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Going Beyond Abstinence Only: A Bioethical Analysis on Educating Adolescents on Birth Control and Other Contraceptives

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by

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Introduction

Roadmap

This thesis will argue that implementing and improving upon a comprehensive sexuality education is imperative to reducing the rates of teenage pregnancy. It will begin with some background to the case. Specifically, it will introduce the issue of teenage pregnancy in our country. It will then discuss recent trends in such unintended pregnancies, as well as the current trends in types of sexuality education that young adults receive in schools. This will conclude the background information.

Next, the different types of contraception that are available to young adults will be discussed, as well as the success rates of these methods in teenagers. Some psychological studies will be used to inform this section. This will include some discussion on the general attitudes that young adults feel towards contraceptives. The role that an adolescent's cognitive development plays in their decision-making skills will also be investigated.

Next, we will analyze some socioeconomic factors that contribute to disparities in what teenagers are at the highest risk for unintended pregnancy. Some of these factors include a teenager's race, ethnicity, and social class.

Following will be a short discussion about the biological implications of birth control. Included will be a discussion on the negative health outcomes of pregnancy in adolescents. There will also be an investigation on the actual biological mechanisms of birth control, as well as potential side effects of contraception.

The background information will conclude with the discussion of a survey conducted on DePauw University's campus among undergraduate students regarding their objective knowledge about contraception, as well as their attitudes about sex education in their high school and post-high school graduation education.

After this important analysis of the literature about teenage pregnancies, the actual argumentation will begin: that a full, comprehensive sexuality education is imperative to mitigate the substantial risks faced by young adults who may become pregnant. Two central arguments in favor of this position will be advanced. The first will be that the education of teenagers about the risks and preventative methods for pregnancy gives them the most autonomy to make informed decisions about their reproductive health. The second will be that the prevention of unintended pregnancies in teenagers is a social justice issue that may be mitigated by the improved education of teenagers from low socioeconomic backgrounds.

Potential objections to this argument will then be addressed and discussed, and ultimately rejected: the first objection is that the discussion of contraception in schools will increase unhealthy sexual behaviors of teenagers; the second objection is that contraceptives have significant side effects, such that their promotion would be an act of maleficence.

Recent Trends in Teenage Pregnancy

In order to properly examine the importance of educating teenagers on contraception, the actual trends in teen pregnancies must be understood. Such trends might indicate patterns and correlations to potentially explain where problems have been, and at the same time what solutions to the issues have actually worked.

It has been widely shown that trends in teenage pregnancy have exhibited a decline since 1957. The rate sharply increased from 1986 to 1991, but then has continued its decline from 1991 to the present (Ventura et al, 2014, 2). A potential explanation for the increased rate of decline in unintended teen pregnancy from 1991 to the present may be due to the preceding steep upturn in those previous years, which sparked more discussion and education on how to prevent

pregnancies, including abstinence and, for those sexually active, the use of contraceptives) (Ventura et al, 2014, 9). Notably, in 2009 and ever since, rates have reached nationally historic lows (Hamilton & Mathews, 2016, 1). It is also important to note that, though significant disparities remain in pregnancy rates among teens of different races, this downward trend exists among all races in the United States (Ventura et al, 2014, 4). The decline in pregnancy rates is shown to be due most significantly to the increased use of contraceptives, and also in part to decreased or delayed sexual activity (Santelli et al, 2007, 154). This evidence indicates that continued education about contraceptives, more than abstinence education, might contribute to a continued decline in unintended pregnancy rates.

In spite of the decreased numbers of unintended teen pregnancies in recent years, the United States continues to have one of the highest rates compared to other industrialized countries (Ventura et al, 2014, 7; Hamilton & Mathews, 2016, 5). Most other comparable countries also experienced declines in their unintended pregnancy rates, and many now have one fifth or less the rate as the United States (Ventura et al, 2014, 7). There is still much work that needs to be done in order to continue to lower these rates across all races and age ranges.

Regardless, given the promising downward trend of teen pregnancies, an understanding of the possible causes for this improvement are critical to continuing this trend into the future.

Current Sex Education Programs

A potential reason for the improved rates of teen pregnancy in the United States is the way adolescents receive sex education. Interestingly, this education is important enough to warrant a recommendation by medical professionals. The American College of Obstetrics and Gynecologists recommends that people begin a comprehensive sexuality education "in early

childhood and continue through a person's lifespan" (2016, 1). All states are involved somehow in the sexuality education of school children. The two commonly compared forms of sex education are abstinence-only education programs and comprehensive sex education programs. Obviously, not all young people receive either form of education, especially if they do not attend a public school. But for those adolescents who do receive a formal program for sex education, it would come in one of these two forms.

Abstinence only programs are those that will only teach students about abstinence as pregnancy prevention (Kirby, 2008, 18). While all such programs exclusively encourage abstinence, they do vary in how they address contraceptives, where some explicitly oppose their use and emphasize their ineffectiveness, while others do not mention them at all (Kirby, 2008, 20). In stark contrast, comprehensive education programs both encourage abstinence and educate on the importance of contraceptives for those who are or will be sexually active (Kirby, 2008, 18). These programs are also diverse in content, where some emphasize abstinence as the most effective way to prevent pregnancy while still educating on contraceptives, and others place a greater emphasis on contraceptive use. These programs may vary their approach according to the age of their target audience and thereby the expected experience levels of their students (Kirby, 2008, 18). Of course, both types of programs aim at improving the sexual behaviors of their students, but with varying degrees of success.

Overwhelmingly, evidence indicates that sex education during adolescence has real outcomes for sexual behaviors: that the type of sex education we receive heavily influences our risks or lack thereof of contracting STIs, having an unwanted pregnancy, or exhibiting unhealthy sexual behaviors. So the type of education that children receive greatly influences behaviors later in life. The goals of sex education are to reduce risks – the spread of STIs and unwanted

pregnancies – and the two forms of education yield incredibly different results in their effectiveness in addressing these issues.

Comprehensive sex education is more effective than abstinence only education at reducing the risk for teen pregnancy and STIs. Some do, however, worry that educating teenagers about contraceptives might increase their sexual activity. Luckily, studies have shown that with comprehensive sex education programs, teens neither begin to have sex earlier, nor increase their sexual activity (Bennett & Assefi, 2005, 78; Kirby, 2008, 24). In fact, a 2008 study showed that while abstinence only education failed to either delay sexual initiation or improve risk of unintended pregnancy and STIs, comprehensive sex education actually decreased chances of teen pregnancy (Kohler et al, 2008, 349). It is important to note, though, that the reduced risk of pregnancy in those receiving comprehensive education is due largely in part to the increased use of contraceptives rather than decreased sexual activity (Kohler et al, 2008, 350; Kirby, 2008, 24). Obviously, evidence showing that the most important factor in the decrease in teen pregnancy is due to the increased contraceptive use, and not due to increased abstinence or abstinence intentions, brings into question abstinence-only education programs (Santelli et al, 2007, 154). With the goal of reducing teen pregnancy and STIs in mind, clearly a comprehensive education is the most effective.

In spite of the obvious disparities in each curriculum's effectiveness, abstinence-only education programs prevail in many states. In fact, as of 2014, only 60% of women received any type of education or instruction about birth control before the first time they had sex (Lindberg et al, 2016, 621). Such a figure indicates that far too few high schools are implementing comprehensive education with the information so vital to all individuals during their adolescent years.

Obviously, with unwanted teenage pregnancy rates in the United States still higher than other comparable nations, a potential area for improvement would be the implementation of more comprehensive education programs in school systems.

Forms of Contraception Available

When enacting education programs for adolescents, it is important to ensure that they are fully informed on the different types of contraceptives. It is important to note here that there are no restrictions based on age to what type of contraception an individual may choose (ACOG Committee on Adolescent Health Care, 2017, 5). Important criteria to consider are their safety, availability, effectiveness, and how they are properly used, so that young adults might make the best decisions for themselves when choosing forms of contraceptives. The best form of one contraception for one individual may vary from the best choice for others. It is therefore essential to educate teenagers from a young age on all of their potential options.

Of course, each option is not equal in their likelihood of success in preventing pregnancy. Especially in younger people, variability of effectiveness depends not only on efficacy during perfect use, but also during typical use that may not be consistent or perfect (Curtis, 2013, 4). As Trussell notes, comparisons of contraceptive failure during proper or improper use indicate that there are also differences in how "forgiving" contraceptives are to imperfect use (2011, 397). These qualities of contraceptives are also essential to the education of young adults, so that they might make decisions about contraceptives taking into account how likely they are to use their choice effectively.

Another consideration when choosing a contraceptive method is the prevention of STIs. While much of the following discussion will more carefully consider the use of contraception to

prevent unintended pregnancy, STIs are also a consequence of unprotected sex that must be taken into consideration. The spread of STIs is an issue that continues to plague sexually active adolescents, where more adolescents and young adults are more likely to "acquire…new STIs" than sexually active adults (Committee on Adolescencei, 2013, 974). Of all the contraceptive options discussed, condoms are the only ones that can play a positive role in preventing the spread of sexually transmitted infections.

Condoms

The male condom is the most commonly used form of contraception among adolescents (Otto et al 2014, 1249; Guzzo & Hayford, 2018, 38). It is not an ineffective choice, with a failure rate of 2% when used perfectly at every intercourse (Otto et al, 2014, 1249). However, typical use varies due to many factors that have been previously discussed, some of which include societal norms and the relationship between sexual partners. As such, the failure rate of typical use is 18%, and is likely even higher among adolescents (Otto et al, 2014, 1249).

There are some benefits to condoms that do not exist with other forms of contraceptives. Condoms require some responsibility taken by the male partner. Also, condoms provide protection against the spread of HIV and STIs, which is not provided by hormonal forms of birth control or even long acting reversible contraceptives (Otto et al, 2014, 1249). However, given the higher failure rate of this form of contraception, it is recommended that condoms be used in dual contraceptive use, coupling them with other forms of contraceptives like reliable hormonal forms (Otto et al, 2014, 1249).

Birth Control Pill

Birth control pills are the most commonly used hormonal form of contraceptives. They have a higher failure rate than many other hormonal contraceptives, at 9% in adults and even higher in adolescents (Otto et al, 2014, 1248). A major drawback to the birth control is that it requires daily attention. In order for effective pregnancy prevention, the pill must be taken every 24 hours. Pills often come in packs that last a month, so individuals must have easy access to new pill packs in order for continued use to be effective (Curtis, 2013, 25). If a pill is taken late – 24-48 hours since the last dose was taken – then the missed pill ought to be taken as soon as possible, and no emergency contraception is needed (Curtis, 2013, 26). However, if more than 48 hours elapse between pills, then it is recommended that other forms of contraception be used or sexual intercourse should be avoided for at least a week of regular pill-taking (Curtis, 2013, 26).

Condoms and birth control pills are both relatively effective means of birth control, however they require compliance either at each act of intercourse or on a daily basis. As previously discussed, in adolescents, the compliance rate for both the pill (Winner et al 2012, 2006; Scott et al 2011, 111; Woods et al 2006, 385) and consistent condom use (Guzzo & Hayford, 2018, 38) are lower than in adults.

Vaginal Ring

The vaginal ring, such as the NuvaRing, are rings that are inserted into the vagina for a period of 3 weeks, then removed to induce a period for a week, followed by a reinsertion of a new ring (Otto et al, 2014, 1249). Failure rates of this form are similar to other hormonal contraceptives (Otto et al, 2014, 1249). While they do not require daily attention, this form of contraception still necessitates regular compliance, with removal and reinsertion once a month.

LARCs

Long acting reversible contraceptives, or LARCs, are contraception methods that last for longer periods of time (from 3 months to up to 10 years), and which are easily reversible. These options are highly recommended by the American College of Obstetrics and Gynecologists as effective and ideal options for adolescents

> Long acting reversible contraceptive (LARC) methods have higher efficacy, higher continuation rates, and higher satisfaction rates compared with short-acting contraceptives. Because LARC methods are safe, they are excellent contraceptive choices for adolescents. (1)

As such, it is vital that adolescents be informed of these options, and informed that they are potentially the most effective and highly recommended methods available to them. As with all available contraceptive methods, the forms described below are all approved for use by adolescents and are not restricted in any way based solely on age.

There are various options for LARCs, including the injectable, implant, and IUD. The injectable, called DMPA, comes as a shot that ought to be repeated every 3 months (Curtis, 2013, 17). Hormonal implants are rods that are inserted into the arm and which may remain in place for up to 3 years. Implants have a failure rate of less than 1% (Otto et al, 2014, 1246). Both of these options have lower failure rates than condoms, birth control pills, or vaginal rings.

A third form of LARCs is the intrauterine device, or IUD. There are three types of IUDs available in the United States, the copper IUD and two forms of hormonal, levornogestrel IUDs (Curtis, 2013, 7). They also have failure rates of less than 1%, but are used by only 5.5% of women using contraception (Winner et al, 2012, 1999). However, use of IUDs by gynecologists has been increasing (Luchowski et al, 2014, 575). Once inserted, IUDs may be left for 3, 5, or 10

years depending on the form used (Otto et al, 2014, 1246). However, unlike other forms of contraception, before the insertion of this device, a cervical exam is required (Curtis, 2013, 9). This procedure is a potential drawback to adolescents when facing the decision of which type of device to use.

While LARCs do not protect against the spread of STIs or HIV like condoms, they are the most reliable form of contraception currently available. Their failure rates are incredibly low due in part because they do not require the compliance of the individual user on a regular basis. There is no risk of missing a pill or being pressured into not using a condom. They are therefore ideal for adolescents, who are at a higher risk than adults of giving in to outside pressures or simply forgetting to practice safe sexual behaviors.

Psychological Perspective

General Attitudes Towards Contraception

Young adults' and teenagers' decision-making about if and how to use contraceptives is clearly complicated and complex. While Gordon discusses these decision-making factors in terms of formal operational development, many other studies have been conducted, identifying even other frameworks that may be used to gain a better understanding of these issues (1990). Using the principle of specificity, Jaccard notes that a woman's decision to use or not use contraceptives may be based on how she feels about it, "normative pressures" she feels towards it, and her ability to access it (2009, 22). This theoretical claim is supported by Frost et al's empirical study in which several factors are identified – like objective and subjective knowledge, attitudes, evaluation of side effects, and pressure from social norms – as significant factors in predicting whether or not teenagers and young adults will choose to use contraceptives (2012, 112-13). Reed et al identifies similar factors, with the added factor of the length of sexual relationship, in predicting contraceptive use (2014, 249). These behavioral predictors may prove important to understanding and influencing teen behavior to increase safe sexual behaviors.

Even when teenagers have chosen to use, and therefore have already accessed, birth control, studies show that they are less likely than others to use it effectively. Winner et al notes that "approximately half of unintended pregnancies result from contraceptive failure" and that this failure is often "due to incorrect or inconsistent use" (2012, 1999). Importantly, these failure rates are significantly higher in teenagers than the general population (Winner, 2012, 1999). Failure by adolescents and young adults to properly use contraceptives are similar to reasons for not using any sort of protection. It is clear that younger age actually does play a significant role in risky and unsafe sexual decision making.

Given the many factors involved in how adolescents and young adults choose whether or not to use contraceptives and those factors that influence the likelihood that contraceptives will be used properly, it is important to understand exactly what these aspects are.

Condoms (and other contraceptives) are a hassle

Condom use and the withdrawal method are the most common contraceptive methods used by adolescents (Guzzo & Hayford, 2018, 38). Unlike hormonal contraceptives like birth control pills or long-acting reversible contraceptives, condom use and withdrawal are methods dependent upon the cooperation of both the male as well as female partner. Further, it is a method that must be intentionally used with each act in order to be effective. As a contraceptive method involving both the male and female partner, Reed et al found that a woman's assertiveness with her male partner was important in whether or not these methods would be implemented effectively (2014, 250). Frost et al found that in both men and women, attitudes that "condom use 'is too much of a hassle,'" significantly reduced the likelihood that they would choose to use a condom (2012, 113). This attitude is also associated with inconsistency of contraceptive use (Frost et al, 2012, 115). Since, in order to be effective, condoms must be used every single time, users must be more intentional with this method than with others. At the same time, the dependence upon both partners for effective contraception may be both a positive and negative. While condoms do place some responsibility upon the male in avoiding unwanted pregnancy, it also allows more chance that the female might be pressured into not using any form of contraception at all.

Beyond condom use, Guzzo & Hayford found that if adolescents saw gaining access to other types of contraceptives as too much work or too difficult, then they are significantly less

likely to use them (2018, 38). Further, if teens see contraceptive use as a "major undertaking," then they are less likely to seek access (Guzzo & Hayford, 2018, 38). These attitudes – that gaining access to birth control and using them consistently are a hassle or require too much work – may be the result of not fully grasping the consequences of not putting in the required effort for such activities. Unwillingness to put in the effort for safe sex likely comes from not understanding the full worth of this effort.

Education about condoms must therefore address these issues and prepare teenagers for events in which they may feel that going through the trouble of using one isn't worth it, or situations where they may be pressured by a partner not to use one. Especially important here, then, would be to ensure that teenagers understand that the risk of pregnancy is the same with every intercourse, regardless of having used a condom before, or planning to use them after. Understanding how condoms work, and that the probability of pregnancy after unprotected sex is the same every time, may reduce the chance that a teen will decide even once that avoiding the trouble of using a condom is not worth the risk of pregnancy.

Social norms and attitudes

Social norms and attitudes surrounding contraceptive use also have a significant effect on adolescents' decision making about protected sex. These norms are shown to affect younger, dependent people more than older adults. Importantly, Reed et al found that young women were less likely to access birth control than independent adults in order to avoid talking to their parents (2014, 250). Implementing comprehensive education about contraceptive options may work towards normalizing the conversations and prepare young women to have these perhaps uncomfortable discussions with their parents.

Further, Frost et al found that norms about birth control, like whether or not an individual's friends think it's use is acceptable, significantly influenced their decisions on whether or not to use contraception (2012, 112). So, if friends think that using birth control is an important practice, then teens are more likely to use contraception and to use it consistently. However, the opposite is also true. It is important to note that the association between social norms and likelihood to use contraception is greater in females than in males (Frost et al, 2012, 115). Again, given the influence that friends and outside pressures that an adolescent, especially a young woman, might feel in their decision-making about birth control, proper and comprehensive education is imperative. By increasing knowledge and understanding of the importance and effectiveness of contraceptives across an age group, attitudes among groups of friends and peers might change to make contraceptive use more likely for all sexually active adolescents.

Worry about side effects

Even after choosing to use birth control, young adults may choose to stop use, but not change their sexual behaviors. Some women choose to discontinue hormonal contraceptive use due to side-effects that they associate with it. Reed et al shows that many women stop using their birth control as a result of "intolerable side effects" that may or may not be actual symptoms of the hormonal contraceptive (2014, 252). Further, some women may choose never to start using hormonal contraceptives due to their fear of these negative side effects. Frost et al found that adolescents' expectations of likely side effects significantly decreased their likelihood to use hormonal contraceptive methods (2012, 112). It is imperative that women on birth control, who are patients using a type of medicine, are fully informed on the possible side effects that they

might experience. Then, they can adequately evaluate symptoms. Another important way to mitigate the consequences of young women misdiagnosing themselves would be to ensure that they are comfortable contacting professionals who would have the knowledge to properly evaluate their medical symptoms and side effects.

Forgetting to take the pill on time

While the birth control pill is a commonly used form of contraception among younger women, its effectiveness is lower in this same age group than in older women. While short-term birth control like the pill works in the same way for both adolescent and adult women, Winner et al found that short-term birth control users under the age of 21 are twice as likely as other women to have an unintended pregnancy (2012, 2004). It has been shown that this same age group of women are more likely to miss taking birth control pills (Winner et al 2012, 2006; Woods et al 2006, 385), or to use contraceptives inconsistently (Scott et al, 2011, 111), which are reasons for contraceptive failure and resulting unintended pregnancies. Likely, the increased failure of birth control in younger women is due to the increased likelihood that they forget their pills, then fail to take the extra precautions after to make up for the missed pill.

There are potential behavioral indicators for misuse of birth control. For example, Rosenberg et al found that women without an established routine for taking their pill and those who do not understand the written information about their pill are more likely to take their pill inconsistently (1995, 285). However, Woods et al found that even among those adolescents who have seemingly established routines for consistently taking their birth control pill, many still miss pills consistently enough to put themselves at risk for pregnancy (2006, 385). Given the evidence from these studies that younger women using birth control pills as contraceptives are at

higher risk for pregnancy due to missed pills, education about contraceptives ought to include comprehensive education on the importance of proper use of this form of contraception.

These studies are incredibly important to understanding the differences in behavior of younger contraceptive users. Because the pill is so commonly used, but also so commonly misused, education on its effective use will be instrumental in establishing safe behavior in this age group. Women must be educated on strategies for remembering to take their pill on time. Perhaps more importantly, they should be educated on the proper steps to take if they do happen to forget a pill, which studies show is rather likely. By fully understanding the associated risk with inconsistent birth control use, and the ways to mitigate that risk, perhaps teens using this form of contraceptive will no longer be more likely than adults to become pregnant.

Underestimating the risk of pregnancy

Beyond just the fatalistic view, adolescents may fail to use contraceptives because they are misinformed on the greatness of the risk of pregnancy with unprotected sex. Reed et al found that some women may estimate that, after having unprotected sex that doesn't result in pregnancy for a period of time, they are not at risk of becoming pregnant and fail to change their behavior (2014, 252). Beyond these scenarios, young adults may simply not have enough knowledge or reasoning to understand that risk of pregnancy is equal each time they have unprotected sex. By educating individuals on these risks and ensuring that they understand the probabilities involved with pregnancy, attitudes in adolescents might change to implement the behaviors that would be desirable to avoid unwanted consequences.

Lack of information about contraceptives and their effective use

A major reason that adolescents may choose not to access contraceptives, or why they may misuse them if they have accessed them, is lack of knowledge about their use (Kaye et al, 2009, 6). Rosenberg et al found that women who did not understand their birth control were more likely to either inconsistently use or not use their birth control at all (1995, 285). Frost et al found a very strong correlation between young adults' objective knowledge about contraceptives and proper use (2012, 115). Especially in young women, lack of objective knowledge was associated with likelihood to participate in unprotected or poorly protected sex (Frost et al, 2012, 112). This correlation was also found in young men, but to a lesser extent. These findings by Frost et al are supported by Guzzo & Hayford, who found that knowledge about condoms and other contraceptives are positively correlated with likelihood to use them (2018, 238). The evidence here indicates that, if adolescents were to be properly educated on contraceptives and their use, they would be more likely to use them. The implications are strong, then, that education would have a significant impact on reducing rates of unwanted pregnancy in teens.

Increased objective knowledge about contraceptives may help teenagers understand exactly how reduced their risk for pregnancy would be if they did protect themselves. A notable aspect of objective knowledge that Frost et al identifies as a determining factor in contraceptive decisions is the effectiveness of the birth control pill. The study found that women are less likely to use birth control if they believe that it will not significantly decrease their likelihood of becoming pregnant (2012, 112). This attitude might be associated with the "fatalistic view," where individuals feel that their actions will not affect the likelihood of becoming pregnant (Frost et al, 2012, 111). Of course, helping adolescents gain the objective knowledge about the effectiveness of birth control might significantly affect these fatalistic attitudes, and increase the likelihood that birth control or other contraceptives would be implemented.

Some of the most significant factors that people evaluate when making contraceptive decisions include: the hassle of accessing it, social norms and attitudes surrounding them, and worry about their potential side effects. Other factors that play a role in effective contraceptive use include: failure to take the birth control pill on time, misunderstanding the risk of pregnancy, and having enough knowledge about contraceptives.

These factors may lead teenagers to choose not to use contraceptives at higher rates than adults because they have not yet reached levels of cognitive development to properly evaluate and choose the safest behaviors for themselves. They may also lead teenagers to misuse contraceptives at higher rates for these same reasons.

These disparities in cognitive development and decision-making skills might be mitigated through proper education and counseling. Giving adolescents a comprehensive education on all aspects of contraceptives – from different options to their effectiveness to their proper use – would likely increase the likelihood that they will make safe sexual decisions both at the time of their education and into their future.

Cognitive Development

Reasons that sexually active adolescents are more likely to become pregnant than adults may be better evaluated with an understanding of how teenagers think differently than more developed adults. Gordon notes that many studies analyzing adolescent decision making about using contraceptives are oversimplified (1990, 346). She proposes that we might better understand how and why teenagers make sexual decisions by looking at adolescent cognitive development, especially when it comes to contraceptive use.

Lack of operational reasoning in many teenagers may play a role in why they fail to make well-thought-out decisions about sex. Often, teenagers are unable to envision alternatives to their situation. So, they may not be capable of thinking through their options – like various forms of birth control – when it comes to making sexual decisions. Further, the ability to actually evaluate these options, and determine which would "lead to the desired outcome" (Gordon, 1990, 348), has not developed for many teenagers, such that they may not anticipate the consequences (like pregnancy) of having sex without using contraception. Lacking in perspective taking, another element of operational reasoning may contribute to males failing to consider the importance of birth control for their sexual partner. Finally, failure to predict the probability of unprotected sex resulting in pregnancy likely contribute to teenagers' decisions to engage in unprotected sex (Gordon, 1990, 347-350). While lacking in these aspects of operational reasoning do not give a comprehensive list of reasons that teens choose to engage in unprotected sex, they do allow for a broader understanding of how and why they make certain decisions. Understanding these decision-making processes, and how they differ from those of adults, is vital to understanding how best to educate about and encourage safe sexual behavior in adolescents.

Knowing how and when operational reasoning develops in teens may be critical to working towards changing adolescent behavior in terms of decisions about birth control and contraceptives. Specifically, Gordon cites the importance of encouraging the considerations of options (like birth control) and the discussion the consequences of unprotected sex (like pregnancy) as educative methods to increase teens' likelihood to properly make these important considerations (1990). Properly understanding the ways that teenagers think, and how this effects the decisions they make in terms of when to have sex and how to protect themselves from

unintended consequences seems imperative to any improvements that ought to be made to sex education programs.

Using this framework of formal operational reasoning, it is clear that as people develop reasoning skills, they are better able to make decisions that will result in more positive outcomes. But, it is obvious that adolescents choose to begin sexual behaviors before their reasoning skills have fully developed. It is clearly important to address the issue that, when many people make their first decisions regarding sex, they are not fully equipped to reason through the best decisions to make in terms of what outcomes they hope to achieve. It is vital, therefore, to introduce structures and mechanisms that can encourage teens to make the most fully informed decisions possible in spite of undeveloped formal operational reasoning skills.

Personal Fable

Another interesting lens through which adolescent risk-taking in terms of unsafe sexual behaviors and subsequent unwanted pregnancies is the personal fable. Teenagers are more likely than fully developed adults to feel that they are the center of attention or that their feelings are more "intense" than those of others (Alberts et al, 2007, 72). These feelings are forms of egocentrism that are closely linked to risk taking behaviors in adolescents of the same age (Alberts et al, 2007, 72). Reasons for the correlation between risk taking and personal fable might be perceptions that teenagers have about their "invulnerability" for certain risk factors, which contributes to their increased likelihood in partaking in risky behaviors (Alberts et al, 2007, 72).

Essentially, at the adolescent stage of cognitive development, teenagers are more likely to underestimate their vulnerability to certain harms. This attitude then contributes to their

likelihood to participate in activities that they might know are risky, because they do not feel that that risk extends to themselves. One such risky behavior that teens might then feel does not put themselves at the same risk as others is having unprotected sex. While a teenager might be marginally aware that having unprotected sex can lead to both the transmission of STIs and result in unintended pregnancy, that same individual might feel, due to their own personal fable and egocentrism, that they are not at the same risk of these harms. Understanding why teenagers, differently than other age groups, are more likely to partake in risky behaviors might help to mitigate these risks.

Imaginary audience

Adolescents at the age of sexual decision making are also plagued by the idea of an imaginary audience. This term refers to assumptions made by teenagers that others are watching and observing them, and making judgment calls off of these observations (Cvetkovich et al, 1975, 61). The imaginary audience constructed by the adolescent can come in a variety of ways, but importantly, the audience is often believed by the teen to focus on him or her, and is often perceived as threatening as it is assumed to judge the teen negatively (Ryan & Kuczkowski, 1994, 221). So, when a teenager perceives an imaginary audience, they assume that others are watching them and making (often negative) judgments about that individual.

It is believed that this imaginary audience contributes to a teenager's risky behavior, especially in terms of sex. As suggested by Cvetkovich et al, protected sex with a condom or birth control requires "premeditation," or planning out (1975, 261). In order to properly plan for sex, an individual may need to accept that they are participating in an adult activity, which can be difficult for a young person who feels that they are not ready yet (Cvetkovich et al, 1975,

261). The imaginary audience can contribute to an adolescent's fear of making these decisions and therefore preclude the proper planning out and employment of good, safe practices.

Both the personal fable and imaginary audience might point to how and why adolescents make various risky decisions. While they are may be capable of understanding the risks associated with unprotected sex, they might lack the skills necessary to actually implement positive practices to ensure the safest outcomes of their behaviors. Of course, as importantly as either of these concepts is the actual level of cognitive development that people are often in when they first begin to make decisions about sex.

Stages of Cognitive Development

Interestingly, there are physiological and biological indicators that may point to reasons for adolescent's increased likelihood of participating in risky behavior. The stage of development that many teenagers find themselves in when sexual initiation often begins falls in a time of brain development that gears individuals towards more risky behaviors.

There is an imbalance in brain structure and function at this stage in a person's life, where the parts of the brain in charge of emotions develops before the area of the brain in charge of cognitive behavior and decision making (Konrad et al, 2013, 428-29). It is possibly for this reason that adolescents are more prone to behave in ways ruled by emotion over reason (Konrad et al, 2013, 428). Evidence of these physiological stages of the brain's development, and their implications in a person's decision-making at certain stages in their life, may be able to positively impact the way that adolescents are encouraged to participate in safe behaviors, including safe sexual behaviors that might help to prevent both unintended pregnancy and the spread of sexually transmitted infections (Konrad et al, 2013, 430). It is therefore important to

utilize brain development research and the theories that are developed from it to begin to adjust the way that teenagers are taught, and safe behavior is encouraged.

An example of these adjusted education strategies might be to recognize that many behaviors and decisions that adolescents make are based on potential rewards. So, increasing the ability for adolescents to feel rewarded for safer behaviors might take important steps in the right direction (Konrad et al, 2013, 430). Social rewards are identified as particularly important in adolescents, so increasing social rewards for positive behaviors might also be a particularly effective strategy (Konrad et al 2013). Further, studies have found that in adolescent brains, compared to the brains of children or adults, "risk-taking …is associated with …systems known to be involved in evaluation of rewards" (Casey et al, 2008, 3). As an individual begins to reach adulthood, cognition develops more and more to get to a point where that individual is better equipped to make decisions based less on impulses and rewards (Casey et al, 2008, 3). But, in adolescents, before these areas of cognition have fully developed, decision making that is able to suppress these impulses is simply much less likely.

Importantly, by continuing research on the adolescent brain and placing emphasis in understanding the physiological and biological contributors to an adolescent's risk-taking behavior, a greater ability educator will have to address these physical differences in the brain and their consequent effects of behavior.

Sociological Perspective

Introduce the idea

An incredibly important factor of adolescent's abilities to avoid unwanted pregnancy are the discrepancies seen among different demographics in available resources and types of sex education they are exposed to. Evidence that differences exist in ability to avoid unwanted pregnancy in the United States is presented by Finer & Henshaw who, in 2006 found that some of the most significant factors contributing to differences in unintended pregnancy rates were income, education level and race and ethnicity (94). All adolescents ought to be given the same opportunity to avoid unwanted pregnancy and education to teach about safe sexual behaviors. It is therefore of utmost importance to understand what groups in this country are at highest risk for unintended pregnancy, and why these groups are at higher risk. A comprehensive understanding of these risk factors can help to most adequately reduce the harms resulting from risky sexual behavior in all adolescents.

There are kind of two different types of disparities that this section will explore. First, social class, which can be interpreted by income level and education level, will be discussed. Second, differences that arise in different racial and ethnic groups will be discussed.

Social Class

The study conducted by Finer & Henshaw in 2006 noted that that rates of unintended pregnancy decreased significantly with an increase in income. Of importance, this disparity due to income had increased over the course of the study (Finer & Henshaw, 2006, 94), which indicates that the issue is one that is only becoming worse. In fact, it is noted that the unintended pregnancy rate for poor women is over five times greater than women with high incomes (Finer

& Zolna, 2014, S46). A second indicator of disparities in social class is the difference in unwanted pregnancy rates by the level of education that an individual attains. Finer & Henshaw found that individuals with a college degree are significantly less likely to have an unintended pregnancy than other women (2006, 94).

An incredibly significant factor in determining whether a woman is at high risk for unintended pregnancy is her access to healthcare. Women without health insurance are significantly less likely to have the means to access proper contraception and consequently more likely to get pregnant unintentionally (Finer & Henshaw, 2006, 95). Also, significantly, the attitudes about pregnancy differ in women of lower socioeconomic status, where poorer women are more likely to have mixed feelings about pregnancy or misinterpretations of their risk for pregnancy (Dehlendorf et al, 2011, 3). Further, women of lower socioeconomic status or of minority groups tend to have different attitudes about "early motherhood," where early or even teen pregnancy is not seen as undesirable as with other groups of women (Dehlendorf et al, 2011, 4). All of these factors – access to contraception and attitudes about pregnancy and contraceptive use – play a significant role in a woman's ability and likelihood to avoid unwanted pregnancy, especially in her adolescence and early adulthood.

Racial/ethnic differences

A second important indicator for a woman's risk for unintended pregnancy is her race and ethnicity. Many studies have found a significant difference in unintended pregnancy rates among black and Hispanic women as compared to white women (Dehlendorf et al, 2011, 3; Finer & Henshaw, 2006, 94; Finer & Zola, 2014, S47; Frost et al, 2004, 94). There are surely a host of causes for these disparities, which are interrelated with each other and may vary between

and among different groups of women. However, Delhendorf et al identifies some possible contributing factors to these disparities, including the attitudes that minority groups hold towards the healthcare system, attitudes held towards early pregnancy, and access to healthcare and contraception (2011). But, to be clear, these factors that may contribute to racial and ethnic disparities in unintended pregnancy rates often work alongside the disparities that exist in terms of economic class. The two disparities cannot be separated from one another as they are very closely related.

Another major factor that may relate to why women of color may be less likely to use effective forms of contraception is their mistrust in and poor feelings towards the healthcare system in the United States. It has been noted that the United States' discriminatory history in coercing minority groups in sterilization and other family planning techniques has contributed greatly to women of colors' mistrust in the healthcare system, where they may feel that contraception is encouraged to monitor their populations (Dehlendorf et al, 2011, 2-4; Rocca & Harper, 2012, 156). Essentially, the history of discrimination and coercion in this country has led to a grave injury in the relationship between minority groups and women of color (especially black and Latina women), and this harmed relationship may contribute to these women avoiding consultation or advice from healthcare professionals and lead them to use less effective forms of contraception, or no contraception at all.

Further evidence for this correlation comes from a study conducted by Jackson et al suggests that women of color are more likely to choose a birth control method that allows them to have the most control and autonomy over certain factors, like initiation and termination of use (2016, 409). So, these women might be more likely to use birth control pills or condoms than

long acting reversible contraceptive methods, because they have full control over when they start and stop use. LARCs, in contrast, require placement and removal by a physician.

Conclusion

Importantly, the suggestion that the prevalence of these disparities is growing makes it ever more imperative that causes for these differences in risk levels are addressed. Understanding how these differing levels of risk continue to occur in our system is of utmost importance to helping reduce teenage pregnancy rates for all groups equally in United States. While the issue of unintended teenage pregnancy pervades adolescents of all groups of people, there are some groups who are at higher risk than others. Most notably, those at higher risk are women with low income, those women who did not graduate from high school, and women of color. Reasons for these disparities include lack of education or knowledge, fatalistic attitudes about pregnancy, access to healthcare, and attitude towards the healthcare system.

These disparities that exist in the healthcare system in the United States among socioeconomic classes is an issue that has implications far wider than disparities in unintended pregnancy rates. It follows that these disparities in pregnancies are issues that cannot be solved by one policy, like improved sex education. There are structural issues in place that perpetuate racism and that must ultimately be addressed at their core.

However, by implementing effective sex education programs for all women, steps in the right direction might be taken to ensuring that everybody has the access to knowledge and information that might ultimately help them make their own autonomous decisions about contraceptives and have more control over their own bodies and reproduction. Helping these

women become educated about safe sex practices is one tangible thing that may help take small steps in the right direction towards reducing these grave injustices.

Biological Perspective

Health risks of adolescent pregnancy

Discussions about the prevention of unintended pregnancies, especially in adolescents, must include an acknowledgment of the health risks associated with young adults giving birth. There are certain negative health outcomes that are more likely in younger mothers than in adults for both the mother and the baby. Taking into account these potential negative outcomes is vital in the justifications for the importance of helping teens to prevent pregnancies when possible. The issue of teenage pregnancy is not just one of inconvenience but can actually be a public health problem whose solution is vital to the wellbeing of those at highest risk.

Some health risks associated with unintended pregnancies include risks to both the young mother and her newborn child. Studies have found that there is an increased risk of anemia in adolescents during pregnancy as a result of the increased needs for iron as women go through growth spurts during their adolescent years (de Vienne et al, 2009, 153). Further studies have found that younger women are at higher risk than adult women for diagnosis of postpartum depression after giving birth (Nunes & Phipps, 2012, 1071). While these are just a couple of the negative outcomes associated with teenage pregnancy, they are indicators that special care must be taken when considering the costs of teen pregnancies. They cannot be treated the same as adult pregnancies, whether or not they are intended.

Another interesting variable that may contribute to riskier outcomes of teen pregnancies are the behaviors that they exhibit throughout their pregnancy compared to those behaviors that adult women often exhibit. For example, a study found that pregnant teens are significantly less likely than pregnant adult women to take folic acid, a common prenatal vitamin (Kingston et al, 2012, 1231). The same study found that teens were more likely to smoke during pregnancy than

adult women (Kingston et al, 2012, 1231). Such increased risky behaviors by younger mothers may be due to various factors, like decreased preparedness or decreased levels of support during pregnancy. But, these behaviors may increase the risk to the baby during and after pregnancy, and are therefore important factors to consider in the health outcomes of teen pregnancies.

Evidence that points to riskier outcomes in teen pregnancies as compared to adult pregnancies are important to note when considering the importance or promoting birth contraceptive use and safe sexual behaviors in adolescents. By helping young women avoid unintended pregnancies, comprehensive sex education curriculums are actually protecting their health.

What is birth control doing to our bodies?

While education young adults about contraceptive options and ways to protect against unintended pregnancies is incredibly important, it is also important to note that many of those using contraceptives are unaware of how they actually work. This can spark fear and uncertainty around the use of contraceptives. It may therefore be useful to help adolescents understand the actual physiological mechanisms of how contraceptives may protect them from unintended pregnancies.

Hormonal birth control methods implement a mechanism that gives women doses of certain hormones that affect her chances of getting pregnant. Almost all hormonal contraceptives act by preventing ovulation (River et al, 1999, 1263). As ovulation – or the release of an egg from the ovary – is necessary in order to become pregnant, this method has been shown to be highly effective as a birth control method. So, when women ingest hormonal birth controls, they are taking in hormones that would naturally, during a pregnancy, help to suppress ovulation

(Rivera et al, 1999, 1263). Specifically, both estrogen and progestin are the most common hormones used to inhibit the secretion of the hormones actually responsible for ovulation (Rivera et al, 1999, 1263-64). Intra-uterine devices or other long acting reversible contraceptives function in similar ways, with the slow prolonged release of progestin or other hormones to suppress ovulation (Liletta, 2019, 30). Essentially, hormonal contraceptives work through inhibitory processes to prevent the release of an egg that might otherwise have been fertilized and cause pregnancy.

While the mechanisms for this type of hormonal contraceptive are incredibly complicated, and still being studied, they are interesting and important enough that teenagers ought to be given as much clear information regarding their use as possible. By understanding to a greater extent how a drug they are putting into their body is actually working, teenagers might feel that they are better equipped to decide whether or not they are willing to use those forms of contraceptive in order to prevent unintended pregnancies.

Side effects of birth control

Other considerations that ought to be taken into account when promoting the use of contraceptives in adolescents are the potential side effects faced by those who use various birth control options. There are many attitudes and beliefs that adolescents hold in regard to birth control, like worries that it will affect their mood or cause other side effects (Reed et al, 2014, 252). However, many studies have shown that the actually side effects felt by birth control are significantly less than what teens may worry about. For example, a study conducted to test whether mood was significantly affected by birth control found that there was actually an overall positive impact on mood throughout the study in those taking hormonal contraceptives (Oinonen

& Mazmanian, 2002, 237). However, importantly, this study also found quite a bit of variation in results for individuals on birth control in terms of the effect that it would have on their mood (Oinonen & Mazmanian, 2002, 237). But, this study is an important example of evidence that birth controls may have much less negative impacts on individual mood and overall wellbeing than is often believed, especially by adolescents.

Some may also present concerns about using certain long acting hormonal contraceptives like the IUD for fear of reducing their fertility in the future. However, in spite of these claims in the past, numerous studies have shown that there is no correlation between IUD use and decreased fertility in adolescents or any IUD users (Deans & Grimes, 2009, 422). Such fears and attitudes are again indicators of failures to actually learn about the implications of birth control and LARCs, and as such these issues can be addressed with improved education.

Educating teens on the potential side effects, but also reducing fears in teens about these side effects using such studies to cite the fact that they may be less significant than is often believed, may positively contribute to teenagers' feelings of security when making decisions to start birth control as preventative methods.

Survey of College Students

In order to better understand the impact that sex education has on students in their lives after they have graduated from high school, a survey was conducted to measure both the objective knowledge about contraceptives and sexual behaviors, as well as the subjective opinions of college students at DePauw University in Greencastle, Indiana. Students were emailed a survey that contained true-or-false questions about whether or not students had a sex education, and what type of education, in both middle and high school. Students were then asked to complete a questionnaire testing their objective knowledge about contraceptives. The questions for this section were taken directly from Frost et al (2012) and are attached in the supplementary materials section as *Figure 2.* In a last section of the survey, students were asked to explain anything they wished they had learned in their secondary school sex education curriculum, and if there was anything they wished they were taught about safe sexual behaviors in their years after high school graduation. One hundred students were emailed the survey, and 30 responses were gathered. All answers were anonymous.

Objective knowledge

The results from the objective knowledge quiz showed no significant variances for most questions based on whether a student's secondary school education was abstinence only, comprehensive, or non-existent. The only question with a significant difference was on the true-or-false question asking, "to obtain an IUD, a woman must undergo a surgical operation," where more students who had had abstinence only education incorrectly responded "true." This difference might indicate that individuals who are not exposed to education about the various

forms of contraceptives in high school sex ed curriculum are unaware of the many different options available to them as forms of contraceptives.

Subjective opinions

In the survey, students were asked whether or not there was anything they wished they had learned in their middle and high school sex education curriculums. Answers to this question varied, some responding that there was nothing else they wished they had learned, but others responding with various improvements that might have been made. Among these, importantly, many students wish that consent, and what that looks like, had been discussed more directly in their sex education curriculum. An example of such a response was: "I wish we had learned more about consent in high school. I hardly heard anything about it until I got to DePauw, probably because consent kind of runs opposite to abstinence." This response, and others like it, shed light on the importance of acknowledging that sex is an option for adolescents in order to truly educate individuals on how and when it is safe for all parties involved.

A second common response students gave was the wish to have learned more about contraceptives. Two examples of such a response are: "I learned pretty much nothing about female birth control methods, it was pretty much just here is how to put on a condom and don't get anybody pregnant" and "more about different types of birth control. We learned what they were, but it wasn't as in-depth." Such responses indicate a desire to have gained knowledge at an earlier age about the various options and ways to engage in safe sexual behaviors.

A second question that students were asked in this section of the survey was whether or not there is anything they wish they had been taught in their years since graduating from high school in terms of sex education. Again, responses to this question were varied. Some students

chose not to answer. However, again, most had interesting insight into aspects they would have appreciated further education on. Students want more education on how to safely have sex as well as how to prevent STIs, as well as strategies to more "openly" talk about sex with friends and family. Many students noted that they would like more education and training on exactly what consent looks like.

The high number of students who would have liked to see discussions about consent both in high school education programs and in training programs post-high school graduation indicates that education systems are seriously lacking in this area. Though this thesis is more concerned with the ways in which comprehensive sex education programs can help adolescents make decisions that might help avoid unwanted pregnancy or the spread of STIs, the need for education on consent must also be addressed in these programs. This is a vital aspect of safe sexual behaviors, and is clearly not discussed enough in safe, healthy, productive environments where students can actually learn openly and honestly about its importance.

Further, as indicated by these survey answers, student's need and want more education about various forms of birth control. A last question on the survey asked students to indicate where they believe birth control ought to be discussed. Possible answers to this question were: in school, as part of a curriculum; at home, with parents or guardians; in religious institutions; or other. In answer to this question, 90.3% of respondents indicated that they believed that birth control ought to be discussed in school as a part of a curriculum. Coupled with the evidence that education about birth control is an effective way to reduce unwanted pregnancy, students' actual desire to learn about these things as a part of a sex ed curriculum ought to be taken into account.

Ethical Argument

Argument 1: Autonomy

The first argument in favor of a comprehensive sex education is that it promotes the autonomy of young adults. Autonomy is an important principle in ethical decision making, as it allows the individual to make decisions that are in their own best interest. It operates under the idea that we, ourselves, are best equipped to make our own decisions. Because we know ourselves best, and understand our own goals and desires, we are more capable at knowing what we can do that is best for us. We therefore ought to have the ability to make our own decisions for our own wellbeing.

While autonomy is an incredibly powerful right for the individual, it is significantly diminished, at least legally, in minors compared to adults aged 18 or older. As previously discussed, one reason for the diminished recognized autonomy in minors is their lack of cognitive development. As such, one might assume that minors are unable to make fully autonomous decisions in the same ways that adults over the age of 18 can. In fact, the frontal lobe responsible for decision making does not fully develop until an individual is around 22 to 23 years old. As such, at the age when people often first make decisions about sex, they are not yet fully equipped to make those decisions with a full understanding of the potential consequences. Unfortunately, when teenagers make decisions about sex without fully understanding the consequences of their actions, it lead to the spread of STIs and the high unintended pregnancy rates studied in this paper.

While a teenager's stage in cognitive development is obviously significant in their ability to make fully informed and well thought out decisions, it does not negate the fact that they still make their own decisions about when and how they participate in sexual activities. In fact,

decisions about sex are some of the first that adolescents might make without the guidance of their parents, especially because it is such a taboo and controlled topic among many families. Recognizing this cultural characteristic, it is ever more important to provide teenagers with the information, counseling, and guidance necessary to make safe decisions in regard to their own sexual behaviors.

Given that individuals often make decisions about sex before their cognitive development and decision making skills have reached a level to help them make the best decisions in their own interest about their sexual and reproductive health, it is especially important to give people at this age all of the information and tools they might need to make the best informed decisions for themselves. Giving teenagers adequate information and advice about making safe decisions about their sex lives ultimately protects their autonomy and reduces the potential harms to them.

In terms of individual decision making, and especially in terms of decision making about personal health problems, one must have as much information as possible in order to best promote and encourage their autonomy to make good decisions for themselves. Gaining and understanding medical information about safe sex is especially important for adolescents, given that teenagers often begin to explore their sexuality before their cognition has fully developed. Importantly, even when an individual's cognitive faculties have not yet fully developed, they are still more than capable of learning and retaining information. A teenager's ability to learn can give them the tools they would need to best plan for and implement good, safe behaviors in their reproductive lives.

On these grounds, equipping teenagers with as much information as possible about the risks of certain decisions they might make is imperative to recognizing and respecting their full autonomy. For example, teenagers often underestimate their risk of pregnancy with unprotected

sex (Reed et al 2014, 252). However, when they do become educated on these risks, they are more likely to carefully use contraceptives (Frost et al, 2012, 112). Similarly, adolescents are more likely than adults to misuse birth control pills (Winner et al 2012, 2006; Woods et al 2006, 385) or become convinced out of using a condom (Frost et al, 2012, 115; Otto et al, 2014, 1249), the consequences of which often lead to unprotected sex that impact the unintended pregnancy rates of this age group. But, when they are given a formal education on the importance of the proper use of these contraceptive methods, they are more likely to choose for themselves to properly utilize these methods (Kohler et al, 2008, 350; Kirby, 2008, 24). This overwhelming evidence indicates that the more teenagers are informed about various options and the importance of choosing and consistently using contraceptives have a vital impact on their abilities to make the right decisions for themselves about how best to employ safe sexual behaviors.

While one worry about educating teenagers about safe sexual behaviors may be that it encourages them to begin having sex before they are actually ready, this is not in fact the case. The autonomy of the individual is not infringed upon or compromised when they are simply being educated them on the importance of healthy sexual behaviors. Adolescents' actual behaviors, like sexual initiation or frequency of sex, do not change much based on whether or not they receive a formal sex education (Bennett & Assefi, 2005, 78; Kirby, 2008, 24). It is, however, shown that when teenagers are given the necessary information to evaluate for themselves what the best protections are against unwanted consequences, they are more likely to make informed decisions in their best interest.

On the other hand, providing adolescents with abstinence-only education has simply proven itself to be ineffective at helping them make informed decisions. To deprive teenagers of

valuable information that is proven to be of use to positive decision-making on the grounds of religious or cultural objections to pre-marital sex is morally suspect at best. It is clear that the employment of abstinence-only education comes from a moral perspective that sex ought to be saved for marriage. While certainly some cultures and religion hold this moral point of view very dear, it is not one shared by all individuals or teenagers. Given that abstinence-only education programs do little to reduce the sexual activity of the same adolescents they hope to help, it is clear that the standards that those implementing these programs hold do not align with the actual moral beliefs of their audience (Kohler et al, 2008, 349). It is disrespectful of a teenagers' autonomy and self-determining abilities to withhold information about decisions they might make about their own health for the sake of promoting some underlying moral goal.

Clearly, adolescents who are making their own decisions about their personal lives are exhibiting a form of autonomy. Whether or not one agrees that they are capable of that making fully informed decisions at the ages they often decide to initiate sex, they are still making independent decisions that have the potential to have real consequences for their futures. Recognizing this, an essential solution to the problem of teenage pregnancy in the United States is to educate this same age group about how to mitigate unwanted consequences to their behaviors. When they are given as much information as possible, in a way that does not shame them or push them to have some behaviors and not have others, they are most likely to make the decisions that are in the best interest of their own future.

It is important to note here, however, that not all teenagers in the United States has the same access or opportunity for fully autonomous decision making or self-determination. There are major disparities due to marginalization in our society that impede some from having access to the same information and resources as others. There are structural and cultural limitations to

autonomy that have been previously discussed, and individuals of higher socioeconomic status in this country have more tools to make autonomous decisions than those of lower socioeconomic status. So, while this argument rests on the idea that giving teenagers access to as much information and advice as possible about safe sexual behaviors, it would be remiss to ignore the fact that adequately providing this information to all must address the marginalization in our healthcare and education systems.

Argument 2: Reproductive Justice

This leads into the second argument in favor of providing adolescents with a comprehensive sexuality education, which is that it may help take steps towards reducing the socioeconomic disparities that currently exist in unwanted adolescent pregnancy rates in the United States. Women of lower socioeconomic status are disproportionately affected by unwanted pregnancy in the United States (Finer & Henshaw, 2006, 94). These pregnancies can have a serious negative effect on the individual. As such, it is a matter of social justice to give all teenagers in our country the information necessary to make fully autonomous decisions about their reproductive health.

Reproductive justice involves giving people autonomy over their reproductive decisions. Ross & Solinger define it as the right to have or not have a child (2017, 9). The ability, though, to properly make decisions about whether or not an individual wants to have a child rests greatly in the information they have about pregnancy prevention. Overwhelming evidence suggests that individuals who have higher objective knowledge about pregnancy prevention and contraceptive options are at lower risk for unintended pregnancy than those who lack this information (Frost et al, 2012, 115). If we operate under the idea that people have the right to have sexual relationships

without wanting to have a child, then providing them with adequate information to allow them to make fully informed decisions is of the utmost importance to respecting their autonomous decision making.

There are some concerns here with the encouragement of young women, especially those of lower socioeconomic status and women of color, to use contraceptives. Some argue that this, at least in some ways, can come off as an attempt to control populations of minority groups (Dehlendorf et al, 2011, 2-4). These objections do rest in reasonable concerns given the history in the United States in problematic sterilization, control, and unethical testing of certain groups of people (Dehlendorf et al, 2011, 2-4). It is therefore important to ensure that any form of education aimed at addressing disparities in the healthcare system, especially in terms of unwanted pregnancies, works in a way that aims only at educating women and giving them the most information possible for them to make their own personal decisions about their reproductive health.

Another concern that must be noted and carefully addressed are the differences in attitude about pregnancy and contraceptives. The perception of the healthcare system and expected use of birth control does differ among various demographics in the United States. These differences must be taken into account for a number of reasons. First, it is important that any form of sex education aimed at promoting the distribution of knowledge in different demographics is not done in an attempt to impose white, middle to upper class social norms and expectations upon all groups of people. Addressing sex education and ways to improve reproductive health need not be an attempt to change individual attitudes or societal expectations of all groups of adolescents in the United States. It ought to be aimed very specifically at improving individual and group

knowledge about the risks of teenage pregnancy, the risks involved with unprotected or unsafe sexual behaviors, and the safest ways to prevent pregnancy should the individual wish to do so.

The second reason that differing perceptions of healthcare and sex education must be treated as important is that these may affect how adolescents in certain socioeconomic or minority groups perceive information given to them about contraceptive options and safe sexual behaviors. As previously discussed, students often learn better and show ideal short-term and long-term educational outcomes when they have teachers who look like them and come from similar backgrounds (Gershenson et al, 2017, 2-6). The basic premise here is that the best way for an individual to get the most out of their education is to be taught by someone who shares a similar background. This would be especially important in an area of education where personal experience and background might seriously impact an individual's attitude about sex, reproduction, and the implications of early pregnancy.

For these above reasons, it must be clear that in advocating for comprehensive sex education in school systems, the aim is not to prevent pregnancies in general, but to protect teenagers from *unwanted* pregnancy. The best way to do this is to give adolescents the most appropriate and comprehensive means to make decisions for themselves about their reproductive health and what protections and precautions they will take for themselves to have their own desired outcomes from behaviors they choose to partake in.

In terms of reproductive justice, it is just as important to inform teenagers about their options should they become pregnant as it is to inform them about ways to prevent pregnancy. Should a teenager choose to become pregnant, or choose to keep an unintended pregnancy, they ought to know what resources are available to them.

Objection 1: Promoting contraceptive use may increase risky behaviors

One of the primary objections against a comprehensive sex education, and one of the reasons that it has been so slow to become the status quo in the United States' education system, is the fear that teaching about contraceptives will increase the number of teenagers having sex. Such an objection may proceed as follows: if adolescents are taught that there are ways to have sex without having to worry about the consequences, then they are more likely to partake in these activities. Avoiding such outcomes is a desirable goal for many individuals and in terms of cultural norms in some cases. An education that indicates that abstinence is the only feasible way to prevent teenage pregnancy is the most ethical, as it is the only one that might actually help to keep the from partaking in undesirable behaviors.

However, this objection fails in a major regard that has been previously discussed: neither sex education curriculum – neither comprehensive nor abstinence-only – play a major role in the delay of sexual initiation (Bennett & Assefi, 2005, 78; Kirby, 2008, 24). Especially noteworthy is that abstinence-only programs do not help to delay sexual initiation. So, if the goal of a sex education is to prevent people having sex until marriage, then all current forms of education available are ineffective. However, while abstinence-only education tends to fail in its goal comprehensive education has been shown to be a success in its goal: to promote the sexual health of a school's students (Kohler et al, 2008, 349). Such evidence indicates that, from the point of view of effectivity, comprehensive sex education is the only effective one.

The effectiveness of this form of education makes it the only logical choice to invest school resources around the country into in pursuit of healthier outcomes in adolescents' decision making and practices. In doing so, schools still might not affect the average age of sexual initiation, but they do take into account the fact that it at least appears that any type of

education is not going to play a significant role in whether or not teenagers are having sex, only whether or not they are doing so safely.

Objection 2: maleficence of promoting the use of medicines that have harmful side effects

A second important objection to address in this argument for the education on contraception in adolescents is that in educating, and therefore encouraging, contraceptive use, educators are actually acting maleficently. This objection might follow like this: there are some harmful side effects to certain forms of birth control and other contraceptives. If adolescents are still in a stage of development that does not give them full autonomy in the decisions they are making, then encouraging the ingestion of such medications presents a real harm to them. Even more importantly, encouraging the use of long-acting reversible contraceptives in adolescents is promoting certain procedures that can be incredibly harmful and sometimes traumatic for young adults in order to get these contraceptives placed. If the goal of such comprehensive sex education is to promote the wellbeing of individuals, then educating or promoting the use of contraceptives is achieving just the opposite.

The above point of view is an important one to address. It is certainly of utmost importance to take into account the potentially harmful side effects that contraceptives may have on their patients. However, in response to this objection to the argument in favor of comprehensive sex education in secondary schools, it is important to address that there are both costs and benefits to promoting the use of contraceptives for adolescents. While there are certainly some side effects associated with certain forms of birth control, these are relatively small compared to the great benefit to helping adolescents understand and appropriately use birth control when needed (Oinonen & Mazmanian, 2002, 237). Further, there is no evidence that

there are any long-term side effects or harms done to those who use birth control as adolescents (Deans & Grimes, 2009, 422).

So, from an individual point of view, the benefit to using birth control – avoiding unintended pregnancy – would outweigh the potential harms faced, as long as an individual using that birth control is aware of these potential side effects. The important thing here is to note that through comprehensive sex education, students are only *taught* about different forms of contraceptives. So, they are still able to choose for themselves if the potential costs of mild side effects are worth the benefit of protected sex.

Conclusion

Unintended pregnancies in adolescents is a problem that plagues the United States much more than many other similar countries (Ventura et al, 2014, 7; Hamilton & Mathews, 2016, 5), indicating that there are steps that this country must begin to take in order to improve upon these potentially harmful costs to individuals and society.

While evidence has indicated overwhelmingly that one method to address the potential consequences of unprotected, unsafe sexual behaviors is the implementation of comprehensive sex education programs in secondary schools (Kohler et al, 2008, 349; Kirby, 2008, 24; Santelli et al, 2007, 154), many school systems continue to use abstinence-only curriculums in their sex education programs. Such programs fail to educate their students about the importance of safe sexual behaviors, especially in terms of contraceptive use. At the same time, they rarely accomplish their apparent goals of encouraging teens to delay sexual initiation until marriage (Kohler et al, 2008, 349). Such evidence indicates that comprehensive sex education programs are the best course of action for school systems to implement into their curriculums in order to help their students protect themselves against unintended pregnancies and the spread of sexually transmitted infections.

There are various reasons that the goals of reducing unintended pregnancies in adolescents through education curriculums are of utmost importance. One major reason is that many unintended pregnancies in teenagers are the results of the misuse of contraceptives (Winner et al, 2012, 1999; Woods et al, 2006, 385). Beyond this, many adolescents have misconceptions or misunderstandings about various kinds of birth control and risks for pregnancy (Reed et al 2014, 252). The stage of development that teenagers find themselves in when they often begin sexual initiation also plays a significant role in the importance of sex

education in secondary schools. Teenage years are often filled with invincibility (Alberts et al, 2007, 72), and worries about others' perception of the self (Ryan & Kuczkowski, 1994, 221). There is even evidence that links physiological findings in the teen brain to these factors that play into teenage decision-making, especially those risk-taking behaviors that often lead to unintended pregnancies (Konrad et al, 2013, 428). Given that teenagers are more prone to make risky decisions that present real harms to themselves, it is vitally important to begin their education on what decisions will lead to good outcomes for them – presumably the avoidance of unintended pregnancies – at an early age.

Beyond the cognitive stages that teenagers find themselves in that contribute to risky behaviors, the problem of unintended pregnancy in adolescents is one that pervades into the socioeconomic disparities so present in this country. A teenager's risk of unintended pregnancy increases significantly with decreased income (Finer & Henshaw, 2006, 94), and is affected by an individual's race and ethnicity (Dehlendorf et al, 2011, 3; Finer & Henshaw, 2006, 94; Finer & Zola, 2014, S47; Frost et al, 2004, 94). Given these disparities, addressing safe sexual behaviors within a high school curriculum ensures that every person, from whatever socioeconomic background, is at the very least given access information about contraceptives and safe sexual practices that might help them make healthy decisions about their own sex lives.

Other important considerations to take when considering if and how to comprehensively educate adolescents about contraceptive options are the potential health outcomes that they may present. Importantly, teenagers are at higher risk for health complications during pregnancy than adult women (Nunes & Phipps, 2012, 1071). And, there are very few, if any, studied short or long-term side effects with the use of hormonal contraceptives in adolescents (Deans & Grimes, 2009, 422). The biological outcomes therefore very positively indicate that the costs of

promoting contraceptive use in adolescents are far fewer than the great benefits from an individual and public health point of view.

Given that there are various factors that affect the increased unintended teenage pregnancy rates in the United States, these are issues that ought to be addressed on an institutional level. Sex education is already a part of most schools' curriculums to an extent, either as comprehensive or abstinence-only education. And, importantly, the comprehensive side of sex education is actually recommended by health experts (ACOG, 2016, 1). But, as teenagers can be given powerful and important knowledge about the best ways to prevent the unintended consequences of unprotected sex through a comprehensive education, this curriculum is the most ethically sound to implement in secondary school systems.

Supplemental Materials

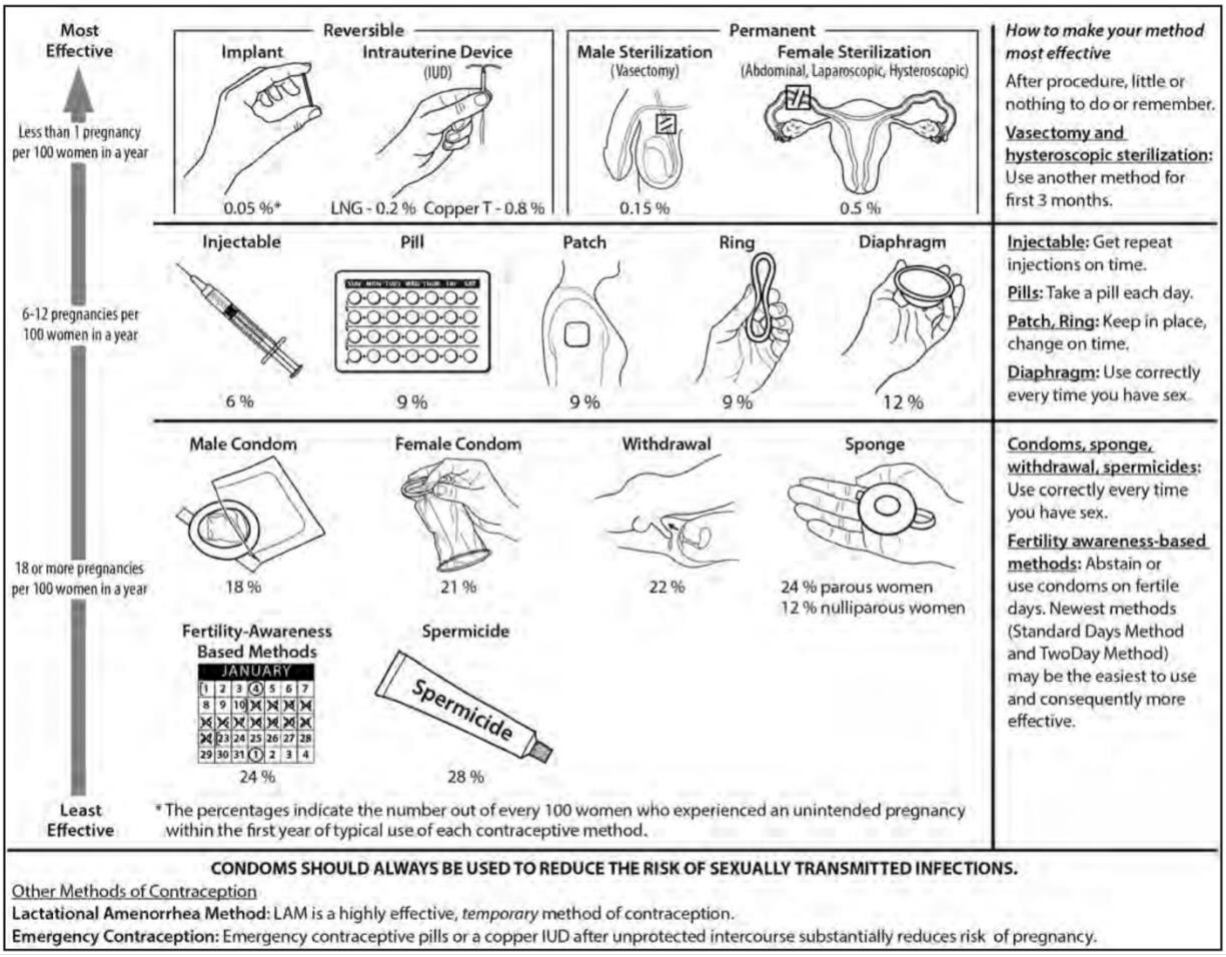

Figure 1. Taken directly from Curtis et al, 2016, 6. This figure is an example of the type of information that might be useful to provide to adolescents when informing about various contraceptive choices.

Questions asked in student survey

Section 1: Secondary School Education

1. Did you have a sex education curriculum in middle school? (y/n) was it abstinence only or comprehensive?
2. Did you have one in high school? (y/n) was it abstinence only or comprehensive?

3. At what age should sex education begin? (ages 8-10, 10-12, 12 and up)

Section 2: Objective Knowledge (All True/False)

1. Condoms have an expiration date
2. Women should "take a break" from birth control pills every couple of years
3. After a woman stops taking birth control pills, she is unable to get pregnant for at least two months
4. A woman can use an IUD even if she's never had a child
5. Women who use IUDs cannot use tampons
6. To obtain an IUD, a woman must undergo a surgical operation
7. IUDs can move around in a woman's body
8. Even if a woman is late getting her birth control shot, she is still protected from pregnancy for at least 3 months
9. Negative effects that a woman has from Depo-Provera can last for the rest of her life
10. Long-acting methods like an implant or IUD cannot be removed early even if a woman changes her mind about wanting to become pregnant

Section 3: Subjective thoughts

If you had a sex ed curriculum in school:

1. Is there any information you wish you had learned in your middle school or high school sex education curriculum?
2. Is there anything that you wish you had been taught in the years since your high school graduation in terms of sex education?

3. In your opinion, where should birth control be discussed? (school as a part of a sex ed curriculum, at home with parents, in religious institutions, other)

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