Original Article

Contraceptive Method Usage Pattern and Percentage of New Pregnancies Among Adolescent and Young Adult Family Planning Patients: A Mixed-Methods Retrospective Study

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ABSTRACT

Objectives: Despite increased access to contraceptive methods (CM), the United States still has the highest rate of adolescent pregnancy among industrialized nations, and adolescents from historically marginalized groups are disproportionately affected. In this study, we sought to (1) understand if differences in CM usage were associated with differential percentages of new pregnancies among adolescents and young adult patients attending a family planning (FP) clinic at an urban community practice and (2) identify areas of improvement in our FP counseling.

Methods: Mixed-methods study design consisting of (1) a 12-month retrospective chart review and (2) a self-answered cross-sectional survey of FP patients. Chi-square, Fisher's exact tests, and risk ratio were performed to analyze the percentage of new pregnancies according to CM usage.

Results: The percentage of new pregnancies was 11 among our FP patients (N = 555) during this study period. As anticipated, pregnancy was associated with no CM use, CM discontinuation, and, interestingly, multiple CM changes ($P < .001$). The probability of no-pregnancy significantly decreased among patients on no method, who discontinued their CM or made multiple CM changes compared to those with continuous CM use. There was no association between the percentage of new pregnancies and any particular CM type.

Conclusion: Despite adequate access to FP patient services and high patient satisfaction levels, our findings indicate a need to adopt a more patient-centered approach in our FP counseling that addresses patient's reproductive life plans, preferences, and method side effects to increase CM uptake and satisfaction and decrease frequency of CM changes which is associated with increased risk of mistimed pregnancy during method switching.

Key Words: Mistimed pregnancy, Reproductive life plan, Shared decision-making

Introduction

Nearly 1 in 2 pregnancies (45%) in the United States are unintended or mistimed.[1] Although the US teen (15-19 years old) birth rate fell to 13.5 per 1000 in 2022, the lowest in decades, it remains the highest among industrialized nations.[1,2] Disparities persist, adolescents and young adults (AYAs) of historically marginalized groups such as low-income individuals, people of color and those with non-conforming sexual orientation gender identity or expression (SOGIE) experience higher rates of unplanned pregnancy, morbidities, and birth-related mortality than their counterparts.[2,3] In 2019, the maternal death rate in the United States was estimated at 12.6 per 100,000 live births among those under the age of 25.[4] Many young parents and their children experience significant physical, mental health, and financial burdens over their lifetimes, having to rely on public assistance for their unmet needs, resulting in $11 billion in public health care costs annually.[5] Nonetheless AYAs face multiple challenges accessing contraceptive methods (CM) partly due to financial limitations and fear of stigma and mistreatment among those who have been historically marginalized due to their race, religion, or SOGIE.[6-8] National policies such as the Affordable Care Act and Title X and clinical guidelines that emphasize confidential reproductive care have increased AYA's access to CM and contributed to the decline in the US teen birth rate.[9] Additionally, the American Academy of Pediatrics (AAP) recommends a patient-centered approach in contraceptive counseling that focuses on patient preferences and reproductive life plan goals, to promote CM uptake among AYA.[10] However, amidst these recommendations and increased availability of CMs, inconsistent use and nonuse of contraception remain key contributing factors to teen pregnancy.[9] AYAs may forego or discontinue a CM due to misconceptions or fear of side effects.[11] Only 39% of sexually active adolescents report CM use at the time of their last sexual encounter.[12] Of these, a small minority (5.8 %) use long-acting reversible contraceptive (LARC) methods, which are safe and effective CMs to prevent unintended pregnancy

Abbreviations: AYA, adolescent and young adult; AAP, American Academy of Pediatrics; CM, contraceptive method; FP, family planning; LARC, long-acting reversible contraceptive; SAM, short acting methods; SOGIE, sexual orientation gender identity or expression.

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among AYA.[10,12] The majority uses short-acting methods (SAMs), which are associated with a higher user failure rate due to inconsistent use.[9,10,12]

In this study, we sought to assess the percentage of new pregnancies among a population of AYA cared for in an urban community pediatrics clinic—with a mission to improve healthcare access and quality FP services to AYA from historically marginalized communities—and to understand if different CM use among AYA receiving FP services at our clinic was associated with differential percentage of new pregnancies. Our goal was to identify areas of improvement in our FP counseling.

Methods

Setting and Participants

The study was conducted in an academic-affiliated pediatrics primary care practice in a low-income neighborhood of Boston. It is Title X funded, which allows the clinic to have a full-time bi-lingual family planning counselor (FPC) on staff and provide confidential reproductive health services and free contraceptive methods, among other services, for patients ages 13-25 able to consent for this service. Per Massachusetts state law, parental consent is not required for adolescents under the age of 18 seeking contraceptive services, nor is it required to receive family planning services under Title X. Additional clinic staff includes 8 pediatricians, 3 nurse practitioners, 12 pediatric resident physicians, 9 nurses, and 15 administrative assistants. It serves approximately 7800 unique patients—who completed at least one annual physical visit over the last 2 years—from birth to 25 years of age; 65% of its population is of Latino heritage, 15% is black non-Hispanic, and 80% are Medicaid-insured. Study participants were 13-25 years old, identified as cis-gender females, and able to consent to FP services. They must have received FP counseling in our clinic at least once during our study period (SM 1).

Study Design

We carried out a mixed-methods study design consisting of (1) a 12-month retrospective chart review of all FP visits to assess FP patients' CM usage patterns and percentage of new pregnancies from May 1, 2016 to April 30, 2017 and (2) a 3-part self-answered tablet-based cross-sectional survey on a subset of FP patients to assess: FP patients' demographics and pregnancy history, FP counseling satisfaction, and CM knowledge (method effectiveness, use, benefits, and side effects), designed based on the Quality Family Planning Guidelines.[13] The survey was available in English and Spanish. After confirming eligibility criteria (with the FPC and participants' electronic health record), a bilingual research assistant (S.G.) approached eligible patients in the examination room about their family planning visit encounter, described the study, obtained verbal consent, and provided participants with the survey. No one was excluded due to a language barrier. Survey participation was voluntary and took approximately 10 minutes. No financial compensation was provided for survey participation.

Variables

Our primary outcome measure was the percentage of new pregnancies among FP patients during the 12-month study period. A pregnancy was counted if the first positive pregnancy test occurred during the study period.

Our exposure variable was CM use, defined as any one of the following usage patterns among FP patients during the study period: (1) CM initiation (patients who were not on any CM at the start of our observation), (2) CM continuation, (3) CM change, (4) CM discontinuation, (5) no CM choice (patients who did not select a CM after FP counseling), and (6) abstinence. CM included LARCs (hormonal implants, intrauterine devices (IUD)) and short-acting methods (transdermal patches, oral contraceptive pills, vaginal rings, hormonal injections, and male condoms). Changes in CM formulations (ie, copper vs hormonal IUD) were not addressed. Similarly, changing between 2 different formulations of the same CM type did not qualify as a method change.

For our predictor variables, race and ethnicity data included 4 categories: Hispanic or Latino, White Non-Hispanic, Black Non-Hispanic, and unknown or declined (Native Indian or Alaskan Native and Asian were not reported in our observations). We assessed the poverty level based on whether the FP patient's family income was above or below the Federal poverty threshold. Primary health insurance coverage included private, public, and uninsured categories. Primary language among patients with limited English proficiency included 3 categories: English, Spanish, and other.

Data Sources

Chart review data were collected from our FP database and cross-checked with patient FP visit notes, pregnancy test results, and medication lists as documented in their electronic records. To conduct our survey, we used an online survey application (SurveyMonkey Inc., San Mateo, California), and the answers were stored in a secure database without personal identifiers.

Study Size

We accessed 1035 FP visit notes, and identified 555 unique AYA patients who sought family planning services, and completed at least one FP visit from May 1, 2016, to April 30, 2017. A convenience sample of 50 FP patients completed the survey portion of our study.

Statistical Methods

We used descriptive statistics to describe participant demographic characteristics, CM usage, pregnancy, and survey responses. We used frequency/proportion for categorical data and median and interquartile range for continuous data. We performed chi-square and Fisher's exact tests to analyze the percentage of new pregnancies as a binary outcome according to participant demographic characteristics, CM type, and usage patterns before pregnancy. We could

Table 1
Demographics and Number of Patients With a Positive Pregnancy by Contraceptive Method Usage Pattern.

	All Family Planning Patients (N = 555)	Continuous method usage (N = 240)	Inconsistent method usage (N = 214)	Abstinence (N = 54)	No Method (N = 47)	*P* Value
Age						
Median (IQR)	19 (17, 22)	19 (17, 22)	20 (18, 22)	14 (13, 16)	21 (18, 23)	**<.001**
Race and Ethnicity						
Hispanic or Latino	485 (87%)	213 (44%)	183 (38%)	45 (9%)	44 (9%)	.111
Black Non-Hispanic	64 (12%)	24 (38%)	30 (47%)	7 (11%)	3 (5%)	
White Non-Hispanic	4 (1%)	3 (75%)	1 (25%)	0 (0%)	0 (0%)	
Unknown/Declined to State	2 (0%)	0 (0%)	0 (0%)	2 (100%)	0 (0%)	
Poverty Level (% of Federal Poverty Level)						
100% and below	534 (96%)	228 (43%)	207 (39%)	54 (10%)	45 (8%)	.352
Over 100%	21 (4%)	12 (57%)	7 (33%)	0 (0%)	2 (10%)	
Primary Health Insurance						
Private Insurance	68 (12%)	31 (46%)	24 (35%)	5 (7%)	8 (12%)	.817
Public Insurance	440 (79%)	185 (42%)	174 (40%)	45 (10%)	36 (8%)	
Uninsured	47 (8%)	24 (51%)	16 (34%)	4 (9%)	3 (6%)	
English Language Proficiency						
Proficiency	533 (96%)	232 (44%)	203 (38%)	52 (10%)	46 (9%)	.754
Limited Proficiency	22 (4%)	8 (36%)	11 (50%)	2 (9%)	1 (5%)	
Primary Language of patients with Limited English Language Proficiency*						
English	2 (9%)	0 (0%)	2 (100%)	0 (0%)	0 (0%)	.676
Spanish	19 (86%)	8 (42%)	8 (42%)	2 (11%)	1 (5%)	
Other	1 (5%)	0 (0%)	1 (100%)	0 (0%)	0 (0%)	
Positive pregnancy test	59 (11%)	0 (0%)	36 (61%)	0 (0%)	23 (39%)	**<.001**

Continuous method usage (N = 240) includes CM continuation (N = 197) and same-day CM change (N = 43) participants. Inconsistent method usage includes CM initiation (N = 97), CM discontinuation (N = 26), and multiple CM changes (N = 91) participants.
Bold values reflect statistically significant observations consistent with a P value <0.05.
* Among patients with limited English proficiency.

not estimate the odd ratio of pregnancy according to the CM usage pattern because the event of pregnancy was zero in the continuous CM group, our reference group, and it did not fit a logistic regression model. Instead, we use the risk ratio to estimate the probability of no-pregnancy according to CM usage patterns. All analyses were conducted with SAS version 9.4 (SAS Institute, Cary, NC), with $P < .05$ considered statistically significant. No statistical analyses were performed to describe survey data due to the small number of survey participants (N = 50).

The hospital's Institutional Board of Review exempted the project from review as an initiative with a primary objective of quality improvement.

Results

Retrospective Chart Review

Table 1 provides a descriptive summary of FP patients' demographic and contraceptive method usage patterns. In this cohort (N = 555), 54% (N = 300) of FP patients were on a CM they selected before the study period, while 28% (N = 154) initiated a new CM, 8% (N = 47) chose no CM method, and 10% (N = 54) reported abstinence. A detailed flow diagram of the FP CM usage pattern is provided in SM1. In total, 16% (N = 91) of FP patients made more than one CM change (SM1). In this group, the average number of CM changes per FP patient was 3, ranging from 2 to 7 CM changes per FP patient over 12 months.

After excluding patients who made multiple CM changes, we examined the type of CM selected. We found that about 80% (N = 270) of patients (N = 337) elected a SAM in contrast to 20% (N = 67) who chose a LARC method. When looking at method discontinuation or same-day method change, we found that a majority of FP patients in this group (N = 69) discontinued or changed a SAM, 78% (N = 54) vs 22% (N = 15) who discontinued a LARC method. Patients who made multiple CM changes were analyzed as a separate group. However, we noted a similar preference for SAMs in contrast with LARCs in this group.

We observed 60 pregnancies among 59 patients. The percentage of new pregnancies was 11% in this cohort (N = 555). The median age for positive pregnancy was 21 years old (IQR, 19-23) in the positive pregnancy group. Other than age, we found no significant difference between patients' demographics and pregnancy outcomes (data not shown). When looking at the CM usage patterns among FP patients within the months that preceded a pregnancy, we found that 27% (N = 16) had discontinued their CM, 18% (N = 11) made multiple CM changes, and 55% (N = 33) elected no method (Table 2). No pregnancy was reported among FP patients with continuous method or those who made only one CM change on the same day. The frequency of pregnancy was significantly associated with inconsistent CM usage patterns (method discontinuation, multiple CM changes) and no method usage ($P < .001$) (Tables 1 and 2).

In addition, we found that the probability of no-pregnancy was significantly decreased among patients who made multiple CM changes [RR 0.88; 95% CI, 0.81-0.95, $P < .001$], discontinued their CM [RR 0.38; 95% CI, 0.24-0.63, $P < .001$], and those who were on no method [RR 0.42; 95% CI, 0.31-0.57, $P < .001$] in comparison to those with continuous CM use (Fig. 1). We found no association between the percentage of new pregnancies and discontinuation of any specific CM type before pregnancy ($P = .29$, data not shown).

Patient Survey

A total of 50 participants completed the survey. Respondent ages ranged from 15 to 25 years old, with an aver-

Table 2
Demographics and Number of Positive Pregnancies by Contraceptive Method Use Patterns Present Prior to Positive Pregnancy Test vs Continuous Method Usage.

	Continuous Method Usage (N = 240)	Discontinue a Contraceptive Method (N = 26)	Make More Than One Change to Contraceptive Method (N = 89)	No Method (N = 57)	*P* Value
Age					
Median (IQR)	19 (17, 22)	21 (19, 23)	20 (18, 22)	21 (17, 22)	.0578
Race and Ethnicity					
Hispanic or Latino (N = 361)	213 (59%)	18 (5%)	78 (22%)	52 (14%)	.124
Black Non-Hispanic (N = 47)	24 (51%)	8 (17%)	10 (21%)	5 (11%)	
White Non-Hispanic (N = 4)	3 (75%)	0 (0%)	1 (25%)	0 (0%)	
Unknown/Declined to State (N = 0)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Poverty Level (% of Federal Poverty Level)					
100% and Below (N = 392)	228 (58%)	26 (7%)	83 (21%)	55 (14%)	.647
Over 100% (N = 20)	12 (60%)	0 (0%)	6 (30%)	2 (10%)	
Primary Health Insurance					
Private Insurance (N = 56)	31 (55%)	5 (9%)	12 (21%)	8 (14%)	.875
Public Insurance (N = 321)	185 (58%)	20 (6%)	70 (22%)	46 (14%)	
Uninsured (N = 35)	24 (69%)	1 (3%)	7 (20%)	3 (9%)	
English Language Proficiency					
Proficiency (N = 394)	232 (59%)	24 (6%)	82 (21%)	56 (14%)	.153
Limited Proficiency (N = 18)	8 (44%)	2 (11%)	7 (39%)	1 (6%)	
Primary Language for patients with Limited English Language Proficiency*					
English (N = 1)	0 (0%)	0 (0%)	1 (100%)	0 (0%)	.451
Spanish (N = 16)	8 (50%)	2 (13%)	5 (31%)	1 (6%)	
Other (N = 1)	0 (0%)	0 (0%)	1 (100%)	0 (0%)	
Positive pregnancy test (N = 60)	0 (0%)	16 (27%)	11 (18%)	33 (55%)	**<.0001**

Contraceptive method use patterns present prior to a positive pregnancy test include CM discontinuation (N = 26), multiple CM changes (N = 89), and no method (N = 57). Continuous method usage (N = 240) includes CM continuation (N = 197) and same-day CM change (N = 43).
Bold values reflect statistically significant observations consistent with a P value <0.05.
* Among patients with limited proficiency.

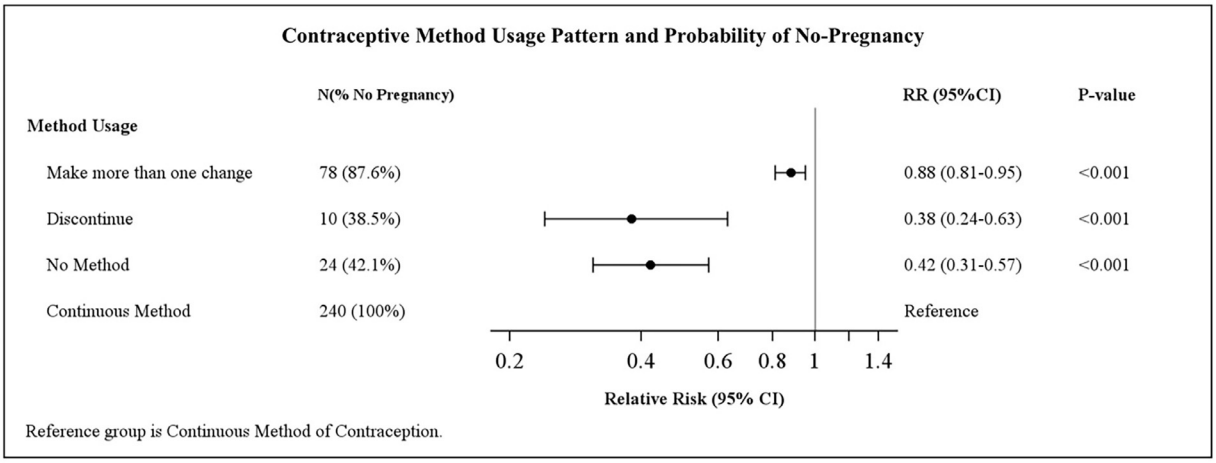

Fig. 1. Forest plot showing the probability of No-Pregnancy according to contraceptive method usage patterns. We use risk ratio to estimate the probability of no-pregnancy according to contraceptive method usage patterns. Contraceptive method use patterns associated with the outcome of pregnancy: CM discontinuation (N = 26), multiple CM changes (N = 89), and no method (N = 57). Continuous method usage (N = 240) includes CM continuation (N = 197) and same-day CM change (N = 43).

age of 20.68 years; 88% (N = 44) identified as Hispanic or Latina, and 16% (N = 8) as Black or African American (Table 3a). An overwhelming majority reported being satisfied with their FP counseling experience and CM choice (98% and 90%, respectively) (Table 3b). When surveyed about their pregnancy history, 40% (N = 20) reported having been pregnant at least once, 75% (N = 15) of which acknowledged their pregnancy was unplanned. While 60% (N = 30) of patients reported no prior history of pregnancy, 47% (N = 14) said they had experienced a concern that they could have been pregnant at least once (Table 3a). Additionally, the survey revealed knowledge gaps regarding CM efficacy. For example, 44% (N = 22) and 26% (N = 13) of the survey respondents correctly identified IUD and hormonal implants as the most effective CM to prevent pregnancy, and 68% (N = 34) identified condoms instead. Participants were allowed to choose multiple answers to this question (Table 3c).

Discussion

In this study, we aimed to assess whether differences in CM usage patterns were associated with differential percentages of new pregnancies and identify areas of improvement in our FP services.

Table 3
Family Planning Patient Survey Demographics and Responses (n = 50).

3a. Survey Participants' Characteristics and Pregnancy History (n = 50)

Characteristics	All survey participants (N=50)	Survey participants with positive history of pregnancy (N=20)
Age		
15-19 Years	19 (38%)	1 (1%)
20-25 Years	31 (62%)	19 (61%)
Race/Ethnicity*		
Hispanic or Latina	44 (88%)	17 (39%)
Non-Hispanic or Latina	6 (12%)	3 (50%)
Black or African American	8 (16%)	3 (38%)
Level of Education		
Middle School	4 (8%)	1 (25%)
Some High School	10 (20%)	4 (40%)
High School Diploma/GED	18 (36%)	10 (56%)
Some College	13 (26%)	2 (15%)
2-Year College Degree (AA/AS)	3 (6%)	3 (100%)
4-Year College Degree (BA/BS)	2 (4%)	0 (0%)
Pregnancy history		
Planned Pregnancy	5 (10%)	5 (25%)
Unplanned Pregnancy	15 (30%)	15 (75%)
Experienced concern that they may be pregnant*	14 (28%)	N/A

3b. Survey Participant Satisfaction With Family Planning Services (n = 50)

		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
My provider explained my birth control options in a way that I could understand.	All Patients (N = 50)	44 (88%)	6 (12%)	0	0	0
	Have been pregnant (N = 20)	18 (90%)	2 (10%)	0	0	0
My provider answered my questions about birth control.	All Patients (N = 50)	45 (90%)	5 (10%)	0	0	0
	Have been pregnant (N = 20)	18 (90%)	2 (10%)	0	0	0
My provider gave an explanation of the possible side effects of the birth control methods.	All Patients (N = 50)	44 (88%)	6 (12%)	0	0	0
	Have been pregnant (N = 20)	17 (85%)	3 (15%)	0	0	0
I am happy with the birth control method that I got today.	All Patients (N = 50)	35 (70%)	10 (20%)	4 (8%)	0	1 (2%)
	Have been pregnant (N = 20)	13 (65%)	3 (15%)	3 (15%)	0	1 (5%)
I was able to choose the method of birth control I wanted.	All Patients (N = 50)	43 (86%)	6 (12%)	1 (2%)	0	0
	Have been pregnant (N = 20)	17 (85%)	2 (10%)	1 (5%)	0	0
I am happy with my overall experience today.	All Patients (N = 50)	41 (82%)	8 (16%)	1 (2%)	0	0
	Have been pregnant (N = 20)	17 (85%)	2 (10%)	1 (5%)	0	0

3c. Survey Participant Contraceptive Method Knowledge (n = 50)

	All Patients (N = 50)	Have Been Pregnant (N = 20)
Which TWO of the following methods work the BEST to prevent unwanted pregnancy?		
Pull out method	1 (2%)	1 (5%)
Condoms	34 (68%)	12 (60%)
Patch	5 (10%)	3 (15%)
Pill	19 (38%)	8 (40%)
IUD	22 (44%)	9 (45%)
Ring	7 (14%)	3 (15%)
Nexplanon/Implant	13 (26%)	5 (25%)
Which TWO of the following methods are the LEAST effective at preventing unwanted pregnancy?		
Pull out method	41 (82%)	15 (75%)
Condoms	21 (42%)	10 (50%)
Patch	10 (20%)	4 (20%)
Pill	11 (22%)	4 (20%)
IUD	5 (10%)	1 (5%)
Ring	9 (18%)	3 (15%)
Nexplanon/Implant	3 (6%)	3 (15%)
For which of the following methods do you need to have a prescription and need to pick it up at the pharmacy? Choose all that apply.		
Pull out method	2 (4%)	0 (0%)
Condoms	4 (8%)	0 (0%)
Patch	15 (30%)	8 (40%)
Pill	37 (74%)	14 (70%)
IUD	9 (18%)	2 (10%)
Ring	10 (20%)	4 (20%)
Nexplanon/Implant	13 (26%)	6 (30%)
Spermicide	8 (16%)	2 (10%)
Which of the following methods requires a one-time insertion and lasts for 3 years?		
Nexplanon/Implant	42 (84%)	16 (80%)

(*continued on next page*)

Table 3 (*continued*)

3c. Survey Participant Contraceptive Method Knowledge (n = 50)		
	All Patients (N = 50)	Have Been Pregnant (N = 20)
Pill	1 (2%)	1 (5%)
Shot	7 (14%)	3 (15%)
If you were to use one of the following methods, which one could be visible to someone other than yourself?		
Patch	31 (62%)	10 (50%)
Shot	6 (12%)	2 (10%)
Nexplanon/Implant	9 (18%)	5 (25%)
Ring	0 (0%)	0 (0%)
IUD	4 (8%)	3 (15%)
Up to how many days after unprotected sex can plan B or emergency contraception be used to prevent an unwanted pregnancy?		
Same day	21 (42%)	13 (65%)
Within 3 days	26 (52%)	9 (45%)
Within 5 days	16 (32%)	4 (20%)
Within a week	4 (8%)	1 (5%)
Within 2 weeks	2 (4%)	1 (5%)
Which method is the most effective to protect against STDs?		
Nexplanon/Implant	1 (2%)	1 (5%)
Patch	1 (2%)	1 (5%)
Condoms	46 (92%)	17 (85%)
Pull out method	2 (4%)	1 (5%)

* Only asked of participants with no pregnancy history (n = 30).

Despite survey respondents reporting satisfaction with their counseling experience and CM choice, we noted a high rate of unplanned pregnancy and gaps in CM knowledge in this group. Pregnancy outcome was associated with inconsistent CM usage patterns in contrast to continuous CM use, regardless of any specific CM type. Interestingly, about one-fifth of FP patients who became pregnant during our study period made multiple CM changes within the months before becoming pregnant. We suspect the decreased probability of no-pregnancy among patients who made multiple CM changes in this study to be attributed to increased periods without CM protection in between method changes. This is an important observation, as it implies that patients who made multiple CM changes and became pregnant were probably not actively seeking to become pregnant but became pregnant in the process of changing their contraceptive methods. Although this association remains largely underinvestigated, it emphasizes the importance of assessing AYA reproductive life plan goals and counseling patients appropriately to minimize the frequency of method interruption.

Limitations

We do acknowledge several limitations to our study. While our chart review informed us of CM usage patterns among our FP patients, it did not account for patients' intention to conceive—although a small fraction of our survey participants did report their pregnancy was intended—which may be more common among AYA in some communities due to cultural norms or the perception of premarital birth as a path to adulthood.[14-16] Nor did our study address the timing of a desired pregnancy or the reasons for no CM choice or CM change, such as undesirable side-effects (ie, breakthrough bleeding, weight gain) or personal circumstances (ie, change in romantic relation), which reflect a gap in our FP visit note documentation and counseling approach. Furthermore, although LARC method options have been integral to our FP counseling, our clinic did not offer LARC insertion on-site during our study period. LARC placement required a referral to another facility—we did not have access to their visit record—which may have affected its uptake among our patients. Finally, we recognize this was a single-site cross-sectional study in a predominantly Hispanic population, with the primary goal of serving as a needs assessment for our setting. Thus, our sample size was not powered to detect significant racial differences in CM usage, and our survey participants represented only 10% of our FP population, limiting the generalizability of our findings.

Although our chart review indicates that most positive pregnancies occurred among young adults—which may reflect a difference in life planning from adolescence to young adulthood—25% occurred among teenagers. We suspect that most young adults who reported a history of positive pregnancy in our survey could have been teenagers at the time it happened since the survey captured all-time pregnancy history. Nevertheless, most pregnancies in this study occurred among FP patients who actively sought a CM within the months prior or acknowledged it was unintended, regardless of age.

These findings suggest that despite adequate access to FP services and high patient satisfaction, many AYAs in our practice do not have control over their reproductive life plan. Inconsistent method usage may be attributed partly to knowledge gaps, such as possible side effects and misconceptions upon method selection, but also a lack of patient-centeredness in our counseling strategies, leading to dissatisfaction, method discontinuation, multiple CM changes, or no CM choice.

Several studies have shown fear or bothersome side effects leading to decreased use of contraceptives and disparities in knowledge by race/ethnicity and age, with individuals of Hispanic descent and adolescents having lower

knowledge about contraceptive methods.[11,17-19] Therefore, it is essential to identify developmentally and culturally appropriate counseling strategies to improve CM uptake and usage patterns in the AYA population, inclusive of those with nonconforming SOGIE, as the risk of unintended pregnancy in this population is twice as high compared to their heterosexual counterparts.[3] Given the broad indications for contraceptives, clinicians should also discuss contraceptive options as well as noncontraceptive benefits (ie, menstrual suppression) to improve health outcomes, including mental health, in this vulnerable population.[3]

Conclusion

Addressing reproductive life plan goals, personal preferences, and CM knowledge during counseling could improve awareness of side effects and method satisfaction and thus reduce CM changes, risk of mistimed pregnancy, and associated child and maternal co-morbidities and mortality rate.[4,5,9,10] There is evidence that shared decision-making (SDM)—the process of eliciting patient treatment choices based on personal values, decision autonomy, and evidence-based knowledge—improves patients' knowledge, satisfaction, and adherence to treatment regimens in a variety of settings, including contraceptive counseling among adult women.[20-22] However, it has been poorly studied in the AYA population.[9] Future research should seek to rigorously evaluate how SDM aids can best support a patient-centered approach in contraceptive counseling among AYA-assigned females at birth across a diverse spectrum of race and SOGIE and assess its effect on CM choice, usage pattern, health outcomes, and associated disparities according to individuals' reproductive life plan and preferences.[23]

Author Statement

The findings of this study have not been the subject of prior publication.

Conflicts of Interest

The Authors have no financial or conflict of interest to disclose. The authors confirm that they did not use generative artificial intelligence, nor did they use assisted technologies for this manuscript.

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Supplementary materials

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