Increasing Contraception Knowledge to Decrease Unintended Pregnancies

Katherine C. Goodloe

Edson College of Nursing and Health Innovation, Arizona State University

Author Note

Katherine C. Goodloe is a graduate student at the Edson College of Nursing and Health Innovation at Arizona State University. She is currently a Registered Nurse at Banner University Medical Center-Phoenix.

I have no known conflict of interest to disclose.

Correspondence concerning this article should be addressed to Katherine C. Goodloe, Edson College of Nursing and Health Innovation, Arizona State University, 550 N. 3rd Street, Phoenix, AZ 85004 email: kgoodlo1@asu.edu

Abstract

Women suffering from substance use disorder have higher incidences of unintended pregnancies compared to the general population (Hurley et al., 2023). Unintended pregnancies strain the healthcare system and place stress on the mother and fetus. Inaccurate reproductive healthcare knowledge and insufficient use of reliable contraceptives are at the forefront of this problem. The project goal was to assess if increasing contraception knowledge increased desire to obtain contraception among women with substance use disorder. This project took place at a female residential treatment facility. The Contraception Knowledge Assessment (CKA) tool was used to assess contraception knowledge before and after an education session. A presentation was created and delivered to all residents. The presentation included information on stages of the menstrual cycle, how conception takes place, how different substances affect pregnancy, and birth control options. 43 residents qualified under the inclusion criteria and completed the pre-CKA and post-CKA. Intellectus statistical software was used to run a paired t-test to evaluate the contraception knowledge of the participants, comparing the pre-CKA to post-CKA. The results of the paired *t*-test were significant based on α=.05, $t(42) = -8.00$, $p < .001$. The participants were also polled regarding interest in obtaining future contraception. Pretest showed 37.21% of participants were interested, which increased to 44.19% in the post-test. Patient-centered contraception counseling within a substance use treatment facility has the potential to decrease unintended pregnancy rates. By increasing knowledge and encouraging reproductive autonomy, women are empowered to make family planning choices that align with their recovery and enhance their success in sobriety.

Keywords: women, substance use disorder, opioid use disorder, contraception, family planning, long-acting reversible, peer-support, empowerment

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Women of childbearing age in treatment for substance use disorder (SUD) may have unmet reproductive healthcare needs and face a greater risk for poor outcomes such as relapse or unintended pregnancies. Reproductive healthcare can have a major impact on women and how they progress through treatment and recovery. Education regarding reproductive healthcare is often lacking in treatment facilities which places these women at a disadvantage. While family planning may not be a priority for treatment programs, reproductive health education offered during substance use treatment may reduce unplanned pregnancies and improve the lives and outcomes of the women seeking treatment.

Problem Statement

An unintended pregnancy is either unwanted or mistimed. Rates of unintended pregnancies have declined in recent years but still account for 41.6% of all pregnancies in the United States (Rossen et al. 2023). The frequency of unintended pregnancies increases with substance abuse to 65-90% of pregnancies among women with SUD (Charron et al., 2022). Unintended pregnancies can result from contraception failure, incorrect use of the chosen method, or the lack of any form of contraception. It is estimated that only 55% of women with SUD use contraception and the main method of choice is condoms (Charron et al., 2022; Terplan et al., 2015). While condoms are important in preventing the spread of HIV and other sexually transmitted infections, they are not the most effective method when it comes to preventing pregnancy. Assessing overall contraceptive use and providing education regarding the most effective methods such as long-acting reversible contraception (LARC) with an intrauterine device (IUD) or subdermal implant, should be a vital part of substance use disorder treatment.

Purpose and Rationale

The impact of an unintended pregnancy not only affects the mother but also the child. Substance dependency is often intertwined with low socioeconomic status, poor nutrition, family instability, homelessness, and psychosocial problems (Heil et al., 2011). Women who carry unintended pregnancies are more likely to deal with depression and have poor mental health outcomes (Herd et al., 2016). The unintended pregnancy can increase maternal stress and anxiety which can undermine recovery and cause people to return to using substances (Charron et al., 2022). The babies of these women often face risk factors such as pre-term labor, low birth weights, and neonatal abstinence syndrome (Heil et al., 2011; Stone et al., 2020). The purpose of this paper is to explore the most reliable contraceptive options, the current recommendations, and the ideal outcomes for women with substance use disorder. Providing proper education regarding birth control options and allowing women to have autonomy over their reproductive health care, will decrease the incidence of unintended pregnancies and lead to better long-term outcomes for women and families.

Background and Significance

Women with SUD can face many challenges when it comes to proper reproductive healthcare. According to Stone et al. (2020), barriers to contraception access include cost, intimate partner violence, fear of criminalization, comorbid health conditions, patient misconceptions and knowledge gaps regarding reproductive health and family planning, difficulty accessing care, and healthcare provider misconceptions and provider limitations. Unintended pregnancies increase the risk for poor maternal and infant outcomes as well as creates a financial burden on the United States. Government expenditures on births, abortions, and miscarriages resulting from unintended pregnancies nationwide totaled $21 billion in 2010

(CDC, 2022). With the recent overturning of Roe v. Wade, the need for long-term, effective birth control methods to reduce unintended pregnancies is vital in the management and success of women with SUD.

Population Affected

In 2020, 40.3 million Americans, suffered from substance use disorder (Substance Abuse and Mental Health Services Administration [SAMHSA], 2021b). While men tend to be more affected by SUD, women constitute approximately one-third of adults with SUD (SAMHSA, 2021a). Women report unique reasons for initiating drug use including influential relationships such as a partner who uses, controlling weight, fighting exhaustion, coping with pain, and self-treating mental health problems (National Institute of Drug Abuse [NIDA], 2020; SAMHSA, 2021a). Research has also shown that women react differently than men when it comes to substance use. Women may become addicted more quickly, they often ingest smaller amounts of the drug but have equal or stronger effects compared to their male counterparts, and the withdrawal symptoms may be more intense for women (National Institute of Health [NIH], 2020; Feld et al., 2022). With the overall rise in SUD in recent years maternal opioid use has also increased. From 1999-2014, SUD among pregnant women has increased four-fold and these women are two to three times more likely to have an unintended pregnancy compared to the general population (Stone et al., 2020).

Pregnancy Prevention

The American College of Obstetricians and Gynecologists (ACOG, 2017a), recommends that contraceptive counseling and access to contraceptives should be a routine part of substance use disorder treatment. Offering contraception counseling in conjunction with substance use treatment and promoting more effective methods of birth control such as LARCs could help

reduce unintended pregnancies in this population. LARCs are the most effective form of birth control on the U.S. market. Contraception that is used incorrectly or inconsistently is what leads to unintended pregnancies. LARCs are user-friendly and require no effort after insertion which eliminates the potential for inconsistent use (CDC, 2022). Integrating family planning and contraceptive services into treatment facilities would be the best option, however many treatment facilities do not have the resources to do so.

According to the World Health Organization (2019), utilizing a community-engaged model has become the standard of practice in many low-resource communities. Women in treatment programs often rely on their peers for support or case managers who are integrated into the facility. Being able to have an open exchange of information and shared decision-making, all while building relationships helps to reduce the stigma and feelings of coercion when it comes to reproductive healthcare (Charron et al., 2022; Feld et al., 2022). Being able to receive education from people with lived experiences with SUD, such as case managers, can help with harm reduction and improve outcomes.

Barriers To Care

Many residential treatment programs do not have the resources to integrate family planning services with drug treatment. Additionally, many patients at residential treatment programs may not have permission to make outside appointments. Barriers such as transportation, stigma from outside healthcare providers, and feeling uncomfortable about leaving their treatment facility contribute to women not receiving the best reproductive healthcare possible (Stone et al., 2020). Charron et al. (2020) state that strong interpersonal relationships and developing trust are imperative when providing effective contraceptive counseling to women with SUD. Being able to ask open-ended questions, providing personalized

care, and having a non-judgmental attitude are attributes imperative to quality care (Charron et al., 2020). The ongoing stigma and discrimination by healthcare professionals who lack experience in treating SUD contribute to distrust and suboptimal care of women.

Ideal Outcomes

When looking at ideal outcomes regarding pregnancy prevention and LARCs, it is important to look at the Contraceptive CHOICE study conducted in 2006. This large-scale study looked at contraception choices among women when common barriers to LARCs were eliminated, such as cost, lack of knowledge, and access. Counseling was provided regarding the effectiveness, advantages, and disadvantages of each form of contraception using an unbiased approach. Seventy-five percent of the study participants chose a LARC and many were satisfied with their choice and chose to continue use after 12 months (Secura et al., 2010). One of the most impactful findings of the CHOICE Project was how effective LARCs were at preventing unintended pregnancies compared to other forms of contraception such as pills, patches, and vaginal rings. Failure rates for LARC users remained less than 1% throughout the three-year follow-up (Secura et al., 2010). Non-LARC users were more than 22 times as likely to experience unintended pregnancy compared to their LARC counterparts (Secura et al., 2010). This study shows the impact that LARCs can have on a population. If barriers are removed, then women can choose the most effective and least user-dependent method. Increasing uptake of LARCs will decrease unintended pregnancy and abortion rates, and in time translate into better financial, economic, educational, and social situations for women.

Internal Evidence

After the Dobbs v. Jackson Women's Health Organization ruling in 2022, practitioners at a licensed substance abuse treatment center in the greater Phoenix area became increasingly

concerned about the reproductive health of the women at their facilities. The women's residential program can house up to 102 residents and uses a 45-day peer-guided care model with emphasis on the 12-step recovery program. The standard admission assessment has very few questions regarding reproductive/sexual health and no questions pertaining to reproductive intent or contraceptive use. After talking with case managers at the site, the only education women receive during the 45 days is regarding condom use and sexually transmitted diseases.

The substance abuse treatment center offers primary health care services to all residents during treatment, but the practitioners are not trained in contraceptive counseling, specifically IUD or implant placement. Referrals can be made to outside healthcare providers, but these are to be set up upon discharge. The facility understands the effects that an unintended pregnancy can have on its population and is looking for a way to decrease the women's risk by incorporating non-judgmental contraception education into its treatment curriculum.

PICOT Question

A review of the literature led to the clinically relevant PICOT question: In women of childbearing age with substance use disorder (P), how does promoting women's empowerment (I) compared to current practices, (C) affect the uptake of long-acting reversible contraception (O) and led to the following exhaustive search.

Search Strategy

A thorough review of the most current evidence took place to answer the PICOT question. Three databases were extensively searched – PubMed, PsychInfo, and Cumulated Index to Nursing and Allied Health Literature (CINAHL). These databases were chosen due to their relevance to the topic and their reputation for high-quality, research-based contributions to the medical field.

Keyword Selection

The databases were searched using combinations of key terms that addressed all aspects of the PICOT question including *women, substance use disorder, long-acting reversible contraception, and empowerment.* Alternative terms used for substance use disorder included: *opioid use disorder, drug treatment, and medicated assisted therapy*. Alternative terms used for long-acting reversible contraception included *family planning and birth control*. Boolean terms and connectors were used to broaden the search.

Initial and Final Search Yields

An initial search of PubMed using key terms *substance use disorder* and *long-acting reversible contraception* yielded 39 results. Boolean terms and combination searching were used to increase the search results. Results were increased to 105 using alternative keywords and mesh combinations as stated above.

An initial search of PsychInfo using key terms *substance use disorder* and *long-acting reversible contraception* yielded 17 results. Boolean terms and combination searching were used to increase the search results. Results were increased to 100 using alternative keywords and mesh combinations as stated above.

An initial search of CINAHL using key terms *substance use disorder* and *long-acting reversible contraception* yielded 16 results. Boolean terms and combination searching were used to increase the search results. Results were increased to 157 using alternative keywords and mesh combinations as stated above.

Filters applied to these searches included date of publication (2018 to 2023), English language, and peer-reviewed journal articles. The titles and abstracts of all articles were evaluated. Full-text copies of 28 relevant studies were attained and reviewed. Additionally, the

reference lists of these articles were scanned to identify 2 other important studies. The rapid critical appraisal process developed by Melnyk and Fineout-Overholt (2019) was used to determine the quality and strength of the articles and allowed for the narrowing of the article pool down to the 10 most relevant and highest quality studies. These include two randomized control trials, one correlational study, one cross-sectional study, and 6 qualitative studies.

Critical Appraisal and Synthesis of Evidence

Study quality and level of evidence were determined by the rapid critical appraisal process developed by MeInky and Fineout-Overholt (2019). Of the ten articles reviewed, four of them were quantitative studies and six of them were qualitative studies. While qualitative studies are considered a lower level of evidence compared to quantitative studies, given my research question, qualitative methods are crucial in better understanding personal choice and barriers when it comes to reproductive health and SUD. Therefore, the combination of both qualitative (see Appendix A, Table A1) and quantitative studies (see Appendix A, Table A2) were included in the evaluation and synthesis tables (see Appendix A, Table A3) to provide insight into contraception use among women with SUD.

Even though both quantitative and qualitative studies were used, most of the studies used the Health Belief Model as their foundational framework. The study participants were homogenous since they were all women of childbearing age with the mean age in the early thirties. Of the studies that reported on race, participants were primarily Caucasian. All but one study was set in an outpatient treatment facility that cares for women with SUD. Education was a big component of half of the articles. Provider education, computer-based education, and peer-led education were all different modalities that were evaluated. Understanding the barriers and the perception around contraception among women with SUD was the focus of the other five

articles. Barriers that were identified included reproductive misconceptions, trauma, interpersonal violence, reproductive coercion, limited social support, lack of health insurance, lack of transportation, stigma, discrimination, and child welfare reporting requirements. Of the four quantitative studies, they were heterogenous in their data collection using self-report, surveys, or Likert-scale questionnaires. None of them used a validated tool.

Conclusion From Evidence

Women with SUD experience gaps in knowledge regarding reproductive health and contraception options. This lack of knowledge paired with the multitude of barriers, makes obtaining appropriate family planning services difficult. Patient-centered contraception counseling should be used as a form of harm reduction while the women are in treatment to enhance their chances of success in sobriety. Interventions need to utilize non-judgmental communication and allow for autonomy. Peer-led education and counseling appear to be the best modality when it comes to reaching these women. Peer-led counselors share some of the same lived experiences and have faced many of the barriers themselves.

Theory/Theoretical Framework Application

When it comes to reproductive health, women with SUD must see pregnancy as a threat. They must believe that pregnancy could have serious consequences for themselves or the fetus. Without understanding these two foundational criteria, they will not want to prevent it. The Health Belief Model (HBM) was used in most of the evidence (See Appendix A, Table A3). The HBM theorizes that people's beliefs about whether they are susceptible to disease, in this case, pregnancy, and their perceptions of the benefits of avoiding the disease, influence their readiness to act (Butts & Rich, 2018). The HBM unites with my research question by saying that women are ready to act if they meet the following criteria: believe they are susceptible to pregnancy

(*perceived susceptibility),* understand that the pregnancy could have serious consequences *(perceived severity),* believe that taking action, such as utilizing contraception would reduce their susceptibility to becoming pregnant *(perceived benefits),* believe that obtaining contraception outweighs the risks *(perceived barriers),* they are given information on contraception or have the ability to obtain it *(cue to action)* and then are confident in their ability to choose the right contraception method for themselves and acquire it *(self-efficacy)* (Butts & Rich, 2018). Any of the key constructs of the HBM could be an area to target when it comes to changing the behaviors and preventing unintended pregnancies among women with SUD (See Appendix B, Figure B1).

Implementation Framework

The Rosswurm and Larrabee Model was chosen as the evidence-based practice (EBP) model to guide this project (see Appendix B, Figure B2). This model is a six-step approach that allows the identification of a problem and the ability to synthesize data to develop an intervention that will ultimately be integrated into practice so it can be maintained in the long term. This model is also set up as a team approach by including key stakeholders and allowing the staff to be involved in the change, making it more sustainable. The nursing doctoral project parallels well with the Rosswurm and Larrabee Model and it will be a guide for the execution of this project.

Methods

Ethical Consideration and Human Subject Protection

The Institutional Review Board approval was granted on August 7, 2023 (See Appendix C). The educational session provided to the residents was mandatory per the inpatient substance abuse treatment agency. Even though attending the educational presentation was mandatory,

participation in the study was voluntary. Before the presentation, the project was explained to the audience, and inclusion and exclusion criteria were verbally stated during the reading of the consent letter (See Appendix D). If the audience members self-identified as meeting the criteria and were willing to participate, filling out the questionnaire implied consent. The participants could withdraw from project participation at any time. The risks and benefits of participation were explained. Participants' privacy was maintained throughout the project. An anonymous reproducible identification number was created by the participants to link their responses. This number included the first three letters of their mother's name and the last three digits of their phone number. This unique identification number was on their pre- and post-project surveys. All the project surveys were kept by the primary investigator. After entering the data in Intellectus Statistical Software for analysis, paper copies were shredded. The data entered in the Intellectus Software were password-protected and were accessible only by the primary investigator.

Description of Population and Setting

Inclusion Criteria

The participants included in the project were English-speaking women between the ages of 18-45 who still can have children.

Exclusion Criteria

The exclusion criteria included non-English speaking residents, women over the age of 45, and women who have had nonreversible forms of contraception which includes a hysterectomy and tubal ligation.

Setting and Population Description

The setting of this project is an all-female, residential substance abuse treatment facility in the greater Phoenix area. The educational presentation occurred in the facility's dining hall area which was the only room that could accommodate the residents at once.

Project Description with Timeline

The purpose of this project was to educate women with substance use disorder on basic reproductive health and current contraception options. The guiding evaluation question was, does increasing contraceptive knowledge increase the desire to obtain contraception among women with substance use disorder? To evaluate this, an educational presentation was given to the residents of the treatment facility. Residents who chose to participate and who met the inclusion criteria completed a pre-test that included demographic information, contraception and pregnancy history questions, and the Contraception Knowledge Assessment (CKA) (See Appendix E). The CKA is a validated tool (Cronbach's alpha 0.79) that consists of 25 multiple-choice questions (Haynes et al., 2016; Ades et al., 2017). The participants were given 15 minutes to complete the pre-test. Following the pre-test, the lead investigator gave a 45-minute educational presentation on reproductive health and contraception options. The presentation included information regarding the stages of the menstrual cycle, how conception takes place, how different substances affect pregnancy, and birth control options including tubal ligation, intrauterine devices, hormonal implants, birth control pills, hormonal patches, hormonal shots, hormonal vaginal rings, diaphragms, condoms, the pull-out method, and fertility awareness options. The risks and benefits of each method were discussed. During the presentation, time was allotted for participants to ask questions and provide personal experiences to the group discussion. After the educational presentation was completed, the participants were given 15

minutes to complete the post-evaluation (See Appendix F). The post-evaluation survey included questions regarding contraceptive intent as well as the same CKA questions to assess if an increase in knowledge affects contraceptive intent.

Budget and Funding

The educational material that was used for the presentation was developed by the primary investigator. A total of 80 copies were made of the pre-test and post-test which totaled $107.20 and 50 copies of the educational brochure were made which cost $62.50. No grants or funding were received for the project and these costs were paid by the primary investigator.

Results

Data Analysis Procedures

Data generated from the CKA pre and post-test as well as demographic information were manually entered into Intellectus with the appropriate variables assigned. Data entry was validated by a second person to confirm accuracy. Intellectus Statistics ran descriptive statistics based on the demographic information. A paired-t test was run to evaluate if there was a statistically significant change in contraception knowledge when comparing the pre-test to the post-test. Descriptive statistics was used to evaluate if there was a change in birth control intent from pre-intervention to post-intervention.

Outcomes

Descriptive Statistics

There were 43 participants over the course of two educational presentations. Data from the two presentations were combined for a single analysis. The average age was 31 with participants ages ranging from 18 years old to 43 years old (*SD* = 6.16, Min = 18.00, Max = 43.00). Over half of the participants identified as white or a combination of white with another

ethnicity (n=28, 65%). Most participants were currently single (n=31, 72.09%). Sexual orientation was almost evenly split between identifying as heterosexual or bisexual (n=22, 51.16% vs n=20, 46.51% respectively). Educational attainment varied widely amongst the surveyed group with some not completing high school (n=12, 27.91%), while others either completed high school or went on to receive their bachelor's or continue their education at a trade school. The majority were currently not using any form of birth control at the time (n=35, 81.40%). Over half of the participants reported having a history of an unintended pregnancy (n=28, 65.12%). Most participants had 2 children with some having zero and the most having 5 (*SD* = 1.71, Min = 0.00, Max = 5.00). Frequencies and percentages are presented in Table 1 and Table 2.

Table 1

Demographic Information

Variable	*n*	*%*
ETHNICITY		
WHITE	21	48.84
WHITE/LATINO	3	6.98
WHITE/NATIVE AMERICAN	2	4.65
WHITE/ASIAN	1	2.33
WHITE/BLACK	1	2.33
LATINO	9	20.93
BLACK	2	4.65
BLACK/NATIVE AMERICAN	1	2.33
ASIAN	1	2.33
LATINO/ASIAN	1	2.33
NATIVE AMERICAN	1	2.33
Missing	0	0.00
EDUCATION		
SOME HS	12	27.91
HS	18	41.86
BACHELORS	1	2.33
TRADE SCHOOL	11	25.58

Missing	1	2.33
MARITAL_STATUS		
SINGLE	32	74.42
MARRIED	1	2.33
DIVORCED	5	11.63
WIDOWED	1	2.33
Missing	4	9.30
SEXUAL_ORIENTATION		
HETEROSEXUAL	22	51.16
BISEXUAL	20	46.51
LESBIAN	1	2.33
Missing	0	0.00
UNINTENDED_PREGNACY		
YES	28	65.12
NO	14	32.56
Missing	1	2.33
CURRENTLY USING BIRTH CONTROL		
NO	35	81.40
YES	7	16.28
Missing	1	2.33

Note. Due to rounding errors, percentages may not equal 100%.

Table 2
Summary Statistics Table for Age and Number of Children

Variable	*M*	*SD*	*n*	Min	Max	*Median*
AGE	31.71	6.16	42	18.00	43.00	30.50
NUMBER OF CHILDREN	1.69	1.71	35	0.00	5.00	2.00

Statistical Analysis

A two-tailed paired samples *t*-test was conducted to examine whether the mean difference of Pre-CKA scores and Post-CKA scores were significantly different from zero. A Shapiro-Wilk test was conducted to determine whether the differences in Pre-CKA scores and Post-CKA scores could have been produced by a normal distribution (Razali & Wah, 2011). Normality was established via the Sapiro-Wilk test (α=.05, W = 0.98, p = .642). The result of the two-tailed

paired samples *t*-test was significant based on α=.05, $t(42) = -8.00$, $p < .001$. The mean Pre-CKA scores were significantly lower before the intervention than the mean of the Post-CKA scores. The mean pre-CKA score was 13 (SD=4.82) and the mean post-CKA score was 18 (SD=4.25). Cohen's standard was used to evaluate the strength of the relationship, where coefficients between .10 and .29 represent a small effect size, coefficients between .30 and .49 represent a moderate effect size, and coefficients above .50 indicate a large effect size (Cohen, 1988). Cohen's d was 1.22 indicating a large effect size. The results are presented in Table 3. A bar plot of the means is presented in Figure 1.

Table 3

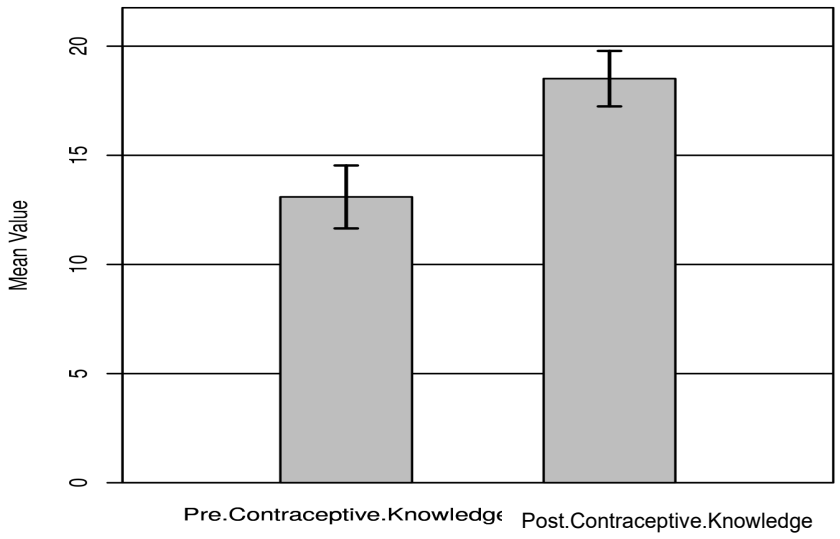
Two-Tailed Paired Samples t-Test for the Difference Between Pre-CKA Scores and Post-CKA Scores

Pre-CKA Scores		Post-CKA Scores				
M	*SD*	*M*	*SD*	*t*	*p*	*d*
13.09	4.82	18.51	4.25	-8.00	< .001	1.22

Note. N = 43. Degrees of Freedom for the *t*-statistic = 42. *d* represents Cohen's *d.*

Figure 1

The means of Pre-CKA Scores and Post-CKA Scores with 95.00% CI Error Bars



Descriptive Statistics for Contraceptive Interest

Participants were asked in the Pre and Post survey if they were interested in obtaining birth control in the near future (See Appendix E; See Appendix F). During the pre-survey, many of the participants stated they were not interested in birth control (n=18, 41.86%). Sixteen participants (37.21%) stated they were interested, and 8 participants were unsure (18.60%). The same question during the post-survey yielded similar results regarding participants not being interested (n=18, 41.86%). However, the number of participants who were interested increased to 19 (44.19%). The results are presented in Table 4.

Table 4

Frequency Table for Contraception Interest

Variable	*n*	*%*
PRE-INTERESTED		
NO	18	41.86
YES	16	37.21
UNSURE	8	18.60
Missing	1	2.33
POST-INTERESTED		
NO	18	41.86
YES	19	44.19
UNSURE	5	11.63
Missing	1	2.33

Note. Due to rounding errors, percentages may not equal 100%.

Project Response

Most of the participants were very engaged during the educational presentation. The large group setting allowed for open discussion about personal experiences with different types of contraception options. The women were able to ask questions during the presentation which helped to facilitate open dialogue. Almost all participants found that the educational session was either extremely informative or somewhat informative (n=42, 97.67%). Most participants did not

feel like they needed additional information after the presentation (n=37, 86.05%). Those results are presented in Table 5. The group setting was a good way to get reproductive health information out to a large group. In the future, the facility has two nurse practitioners on site who can continue the educational sessions to help increase reproductive and contraceptive knowledge.

Table 5

Frequency Table for Nominal Variables

Variable	*n*	*%*
INFORMATIVE		
YES	36	83.72
SOMEWHAT	6	13.95
Missing	1	2.33
ADDITIONAL INFO NEEDED		
NO	37	86.05
YES	5	11.63
Missing	1	2.33

Note. Due to rounding errors, percentages may not equal 100%.

Discussion

Summary of Findings

A knowledge gap was evident regarding reproductive health information and contraceptive options among women with SUD. Providing education was an evidence-based approach to increasing knowledge with the hope of increasing the uptake of LARCSs and decreasing the unintended pregnancy rates among women with SUD. The Contraceptive Knowledge Assessment was effective at measuring reproductive health and contraception knowledge among women with SUD. There was a significant increase in knowledge from the baseline evaluation to the post-intervention evaluation. Along with the significant increase in knowledge, there was an uptick in the number of individuals interested in obtaining contraception in the future.

Limitations/ Barriers

The evidence shows that education in substance abuse treatment facilities is better received when it is provided by a peer who has successfully completed a similar substance abuse treatment program. While the project location does utilize a peer-guided care model, the facility did not find it feasible to have the peer counselor lead the reproductive and contraception education. The utilization of peer counselors could result in better engagement and retention of information. Residents may also be more open about their reproductive history or more open to asking questions if a relationship is already established with the presenter.

Another barrier to this project is that residents of the facility are not able to receive LARCs onsite. Being able to provide immediate care is crucial when a patient presents wanting a LARC. While the site does have medical providers available, they are not trained in IUD or implant insertion. After the educational presentation, if residents were interested in a form of LARC, they would need a referral to an outside facility. The survey did show that many women were interested in obtaining birth control. A nurse practitioner at the site also stated she has residents requesting an IUD after the educational session. Unfortunately, these women will have to obtain LARCs from medical providers at a different facility. Referring to a different facility will delay care. In addition, residents might not feel comfortable going to a different medical provider due to fear of stigma, which may result in them changing their minds or not following through.

Future Recommendations

There are many barriers that women with SUD experience when it comes to reproductive health. Confronting the lack of reproductive and contraceptive knowledge is only one approach to reducing the number of unintended pregnancies in women with SUD. Some other

interventions that should be evaluated are providing incentives, utilizing people with lived experiences such as peer counselors, and providing immediate access if someone wants a new contraceptive method. The project site should continue the reproductive education sessions and provide continuing education funding to their providers so they can learn how to properly insert IUDs and sub-dermal implants. Being able to provide comprehensive reproductive health care should be fully integrated into all substance abuse treatment facilities.

Conclusion

This project has shed light on the significant knowledge gap regarding reproductive health information and contraceptive options among women with SUD. The findings underscore the importance of education as an evidence-based approach to increasing knowledge, with the potential to enhance the uptake of LARCs and consequently decrease unintended pregnancy rates in this population.

The effectiveness of the Contraceptive Knowledge Assessment in measuring reproductive health and contraception knowledge among women with SUD was demonstrated through a significant increase in knowledge from baseline to post-intervention evaluation. Moreover, there was a notable increase in interest among participants in obtaining contraception in the future.

Several barriers still exist when it comes to acquiring and properly using effective birth control options. Substance Use Disorder treatment facilities are a promising setting to provide reproductive health education to women. The goal of providing reproductive health and contraceptive information was to empower the women while they were in treatment to take control of their reproductive health.

Ultimately, integrating comprehensive reproductive health care into substance abuse treatment facilities is vital for addressing the multifaceted needs of women with SUD and reducing the incidence of unintended pregnancies in this vulnerable population. Continued efforts and collaborative approaches are warranted to achieve this goal and improve the overall well-being of women with SUD.

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Appendix A

Evaluation and Synthesis Tables

Table A1

Evaluation Table for Quantitative Studies

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice/ Generalization
Jones et al., (2021), Sex and female empowerment (SAFE): A randomized trial comparing sexual health interventions for women in treatment for opioid use disorder **Country:** U.S.A **Funding:** Grant R34 DA0334442 by the National Institute on Drug Abuse	Social-Cognitive Theory	**Design:** Randomized Control Trial **Purpose:** Evaluated the feasibility and acceptability of two SAFE interventions compared to usual care as well as their efficacy to improve contraception utilization.	**N=** 90 **Demographics:** Primarily white, single women with a mean age of 27. **Setting:** 2 clinics in central North Carolina that accepted self-pay or Medicaid for providing methadone and buprenorphine to treat OUD **Exclusion:** Over 40y.o., pregnant, non-heterosexual, intending to become pregnant in 6mo, unable to consent	**IV1:** SAFE Face-to-face intervention **IV2:** SAFE Computer-adapted intervention **DV1:** Intervention completion **DV2:** Intervention satisfaction **DV3:** Attendance at contraception consultation visit	**Tools:** 5-point Likert Scale Participant self-report **Validity/ Reliability:** There is no validity/reliability for self-reporting	**Statistical Tests Used:** Generalized linear model	**DV1:** .97 completion for both face-to-face and computer-adapted **DV2:** 3.7: Face-to-face 3.8: Computer **DV3:** .80: Face-to-face .73: Computer **DV4:** .77: Face-to-face .73: Computer	**Level of Evidence:** Level 2 **Strengths:** Study completion rate; promotes reproductive autonomy, self-efficacy, and choice **Weakness:** Small sample size; limited generalizability; limited ethnic diversity; possible response bias due to self-reporting **Feasibility:** Staff had to go through 4 hours of training sessions and computer access is needed.

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Bias: None stated			**Attrition:** 0	**DV4:** LARC method receipt **Definitions:**				**Application:** Utilizes compassionate, person-centered, trauma-informed consent to meet reproductive and sexual health needs of women with OUD while simultaneously promoting reproductive autonomy
Rinehart et al., (2021), Increasing access to family planning services among women receiving medications for opioid use disorder: A pilot randomized trial examining a peer-led navigation intervention **Country:** USA **Funding:** National Institute on Drug Abuse	Health Belief Model	**Design:** RCT **Purpose:** Assess the feasibility, acceptability, and initial efficacy of a peer-led navigation intervention-Sexual Health Initiative for Navigation and Empowerment (SHINE)-designed to engage, educate, and link women received medications for OUD to FP services.	**N=** 119 **Demographics:** 83.2% white; 72.3% heterosexual; most were unemployed and on Medicaid;43.7 % homeless in the last 12 months **Setting:** Four outpatient OUD treatment clinics in Denver, CO. **Exclusion:** Pregnant; currently using LARC method; medical reason that would prevent pregnancy; plans to move out of state in 6	**IV1:** SHINE intervention w/PN **DV1:** FP visits **DV2:** LARC use **Definitions:** **PN:** Peer Navigator: a person with lived SUD experience	**Tools:** Self-Report **Validity/ Reliability:** For primary outcome of a FP visits and/or LARC placement, concordance was assessed by self-report and EHR data.	**Statistical Tests Used:** *t*-test for continuous variables and Chi-squares for categorical variables, and Fischer's Exact Tests when any cells had counts fewer than five	**DV1:** 36% of participants in the intervention group received FP visit compared to 15% in the control group at 6 months **DV2:** No difference in LARC use between the 2 groups	**Level of Evidence:** Level 2 **Strengths:** Ability to augment self-report w/ HER data **Weakness:** Small sample size; limiting generalizability; convenience sampling. **Feasibility:** 2 SHINE meetings took less than 30minutes each. Pamphlet was easy to distribute **Application:** Easily applicable since PNs are

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Bias: None stated			months, non-English speaking, could not consent **Attrition:** 30					already utilized in treatment facility. Meetings with PN are short and pamphlet is easily accepted
Mescheke et al., (2018), Reproductive health knowledge, attitudes, and behaviors among women enrolled in medication-assisted treatment for opioid use disorder **Country**: USA **Funding**: Tennessee Department of Health	Health Belief Model	**Design:** Correlational Quantitative Research Design **Purpose:** Understand past and current contraception use or associated barriers and facilitators for this specific population	**N=** 287 **Demographics:** 92% white, mean age 33.9. 76% had children. **Setting:** 2 MAT clinics in east Tennessee **Exclusion:** Females outside 18-45 years old, not enrolled in one of the clinics between 1/12/15-2/6/15 **Attrition: 4**	**IV1:** contraception status **DV1:** Health status and substance abuse **DV2:** Reproductive health outcomes and behaviors **DV3:** Reproductive knowledge and attitudes **Definitions:** BTL: Bilateral Tubal Ligation	**Tools:** 98-item anonymous electronic or paper survey **Validity/ Reliability:** Not a validated questionnaire	**Statistical Tests Used:** ANOVA	**DV1:** Women who did not use contraception had a higher mean level of depressed mood than women in the BTL. The BTL group initiated OU later than the other 2 groups. **DV2:** BTL group reported more pregnancies. The BTL and using contraception group were more likely to agree with the statement that it	**Level of Evidence**: Level 4 **Strengths**: large sample size **Weakness**: inconsistencies is responses and response errors. **Feasibility**: Quick survey that took approximately 25 minutes. **Application**: the identified barriers to contraception, particularly LARC, were comparable to those identified by the CDC for women in general, yet the

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Bias: None							was important to avoid pregnancy. **DV3:** women using contraception had higher mean levels of LARC knowledge than women not using contraception	multidimensional challenges faced by women enrolled in MAT create greater obstacles in overcoming the barriers.
Rey et al., (2020), Perceptions of long-acting reversible contraception among women receiving medication for opioid use disorder in Vermont **Country**: USA **Funding**: National Institutes of Health grants **Bias**: None	Health Belief Model	**Design:** Cross-sectional survey **Purpose:** To evaluate perceptions of LARC among women receiving medication for OUD	**N=** 200 **Demographics:** Ages 18-44, 96% white. **Setting:** outpatient medication treatment center for OUD in Burlington, VT **Exclusion:** Age **Attrition:** **0**	**IV1:** LARC refusal **IV2:** LARC dissatisfaction **DV1:** Barrier to use **DV2:** Main barrier to use **DV3:** Reason for dissatisfaction **DV4:** Main reason for dissatisfaction	**Tools:** Questionnaire adapted from other research study regarding knowledge, attitudes, experiences, and perceived barriers to LARCs **Validity/ Reliability:** Not a validated questionnaire	**Statistical Tests Used:** Z-test	**DV1:** Worried about side effects and concerned about foreign object in body. **DV2:** Worried about pain and concerned about foreign object in body **DV3:** Side effects (wt. gain, mood changes), irregular bleeding or spotting **DV4:** bad experience with the method; irregular bleeding or spotting	**Level of Evidence**: Level 4 **Strengths**: Examines a wide range of barriers and compares LARC types (IUD vs. Impant) **Weakness**: Not selected at random, limited ethnic sampling, , limited sample size **Feasibility**: Quick questionnaire and good inside **Application**: Efforts to increase awareness of LARC methods among women receiving MAT for OUD

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								should address concerns about side effects and reproductive autonomy and encourage satisfied LARC users to share their experiences.

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Table A2

Evaluation Table for Qualitative Studies

Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
Stonewell et al., (2022), Perspectives among women receiving medications for opioid use disorder: Implications for development of a peer navigation intervention to improve access to family planning services **Country:** USA **Funding:** NIH/National Institute on Drug Abuse **Bias:** None Stated	Health Belief Model	**Design**: Phenomenology **Method:** Structured interview and focus groups **Purpose:** Utilize qualitative methods to identify the SRH and FP experiences, needs and intervention preferences of women in treatment for OUD and to use these data to develop a treatment setting-based FP navigation intervention that would be tested in a subsequent study phase.	**Sample:** N=37 **Demographics:** 67% White; 37 % Hispanic/Latinx; Average age 32; 84% had a previous pregnancy; 11% desired a pregnancy in the next year; 25% reported current BC use **Setting:** 2 outpatient treatment clinics in Denver, CO **Attrition:** 0	• Perceived threat of unintended pregnancy and STIs • Cost/benefit of health behaviors • Modifying/enabling factors	**Data Collection:** Structured interviews that were audio recorded and a HIPAA-compliant transcriptionist provided de-identified interview transcripts **Data Dependability:** Interviews continued until the point of concept saturation on the topics.	**State type used.** Content analysis occurred suing an iterative, team-based approach. 4 study members reviewed the same transcript and deductively developed a codebook based on the HBM constructs.	(1) ambivalent about susceptibility; potential catalyst/motivator for recovery; impacts of prior pregnancies while taking medications for OUD (prolonged recovery, impact on newborn); seriousness/ susceptibility stronger if already diagnosed with an STI or knew someone; decreased susceptibility in monogamous relationships. (2) side effects; financial cost; stigma; hassle; inconvenience;	**Level of Evidence:** Level 6 **Strengths:** Large sample size **Weakness:** English speaking only and majority were white **Feasibility:** Conducted in treatment centers with little resources **Application:** Explored the FP service experience, needs, and intervention preferences of women receiving MOUD. Contributes to

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							BC failure; physical benefits (3) health insurance; being younger in age; connection to PCP, previous pregnancy; access to free condoms; previous STI diagnosis.	other literature supporting the need for increased access to FP services within SUD treatment.
Sobel et al., (2022), Trusted contraception information sources for individuals with opioid use disorder **Country:** USA **Funding:** Society of Family Planning	Ottawa Decision Support Framework	**Design:** Phenomenology **Method:** Semi-structured qualitative interviews with convenience sampling **Purpose:** To identify trusted sources of contraception information among pregnancy-capable individuals with OUD	**Sample:** N=20 **Demographics:** Average age 31.7 65% White 55% in a relationship 85% receiving either methadone or buprenorphine/naloxone **Setting**: Boston Medical Center, outpatient treatment centers for pregnant women or parents with SUD **Attrition:** 0	• Friends who have never used opioids and those stable in recovery • Recovery home peers • Medical Professionals	**Data Collection:** 2 interviewers with prior qualitative interviewing experience. Interviews were conducted in person. Audio recorded and professionally transcribed. Interviews took field notes **Data Dependability:**	Inductive and deductive coding	(1) They modeled admirable preventative health care behaviors (2) Providing shared experiences (3) Primarily medical professionals they had long-standing relationships with regardless of their training in	**Level of Evidence:** Level 6 **Strengths:** First qualitative study to describe information sources valued by persons with OUD **Weakness:** Location where all FDA approved contraception is covered by Medicaid. English

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Bias: None				• Personal experience and research **Definitions:** Recovery Home: Group living arrangement to provide a structured environment for individuals in the immediate post-acute phase of treatment	Interviews continued until saturation		contraception counseling (4) Reliable contraception information sources	speaking only and engaged in care **Application:** Paramount to providing patient centered preventative reproductive health care
Charron et al., (2021), Provider perspectives of barriers to contraceptive access and use among women with substance use disorders **Country:** USA **Funding:** This research did not receive	Dahlgren and Whitehead Model	**Design:** Phenomenology **Method:** Semi Structured qualitative interviews **Purpose:** Explore provider perspectives on barriers to contraceptive access and use for women with SUD and highlight provider contraceptive	**Sample:** N=24 **Demographics:** 92% women and younger than 44 (62%).100% White/non-Hispanic. 41% MDs, 33% NPs, 25% CNMs. 42% had been practicing less than 5 years with 37.5% practicing between 6-15years **Setting:** Providers based on region: 20.8% -Northeast	• Individual: Reproductive misconceptions and active substance use • Social and Community Networks	**Data Collection:** Semi-structured phone interviews **Data Dependability:** All interviews were conducted by one member with PhD-level training in qualitative inquiry. Interviews were transcribed verbatim by a professional	Braun and Clarke's common thematic analysis approach, which is an iterative, flexible process for finding meaning in data. For analysis, inductive codes were applied using	(1) General fertility misconceptions and misconceptions related to the safety, efficacy, and side effects of BC especially LARCs. Impaired ability for future planning (2) Interpersonal trauma, reproductive coercion, and	

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any specific grant from funding agencies in the public, commercial, or not-for profit sectors **Bias:** None		counseling strategies to address patient barriers.	29.2%-Midwest 25%-South 25%- West **Attrition:** 0	• Living and Working conditions • General socioeconomic, cultural, or environmental conditions	transcription service and transcripts checked for accuracy against original recordings	an iterative process.	social trauma including losing child custody are barriers (3) unstable living and working environments. Lack of housing, employment, insurance, and transportation (4) addiction-related stigma and punitive policies toward people with SUD. Mistrust of medical providers	
Hurley et al., (2020), Expanding contraception access for women with opioid-use disorder: A qualitative study of	Health Belief Model	**Design:** Phenomenology **Method:** In-depth interviews **Purpose:** (1) Define core components of	**Sample:** N=31 -15 women with SUD - 16 professional stake holders **Demographics:** -Women w/ SUD: 50% were women aged 25-35 and 60% had public insurance and 33% had	Systemic barriers to contraception Integrated contraceptive service components	**Data Collection:** Audio-recorded, transcribed, and thematically coded using Dedoose software	**Interative analysis**	• Reach target population • Provide free or affordable contraception	**Level of Evidence:** Level 6 **Strengths:** Utilized both women and stakeholders in interviews

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opportunities and challenges **Country:** USA **Funding:** NIH Clinical and Translational Science Award grant **Bias:** None		contraceptive services necessary to meet the needs of women with OUD. (2) Identify gaps and opportunities for integrating contraceptive care into the existing landscape of health and social services that women with OUD currently access.	no insurance. 85% were trying to avoid pregnancy yet 57% did not use any method to prevent pregnancy at last intercourse -Stakeholders: 56% women from diverse organization types **Setting:** Non primary care or reproductive health care centers that engaged in women w/SUD in Missouri **Attrition:** 0		**Data Dependability:** Member checking with two focus groups of women with OUD, review of an audit trail of decision-making by the senior author, and regular team debriefings to triangulate findings.		• Maximize accessibility • Provide patient centered care • Employ qualified, willing, available providers • Utilize peer educators	**Weakness:** Setting landscape may not mirror other areas. Many women w/OUD may not be connected to any services **Application:** Gives good stages depending on service type for each theme. Easily reproducible.
Smith et al., (2019), Barriers to reproductive healthcare for women with	Health Belief Model	**Design:** Cross-sectional mixed-methods study **Method:** convergent,	**Sample:** N=50 **Demographics:** Majority were less than 39 years old, primarily (82%) white with some	• Perceived benefits • Perceived barriers	**Data Collection:** Scripted interview-based survey that included 70	interpretation of patterns and themes in textual data	(1) Most reliable with the least amount of maintenance and least side effects	**Level of Evidence:** Level 4 **Strengths:** Did demographically

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Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
opioid use disorder **Country:** USA **Funding:** This research did not receive any specific grant from funding agencies I the public, commercial, or not-for-profit sectors. **Bias:** None		parallel, mixed-methods design and face-to face interview method **Purpose:** Explore the reproductive intentions and contraceptive practices of women in MAT treatment for OUD with a focus on knowledge and use of LARCs	college education. 84% experienced at least 1 unplanned pregnancy and 92% indicated there were not trying to become pregnant but only 66% were actively preventing preganacy **Setting:** Large urban opioid addiction treatment center in the Southeast USA **Attrition:** 0	• Perceived seriousness • Perceived susceptibility.	questions, some fixed-response and others open ended **Data Dependability:** The survey instrument was not validated. A complete audit trail was maintained to improve data confirmability.		(2) Fear of complication or discomfort of "foreign object" inside them (3) Some had desire for pregnancy (4) low perceived risk of pregnancy due to age, or sexual habits	represent the population of women in Tennessee who are currently accessing OUD treatment **Weakness:** face-to-face interview for collection of survey data may have contributed to social desirability vias related to discomfort when reporting answers **Application:** Gives good hard data regarding perceptions around LARCs

Key: **BC** Birth Control, **BTL** Bilateral Tubal Ligation, **DV** Dependent Variable, **FP** Family Planning, **HBM** Health Belief Model, **IV** Independent Variable, **LARC** long-acting reversible contraceptive, **MAT** medication-assisted treatment, **OUD** Opioid Use Disorder, **PN** Peer Navigator, **SRH** Sexual and Reproductive Health, **SUD** Substance Use Disorder

Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
Stancil et al., (2021), Long-acting reversible contraceptives (LARCS) as harm reduction: a qualitative study exploring views of women with histories of opioid misuse **Country:** USA **Funding:** Stancil is supported by a grant from the Eunice Kennedy Shriver National Institute for Child Health and Human Development. The study was supported in	Health Belief Model (HBM)	**Design:** Phenomenology **Method:** In depth interviews and focus group discussions **Purpose:** Comprehensively evaluate the knowledge, attitudes, and experiences as they relate to seeking contraception, particularly LARCS, among women with active or recovered opioid misuse	**Sample:** In-depth interviews: N=15 Focus group discussion: N=21 **Demographics:** Ages 18-44. 87% White. None were actively seeking pregnancy and 85.7% were trying to avoid pregnancy. 57% did not use any method to prevent pregnancy during last intercourse **Setting:** Recruited from organizations within the state's opioid response network in Missouri **Attrition:** 0	• Reproductive experiences and self-perceptions • Sexual partner dynamics • Healthcare attitudes/experiences • Access • Awareness of options • Perceptions of contraception efficacy/side effects	**Data Collection:** Interviewers used open-ended questions from a semi-structured guide **Data Dependability:** Interviews were audio-recorded, transcribed, censored of identifying information, and uploaded into Dedoose. Transcripts were coded by at least 2 or more investigators.	**Interative analysis**	(1) Belief that substances had an impact on fertility. (2) Partner attitudes and dependency on partner for substances, shelter, food, ect. (3) Anticipated or experienced stigma; fear of legal ramifications (4) Cost, transportation, logistics, insurance (5) More familiar with condoms, pill, and injection and less familiar with LARC. Preferred educations from a peer or a provider recommended by a peer.	

Key: **BC** Birth Control, **BTL** Bilateral Tubal Ligation, **DV** Dependent Variable, **FP** Family Planning, **HBM** Health Belief Model, **IV** Independent Variable, **LARC** long-acting reversible contraceptive, **MAT** medication-assisted treatment, **OUD** Opioid Use Disorder, **PN** Peer Navigator, **SRH** Sexual and Reproductive Health, **SUD** Substance Use Disorder

Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
part by and NIH Clinical and Translational Scient Award Grant. **Bias:** None								

Key: **BC** Birth Control, **BTL** Bilateral Tubal Ligation, **DV** Dependent Variable, **FP** Family Planning, **HBM** Health Belief Model, **IV** Independent Variable, **LARC** long-acting reversible contraceptive, **MAT** medication-assisted treatment, **OUD** Opioid Use Disorder, **PN** Peer Navigator, **SRH** Sexual and Reproductive Health, **SUD** Substance Use Disorder

Table A3

Synthesis Table

Study (Author, year)	Charron et al., 2021	Hurley et al., 2020	Jones et al., 2021	Mescheke et al., 2018	Rey et al., 2020	Rinehart et al., 2021	Smith et al., 2019	Sobel et al., 2022	Stancil et al., 2021	Stonewell et al., 2022
Design LOE	Phenom/ Level 6	Phenom/ Level 6	RCT/ Level 2	Correlational/ Level 4	Cross-sectional/ Level 4	RCT/ Level 2	Mixed Methods/ Level 6	Phenom/ Level 6	Phenom/ Level 6	Phenom/ Level 6
Theoretical Model	DWM	HBM	SCT	HBM	HBM	HBM	HBM	ODSF	HBM	HBM
Sample										
Sample Size	24	31	90	287	200	119	50	20	15/21	37
M-Age	N/A	24-34=46.7%	27	34	25-38=80%	32.1	30-39=56%	31.7	24-34=47%	32
% White	100	86.7	60	92	96	83.2	82	65	87	NR
Medicaid/Medicare Insurance	N/A	60%	NR	42.2% (41 % no insurance)	NR	89.1%	40 %	NR	NR	NR
Setting										
OP OUD Clinic		X	X	X	X	X	X	X	X	X
Syringe Exchange Program		X							X	
Recovery Support Program		X								
ED		X								
FQHC		X							X	
Diverse Geographical Areas	X									
Interventions/Major Themes										
Face-to-Face Education			X							
Computer Education			X							
Peer Led Education						X		X	X	X
Health Knowledge/Perception				X	X				X	
Contraception Barriers	X						X		X	
Expanding Contraception Access		X							X	
Outcomes/Themes										

Key: **CC** Contraceptive Counseling **ED** Emergency Department **DWM** Dahlgren and Whitehead Model **FP** Family Planning **FQHC** Federally Qualified Health Center **HBM** Health Belief Model **LOE** Level of Evidence **M-Age** Mean Age **NR** Not reported **ODSF** Ottawa Decision Support Framework **OP** Outpatient **OUD** Opioid Use Disorder **Phenom** Phenomenology **RCT** Randomized Control Trail **SCT** Social Cognitive Theory

Study (Author, year)	Charron et al., 2021	Hurley et al., 2020	Jones et al., 2021	Mescheke et al., 2018	Rey et al., 2020	Rinehart et al., 2021	Smith et al., 2019	Sobel et al., 2022	Stancil et al., 2021	Stonewell et al., 2022
Contraception Counseling			↑		↑	↑				↑
LARC Use			↑			NS				
Contraception Use	↓	↑					↓			
Improved CC Access					X				X	X
Contraception Knowledge								X		

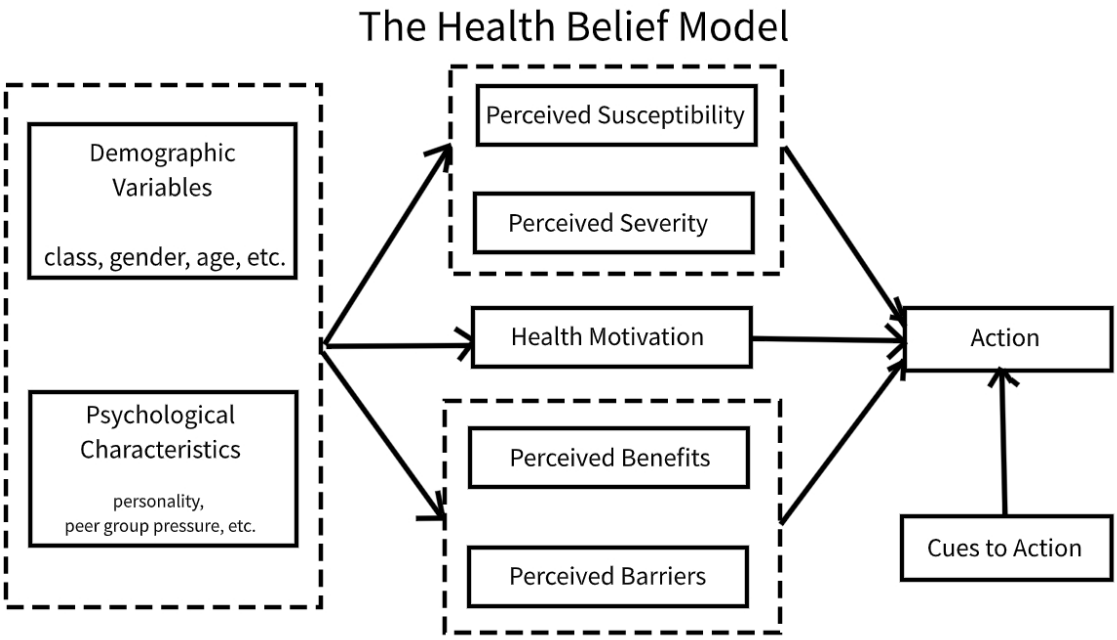
Key: **CC** Contraceptive Counseling **ED** Emergency Department **DWM** Dahlgren and Whitehead Model **FP** Family Planning **FQHC** Federally Qualified Health Center **HBM** Health Belief Model **LOE** Level of Evidence **M-Age** Mean Age **NR** Not reported **ODSF** Ottawa Decision Support Framework **OP** Outpatient **OUD** Opioid Use Disorder **Phenom** Phenomenology **RCT** Randomized Control Trail **SCT** Social Cognitive Theory

Appendix B

Models and Frameworks

Figure B1

Health Belief Model

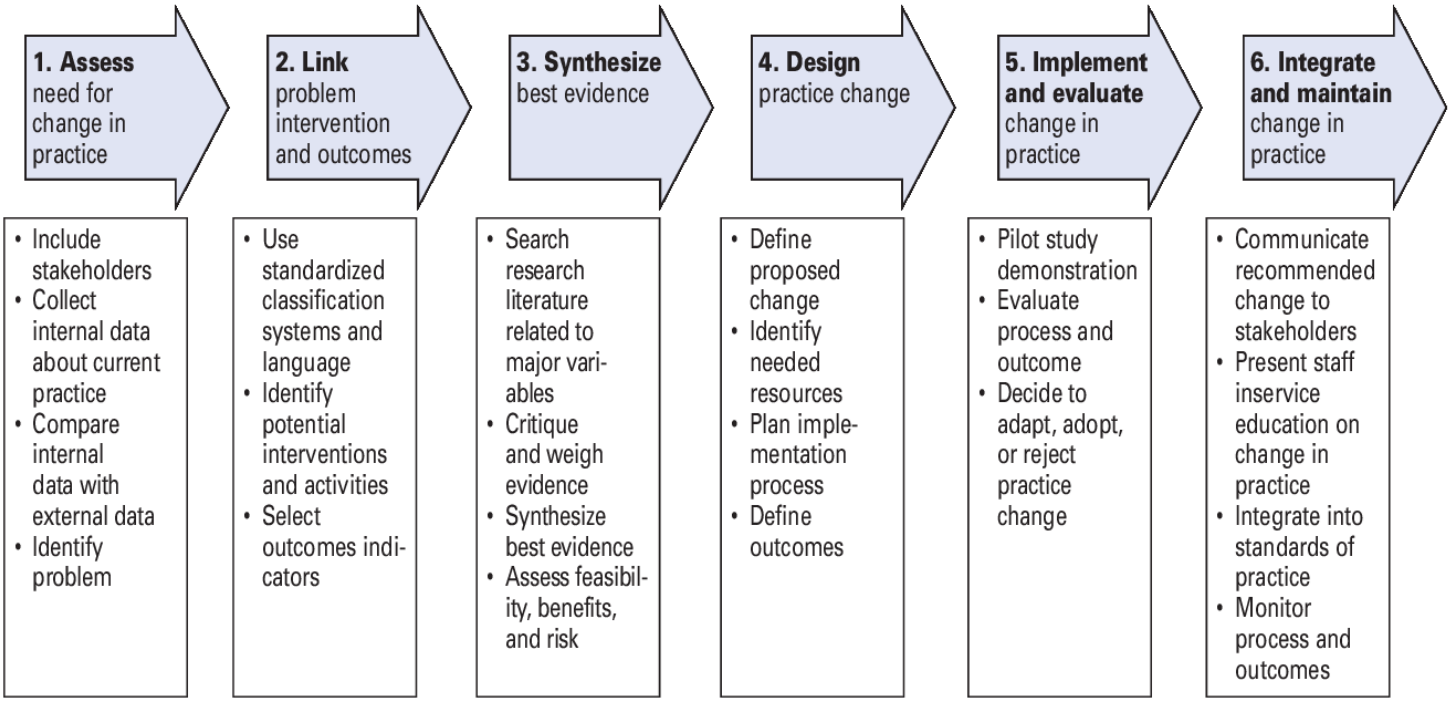


`

(Fanwang0912, 2019)

Figure B2

Rosswurm and Larrabee's Model for evidence-based practice



Rosswurm & Larrabee (1999)

Appendix C

IRB Approval Letter

APPROVAL: EXPEDITED REVIEW

Carol Moffett
EDSON: DNP
-
Carol.Moffett@asu.edu

Dear Carol Moffett:

On 8/7/2023 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Increasing Contraception Knowledge to Decrease Unintended Pregnancies
Investigator:	Carol Moffett
IRB ID:	STUDY00018354
Category of review:	(7)(a) Behavioral research
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	• Crossroads Consent Form, Category: Consent Form; • Educational Presentation, Category: Technical materials/diagrams; • IRB Protocol, Category: IRB Protocol; • Letter of Support, Category: Off-site authorizations (school permission, other IRB approvals, Tribal permission etc); • Post-Test, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Pre-Test, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Reproduction in Recovery Brochure, Category: Technical materials/diagrams; • Tool Permission, Category: Off-site authorizations (school permission, other IRB approvals, Tribal permission etc);

The IRB approved the protocol effective 8/7/2023. Continuing review is not required for this study. All modifications to studies approved as Expedited and Full Board **must** be submitted for review and approval.

When consent is appropriate, you must use final, watermarked versions available under the "Documents" tab in ERA-IRB.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc: Katherine Goodloe
Carol Moffett
Katherine Goodloe

Appendix D

Consent Form

My name is Katherine Goodloe, I am Doctor of Nursing Practice (DNP) student under the direction of Dr. Carol Moffett in the Edson College of Nursing and Health Innovation at Arizona State University. I am conducting a quality improvement project to increase knowledge around reproductive health and contraception options.

Everyone will sit through the educational session regarding reproductive health and contraception options. This will take approximately 45 minutes. However, I am inviting your participation to complete a pre- and post-evaluation questionnaire. Completing these questionnaires is voluntary. The pre and post evaluation questionnaire will each take about 15 minutes to complete.

Your participation in this project is voluntary. If you choose not to participate or to withdraw from the project at any time, there will be no penalty.

The benefit of your participation is increasing your personal knowledge about reproductive health and contraception options. What you choose to do with this information is your choice. You will not be required to acquire any form of contraceptive. There are no foreseeable risks or discomforts tied to your participation.

Inclusion criteria includes English speaking women between the ages of 18-45 who still have the ability to have children

Exclusion criteria includes non-English speaking, women who are over the age of 45, and women who have had nonreversible forms of contraception performed including hysterectomy and tubal ligation.

Measures are being taken to maintain confidentiality. We will not collect identifying information in the survey. We will ask you to create an anonymous reproducible ID # which will be used to link your responses. Instructions for creating this ID can be found on the questionnaire forms. Data collected as a part of this project will be used in reports, presentations, and publications but will not be used for future research projects

If you have any questions concerning the project, please contact the research team at: Carol.Moffett@asu.edu and kgoodlo1@asu.edu. If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

By filling out the pre and post questionnaire, you are agreeing to be part of this project.

Appendix E

Pre-Contraceptive Knowledge Assessment

Subject I.D.: _____ Date: _____1

Pre-Contraceptive Knowledge Assessment

Creating the Subject I.D.: The Subject I.D. is specific to you. This is a combination of letters and numbers that will be easy for you to reproduce but difficult to trace back to you. It will allow the pre- and post-assessment to be linked for evaluation. **Directions:** Pick the first three letters of your mother's name and the last 3 digits of your phone number. For example, if my mother's name is Samantha and my phone number is 123-456-7890, write 'sam890'.

Instructions: Please place an **X** or a **√ (check mark)** by the answer that best applies to yourself

Age(years) _____

What gender do you identify as?
Male_____
Female_____
Other_____ (specify)

Please specify your ethnicity
Caucasian/White_____
African American/Black_____
Latino or Hispanic_____
Asian_____
Native American_____
Native Hawaiian or Pacific Islander_____
Other_____

What is the highest degree or level of education you have completed?
Some High School_____
High School_____
Bachelor's Degree_____
Master's Degree_____
Ph.D. or higher_____
Trade School_____

Marital Status?
Married_____
Widowed_____
Separated_____
Divorced_____
Single_____

What is your sexual orientation?
Heterosexual or straight _____
Gay_____
Lesbian_____
Bisexual_____
Not listed above (please specify) _____

How many children do you have? _____

Have you ever had an unintended (unwanted or mistimed) pregnancy?
Yes_____
No_____

Are you currently using any form of birth control?
Yes_____
No_____

What forms of birth control have you used in the past? (Mark all that apply)
None_____
Pull Out Method_____
Condoms_____
The Pill_____
The Patch_____
The Ring (NuvaRing) _____
The Shot (Depo) _____
The Implant (Nexplanon) _____
IUD_____
Sterilization (Tubes Tied) _____
Emergency Contraception (Plan B) _____

Are you interested in obtaining birth control in the near future?
Yes_____
No_____
Unsure_____

Data Entry: _____ Data Validation: _____ Data Analysis: _____

Subject I.D.: _____ Date: _____2

Pre-Contraceptive Knowledge Assessment

Please **CIRCLE ONE** answer for each question

1. When during a woman's cycle is she most likely to become pregnant?
A. During her period (start of cycle)
B. 3 days after her period ends
C. Two weeks before her next period starts
D. 3 days before she gets her period (end of cycle)
E. I don't know

2. How long can sperm stay alive in a woman's body?
A. 1–3 hours
B. 24 hours
C. 3–5 days
D. 7–10 days
E. I don't know

3. Which of the following choices is TRUE about pregnancy?
A. You cannot become pregnant the first time you have sex
B. You cannot become pregnant if you have sex standing up
C. You cannot become pregnant if you do not have an orgasm
D. None of the above are true
E. I don't know

4. Which of the following choices is TRUE about withdrawal, or the "pull-out" method?
A. Semen may be released before ejaculation
B. Withdrawal works as well as condoms at preventing pregnancy
C. Withdrawal can protect against some sexually transmitted diseases (STDs)
D. Withdrawal works as well as the birth control pill at preventing pregnancy
E. I don't know

5. Which birth control method guarantees you will not become pregnant?
A. None
B. Using a condom every time you have sex
C. Douching, showering, or bathing immediately after sex
D. "Pulling out" before ejaculation
E. I don't know

6. Which is the only birth control method that helps prevent infections?
A. The birth control pill
B. Male and female condoms
C. Depo-Provera ("the shot")
D. The IUD (intrauterine device, the "T")
E. I don't know

7. All of the following are TRUE about using male condoms EXCEPT:
A. You should use water-based lubricants with spermicide
B. Wear two condoms to be extra safe
C. Prevent air bubbles by holding the condom tip when putting it on
D. Check the expiration date and keep them in a cool and dry environment (i.e. not in a wallet or in a car)
E. I don't know

8. Hormonal birth control comes in which of the following forms?
A. Pills taken by mouth
B. Patch worn on the skin
C. Ring placed in the vagina
D. All of the above
E. I don't know

Data Entry: _____ Data Validation: _____ Data Analysis: _____

Subject I.D.: _____ Date: _____3

9. Which one is NOT a benefit of hormonal birth control?
A. Improvement of diabetes
B. Improvement of acne
C. Reduction in menstrual cramps and bleeding problems like anemia
D. Decreased risk of ovarian and uterine cancer
E. I don't know

10. How long should the vaginal ring (NuvaRing) stay in place before changing it?
A. 1 day
B. 1 week
C. 3 weeks
D. 1 month
E. I don't know

11. Which of the following can make hormonal birth control less effective?
A. Seizure (epilepsy) medicine
B. HIV medicine
C. Herbal supplements
D. All of the above
E. I don't know

12. What is the main way that birth control pills work?
A. It prevents the ovary from releasing the egg (ovulation)
B. It prevents sperm from entering the uterus
C. It prevents the fertilized egg from implanting in the uterus
D. It prevents the embryo from growing past a certain size
E. I don't know

13. Birth control pills can have which of the following ingredients?
A. Testosterone
B. Estrogen
C. Magnesium
D. Calcium
E. I don't know

14. You should NOT use the birth control pill if you have any of the following:
A. Fibroids
B. Drink alcohol
C. Currently taking antibiotics
D. None: it is safe to use the birth control pill in all of these situations
E. I don't know

15. How long after a woman stops using birth control can she become pregnant?
A. Immediately
B. 1 month
C. 3 months
D. 6 months
E. I don't know

16. If you forget to take one birth control pill and remember the next day, what should you do?
A. Throw the missed pill away and then continue the following day from where you left off
B. Take the rest of the week's pills at once and then start the placebo ("reminder") week
C. Take two pills then continue
D. Throw the missed pill away and wait 1 month to start a new pack
E. I don't know

17. Which of the following is FALSE about Depo-Provera (the "shot")?
A. It is administered every 3 months
B. Gradual weight gain is possible
C. It might take a few months after stopping to become pregnant
D. It cannot be used while breastfeeding
E. I don't know

Data Entry: _____ Data Validation: _____ Data Analysis: _____

18. Which of the following birth control methods may be reversed if you decide you want to become pregnant?
A. Tubal ligation ("tying your tubes" or "cutting your tubes")
B. Essure coils
C. Vasectomy
D. IUD (intrauterine device)
D. I don't know

19. Which birth control method is not easily noticed by a partner?
A. The IUD (intrauterine device)
B. The vaginal ring
C. Male condom
D. Female condom
E. I don't know

20. A doctor places an IUD (intrauterine device) in what part of the body?
A. Fallopian tube
B. Uterus
C. Cervix
D. Vagina
E. I don't know

21. Which method of birth control is the best at preventing pregnancy?
A. The IUD (intrauterine device)
B. Depo-Provera ("the shot")
C. Male Condom
D. Withdrawal ("pull-out method")
E. They are all equally effective
F. I don't know

22. Which choice is FALSE about IUDs (intrauterine devices)?
A. Women of all ages may get an IUD
B. Women who have never had a baby may get an IUD
C. Women can have an IUD put in right after having a baby or having an abortion
D. Women cannot get an IUD if they have ever had a sexually transmitted disease (STD)
E. I don't know

23. A doctor places the birth control implant (Nexpla-non) in what part of the body?
A. Thigh
B. Vagina
C. Arm
D. Buttock
E. I don't know

24. How soon after sex must the "morning after pill" (or Plan B) be used to be effective?
A. 1 hour
B. 24 hours
C. 5 days
D. 20 days
E. I don't know

25. How can you get the emergency contraceptive pill called Plan B (or "the morning-after pill")?
A. If under age 18, you cannot get it, even with a prescription
B. If under age 21, you must have your parent go with you to the doctor for a prescription
C. All women must have a prescription, no matter her age
D. You can buy it at the pharmacy, without a prescription, no matter what age
E. I don't know

Haynes, M. C., Ryan, N., Saleh, M., Winkel, A. F., & Ades, V. (2017). Contraceptive knowledge assessment: Validity and reliability of a novel contraceptive research tool. *Contraception (Stoneham)*, *95*(2), 190–197. https://doi.org/10.1016/j.contraception.2016.09.002

Appendix F

Post-Contraceptive Knowledge Assessment

Subject I.D. _____ Date: _____1

Post-Contraceptive Knowledge Assessment

Creating the Subject I.D.: The Subject I.D. is specific to you. This is a combination of letters and numbers that will be easy for you to reproduce but difficult to trace back to you. It will allow the pre- and post-assessment to be linked for evaluation. **Directions:** Pick the first three letters of your mother's name and the last 3 digits of your phone number. For example, if my mother's name is Samantha and my phone number is 123-456-7890, write 'sam890'.

Please **CIRCLE ONE** answer for each question

1. When during a woman's cycle is she most likely to become pregnant?
A. During her period (start of cycle)
B. 3 days after her period ends
C. Two weeks before her next period starts
D. 3 days before she gets her period (end of cycle)
E. I don't know

2. How long can sperm stay alive in a woman's body?
A. 1–3 hours
B. 24 hours
C. 3–5 days
D. 7–10 days
E. I don't know

3. Which of the following choices is TRUE about pregnancy?
A. You cannot become pregnant the first time you have sex
B. You cannot become pregnant if you have sex standing up
C. You cannot become pregnant if you do not have an orgasm
D. None of the above are true
E. I don't know

4. Which of the following choices is TRUE about withdrawal, or the "pull-out" method?
A. Semen may be released before ejaculation
B. Withdrawal works as well as condoms at preventing pregnancy
C. Withdrawal can protect against some sexually transmitted diseases (STDs)
D. Withdrawal works as well as the birth control pill at preventing pregnancy
E. I don't know

5. Which birth control method guarantees you will not become pregnant?
A. None
B. Using a condom every time you have sex
C. Douching, showering, or bathing immediately after sex
D. "Pulling out" before ejaculation
E. I don't know

6. Which is the only birth control method that helps prevent infections?
A. The birth control pill
B. Male and female condoms
C. Depo-Provera ("the shot")
D. The IUD (intrauterine device, the "T")
E. I don't know

Data Entry: _____ Data Validation: _____ Data Analysis: _____

Subject I.D. _____ Date: _____2

7. All of the following are TRUE about using male condoms EXCEPT:
A. You should use water-based lubricants with spermicide
B. Wear two condoms to be extra safe
C. Prevent air bubbles by holding the condom tip when putting it on
D. Check the expiration date and keep them in a cool and dry environment (i.e. not in a wallet or in a car)
E. I don't know

8. Hormonal birth control comes in which of the following forms?
A. Pills taken by mouth
B. Patch worn on the skin
C. Ring placed in the vagina
D. All of the above
E. I don't know

9. Which one is NOT a benefit of hormonal birth control?
A. Improvement of diabetes
B. Improvement of acne
C. Reduction in menstrual cramps and bleeding problems like anemia
D. Decreased risk of ovarian and uterine cancer
E. I don't know

10. How long should the vaginal ring (NuvaRing) stay in place before changing it?
A. 1 day
B. 1 week
C. 3 weeks
D. 1 month
E. I don't know

11. Which of the following can make hormonal birth control less effective?
A. Seizure (epilepsy) medicine
B. HIV medicine
C. Herbal supplements
D. All of the above
E. I don't know

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B. It prevents sperm from entering the uterus
C. It prevents the fertilized egg from implanting in the uterus
D. It prevents the embryo from growing past a certain size
E. I don't know

13. Birth control pills can have which of the following ingredients?
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C. Magnesium
D. Calcium
E. I don't know

14. You should NOT use the birth control pill if you have any of the following:
A. Fibroids
B. Drink alcohol
C. Currently taking antibiotics
D. None: it is safe to use the birth control pill in all of these situations
E. I don't know

15. How long after a woman stops using birth control can she become pregnant?
A. Immediately
B. 1 month
C. 3 months
D. 6 months
E. I don't know

Data Entry: _____ Data Validation: _____ Data Analysis: _____

Subject I.D. _____ Date: _____3

16. If you forget to take one birth control pill and remember the next day, what should you do?
A. Throw the missed pill away and then continue the following day from where you left off
B. Take the rest of the week's pills at once and then start the placebo ("reminder") week
C. Take two pills then continue
D. Throw the missed pill away and wait 1 month to start a new pack
E. I don't know

17. Which of the following is FALSE about
Depo-Provera (the "shot")?
A. It is administered every 3 months
B. Gradual weight gain is possible
C. It might take a few months after stopping to become pregnant
D. It cannot be used while breastfeeding
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18. Which of the following birth control methods may be reversed if you decide you want to become pregnant?
A. Tubal ligation ("tying your tubes" or "cutting your tubes")
B. Essure coils
C. Vasectomy
D. IUD (intrauterine device)
D. I don't know

19. Which birth control method is not easily noticed by a partner?
A. The IUD (intrauterine device)
B. The vaginal ring
C. Male condom
D. Female condom
E. I don't know

20. A doctor places an IUD (intrauterine device) in what part of the body?
A. Fallopian tube
B. Uterus
C. Cervix
D. Vagina
E. I don't know

21. Which method of birth control is the best at preventing pregnancy?
A. The IUD (intrauterine device)
B. Depo-Provera ("the shot")
C. Male Condom
D. Withdrawal ("pull-out method")
E. They are all equally effective
F. I don't know

22. Which choice is FALSE about IUDs (intrauterine devices)?
A. Women of all ages may get an IUD
B. Women who have never had a baby may get an IUD
C. Women can have an IUD put in right after having a baby or having an abortion
D. Women cannot get an IUD if they have ever had a sexually transmitted disease (STD)
E. I don't know

23. A doctor places the birth control implant (Nexpla-non) in what part of the body?
A. Thigh
B. Vagina
C. Arm
D. Buttock
E. I don't know

Data Entry: _____ Data Validation: _____ Data Analysis: _____

Subject I.D. _____ Date: _____4

24. How soon after sex must the "morning after pill" (or Plan B) be used to be effective?
A. 1 hour
B. 24 hours
C. 5 days
D. 20 days
E. I don't know

25. How can you get the emergency contraceptive pill called Plan B (or "the morning-after pill")?
A. If under age 18, you cannot get it, even with a prescription
B. If under age 21, you must have your parent go with you to the doctor for a prescription
C. All women must have a prescription, no matter her age
D. You can buy it at the pharmacy, without a prescription, no matter what age
E. I don't know

Instructions: Please place an **X** or a **√ (check mark)** by the answer that best applies to yourself

Was the reproductive health and contraception education informative?
Yes, extremely informative_____
Somewhat informative_____
Unsure_____
Not at all informative_____

Are you interested in obtaining any form of birth control in the near future?
Yes_____
No_____
Unsure_____

If you are interested in obtaining birth control, which form are you MOST interested in?
Condoms_____
The Pill_____
The Patch_____
The Ring (NuvaRing) _____
The Shot (Depo) _____
The Implant (Nexplanon) _____
Copper IUD_____
Hormonal IUD_____
Sterilization (Tubes Tied) _____

Do you need additional information to help you decide?
Yes_____
No_____

Haynes, M. C., Ryan, N., Saleh, M., Winkel, A. F., & Ades, V. (2017). Contraceptive knowledge assessment: Validity and reliability of a novel contraceptive research tool. *Contraception (Stoneham)*, *95*(2), 190–197. https://doi.org/10.1016/j.contraception.2016.09.002