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Research Article

Do School-Based Clinics Increase Access to LARC Services Among Teenagers?

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Background: To determine if there was a difference in the percentage of teenagers who received Long Acting Reversible Contraception (LARC) by comparing school-based health clinics (SBHCs) to hospital-based clinics.

Methods: We conducted a cross-sectional study using outpatient clinical records from Baylor Teen Health System hospital clinics and school-based clinics, SBHCs, in Houston, Texas. Among the 11,835 patient-charts that were reviewed, we identified 6,635 teenagers who attended hospital-based clinics and 5,291 teenagers who attended SBHCs, respectively between January 1, 2016 and December 31, 2016. Among those patients, 7,445 teenagers obtained contraception at hospital-based clinics and 2,005 at SBHCs. We measured the prevalence of LARC uptake using Chi-Square.

Results: Of the patients who visited the hospital-based clinics and SBHCs, only 127 (1.7%) and 23 (1.2%) chose LARC devices, respectively. There was no significant difference in the proportion of LARC uptake versus other contraceptive use between hospital-based clinics and SBHCs (p=0.08). When analyzing distribution of age, hospital-based clinics had greater proportion of older teenagers who chose LARC than younger teenagers (p<0.0001). Age of teenagers who chose LARC at SBHCs was more evenly distributed (p=0.8).

Conclusion: This study shows that LARC uptake in SBHCs was low in Houston, Texas and that SBHCs contraceptive services can reach a teenage population that is otherwise not likely to seek contraceptive services.

Keywords: LARC; adolescent; teen; contraception; school-based clinics; hospital-based clinics.

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Introduction

Long-acting reversible contraceptives (LARC) are the most effective methods of contraception which consist of intrauterine device (IUD) and subdermal implant and the first line of contraception to be considered for adolescents with minimum complications. (1) LARC has failure rate of only 0.2 % for levonorgestrel IUD, 0.6-0.8% for copper IUD and <1% for the subdermal implant and can provide years lasting contraception. (2) Moreover, LARC methods are independent of compliance unlike pills or shot regimens which require frequent healthcare visits for injections. (3)

Unfortunately, the U.S. still records high teenage pregnancy rate in comparison to other developed countries and the highest rate falls among Hispanic and southern states.(4) Many reasons can explain the high teen birth in the U.S; one of which is that teens in the U.S. continue to frequently use the least effective modes of contraception, such as condoms (97.4%) and the withdrawal method (59.7%). (5) Additionally, teens' awareness to the most effective method of contraception, LARC, is low and could explain their low usage of LARC which puts them at high risk of unintended pregnancies. (6)

Reducing unintended teen pregnancy rate has many implications. Teen mothers are more likely to be depressed

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and are at risk for maintaining or creating new cycles of poverty as their new responsibilities can interfere with current high school coursework or college aspirations and they may lose years of career development. In addition, pregnant teenagers and their children can experience higher health complications. Teen mothers are known to suffer from various obstetrical complications during pregnancy and during childbirth such as preterm deliveries and high perinatal mortality. Further, children born to teen mothers often have low birth weight and higher neonatal mortality. (7) Therefore, it is important to encourage usage of effective methods of contraception (e.g. LARC) among teenage population to prevent unintended teen pregnancy.

School-based health clinics, SBHCs, can be a rich source for LARC services. Schools are attractive sites for interventions as they provide locations where teenagers gather regularly and consume a large portion of their teenage years (8). Moreover, it was reported that lack of transportation to clinic sites, lack of time after school, and embarrassment associated with an unfamiliar clinic environment, were among the many barriers to seeking contraceptive services in teenage population; therefore, offering LARC services in SBHCs may provide an easy access to effective modes of contraception to teenagers. (9, 10) To our knowledge, there is no large-scale study investigating LARC uptake in SBHCs. Therefore, we sought to conduct a cross-sectional study comparing the use of LARC in two settings; the SBHCs and traditional hospital-based clinics in Houston, Texas. This study contributes to teens access to LARC in SBHCs, as we were unable to find large scale studies pertaining to the impact of SBHCs on LARC usage among teenagers. Our study shows that SBHCs reach vulnerable teenage population that traditional hospital-based contraceptive clinics do not.

Methods

Institutional Review Board (IRB) approval was obtained prior to initiation of the study. Outpatient clinical records were used to abstract information from patients who were seen at Baylor Teen Health System (BTHS) hospital-based clinics and SBHCs in Houston, Texas between January 1, 2016 to December 31, 2016. BTHS hospital clinics included the Lyndon B. Johnson clinic and the Ben Taub General Hospital clinics. SBHCs included clinics associated with Chavez, Wisdom, Tejano, Worthing, and Sterling High Schools in Houston, Texas. Demographic variables abstracted were gender, age, race, and poverty level. Some patients had mixed racial background and hence were counted in more than one race category. While LARC included intrauterine device, IUD (e.g Mirena, Levonorgestrel-releasing IUD) and Nexplanon subdermal implant, other contraceptives were in the form of depomedroxyprogesterone injections, oral contraceptive pills, and male condoms. Percentage of the total cohort with specific demographic categories are reported. Standard chi-square test was used to (1) compare demographic variables between patients of hospital-based clinics and SBHCs, (2) compare percentage of total LARC use between patients of hospital-based clinics and SBHCs, and (3) compare percentage of LARC use stratified by different age groups among patients of hospital-based clinics and SBHCs.

Results

A total of 11,835 patient charts were reviewed. Table 1 summarizes characteristics of patients attended

hospital-based clinics and and SBHCs. The distributions of demographic variables were significantly different between the patients of two settings. A total of 7445 teenagers obtained contraception at a hospital-based clinic, of whom 127 (1.7%) chose LARC devices. A total of 2005 teenagers obtained contraception at SBHCs, of whom 23 (1.2%) chose to receive LARC devices. There was no significant difference in the proportion of LARC uptake versus other contraceptive use between hospital-based and SBHCs (Table 2). When analyzing distribution of age, hospital-based clinics had a greater proportion of older teenagers choose LARC than younger teenagers (Table 3); whereas, age of teenagers who chose LARC at SBHCs was more evenly distributed (Table 4).

Table 1. Demographic Data of all individuals attending hospital-based clinics and school-based health clinics (SBHCs)

	Hospitals	SBHCs	P-value*
	N (%)	N (%)	
Sex			0.007
Female	6023 (91)	3551 (68)	
Male	612 (9)	1649 (32)	
Age			<0.0001
13-14	30 (<1)	481 (9)	
15-17	529 (8)	2974 (56)	
18-19	1417 (21)	1172 (22)	
>20	4659 (70)	664 (13)	
Race			<0.0001
White	3377 (35)	2884 (35)	
Black	3043 (32)	2232 (27)	
Hispanic	3109 (32)	2930 (36)	
Asian	96 (1)	108 (1)	
Other	12 (<1)	46 (1)	
Poverty Level			<0.0001
≤100%	5216 (51)	5002 (95)	
101%-150%	883 (84)	166 (3)	
>150%	536 (81)	123 (2)	
	6635	5291	

*determined by Chi-square Test

Table 2. Comparison of LARC use between clinic type among female individuals (age 13-24 years).

	LARC	Other contraception	Total
Hospital-based clinics	127 (1.71)	7318 (98.29)	7445
School-based health clinics (SBHCs)	23 (1.15)	1982 (98.85)	2005
Total	150	9300	9450

Chi-Square *p 0.0756*

Table 3. Distribution of LARC use and other contraceptives by age in hospital-based clinics among women seeking contraception

	LARC	Other contraception	Total
13-14	0 (0)	44 (100)	44
15-17	10 (1.53)	642 (98.47)	652
18-19	25 (1.51)	1628 (98.49)	1653
20-24	92 (1.8)	5004 (98.19)	5096
total	127	7318	7445
Chi-Square *p* <0.0001			

Chi-Square p 0.6711

Table 4. Distribution of LARC use and other contraceptives by age in school-based health clinics (SBHCs) among women seeking contraception

	LARC	Other contraception	total
13-14	0 (0.00)	59 (100)	59
15-17	11 (1.3)	832 (98.70)	843
18-19	7 (1.07)	647 (98.93)	654
20-24	5 (1.11)	444 (98.89)	449
total	23	1982	2005

Chi-Square *p 0.8235*

Discussion

This study highlighted many benefits associated with SBHCs offering contraceptive services when compared to hospital-based clinics. First, LARC uptake was similar in both settings, suggesting that SBHCs can deliver effective contraceptive devices although not located in an exclusively medical setting. In addition, the hospital-based clinics in this study were established in 1978; whereas, the SBHCs had been established from 3 to 12 years prior to the study, implying that young SBHCs can work as effectively as hospital-based clinics given the appropriate medical resources.

The SBHCs also served more low-income families than the hospital-based clinics. We hypothesize that SBHCs are more readily accessible to low-income community because children from these families attend public schools which are zoned nearby. Hospitals, on the other hand, may not be located nearby and thus are not as readily accessible to these children with limited resources. In fact, several studies have shown that communities living in poverty are the first to suffer when hospitals are not readily available. (11, 12)

SBHCs also had younger teenage population than hospital clinics. This is critical given that many teenagers in the U.S have their first sexual experience by 16 years of age which puts them at high risk of unintended pregnancy if they don't use effective methods of contraception[12-15]. In addition, SBHCs may serve as a resource to reach younger teenagers, as the majority of teenagers who use LARC are older than 17 years old (13).

The study also shows that SBHCs reach significant proportion of Hispanic and black patients which is critically important given that Hispanic and black women are less likely to use LARC, especially Hispanic women with low acculturation in the U.S, and that Hispanic and black teens record the highest population in teen birth rate in 2015 according to the latest congressional research service report. (4, 14-16)

Anecdotal data from qualitative studies showed that the low LARC uptake by adolescents is due to the misinformation about contraception, disproportionate concerns regarding side-effects associated with highly-effective contraception, less stigma associated with larger families, and less cultural support for contraception use. (17, 18) These teenagers are less likely to seek contraceptive options in a hospital clinic. In addition, the U.S. congress is attempting to increase federal support to prevent teen pregnancies. According to the latest congressional research services report on teen birth in the U.S., federal efforts have been implemented to fund organizations that provide educational programs on teen pregnancy prevention in an attempt to reach the youth sector. Unfortunately, these federally granted organizations reach only a small share of youth. For instance, the grantees funded under the four federal teen pregnancy programs served about 620,000 youth in one-year period, which accounts for only 3% of the adolescent population aged 15 to 19.(4) Redirecting governmental expenditure to support the existing SBHCs instead of other medical settings can improve access to LARC contraceptive methods and promises future reduction in unintended teen pregnancy rate.

SBHCs can be an excellent opportunity to involve male teenagers in contraception decision making. Studies show that when males are involved in contraception decision making, female partners are more likely to use contraception. (19-26) Although most of these studies

focus on condom-use, which is a male-specific contraceptive method, a few studies show that supporting male partners provides a strong impetus for female contraception use. (27, 28)

LARC uptake in SBHCs remains low in our study which signifies the increasing need to provide counseling to female adolescents to increase their awareness in order to enhance LARC uptake and to provide well-trained health care providers at SBHCs to facilitate informed decision making among high school students.(29) The Choice project showed that LARC uptake increased once LARC introduced at no cost with proper counselling. (30) The Choice project also showed that the 12-month continuation rate of LARC usage among female teens and young women was more than 75%, which supports long-term investment once access to LARC is initiated. (31)

Our study has several limitations. We could not assess causality of the findings given our study design. We could not obtain data on consistent availability of LARC in SBHCs. Our study did not consider the religious belief that could have affected this study participants choice of contraception. However, our data came from 5 independent high schools which maximizes the effectiveness and generalizability of our study findings. Lastly, our data composed of combined variables which limited our ability to run statistical tests and relied only on descriptive statistics. Nevertheless, research studies on LARC in the setting of SBHCs are in paucity. Our study is novel in that we targeted relatively large sample size from different high schools and hospitals in comparison to other similar studies that investigated LARC usage by adolescents. (18, 32)

In conclusion, SBHCs reach teenage population that is otherwise not likely to seek contraceptive services. This study also shows that successfully establishing contraceptive clinics in schools that are on par with hospital-based clinics could be feasible. The SBHCs contraceptive programs evaluated in this study are relatively young, especially when compared to the hospital-based programs. Uptake of LARC devices by teenagers at these schools seems to have caught on rapidly; it would be interesting to see how proportions of LARC users compares over the next decade. Further research is needed to examine reasons of LARC low usage among adolescents and young women and postulate possible solutions.

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Conflict of Interest

None

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