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Reproductive coercion, intimate partner violence, and pregnancy risk among adolescent women with a history of foster care involvement

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ABSTRACT

Background: The current study is the first to explore the prevalence of reproductive coercion among adolescent women currently or previously involved in the U.S. foster care system. Reproductive coercion (RC), a form of intimate partner violence (IPV) involving exertion of power over a partner by controlling their reproductive health and decision making, is a significant public health concern. Existing research on RC has primarily been conducted in either healthcare settings or on college campuses. Foster youth are disproportionately impacted by both adolescent pregnancy and interpersonal violence. RC may contribute to this elevated risk.

Methods: We conducted a cross-sectional survey in 2015 and 2016 of adolescent women (n = 136), ages 16–24 years old, seeking services from youth-serving agencies affiliated with a child welfare system in Pennsylvania, United States. Participants completed measures assessing RC, experiences of physical and sexual violence, sexual behaviors, and pregnancy. We used multivariable logistic regression to assess associations between RC and study outcomes.

Results: The sample was predominantly African American (67.4%) and largely identified as something other than heterosexual (46.6%). Nearly one-third of the sample (30.1%) reported a history of RC, with the most common being male partners telling them not to use birth control. High rates of IPV (62.1%), lifetime pregnancy (43.4%), and unwanted pregnancy (30.9%) were also reported. RC was associated with significantly higher odds of IPV (Adjusted Odds Ratio (AOR) = 4.22, 95% Confidence Interval (CI): 1.60, 11.13), multi-perpetrator rape (AOR 3.56, 95% CI: 1.04, 12.24), pregnancy (AOR = 5.39, 95% CI: 2.14, 13.60), and unintended pregnancy (AOR 5.39, 95% CI: 2.04, 14.25). Young women reporting RC also had elevated odds for using alcohol or drugs before sex (AOR = 4.34, 95% CI: 1.72, 10.97) and having sex with a male partner 5 years or more older (AOR = 7.32, 95% CI: 2.84, 18.87). No significant differences emerged between RC and sociodemographic characteristics.

Implications: These data suggest women involved in the U.S. foster care system, particularly women of color and/or LGBTQ + identified who comprised the majority of participants in the current study, may be at an increased risk for experiencing RC and other forms of IPV associated with adolescent pregnancy. In addition to efforts to prevent IPV and sexual violence, assessment for RC, healthy relationships education, and access to sexual and reproductive health care may mitigate these risks and improve outcomes for these young women.

1. Introduction

Reproductive coercion is a form of intimate partner violence involving control over a partner's reproductive health and decision making. Reproductive coercion (RC) comprises birth control sabotage (removing or destroying contraceptives); pregnancy coercion, which includes using violence or threats to decrease a woman's resistance to pregnancy; and condom manipulation (poking holes in condoms, breaking or removing condoms on purpose) (American College of Obstetricians and Gynecologists, 2013; McCauley et al., 2017; Miller et al.,

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2010). Within the United States, approximately 9% (10.3 million) of women report experiencing RC in their lifetime (Black et al., 2011), while women seeking care in reproductive healthcare clinics report lifetime prevalence of RC as high as 25% (Clark et al., 2014; Miller et al., 2014). The most common form of RC consistently found across studies is men insisting their partners "not use birth control," (Miller et al., 2014; Phillips et al., 2016) with one study finding this behavior reported by 79% of women with RC histories (Northridge et al., 2017). RC has been associated with sexually transmitted infections (STIs), unintended pregnancy, poor reproductive outcomes, and other forms of physical and sexual intimate partner violence (IPV; Miller et al., 2014; Miller et al., 2010; Miller & McCauley, 2013). Additionally, RC can contribute to poor mental health outcomes, such as increased odds of posttraumatic stress disorder (PTSD) and anxiety, demonstrating myriad health impacts beyond sexual and reproductive health (Steinberg et al., 2016; McCauley, Falb, et al., 2014).

Reproductive coercion is also thought to be one mechanism linking IPV and unintended pregnancy, a relationship which has been well established in the literature (Kazmerski et al., 2015; Miller & Silverman, 2010; Pallitto et al., 2013). Unintended pregnancy (UIP) is defined as a pregnancy which is unplanned, mistimed, and/or unwanted by a woman (Miller & Silverman, 2010). Globally, UIPs are two to three times more likely to occur in the context of IPV than planned pregnancies (Miller & Silverman, 2010). Within a broader dynamic of abuse, RC may operate as a way for male partners to maintain power and control over their female partner by promoting a pregnancy that she does not want. UIP may occur as a reflection of female partners' fear in the face of violence if she were to assert her desires and reproductive goals. Both IPV and RC decrease the likelihood of couples consistently using condoms (John & Edmeades, 2018), which contributes to higher rates of STI transmission and UIP. In fact, a U.S. study found young women with a history of IPV to be 4.9 times more likely to also report having coerced sex without a condom (Silverman et al., 2011). Similar to dynamics with IPV more generally, where previous histories of violence victimization appear to increase risk for subsequent experiences of violence, RC is not uncommon in relationships where women have already experienced this form of abuse with a previous partner (Willie et al., 2019).

1.1. Reproductive coercion in populations experiencing marginalization

Research has found higher prevalence of RC among populations who experience social marginalization and systemic oppression, namely racial and sexual minorities. Women of color, specifically African American, multiracial, and Hispanic/Latina women experience RC at roughly twice the rate of their white counterparts (Rosenfeld et al., 2018; Holliday et al., 2017). Aggregate estimates across studies suggest lifetime histories of RC are reported by 17–45% of Hispanic women, 16–37% of African American women, 11–29% of multiracial women, 7–18% of Asian/Pacific Islander women, and 7–19% of white women (Clark et al., 2014; Holliday et al., 2017; Northridge et al., 2017; Sutherland et al., 2015). Qualitative research has highlighted the impact of systemic racial injustices on reproductive coercion, with evidence to suggest that Black women's higher rates of RC may be partially explained by men's desires to establish security and family connections in the face of mass incarceration, neighborhood violence, systematic barriers to housing and employment, and premature death (Holliday et al., 2018; Nikolajski et al., 2015). Notably, in a qualitative study of women who had experienced IPV, white women differently reflected on their partners' potential motives for perpetrating RC, citing reasons such as "love" or "to maintain the relationships;" no structural factors of oppression were identified (Nikolajski et al., 2015).

Sexual minority women who report having sex with both women and men (WSWM) also experience higher rates of reproductive coercion and UIP in their relationships with men, compared with their exclusively heterosexual counterparts (Alexander et al., 2016; McCauley et al., 2015). Along with higher rates of RC and UIP, sexual minority women also endure more sexual and physical IPV and engage in sexual behaviors that shape their vulnerability to IPV victimization, such as infrequent condom use and sex trade (Alexander et al., 2016; McCauley et al., 2015). McCauley et al. (2015) found young adult WSWM to be 3 times as likely to have histories of IPV, and 7 times as likely to have engaged in sex trade, compared to women who only have sex with men. Though research on RC among sexual minority women is limited, minority stress theory suggests that discrimination in a heterosexist, homophobic society "gets under the skin," increasing risk for violence victimization with abusers who use violence to enforce heteronormative expectations (Edwards & Sylaska, 2013). Systemic oppression and lack of access to resources may increase WSWM's vulnerability to partners' potentially harmful sexual behaviors because of fear and necessitate engagement in sex trade for survival (Dank et al., 2015; McCauley et al., 2015). Further, WSWM also experience stigma *within* sexual minority communities (Weiss, 2011; Welzer-Lang, 2008), which may increase risk for victimization regardless of the gender identity of their sexual and romantic partners.

The current literature on reproductive coercion comprises studies that have been primarily conducted in clinical samples (e.g., Clark et al., 2014; Rosenfeld et al., 2018; Thaller & Messing, 2016) or on college campuses (e.g., Katz et al., 2017; Sutherland et al., 2015). While these studies have established a prominent link between experiences of IPV and RC, their findings are only generalizable to these limited populations. Our research expands upon current knowledge by exploring the phenomenon of RC in an understudied population known to be at elevated risk for other types of abuse and adverse health outcomes: women in foster care.

1.2. Adolescent women in foster care

Approximately 437,000 children are in the U.S. foster care system, with 114,000 falling between ages 13–19 (USDHHS, 2019). Research has found that adolescents in foster care report an earlier age at first intercourse, a higher number of sexual partners, and inconsistent use of birth control (Gramkowski et al., 2009). For example, Ahrens et al. (2013) found that 79% of youth in the foster care system were inconsistent about using condoms, despite condoms being the favored method of birth control among this population (Matta Oshima et al., 2013). For condom use to be consistently effective, adolescents must be prepared with a condom and skilled to negotiate conversations about use with their partner, which can be difficult in the context of IPV (Matta Oshima et al., 2013; Peasant et al., 2017). Indeed, studies have found that girls in foster care are much more likely than boys in foster care to report sex without a condom (Thompson & Auslander, 2011; Matta Oshima et al., 2013).

Given these findings, it is perhaps unsurprising that girls and women in foster care report rates of pregnancy higher than adolescent women not within the system (King et al., 2014). In three Midwestern states, 50% of women subject to the foster system had at least one pregnancy by 19 years old, while only 20% of the general population was pregnant by this age (Dworsky & Courtney, 2010). In the same study, 46% of the foster involved women who had pregnancies by age 17 or 18 had multiple pregnancies by age 19 (Dworsky & Courtney, 2010). Qualitative research has identified several potential drivers for these elevated rates of pregnancy among adolescents in the foster care system, including lack of consistent caregiver/advising relationships, the desire to create a family of their own, and being pressured to have sex (Love et al., 2005). African American and Latina women are more likely than their white counterparts to get pregnant while in foster care (King et al., 2014), a finding that should be considered through an intersectional lens of experiencing both oppression from being placed in state care and the effects of systematic racial injustice as previously discussed.

Given the relationship between IPV and RC during this key developmental period, being subjected to such violence in adolescence may contribute to many poor health outcomes (Hill et al., 2019). Despite a

confluence of risk factors that might predispose foster youth to greater rates of IPV (e.g., witnessing violence in the home, instability in housing, discontinuity in relationships) research with this population is limited (Stott & Gustavsson, 2010). Data from foster youth in Missouri found that young women with histories of maltreatment and of PTSD have an elevated risk for IPV involvement, and adults who aged out of the system reported significantly higher rates of IPV compared to the general U.S. population (Jonson-Reid et al., 2007). Studies in Canada found more than half of system-involved adolescents reported experiences with dating violence, and 70% reported sexual coercion (Manseau et al., 2008; Wekerle et al., 2009). Youth being subjected to IPV before and during their involvement with the foster care system may contribute to elevated risk for interpersonal violence in adulthood.

Furthermore, minorities subject to discrimination and systemic oppression are represented at high rates in the foster care system. Current estimates find that as many as 19.1% of foster care youth identify as lesbian, bisexual, gay, or transgender (LGBT), notably higher than the 4.5% of adults self-identifying as LGBT in national surveys (Newport, 2018; Wilson & Kastanis, 2015). After coming out, LGBTQ + youth may be exposed to unaccepting or abusive caregivers who force them out of their homes, resulting in elevated rates of foster care involvement and homelessness (Durso & Gates, 2012). Research suggests LGBTQ + youth who enter foster care tend to have a higher number of placements, are more likely to live in a group home, and are less likely to be reunited with families or adopted out (Fish et al., 2019; Wilson & Kastanis, 2015). While in the system, LGBTQ + youth report more negative experiences compared to their heterosexual or cisgender counterparts, including mistreatment such as verbal aggression or explicit violence from foster parents, foster siblings, or child welfare workers, and receipt of fewer services, such as access to crucial medical care (Fish et al., 2019; Mountz & Capous-Desyllas, 2020).

African American youth are also disproportionately represented, making up nearly a quarter (23%) of youth in the foster care system, while constituting only 14% of children under age 18 in the general population (Child Trends, 2019). Due to wealth and health disparities and racial biases whose roots trace back to the founding of this country, Black families are far more likely to be investigated and have children removed compared to their white counterparts in similar situations (Roberts, 2014). While a confluence of "risk" factors (e.g., rates of unemployment, single-parent homes, poverty) tied to longstanding patterns of racial injustice in this country are often cited as reasons for this disparity, institutional racism within the child welfare system and related entities (e.g., school systems, juvenile justice) also contribute (Hill, 2004). Like the experiences of sexual minority youth, African American youth are more likely to be in foster care longer, and less likely to be to be reunified with their families compared to other children (Knott & Donovan, 2010).

It is important to contextualize all the aforementioned research with intersectionality theory, emphasizing the ways that societal oppression toward youth with minoritized identities confers greater likelihood of negative outcomes (Crenshaw, 1989). Previous research from Los Angeles County assessing the identities of youth in foster care has demonstrated an overlap in representation of youth of color who are also LGBTQ+, suggesting that the intersection of multiple oppressed identities may confer greater risk of placement in foster care (Wilson et al., 2014). These are particularly important points to highlight considering that sexual minority women and women of color both also report higher prevalence of RC victimization.

The present research seeks to bolster the literature on risk factors and outcomes for adolescent women involved in the foster care system to inform prevention and education efforts. More specifically, this is the first study to measure rates of reproductive coercion among young women with a history of foster care involvement and the associations between exposure to reproductive coercion and violence with sexual and reproductive health outcomes common among this population.

2. Methods

2.1. Data

Data were drawn from a cross-sectional survey of young women ages 16–24 years old who were seeking services in 2015 and/or 2016 from youth-serving agencies affiliated with the child welfare system in Western Pennsylvania (N = 136). Participating agencies included one drop-in center for youth currently or previously in foster care (n = 104) and four residential facilities for foster youth (n = 32). The drop-in center provided educational support, job training, and connection to medical and mental health care for youth currently or previously involved with child welfare; services were voluntary. Residential facilities included a short-term shelter for girls awaiting permanent foster care placement (n = 14), a semi-independent residential community-based setting for adolescent youth between the ages of 16 and 20 years who were actively involved with the child welfare system (n = 8), a comprehensive residential facility for girls in child welfare with mental illness in need of transitional housing (n = 3), and a faith-based agency providing emergency shelter and semi-independent living facilities for youth involved in child welfare (n = 7). Participants were connected voluntarily to these residential facilities via referrals from child welfare, health care, or the criminal legal systems; none of these were locked facilities.

Participating agencies posted information in common areas about a women's health research study. The study team visited each agency on designated days and times where interested women could learn more and complete study procedures. In a private area of the agency, the study team screened interested women for age eligibility and completed informed consent procedures. Parental permission was waived for minors because of participants' existing connection to the foster care system, to maximize participant safety, and to allow participation of an underrepresented population in women's health research. Data were collected via Audio Computer Assisted Self-Interview, a self-administered program that allowed participants to complete the 30-minute survey on a laptop computer with instructions and survey items read aloud via headphones to mitigate literacy concerns. At the conclusion of the survey, participants received a $25 pre-paid debit card and a resource sheet of local social services. All study procedures were approved by the Human Research Protection Office at University of Pittsburgh.

2.2. Measures

Reproductive coercion. The main predictor, reproductive coercion, was assessed using the short-form version of the Reproductive Coercion Scale (McCauley et al., 2017; Miller et al., 2010). This scale was comprised of five dichotomous yes/no items assessing partner pregnancy promoting behavior including the following: "Has someone you were dating or going out with: 1) told you not to use any birth control (like the pill, shot, ring, etc.)? 2) taken your birth control (like pills) away from you or kept you from going to the clinic to get birth control? 3) made you have sex without a condom so you would get pregnant? 4) taken off the condom while you were having sex so you would get pregnant? 5) put holes in the condom or broken the condom on purpose so you would get pregnant?" Women endorsing any of the five items were coded as endorsing a lifetime experience of RC.

Physical and sexual violence victimization. IPV was assessed via three questions modified from the Revised Conflict Tactics Scales and the Sexual Experiences Survey, which have been used together in previous studies on IPV and women's health (Miller et al., 2014). Physical IPV was assessed via, "In your lifetime, have you ever been hit, pushed, slapped, choked or otherwise physically hurt by someone you were dating or going out with?" Sexual IPV was assessed via, "In your lifetime, has someone you were dating or going out with used force or threats to make you have sex (vaginal, oral or anal sex) when you didn't want to?"

and "In your lifetime, has someone you were dating or going out with made you have sex (vaginal, oral or anal sex) when you didn't want to, but didn't use force or threats?" IPV was indicated if they answered affirmatively to any of the three questions. Non-partner sexual assault was assessed with the same two sexual violence items, specifying a perpetrator who was not someone they were dating or going out with. An affirmative response to either of the two dichotomous questions was indicative of non-partner sexual assault. Incapacitated rape was assessed with two questions: "Have you ever had sexual intercourse when you didn't want to because a man made you intoxicated by giving you alcohol or drugs without your knowledge or consent?" and "Have you ever been passed out or unaware of what was happening, due to alcohol or drugs, and were not able to prevent unwanted sexual intercourse from taking place?" (Abebe et al., 2018). Women who endorsed either item were coded as having experienced incapacitated rape. Finally, we assessed multiple perpetrator rape with one item modified from its original form to reflect victimization (instead of perpetration) (Jewkes et al., 2016), "Was there ever an occasion when a group of men had sex with you against your will or when you were too drunk to stop them?"

Sexual Behaviors. To assess sexual behaviors related to adverse health outcomes, participants were asked if they had ever had vaginal, oral or anal sex with a male partner who was five or more years older (yes/no). They also indicated how often they used alcohol or drugs before having sex, with response options ranging from "never" to "very often" on a 5-point scale. We created a dichotomous variable indicating no alcohol or drug use before sex vs. any alcohol or drug use before sex. Finally, sex trade was assessed via the yes/no item, "Have you ever traded sex or sexual acts in exchange for money, drugs, shelter, gifts or other resources?" (Decker et al., 2012).

Pregnancy. We assessed lifetime pregnancy with a dichotomous yes/no item, "Have you ever been pregnant?" Unwanted pregnancy was assessed via the item, "How many times have you been pregnant when you didn't want to be?" which included response options 1) None, this has never happened to me, 2) Once, and 3) Twice or more. We modeled this variable as a dichotomous outcome indicating any unwanted pregnancy vs. no history of unwanted pregnancy. Those women who had never been pregnant were coded as having never experienced an unwanted pregnancy.

Sociodemographic characteristics. Single items assessed sociodemographic characteristics, including age, race/ethnicity, and educational attainment. Sexual identity and attraction were measured with one item, "Do you consider yourself: 1) completely heterosexual (attracted to persons of the opposite sex); 2) mostly heterosexual; 3) bisexual (equally attracted to men and women); 4) mostly gay or lesbian; 5) completely gay or lesbian (attracted to persons of the same sex)." Due to sample size considerations, we dichotomized the variable to indicate completely heterosexual vs. those who were not completely heterosexual (i.e., mostly heterosexual, bisexual, gay/lesbian).

2.3. Analysis

Differences in sociodemographic characteristics by experience of RC were compared using Fisher's Exact tests, with statistical significance set at $p < 0.05$. Multivariable logistic regression models were used to assess the associations among RC and study outcomes: violence victimization, sexual risk and pregnancy. Adjusted models controlled for age, race, educational attainment, sexual orientation, and whether participants were recruited from the drop-in center or a residential facility. Sample sizes for each test or model were allowed to vary due to small amounts of missing data. Statistical analyses were conducted in SAS v.9.4 (SAS Institute, Cary, NC).

3. Results

Table 1 summarizes sociodemographic characteristics of the sample. More than one-fifth of the sample (21.3%) were 16 or 17 years old, while almost two-fifths (38.2%) were between the ages of 18 and 20 and more than two-fifths (40.4%) were 21 years or older. A majority of women identified as Black or African American (67.4%). Half the sample had less than a high school education, with 28.1% of respondents finishing high school and 21.5% indicating they had more than a high school education. Almost half the sample (46.6%) identified as something other than heterosexual, with 30.1% identifying as bisexual, 8.3% identifying as mostly heterosexual, and 8.3% identifying as mostly or completely gay or lesbian. We found no statistically significant differences in lifetime history of RC by demographic characteristics.

Almost one third of the sample (30.1%) reported a lifetime history of RC. The most commonly reported forms of RC included partners telling women not to use birth control (17.6%), partners taking a condom off during sex to promote a pregnancy (16.2%), and forced condom non-use to promote a pregnancy (10.3%). Lifetime IPV victimization was common among the sample; almost two-thirds (62.1%) reported experiencing physical or sexual IPV in their lifetime (Table 2). Non-partner sexual assault was reported by more than one third of women (37.4%), while 29.8% and 13.0% of women experienced incapacitated rape and multiple perpetrator rape, respectively. Almost half of women in the sample (46.3%) reported having a male sex partner 5 or more years older. The same proportion of women used drugs or alcohol before having sex, and more than one in ten (11.8%) women had traded sex for money, drugs, or shelter. Any pregnancy in their lifetime and unwanted pregnancy were reported by 43.4% and 30.9% of the sample, respectively.

Table 3 presents models adjusting for sociodemographic characteristics and recruitment location (drop-in center vs. residential facility).

Table 1
Lifetime reproductive coercion and sociodemographic characteristics among a sample of adolescent women with a history of foster care involvement (N = 136).

	Total % (N)	Among RC Yes % (N)	Among RC No % (N)
Age	*n = 136*	*n = 41*	*n = 95*
16–17	21.3 (29)	17.1 (7)	23.1 (21)
18–20	38.2 (52)	46.3 (19)	34.1 (31)
21–24	40.4 (55)	36.6 (15)	42.9 (39)
Fisher's Exact p-value			*0.46*
Race	*n = 135*	*n = 40*	*n = 95*
Black or African American	67.4 (91)	57.5 (23)	71.6 (68)
White	19.3 (26)	17.5 (7)	20.0 (19)
Multiracial / Other	13.3 (18)	25.0 (10)	8.4 (8)
Fisher's Exact p-value			*0.047*
Education	*n = 135*	*n = 40*	*n = 95*
Less than high school	50.4 (68)	40.0 (16)	54.7 (52)
Completed high school	28.1 (38)	30.0 (12)	27.4 (26)
More than high school	21.5 (29)	30.0 (12)	17.9 (17)
Fisher's Exact p-value			*0.20*
Sexual Orientation	*n = 133*	*n = 40*	*n = 93*
Exclusively heterosexual	53.4 (71)	45.0 (18)	57.0 (53)
Mostly hetero/bisexual/ gay	46.6 (62)	55.0 (22)	43.0 (40)
Fisher's Exact p-value			*0.26*
Number of Placements	*n = 114*	*n = 35*	*n = 79*
One	25.4 (29)	28.6 (10)	24.1 (19)
Between 2 and 5	37.7 (43)	25.7 (9)	43.0 (34)
Between 6 and 9	24.6 (28)	25.7 (9)	24.1 (19)
10 or more	12.3 (14)	20.0 (7)	8.9 (7)
Fisher's Exact p-value			*0.20*
Current Living Situation	*n = 132*	*n = 40*	*n = 92*
In family home	29.5 (39)	22.5 (9)	32.6 (30)
Own home or apartment	31.8 (42)	42.5 (17)	27.2 (25)
Shelter	25.8 (34)	25.0 (10)	26.1 (24)
Other	12.9 (17)	10.0 (4)	14.1 (13)
Fisher's Exact p-value			*0.35*

Table 2
Prevalence of violence victimization and sexual risk and crude associations with reproductive coercion among women with a history of foster care involvement (N = 136).

	Total % (N)	Among RC Yes % (N)	Among RC No % (N)	Unadjusted Odd Ratio (95% CI)
Violence victimization				
	n = 132	*n = 40*	*n = 92*	
Lifetime physical/ sexual intimate partner violence	62.1 (82)	82.5 (33)	53.3 (49)	**4.14 (1.66, 10.31)**
	n = 131	*n = 40*	*n = 91*	
Non-partner sexual assault	37.4 (49)	50.0 (20)	31.9 (29)	2.14 (1.00, 4.57)
	n = 131	*n = 40*	*n = 91*	
Incapacitated rape	29.8 (39)	40.0 (16)	25.3 (23)	1.97 (0.90, 4.34)
	n = 131	*n = 40*	*n = 91*	
Multiple perpetrator rape	13.0 (17)	22.5 (9)	8.8 (8)	**3.01 (1.07, 8.50)**
Sexual Risk				
	n = 136	*n = 41*	*n = 95*	
Older male sexual partner	46.3 (63)	80.5 (33)	31.6 (30)	**8.94 (3.69, 21.66)**
	n = 136	*n = 41*	*n = 95*	
Alcohol or drug use before Sex	46.3 (63)	72.5 (29)	37.1 (33)	**4.34 (1.96, 9.58)**
	n = 136	*n = 41*	*n = 95*	
Sex trade	11.8 (16)	24.4 (10)	6.3 (6)	**4.79 (1.61, 14.25)**
Pregnancy				
	n = 136	*n = 41*	*n = 95*	
Lifetime pregnancy	43.4 (59)	65.9 (27)	33.7 (32)	**3.80 (1.75, 8.23)**
	n = 136	*n = 41*	*n = 95*	
Unintended pregnancy	30.9 (42)	51.2 (21)	22.1 (21)	**3.70 (1.70, 8.08)**

Controlling for these variables, women with a history of RC were more likely to experience physical or sexual IPV (Adjusted Odds Ratio (AOR) 4.22, 95% CI: 1.60, 11.13), experience multiple perpetrator rape (AOR 3.56, 95% CI: 1.04, 12.24), have a male sex partner 5 or more years older (AOR 7.32, 95% CI: 2.84, 18.87), use alcohol or drugs before sex (AOR 4.34, 95% CI: 1.72, 10.97), and have a lifetime history of pregnancy (AOR 5.39, 95% CI: 2.14, 13.60) and unwanted pregnancy (AOR 5.39, 95% CI: 2.04, 14.25).

Table 3
Adjusted odds violence victimization and sexual risk given experiences of reproductive coercion among women with a history of foster care involvement.

	Adjusted Odds Ratio (95% CI)
Violence victimization	
Lifetime physical/sexual intimate partner violence	**4.22 (1.60, 11.13)**
Non-partner sexual assault	1.70 (0.72, 4.00)
Incapacitated rape	1.81 (0.73, 4.46)
Multiple perpetrator rape	**3.56 (1.04, 12.24)**
Sexual Risk	
Older male sexual partner	**7.32 (2.84, 18.87)**
Alcohol or drug use before sex	**4.34 (1.72, 10.97)**
Sex trade	3.39 (1.00, 11.58)
Pregnancy	
Lifetime pregnancy	**5.39 (2.14, 13.60)**
Unintended pregnancy	**5.39 (2.04, 14.25)**

4. Discussion

This is the first study to explore prevalence of reproductive coercion among adolescent and young adult women involved in the foster care system, with consideration of important co-occurring experiences including IPV and unintended pregnancy. Nearly one-third (30.1%) of participants reported a history of RC, a rate notably higher than what has been documented among college, clinic-based, and veteran samples (Miller et al., 2014; Rosenfeld et al., 2018; Sutherland et al., 2015). Similar to previous research (Northridge et al., 2017), the most common form of RC reported was male partners telling participants not to use birth control. We also found elevated rates of physical and sexual violence experiences in this sample, with 62% of adolescent women endorsing a history of IPV, 37% reporting a history of non-partner perpetrated sexual violence, and 30% reporting a history of incapacitated rape. While these data are cross-sectional and we did not assess when these experiences occurred, they highlight the importance of trauma-informed prevention and intervention practices when working with adolescent women with a history of foster care involvement.

Contrary to studies on reproductive coercion among adult women, we did not find significant differences in RC by sociodemographic characteristics. This could partially be attributed to the nature of the current sample. More than 80% of the sample were adolescent women of color. Given that racial minority women experience disproportionately high rates of RC (Holliday et al., 2017; Alexander et al., 2016), it may be that the overrepresentation of these minority groups in the sample compared to the general population yielded less variance in responses. These findings align with a recent study similarly conducted with primarily adolescent women of color from school-based health centers, which did not identify significant racial differences in RC either (Hill et al., 2019).

Though not statistically significant, it is worth highlighting that while the prevalence of RC was similar among white (26.9%) and Black (25.3%) women in our sample, a higher rate was reported among multi-racial/other women of color (55.6%). While statistical limitations preclude drawing concrete assertions from the present study, it is important to at least note these findings given their alignment with existing research which shows multi-racial individuals consistently report higher rates of IPV than other racial groups (Breiding et al., 2008; Miller et al., 2010; Smith et al., 2017). While this can presumably be partly attributed to issues of systemic racism and social oppression from holding multiple, intersecting minoritized identities, little theoretical or qualitative work has been done to understand why multi-racial individuals experience disproportionate rates of violence compared with other communities of color. Future research should address this gap in the IPV literature broadly, and the RC literature more specifically.

Individuals identifying as sexual minorities were highly represented in the sample as well, with nearly half the sample identifying as not exclusively heterosexual. Different rates of reproductive coercion were reported among sexual minority women (35.5%) and heterosexual women (25.4%); however, these findings were not statistically significant in the present sample. Previous research by McCauley et al. (2015) with a much larger clinic-based sample did identify significantly higher prevalence of male-perpetrated RC among sexual minority women compared to heterosexual women, supporting the need to continue exploring this phenomenon in the literature. Notably, this study used the short-form version of the original Reproductive Coercion Scale, a validated tool to assess male-perpetrated RC, so the current findings are an important contribution to a growing understanding RC, IPV, and the sexual and reproductive health of sexual minority women (McCauley et al., 2017). However, current validated tools to measure reproductive coercion have failed to capture RC perpetrated by partners of other genders, suggesting that we may be *underestimating* the prevalence of RC

in this sample.

Adolescent women with a history of RC were significantly more likely than their counterparts without this history to report having a male sex partner 5 or more years older than them. Relationships with older partners can be appealing to adolescents due to differences in social status and access to resources; this may be particularly true for youth without an existing support system and those for whom basic needs like food and shelter are needed and difficult to access (Harner, 2005). Research has documented that age gaps between partners are more likely to result in early onset of sexual behavior, low rates of contraception use, and higher rates of STIs and pregnancy (Oudekerk et al., 2014). Previous research has also demonstrated a significant association (nearly four times as likely) between having an older male partner (>5 years) and adolescents being victimized by relationship abuse (McCauley, Dick, et al., 2014). In particular, qualitative research highlights the ways that age differences between partners may contribute to problematic power and control dynamics in relationships, including birth control coercion or sabotage by older males to promote pregnancy (Miller et al., 2007). Women involved in foster care may be more vulnerable to these types of relationships given inconsistency in support systems, a desire for stability, and low levels of adult supervision.

Given the elevated prevalence of RC, IPV, and sexual violence in this sample, it is perhaps unsurprising that pregnancy, and unwanted pregnancy in specific, were commonly reported. Indeed, 43.4% of the sample reported at least one pregnancy, and nearly a third (30.9%) reported an unwanted pregnancy. Overall, these findings are similar to those observed by Dworsky and Courtney (2010) in their study of adolescent girls in foster care in the Midwest. Interestingly, in both studies, roughly one third of the pregnancies (29–35%) were characterized by participants as wanted or intentional (Dworsky & Courtney, 2010). As previously discussed, some adolescents in foster care may feel an internal motivation to become pregnant, possibly to establish stability or a family of their own (Love et al., 2005). Yet, adolescent women victimized by RC had over 5-fold greater odds of reporting at least one pregnancy (i.e., not solely unintended pregnancy). The distinction between intentional, unintentional pregnancies (i.e., mistimed, unwanted, unplanned), and coerced pregnancies should be further explored to more effectively inform interventions and resources for this population that support their reproductive autonomy.

4.1. Policy and practice implications for systems serving foster youth

Current recommendations for addressing reproductive coercion in clinical settings include conducting universal education (i.e., talking to all clients about RC and IPV) and providing psychoeducation on relationship abuse (Miller et al., 2014; Northridge et al., 2017; O'Donnell et al., 2009). Importantly, clinic-based interventions train clinicians to have these conversations with patients regardless of disclosure and to offer resources and harm reduction strategies related to sexual and reproductive health (e.g., considering contraceptive options less susceptible to partner interference) based on a patient's needs and reproductive life goals (ACOG, 2013; Miller et al., 2015; Miller et al., 2016). Providers should also be well versed in understanding unique challenges for adolescents from minoritized groups using an intersectional perspective, and approach assessment accordingly (e.g., by tailoring questions to not assume the gender of sex partners; McCauley et al., 2015). While universal education and brief counseling is a best practice to help mitigate harm, it is likely not enough to prevent violence victimization. A randomized controlled trial assessing the effectiveness of a brief intervention comprising universal assessment and psychoeducation did not show significant reductions in RC or IPV over a one-year period, except among women experiencing high levels of RC at baseline (Miller et al., 2016). However, significant improvements were seen in patients' awareness of violence resources and their own agency in enacting harm reduction behaviors (Miller et al., 2016). Strengthening resource knowledge and contraceptive negotiation self-efficacy may be one way to reduce risk for RC and IPV across the lifespan.

Reducing rates of reproductive coercion among women in foster care specifically presents unique challenges given the youths' lack of legal autonomy, and the likelihood for frequent changes in their support networks. The American College of Obstetricians and Gynecologists (2014) recommends girls begin receiving reproductive healthcare between the ages of 13 and 15 (with internal pelvic exams not necessary until later, unless warranted). This allows physicians to begin building trust with patients, conduct universal assessment for RC and other forms of IPV, and provide education (e.g., on abusive relationships) in the early stages of adolescent relationship development. Foster care policy including access to reproductive health services as a part of required medical care for system-involved youth would help ensure some of these early preventive measures are occurring. Policies should also include coverage of a range of contraceptive options (e.g., long-lasting discrete birth control such as the intrauterine device) for foster-involved young women based on their individual needs and desires.

Social service professionals may serve as important resource brokers for needed reproductive health care. While trauma-informed practice may be a focus of clinical training, these professionals should additionally be trained regarding RC and the links between violence and adolescent health. Ideally, training of these critical professionals would include recognition of common manifestations of RC, such as frequent use of emergency contraception, STIs, or repeat pregnancy testing (Miller et al., 2007). Specific to youth in foster care, we identified markers in the current study including the use of alcohol or drugs before sex and partnering with older men to be associated with RC, which may inform practice as well. In the context of placement instability, child welfare professionals should consider the incomplete and varying sex education youth are provided and supplement as necessary. This type of psychoeducation should also incorporate explicit discussion of IPV and healthy relationships, especially given the high rates of exposure to family violence among youth in foster care (Manseau et al., 2008).

Finally, as the current sample comprises predominately African American young women, we would be remiss to not re-emphasize the disproportionate rates at which African American children are placed in the foster care system, and the long term, intergenerational impacts this can have within Black communities. As highlighted previously, racial biases whose roots trace back to the founding of this country and the child welfare system, contribute to Black families being far more likely to be investigated and have children removed compared to their white counterparts in similar situations (Hill, 2004; Roberts, 2014). This overrepresentation and the high rates of pregnancy and RC identified in the present study run the risk of perpetuating the "womb-to-foster-care pipeline": a term coined by reproductive justice scholars referring to "the policies and practice of the current child protection system that push impoverished newborns, especially babies born to system-involved families, who are predominantly low-income and of color, out of the womb and into the foster care system" (Ketteringham et al., 2016, p. 81). While the policy recommendations we provide may help minimize the number of unintended pregnancies due to RC among young women in foster care, they must be considered in tandem with broader structural changes that are informed by racial and reproductive justice.

4.2. Limitations

Like much of the research on RC to date, this study is limited by its cross-sectional design, making it difficult to draw conclusions about how RC, IPV, and pregnancy develop and interact in the lives of foster youth over time. The sample was also relatively small (N = 136) which limited the precision of point estimates and types of statistical analyses that could feasibly be conducted. This was largely due to logistical considerations regarding where recruitment could take place and foster youth being generally difficult to access for academic research (Jackson et al.,

2012). It is also possible that recruitment from community-based agencies resulted in us missing youth with even greater social vulnerabilities (and potentially even greater risk for RC) who did not or could not access these agencies (Brown & Wilderson, 2010). Given that this was the first study of its kind among adolescents currently involved or with a history of foster care involvement, future studies may build on these findings by employing a longitudinal design to illuminate the trajectory of these behaviors and outcomes. This is especially important given that pregnancies in female foster youth increase 300% between ages 17 and 19; longitudinal modeling with young women in foster care could help inform more targeted interventions to promote positive reproductive outcomes (Matta Oshima et al., 2013). The present study is also limited by the age range of participants (16–24 years) which includes not only youth still in the foster care system, but also young adults who have aged out. While exposure to foster care in childhood has indeed been tied to longer term outcomes in adulthood (Kessler et al., 2008; Pecora et al., 2006), the current design did not control for life experiences that may have impacted outcomes for older participants once they left the system. However, researchers have suggested that extending foster care for transition-age youth may be a potential strategy for preventing adolescent pregnancy, highlighting the importance of including transition-aged youth in studies of adolescent pregnancy and related risk (Dworsky & Courtney, 2010; Putnam-Hornstein et al., 2016).

5. Conclusion

Young women with exposure to the foster care system may be at disproportionate risk of experiencing reproductive coercion, particularly women of color and/or those from the LGBTQ + community who comprised the majority of the current sample. Foster youth with a history of RC also had significantly higher odds of experiencing intimate partner violence, pregnancy, unwanted pregnancy, and non-partner sexual violence. Aligning with best practices, the child welfare system should consider routine education about healthy relationships and comprehensive sexuality education as well as assessment for RC, IPV, and related factors to identify patterns of abuse before lasting impacts on reproductive health occur. Interventions such as regular access to reproductive healthcare, sex education, and contraceptive options are needed to improve long-term outcomes for adolescent women involved in foster care.

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CRediT authorship contribution statement

Morgan E. PettyJohn: Writing - original draft. **: . Taylor A. Reid:** Writing - original draft. **Elizabeth Miller:** Supervision, Writing - review & editing. **Katherine W. Bogen:** Investigation, Writing - review & editing, Project administration. **Heather L. McCauley:** Writing - original draft, Conceptualization, Methodology, Formal analysis, Supervision, Funding acquisition.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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