REPRODUCTIVE COERCION: AN INNOVATIVE INTERVENTION FOR ADOLESCENT FEMALES

by

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Introduction

One in three adolescent females experience relationship abuse at least once in their lifetime (McCauley et al., 2014). As a result, these women are more likely to engage in risky sexual behaviors, including having multiple sex partners, inconsistent condom use, having unintended pregnancies, and developing sexually transmitted diseases (STDs). One way to combat this issue is to teach the youth about reproductive coercion (RC).

Many might initially think of RC as synonymous with rape or sexual abuse, however, it is a much broader concept and needs to be a topic of discussion with all adolescents. RC is a form of relationship abuse that can increase the risk of unintended pregnancies (Hill et al., 2019). More specifically, RC is related to behavior that interferes with contraception use and pregnancy coercion. Examples of RC include hiding, withholding, or destroying a partner's oral contraceptives; breaking or poking a hole in a condom or removing a condom during sex in an attempt to promote pregnancy; not withdrawing when that was agreed upon beforehand; and removing vaginal rings, contraceptive patches, or intrauterine devices (IUDs) (Hill et al., 2019). Furthermore, RC can contribute to health disparities, including high unintended pregnancy rates and sexually transmitted infections (STIs). Being able to understand and address RC is essential to equip adolescents with the resources needed to protect their reproductive rights.

The term RC was formally introduced in 2010 when the director of adolescent and young adult medicine at UPMC Children's Hospital of Pittsburgh, Elizabeth Miller, identified and studied this form of abuse (Casastpete, 2021). Miller found that one-third of women who have reported experiencing RC have also experienced physical abuse from that same partner. Furthermore, her team also discovered that homicide is a leading cause of death for pregnant

women in abusive relationships, and physical abuse increases when a woman becomes pregnant (Casastpete, 2021).

However, RC can occur to anyone regardless of their background. A study done in Northern California found that 12% of sexually active high school females surveyed reported recent RC. Of these women, results showed that 14.9% were African American, 14.8% were Hispanic, and 3.7% were White women (Hill et al., 2019). Another study found that the prevalence of physical intimate partner violence was higher among bisexual women (61%) and lesbian women (44%) compared with their heterosexual counterparts (35%) (McCauley et al., 2014). It was also found that lesbian adolescents (ages 15-20) are six times more likely and bisexual adolescent females are three times more likely than heterosexual adolescents to be forced by a man to have sexual intercourse (McCauley et al., 2014). This is an alarming trend showing that there is a vulnerability among sexual minority women. A study conducted by Kraft et al. (2021) found that the most common forms of RC adolescent females reported were their partner telling them not to use birth control, threatening to leave if they did not get pregnant, and taking off or breaking a condom so they would get pregnant. These reported behaviors from their partners show various ways RC can occur in a relationship. Lastly, a study conducted by Northridge et al. (2017) found that one in five women reported having been coerced into having sex without a condom. This same study also found that girls who had reported RC are five times more likely to report intimate partner violence. All of these studies highlight the unfortunate effects that RC can have on adolescent females and prove that there needs to be a system in place to educate young women about safe sex, pregnancy risks, STIs, coercion, etc.

Gamification can enhance and provide awareness of RC among adolescent females. In doing so, there can be a creation of interactive learning experiences using interactive scenarios,

quizzes, etc., based on elements that were positive in other gamification apps. The use of gamification can empower young adolescent females ages 14-19 years to be able to recognize signs of RC, advocate for their reproductive rights, and gain knowledge from access to resources within the application. This approach can not only make learning fun and engaging but also ensure that adolescents are gaining real-life scenarios and retaining the information given. There is a need to create more gaming applications to make learning more achievable for adolescents. Only nine apps were deemed to have adequate grading of recommendations assessment, development, and evaluation (GRADE) framework (Muehlmann & Tomczyk, 2023). This highlights the gap in the availability of high-quality educational application tools to be able to equip adolescents to navigate issues like RC.

Purpose Statement

This paper aims to provide an overview of RC, focusing on adolescent females and the best method of providing pregnancy prevention education through increased knowledge and understanding of RC through created modules that will be used in the spring to create a gaming intervention.

Literature Review

During my literature search this past summer, I was responsible for researching how to incorporate gaming interventions into modules for adolescents, while my partner simultaneously focused on how adolescents learn and the most effective learning styles. Through my first literature review, gamification emerged as a promising approach to enhance sexual education among young adolescents. The article, “Improving Sexual Health Education Programs for Adolescent Students through Game-Based Learning and Gamification,” states that game-based

learning (GBL) is an effective method for delivering sexual health education. Given that adolescents are exposed to mobile applications, this method is essential because it creates a sense of comfort and familiarity. The article by Haruna et al. (2018) discusses that games are a good form of motivation for educating adolescents rather than traditional learning styles. By addressing the best learning styles for adolescents and integrating a game-based learning approach, we can supply the resources to provide an effective way to educate adolescents.

In other studies, they examined previous mobile application interventions such as “Girl Talk”, “The Secret of Seven Stones” (SSS), “Tumaini”, “MYPEEPS”, “IYG”, and “MyPlan Kenya”. These applications were created to address reproductive health among young adolescents and to contribute to insights gained from the development of these mobile applications into future interventions. The app “Girl Talk” and MYPEEPS aim to provide sexual health education to adolescent girls aged 12-17 years, contributing to topics such as contraception, STIs, and overall sexual health. In the application Girl Talk, phase one explored 22 girls to create the development of the app using questionnaires. Then, phase two involved 17 girls who used the app for two weeks. After two weeks, the participants were evaluated with interviews to allow their feedback on the app's overall appeal and a post-quiz to examine if their sexual health knowledge improved. The MYPEEPS mobile application examines the challenges and risk factors for transgender men. This study tested 20 participants aged 15-25 years who had reported engaging in condomless sex with their partners. The study included myths related to HIV, HIV education, risk reduction activities, and coping strategies.

The SSS and Tumaini both educate adolescents about HIV prevention. In the game, The Secret of Seven Stones, they analyzed 11-14-year-old females and males. The pilot study was conducted, and followed up two weeks later. The prototype for the application included 18

levels. The appeal of the game was that there was an interactive adventure format where the participants were able to create their avatars and encounter other avatars and help them face sexual health challenges. Another interesting application of the game was that it included parent-engage-plan (PEP) talks to help facilitate communication and bridge the gap to encourage children to communicate with their parents about sexual health questions. In the app Tumaini, the game also focuses on the prevention of HIV, however, it is among young adolescent Africans ages 10-14 years. The intervention of the study was a little over 2 weeks, studying 30 participants. The design is similar to SSS in that adolescents can navigate at their own pace on their mobile phones while also encouraging open communication with their parents about their sexual health. There was part one of the study that analyzed the effectiveness of gaming technology in increasing HIV testing among 13-24-year-old adolescents. The study lasted six months, and 300 participants were studied. Quantitative analysis was done to gather information pre- and post-study on the participants' knowledge of HIV testing as well as their behavior change regarding HIV testing.

It's Your Game studied the middle school population to see the impact of sexual health among this age group. The application was administered in the middle school curriculum and had 24 lessons on HIV testing and the prevention of teen pregnancy. This was a three-year-long program. The breakdown was that teachers in 7th grade delivered 18 lessons, and then teachers in 8th grade delivered 6 lessons. The students, then in 9th grade, receive a post-test to compare their knowledge. Over the years, the study was able to gather data from 4,562 students. The setting was administered to students in areas where teenage birth rates are high and have low socioeconomic status.

MyPlan Kenya helps adolescents focus on making safe choices regarding their sexual health, allowing them access to resources and services for abuse. In MyPlan Kenya, this study provides safe strategies for women aged 18-35 years who have experienced intimate partner violence. The program lasted three months and was deemed the "first algorithm-based safety intervention app available in this setting" (Decker et al., 2020).

In the second part of this project, I conducted a media-based content review. I shifted focus to identifying content that matched our module format, guided by my partner's findings on adolescent learning preferences and the topics included in the modules. I searched for content on YouTube that would help with overviews of certain topics like the reproductive system, healthy relationships, STIs, etc. I filtered out videos that were long in length and chose engaging educational videos that were under five minutes. I also prioritized cartoon-style videos to make the content more visually appealing and accessible for younger users. A website that was a standout resource was the Amaze website, which offered a lot of animated videos on sex education and relationships. These videos stood out because of their age-appropriate and reliable information, along with aligning with our module's goals. I chose YouTube as a platform because it is a familiar platform that adolescents use. Many of the videos chosen use scenario-based learning, which allows the user to see real-life situations, such as talking to the healthcare provider about birth control options or the warning signs of unhealthy relationships. The use of these videos helps with encouraging critical thinking with decision-making skills. Next, I also included interactive tools like matching games, quizzes, and a choose-your-own-adventure game using the selected media content as the foundation. For example, I used resources from the CDC to create a matching game of STI signs and symptoms, contraceptives, etc. This allowed me to use these sources to create interactive games that are reliable and engaging.

Results-Modules

Within each of the six 60-minute modules, I incorporated gaming interventions based on the media tools that aligned with the content areas that were designed and outlined by my partner in Phase 1. Module one introduces the background of RC, types, prevalence, and the dynamics between power and control in relationships. For the background, I included an overview of Elizabeth Miller, the researcher who coined the term RC, explaining how this is a new and emerging form of abuse. I included YouTube videos explaining RC and the different types of examples. I also included the prevalence of RC using sources from peer reviews and ACOG. The statistics can be included in a more engaging manner within the module. Lastly, I included the Power and Control Wheel that is embedded throughout the modules to illustrate the cross-section between IPV and RC. The module will include a "Power and Control" game that presents relationship scenarios where the user will be able to label the scenario as healthy or unhealthy. For example, one healthy scenario involves a partner encouraging time with their family, whereas an unhealthy scenario involves the partner threatening to self-harm if the partner were to leave them. By the end of this module, the user should be able to define RC and identify examples, understand the difference between RC and IPV, and classify the relationship scenarios as either healthy or unhealthy with the help of the Power and Control Wheel.

Module two consists of the negative health sequelae of RC. The module includes STI education and forced sex or survival sex. At the beginning of this module, I included a YouTube video explaining how STIs are contracted, the signs and symptoms, and the importance of incorporating safe sex. After this video, there will be a matching game where users will match each STI to the signs and symptoms, methods of transmission, treatments, and viral vs bacterial

classifications. In this module, I also included skits of real-life scenarios to help users understand how coercion can involve the manipulation of sex, and a tactic that could be for resources. A choose-your-own adventure game is also included to see how these situations can also lead to unintended pregnancies, STIs, etc. At the end of the module, it will conclude with a section on PTSD detailing what it is, how it can result from coercion, and resources to seek help. By the end of this module, users should be able to understand STIs, correlate how RC can increase the risk of STIs, unintended pregnancies, and PTSD, and gain an understanding of coercive situations by using the choose-your-own-adventure game.

Module three focuses on pregnancy, STIs, and contraception. In the module, I included a basic overview of the reproductive system. I also put in a chart of the different methods of contraceptives, including barriers and non-barriers. To help the users understand hormonal contraception, I included a YouTube video explaining how birth control pills work in the body. I also included a CDC article on contraception and emphasized discreet birth control methods that also could be used–particularly ones that allow menstruation to still occur normally–for users who are in controlling relationships. In the module, I included a "myth vs fact" contraception and sex game that allows users to be able to test their knowledge with prompts such as "You can't get pregnant if you have sex on your period" for the user to decide if this is essentially true or false. To wrap up this module, we include free digital intervention apps such as birth control trackers or educational apps for the user to explore more on their own device. By the end of this module, the user should be able to identify different types of contraception and understand the basic anatomy of the reproductive system.

Module four is about recognizing power and control in relationships. I included YouTube videos that show what a healthy relationship looks like, as well as red flags that abusers may say

in relationships. There is also a self-guided quiz that users can decide whether they would like to take or not to assess whether they are in a healthy or unhealthy relationship. We will also introduce the CARR acronym (Caring, Attentive, Respectful, Responsible) to help adolescents understand whether their partners demonstrate these behaviors and that these behaviors are the role model behaviors that they should be looking for in a partner. I also wanted to include a decision-making game within this module to allow the user to respond to unhealthy relationships and navigate these scenarios. By the end of this module, the user should be able to recognize power and control in relationships, assess relationship dynamics using the CARR acronym, and practice decision-making skills.

Module five is about practicing communication skills to help create barriers and refusal strategies for RC. For this, I was able to write original short stories that included real-life scenarios of RC. For example, one of the topics was about setting boundaries with your partner when they keep asking about having sex without a condom. These short stories were designed to be relatable and help adolescents navigate uncomfortable situations. By the end of this module, the user should be able to identify strategies that help set boundaries and gain confidence in being able to express their own beliefs about their bodies.

Module six empowers users by driving the idea that “You are in control of your body.” The module includes positive self-affirmations to help self-esteem. Along with goal-setting activities to help the user identify both short and long-term goals that they want in their current or future relationships. At the end of this module, there will be key takeaways that are highlighted so that we reinforce the user's understanding. Also, there will be a reflection piece that allows user to share their thoughts, questions, and feedback. At the end of this module, users

should be able to gain confidence in themselves and show an understanding of RC by having the knowledge and tools to navigate the outside world with their own relationships.

Discussion

The development of this project was both educational and empowering. I feel like creating this intervention gave me a deeper understanding of RC and how important it is to address this topic. RC is a critical topic and yet an under-discussed topic in adolescent sexual health education. Some key takeaways from the literature review are that incorporating interactive tools such as quizzes, games, and videos helps with adolescent engagement and improves learning. Because RC is under-addressed in traditional sex-educational classes, it is important to address this to reduce IPV and prevent a gap by allowing adolescents to learn about power and control dynamics and healthy relationship behaviors. I hope that this project will eventually be conducted and not only inform but also empower young individuals to be able to recognize red flags in relationships and gain the confidence and courage to make choices that reflect their own values.

While the content was meaningful, there were also a few challenges. One of the challenges I faced was filtering out existing content. It was difficult because I had to narrow down my search since either the videos were too long in length, the content didn't fit the audience, or I felt like the content didn't give the necessary information. I also think that some other challenges I faced were that I felt like I relied too heavily on external resources. I think in the future, we can tailor the video content to our own. But for now, we've included sample formatting and YouTube videos as placeholders. However, I did enjoy creating module five, where I incorporated my own creative writing, which made the content feel more personal and

unique. I also hope to incorporate more interactive games within each module. Once we receive funding to develop these tools, I believe it will be easier to create these games and develop the flow of each section.

Some barriers we may face when finding users for the program can include cultural considerations. RC is a very sensitive topic and may not be well-received. However, it is important to spread awareness and get this information out there so that it is more talked about and less sensitive. Another potential barrier is access to technology. We hope to spread this program, and not all participants may have reliable access to computers, phones, or tablets. Since our modules include videos, interactive games, etc, it may be hard for the consistency or engagement of the program.

For future implementations, we intend to conduct a single-group, interventional study during the academic year of 2025-2026 using a pre/post-test design measuring knowledge and awareness of RC among adolescent females who are participating in a preexisting Adolescent Parenting Program. This will help us measure the effectiveness of the modules and identify any areas where we need to evaluate further to make revisions. As next steps, we are implementing this design across five different counties where my mentor has made connections. These design modules will be added to an existing program that is already initiated in the Health Departments within these counties. With this foundation in place to integrate our design, we are optimistic that we will be supported with future funding to further enrich our modules and implement this educational experience, reaching a broader population.

Conclusion

This project emphasized the need for awareness of having RC implemented into sexual health education. By being able to integrate gamified learning strategies into content within modules, we will be able to help fill in the gap with knowledge of RC. The six-module intervention will not only increase awareness but also give tools to empower young adolescent females to be able to recognize unhealthy relationships and be able to make informed choices regarding their reproductive health as well. Through this project, I have been able to learn how research can directly shape healthcare. Moving forward, I hope that this project can be expanded into sexual health education for broader use in schools, curricula, and clinics.

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