy for contraceptives use and safety be sustained in Belize's schools as well as other media. Although prescription was not seen to be a barrier to accessing contraceptives, a framework to cater to the needs of those who see prescription as a barrier need to be articulated to ensure access and improve consistency in contraception. The American College of Gynaecologists recommended Pharmacists—provided over the counter access to hormonal contraceptives while encouraging women to intermittently submit themselves to health checks at the hospitals.

Finally, even though the side effects reported by the respondents in this study did not include thromboembolism and other cardiovascular complications, a study investigating the cardiovascular status of women on hormonal contraceptives should be conducted, especially in women of advanced age. A nationwide study on contraceptive use has been overdue since the last accessed report was from 1999.

Limitations

Many casual relationships could not be established because the study employed a cross-sectional study as the design for the survey. Additionally, recall bias such as over-reporting or under-reporting might be a limitation since the study was self-reported. Despite these limitations, we believe that this study has its strengths. To the best of our knowledge study on hormonal contraceptives at the chosen districts have not been conducted in recent times. Also, since the study was to evaluate the knowledge, practice, and access to hormonal contraceptives, we believe the results of this study have achieved the said objectives of the study. The study results however cannot be generalized to all women in the country of Belize, hence the need for a nation-wide study on contraceptive use in the country of Belize.

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