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Factors associated with pregnant adolescents' access to sexual and reproductive health services in New York City

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ABSTRACT

Objective: This longitudinal study examined access to, and factors associated with, receipt of sexual and reproductive health services deemed essential by the World Health Organization among pregnant adolescents in New York City.

Methods: Participants included 649 pregnant adolescents, ages 14–21 who were enrolled in a clustered randomized controlled trial from 2008 to 2012. Data were collected via medical record abstraction and structured surveys during the second and third trimesters of pregnancy and 12-months postpartum. We used multivariable logistic regression to test associations between measures of social and economic vulnerability (age, race/ethnicity, immigration status, food and housing security, relationship status, perceived discrimination) and access to core sexual and reproductive health services (perinatal care, contraception, HIV testing, sexual health knowledge).

Results: Only 4% of participants received all four core aspects of sexual and reproductive health assessed. Adolescents < 18 years old had lower odds of contraception use (OR = 0.46, CI 0.27–0.78), having had an HIV test (OR = 0.35, CI 0.16–0.78), and high sexual health knowledge (OR = 0. 59, CI 0.37–0.95), compared to those ≥18 years. Black women were significantly more likely to have high sexual health knowledge compared to other women (OR = 1.84, CI 1.05, 3.22). Immigrants had higher odds of adequate perinatal care (OR = 1.60, CI 1.09–2.36) and contraception use (OR = 1.64, CI 1.07–2.53), but lower likelihood of high sexual health knowledge (OR = 0.52, CI 0.34–0.81), compared to US-born counterparts. Food insecurity was associated with lower likelihood of comprehensive perinatal care (OR = 0.63, CI 0.45–0.90).

Conclusions: Access to sexual and reproductive health services in New York City is poor among vulnerable adolescents. Health practice and policy should assure access to fundamental sexual and reproductive health services among vulnerable populations in the United States.

Introduction

The Sustainable Development Goals call for gender equality and good health and well-being for all to meet the 2030 agenda [1]. Improved sexual and reproductive health among women and girls worldwide is critical to achieve these goals [1]. According to the World Health Organization (WHO) [2], universal access to quality sexual and reproductive health requires: improving antenatal, perinatal, postpartum and newborn care; providing access to family planning services, such as contraception and infertility treatments; eliminating unsafe abortions; combating sexually transmitted infections, including HIV; and promoting sexual health. Access to and use of these health care services improves women's sexual health, maternal health, and birth outcomes. Further, the World Health Organization stresses the importance of ensuring access to quality services for the most vulnerable populations [2].

Despite spending more on health services [3], the United States has consistently worse sexual and reproductive health outcomes compared to other developed countries [4]. The United States has the highest rate of preterm birth among all developed nations, and this is a leading cause of neonatal morbidity and mortality [5]. Compared to other developed nations, the United States also has higher rates of teen

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pregnancy [6] and lower rates of contraception use [7]. Nonetheless, the United States continues to impose restrictions on access to sexual and reproductive health services. The current Administration has eliminated funding for teen pregnancy prevention programs [8] and proposes eliminating funding to quality sexual and reproductive healthcare providers. The proposed repeal of the Affordable Care Act (ACA) would be particularly detrimental to women of reproductive age, as the proportion of uninsured women aged 15 to 44 dropped by more than one-third with this coverage [9]. Further, elimination of Title X would abolish the only federal program that provides family planning services [9]. This is especially harmful to low-income women who may rely on federally funded organizations for their reproductive and sexual health needs. Forty-four percent of low-income women in the United States receive contraceptive services from federally-funded health centers and other practices [10]. In the United States, residents of urban areas, such as New York City, are more likely to have good access to care [11]. New York City in particular has strong sexual health programs targeted at adolescents, such as the New York City Teens Connection [12]. The New York City Teen Connection has led to a 60% drop in teen pregnancy rates across New York City from 2000 to 2015 and 82 school-based health clinics are currently serving over 100,000 high school students [13]. Still, disparities in sexual and reproductive health outcomes exist in New York City by race and class [12,13]. These differences may be due in part to high levels of segregation by socioeconomic status and race, leading to differences in resource allocation by neighborhood. New York City has one of the largest income gaps in the United States [14] and despite the extraordinary diversity in the New York City population, neighborhoods tend to be dominated by a single race [15]. Resources for health care and education are often derived from the tax base, resulting in higher income neighborhoods having access to more resources, than low-income communities. Structural racism, the ideologies, macrolevel systems, and practices that lead to and reinforce racial inequities [16], further excludes racial minorities from accessing resources, disadvantaging their health [17]. An example of structural racism that has been shown to impact health is redlining, where lending institutions demonstrate biases in their loan dealings with communities of color, making it difficult for racial minorities to secure loans to live in certain neighborhoods with better resources [18]. These inequities lead to certain populations of New York City having significantly worse health outcomes than other populations.

Poor sexual and reproductive health outcomes exist for low-income, young, minority women. Higher rates of infant mortality are associated with lower socioeconomic status, younger age, and less education [4]. Black women are more likely to have preterm births and low birthweight babies compared to other women [19]. Perceived everyday discrimination has been associated with lower birth weight among young women of color [20]. Adolescents are particularly vulnerable to poor sexual health outcomes when compared to older populations, accounting for just 25% of sexually active individuals, but 50% of sexually transmitted infections [21]. More than one-half of incident HIV cases among adolescents occur among African Americans, and low-income minority women have the highest rates of teen pregnancy [21]. These national trends are consistent in New York City where the teen birth rate is almost twice as high in predominantly Latino and Black neighborhoods in the Bronx, compared to overall city average [22].

To meet the 2030 agenda [1], the United States must ensure access to core aspects of sexual and reproductive health as defined by the World Health Organization, especially for those who are socially and economically vulnerable. The objectives of this study are to: (1) evaluate access to sexual and reproductive health services among pregnant teens and young women in Community Health Centers and Hospitals in New York City; and (2) identify factors that predict receipt of core sexual and reproductive health components, as detailed by the World Health Organization. Results can inform initiatives and policies to improve access to quality sexual and reproductive health services.

Methods

Procedure

This study is a secondary analysis of data from a larger cluster randomized controlled trial of group prenatal care that took place from 2008 through 2012. Described in detail elsewhere [23], 1233 pregnant adolescents were recruited by study staff from 14 community health centers and hospitals in New York City that were randomized to provide prenatal care in a group setting or traditional prenatal care. Eligible participants were 14–21 years old, fluent in English or Spanish, entered prenatal care before 24-weeks gestation, not considered medical high-risk pregnancy, and willing to participate in group prenatal care. All procedures were approved by Institutional Review Boards at Yale University, Clinical Directors Network, and each clinical site.

Participants completed surveys during their second and third trimesters of pregnancy, and approximately six and twelve months postpartum, using audio-handheld assisted personal interview technology in English or Spanish. This allows participants to listen to questions with headphones while also seeing the questions on a computer screen. Analyses for this paper use data collected at time points during the second and third trimester of pregnancy, as well as one-year postpartum. The analytic sample includes 649 pregnant women, who completed all three surveys (two during pregnancy and one 12 months postpartum). There were no significant differences between women who were included and those who were excluded (n = 584) due to missing data for one or more surveys on any variables included in these analyses. Validated measures were drawn from previous studies with pregnant teens and young women [24–28]. Additional information on date and type of healthcare utilization were obtained from systematic medical records review.

Primary outcomes

This study assessed indicators of four of the five World Health Organization core components for reproductive health. There was no measure for access to safe abortion services as all participants were pregnant and intending to carry to term.

Comprehensive perinatal care

Participants who received adequate prenatal care and attended a postpartum visit were classified as receiving comprehensive perinatal care. Those missing one or both of these aspects were classified as not receiving comprehensive perinatal care. Adequacy of prenatal care was determined using the Kotelchuck Index [24]. Based on gestational age at entry to care and number of prenatal care visits, participants were classified as having received inadequate, intermediate, adequate or adequate-plus care. Following previous research [29], the Index was dichotomized as inadequate (inadequate/intermediate) or adequate (adequate/adequate-plus). Receipt of a postpartum visit as recommended by the American College of Obstetrics and Gynecologists [30] approximately six weeks after delivery, was determined through medical records review.

Access to family planning services

Contraceptive *use* was used as a proxy measure for contraceptive *access*. Participants were classified as having had access to family planning services if they reported use of contraception (e.g., pill, IUD, condoms) in the six months prior to pregnancy and twelve months postpartum. Participants who reported use of contraception at one time point and not the other were classified as not having consistent access to family planning services.

HIV testing

Participants self-reported whether they had ever been tested for HIV (yes/no).

Sexual health knowledge

Knowledge of pregnancy and sexually transmitted infection/HIV risks was used as a proxy for sexual health education. This was assessed at baseline through an 11-item validated scale for which participants responded whether each statement was "definitely true", "probably true", "probably not true" and "definitely not true" [25]. This scale had been used successfully in past studies working with similar populations [25,31–36]. Correct answers were scored as one point and incorrect answers were scored as zero points. Points were summed to create an overall knowledge score out of a total of 11 points (median = 8). Following previous research [37,38], participants with scores < 80% correct were classified having low sexual health knowledge, while those scoring greater than or equal to 80% were classified as having high sexual health knowledge (i.e., equivalent to a letter grade of B or better).

Predictors

Predictors included known sociodemographic and psychosocial factors associated with disparities in health care access and outcomes [4,39–45].

Age

Participant's reported their date of birth from which age at entry into care was determined, categorized as 18 and older or younger than 18 years.

Race and ethnicity

Participants were classified as Black or non-Black based on self-reported race and ethnicity. Participants who defined their race/ethnicity as Latina, White, or "other" were classified as non-Black.

Nativity

Participants self-reported whether they were born outside of the United States (yes/no), and, if so, from which country, and how many years ago they immigrated to the United States.

Food security

At two time points during pregnancy, participants reported if they ever had run out of money or food stamps to buy food. Following previous research [27] participants who answered "yes" to this question at any point during pregnancy were classified as "food insecure."

Housing security

Participants reported their living situation as living in a single family home, family apartment, group home, rehab or health facility, on the street or in a shelter, or in jail/prison. They also reported on the number of times they had moved in the last year. Participants that had moved three or more times in the past year or who reported living on the street or in a shelter were classified as "housing insecure", a measure based on previous literature [27,28].

Relationship status

At each time point, participants were asked how they would best describe their primary relationship. Relationship status was dichotomized to "single" (single, never married, separated/divorced, widowed) or "partnered" (married or not married living with partner).

Experienced everyday discrimination

Participants completed an adapted version of the Everyday Discrimination Scale [29,30]. Ten items assessed the frequency of experiencing certain forms of discrimination such as, "In your day-to-day life, how often are you treated with less courtesy than other people" and "In your day-to-day life do people act as if they are afraid of you." Response categories ranged from 1 ("never") to 4 ("often"). Responses were summed, and the mean was calculated. Participants who had a mean score greater than one were categorized as having experienced discrimination; those who responded "never" to all items were categorized as not having experienced discrimination.

Statistical analyses

We calculated descriptive statistics (means, frequencies) for all study variables. To meet the first objective, we calculated the proportion of participants who received each of the four components of sexual and reproductive health care. A count was also obtained to reflect the number of components received (0–4). To meet the second objective, we used multivariable logistic regression to examine the association between measures of social and economic vulnerabilities and access to each sexual and reproductive health service: perinatal care, contraception, HIV testing, and sexual health knowledge. We ran four multivariable logistic regression models, one for each outcome, and included all predictors in each model. All analyses controlled for site clustering and study condition (group versus individual prenatal care). Analyses were performed using SAS 9.4.

Results

Participant characteristics

The analytic sample includes 649 pregnant women. Sample characteristics are reported in Table 1. Participants' average age was 18.7 years (standard deviation [SD] = 1.7). Thirty-seven percent of these young women were Black, 55% were Latina, and eight percent were White or "other" race/ethnicity. Two-thirds of respondents were born in the United States. Of those who immigrated, 63% were born in Latin America and the Caribbean, and the mean number of years living in the United States was 8.73 (SD = 5.24). More than one-half (58%) of respondents reported food insecurity; approximately 14% were housing insecure. Fifty-nine percent of the sample self-identified as single. More than three-quarters (79%) of the women reported having experienced discrimination.

Access to sexual and reproductive health services

As shown in Table 1, one-half of participants received adequate prenatal care and attended a postpartum visit. Fewer than one-quarter (23%) used contraception pre- and post-pregnancy. Almost all (95%) had been tested for HIV. Sexual health knowledge was limited, with only 31% demonstrating a high level of sexual health knowledge. Overall, 2% of participants failed to receive any of the four core aspects of sexual and reproductive health. Twenty-seven percent received one, 44% received two, 22% received three, and 4% received all four of the core sexual and reproductive health components.

Results of the multivariable logistic regression analyses are presented in Table 2. Controlling for all other predictors, adolescent girls under the age of 18 years were significantly less likely to use contraception (OR = 0.46, 95% CI = 0.27–0.78), to have ever been tested for HIV (OR = 0.35, 95% CI = 0.16–0.78), and to have high sexual health knowledge (OR = 0.59, 95% CI + 0.37–0.95), than those who were 18 years or older. Black women were more likely to have a higher level of sexual health knowledge (OR = 1.74, 95% CI = 1.13–2.70) compared to other women. Immigrants had a 60% greater likelihood of having received comprehensive perinatal care (OR = 1.60, 95% CI = 1.09–2.36) and 64% increased odds of contraception use (OR = 1.64, 95% CI = 1.07–2.53). However, they were less likely to have high sexual health knowledge (OR = 0.52, 95% CI = 0.34–0.81). Food insecurity was significantly independently associated with a thirty-five percent lower likelihood of having received comprehensive perinatal care (OR = 0.65, 95% CI = 0.45–0.90). Housing insecurity, relationship status, and perceived discrimination were not associated with access to sexual and reproductive health services.

Table 1
Description of the Sample (N = 649).

Measures of Social and Economic Vulnerability	% (N)[a]
Age	
< 18	23.42% (152)
18+	76.58% (497)
Race/Ethnicity	
Latina	54.85% (356)
Black	37.44% (243)
Other	7.70% (50)
Born in the US	
No	33.44% (217)
Yes	66.56% (432)
Housing Security	
Insecure	13.87% (90)
Secure	86.13% (559)
Food Security	
Insecure	58.09% (377)
Secure	41.91% (272)
Relationship Status	
Single	59.17% (384)
Partnered	40.83% (265)
Experienced Everyday Discrimination	
None	20.96% (136)
Any	79.04% (513)
Core Sexual and Reproductive Health Services	% (N)[a]
Comprehensive Perinatal Care[b]	50.85% (330)
Adequate Prenatal Care	62.87% (408)
Postpartum Visit	71.96% (467)
Contraception[c]	22.50% (146)
Pre-Pregnancy	31.43% (204)
Postpartum	61.33% (398)
HIV Testing	95.22% (618)
Sexual Health Knowledge	
< 80% correct	68.72% (446)
≥80% correct	31.28% (203)
Number of Core Sexual and Reproductive Health Services Received	% (N)[a]
0	1.85% (12)
1	27.43% (178)
2	44.07% (286)
3	22.34% (145)
4	4.31% (28)

[a] Numbers may not sum to total due to missing data and percentages may not sum to 100% due to rounding.
[b] Received *both* adequate prenatal care and a postpartum visit.
[c] Used contraception *both* pre-pregnancy and postpartum.

Table 2
Associations between measures of social and economic vulnerability and receipt of sexual and reproductive health components (N = 649)[a].

	Sexual and Reproductive Health Services Adjusted OR (95% CI)			
	Perinatal Care[b]	Access to Birth Control[c]	HIV Testing	Sexual Health Knowledge
Measures of Social and Economic Vulnerability				
Age				
< 18	1.43 (0.95–2.16)	0.46 (0.27–0.78)*	0.35 (0.16–0.78)*	0.59 (0.37–0.95)*
18+	1.00	1.00	1.00	1.00
Race/Ethnicity				
Black	0.82 (0.53–1.25)	0.88 (0.53–1.46)	0.66 (0.24–1.83)	1.74 (1.13–2.70)*
Non-Black	1.00	1.00	1.00	1.00
Born in the US				
No	1.60 (1.09–2.36)*	1.64 (1.07–2.53)*	0.44 (0.19–1.01)	0.52 (0.34–0.81)*
Yes	1.00	1.00	1.00	1.00
Food Security				
Insecure	0.63 (0.45–0.90)*	1.42 (0.95–2.14)	0.84 (0.38–1.85)	0.94 (0.65–1.36)
Secure	1.00	1.00	1.00	1.00
Housing Security				
Insecure	0.76 (0.47–1.24)	0.70 (0.38–1.28)	0.54 (0.20–1.46)	0.92 (0.55–1.54)
Secure	1.00	1.00	1.00	1.00
Relationship Status				
Single	1.02 (0.72–1.44)	0.74 (0.50–1.10)	1.65 (0.76–3.56)	1.19 (0.82–1.73)
Partnered	1.00	1.00	1.00	1.00
Everyday Discrimination				
Any	1.14 (0.75–1.72)	1.05 (0.65–1.70)	1.45 (0.59–3.53)	1.47 (0.91–2.36)
None	1.00	1.00	1.00	1.00

[a] All predictors were included in each model.
[b] Combination of adequate prenatal care and receipt of a postpartum visit.
[c] Contraception use six months prior to pregnancy and twelve months postpartum.
* $p < 0.05$.

Discussion

Our findings indicate that young women in New York City do not have universal access to quality sexual and reproductive health services by World Health Organization standards [2] and that disparities in access exist. Very few (4%) of the young women in this sample received all four core components of sexual and reproductive health assessed. Although most (95%) had an HIV test, more than one-half did not receive comprehensive perinatal care, more than three-quarters did not use contraception in the 6-months prior to becoming pregnant and 12-months postpartum, and more than two-thirds demonstrated a low-level of sexual health knowledge. Consistent with previous research [46], young women under the age of 18 were at increased risk for poor access to sexual and reproductive health services than older adolescents. Women with high social needs may also be less able or less likely to address medical needs or have access to resources to do so [47]. Food insecurity was associated with a lower likelihood of having received comprehensive perinatal care furthering the evidence base that social and economic vulnerabilities affect health seeking behaviors [48,49] and access to prenatal care services [50], influencing birth outcomes [28].

Black women and immigrant women in the United States, compared to their counterparts, typically have poorer access to both sexual and reproductive health services and general health services [51,52]. However, in this study, Black participants were almost two times more likely to have a high level of sexual health knowledge than those of other race/ethnicities, and no other differences in access to sexual and reproductive health services by race/ethnicity were detected. Although participants born outside the United States had lower odds having high sexual health knowledge, they were more likely to have access to perinatal care and contraception. Clinical sites in this study were dedicated to serving minority and immigrant women, and these pregnant young women had access to targeted health services.

Although perceived discrimination was not associated with receipt of sexual and reproductive health services in this study, more than three-quarters of participants, over 90% of whom were adolescents of color, reported having perceived discrimination in their daily lives. Perceived discrimination has been associated with underutilization of both medical and mental health services [41] and poor birth outcomes [20]. The effects of perceived discrimination on health outcomes and healthcare access may become more evident after the period of adolescence, as the culmination of perceived discrimination is greater. This can be explained by the weathering hypothesis, which argues that Black populations experience deterioration of their health at an earlier stage than their white counterparts, due to the cumulative stress of social and

economic disadvantages [53]. More research on the mechanisms through which perceived discrimination may reduce access to care and result in adverse maternal and child health outcomes is warranted.

Limitations and strengths

There are several limitations to the study. Participants were low-income, predominantly minority women residing in New York City; thus, results may not be generalizable to the broader population. The research participants were recruited from women presenting for prenatal care. As such, these women were already being reached by services and had resources to access these services. Other more socially- or economically-vulnerable populations who were not able to access prenatal care services would not have been included. Although we included only those respondents with complete data from pregnancy through one year postpartum, there were no differences between those included or excluded on the basis of missing data. However, there may be other factors that impact access to services for which we are not able to account (e.g., health insurance status). In our analyses we controlled for age, because although the age range is large, the majority of respondents (77%) are between the ages of 18–21. However, age could be a potential moderator in the relationship between different measures of social and economic vulnerability and access to core services. All survey responses were self-report and therefore may be subject to biases. Further, this was a secondary analysis not specifically designed to measure the core aspects of sexual and reproductive health the World Health Organization has deemed essential. To the extent possible, proxy measures were used to assess each component. For example, the core aspect of sexual health promotion was analyzed by sexually transmitted infection/HIV risk knowledge. Although this may be an indication of receiving sexual health education, it is not a direct measure of sexual health promotion. *Access* to contraception was measured by *use* of birth control; participants may have had access to contraception before and after pregnancy, but opted to not use it. These proxy measures capture only a subset of what these components entail. Although pregnancy intentions may have precluded respondents from accessing abortion care, this is still a core aspect of sexual and reproductive health. In New York City, abortion is covered by Medicaid [54]. Thus, there may be fewer financial barriers and in turn, fewer disparities in abortion access compared to other states. Information on newborn care, reproductive tract infections, infertility services, cervical cancer, and other gynecological morbidities were also not included. The political landscape in the United States has changed dramatically since 2012 when these data were collected and the effects that these changes have had on health access and outcomes, particularly with regards to immigrant populations, could not be captured here.

Nonetheless, this is the first known study to examine receipt of the core components of sexual and reproductive health among patients receiving care in multiple large urban delivery settings, using the World Health Organization framework, in a high-income country. Findings from this study highlight some of the challenges that young women in New York City face in terms of accessing core components of sexual and reproductive health. Better understanding of challenges that vulnerable populations face in urban areas can support efforts to strengthen policy and programming to improve sexual and reproductive health outcomes, particularly in the United States where outcomes are poor and disparities persist. This study contributes to the evidence that adolescents are especially vulnerable in terms of access to sexual and reproductive health services.

Conclusions

The low percentage of participants who received all core components assessed highlights the need for policy-makers and health care delivery organizations in New York City and throughout the United States to work harder to meet international sexual and reproductive health standards. Policies should ensure that already vulnerable populations are not further inhibited in their fundamental right to sexual and reproductive health. It is critical that comprehensive sexual and reproductive health providers that serve low-income women retain federal funding [55]. Moreover, to meet the Sustainable Development Goals [1], access to sexual and reproductive health services must be expanded in scope and quality. Interventions that specifically target socially and economically vulnerable populations may be warranted, such as school-based interventions to reach younger adolescents and community-based interventions to reach out-of-school youth. Sexual and reproductive health education should start earlier in order to reach all adolescents before they become sexually active. Bundled interventions that target both sexual and reproductive health and social vulnerabilities, such as food insecurity, may have synergistic effects to improve health outcomes and healthcare access. Future research should examine access to sexual and reproductive healthcare among other socially and economically marginalized populations in the United States, and seek to identify strategies to enhance access, adherence and effectiveness. Without such efforts, disparities in access and outcomes will persist.

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Conflicts of interest

None.

Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.srhc.2018.12.003.

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