More than Just a Woman's Choice: The Complexities of Family Planning and Knowledge about the Zika Virus in the Dominican Republic

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by

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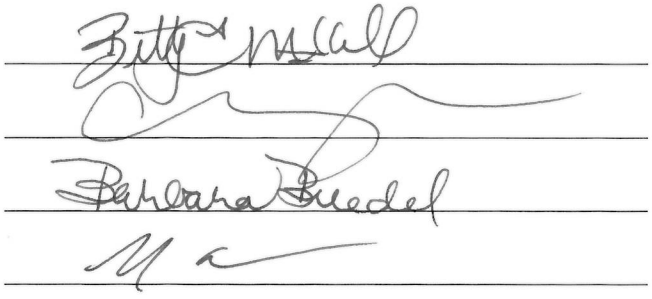

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ABSTRACT

In light of the zika virus crisis of 2015-2016, there has been concern about access to family planning resources in Latin America, including the Dominican Republic. To investigate how zika has affected conversations about and access to contraception in this country, 42 interviews with women and 16 interviews with medical professionals were conducted in the capital city, Santo Domingo. In addition, observations were conducted at various public and private hospitals and clinics, including a mobile family planning clinic, in order to understand potential sources of information about the zika virus and contraception. Contrary to expectation, contraception was available for free at public medical facilities and a significant portion of women were using birth control and/or knew about what family planning resources were available to them. Conversely, most women knew little of the zika virus despite most medical professional's insistence that women had at least a basic understanding of the virus' symptoms (including its links to birth defects), its vector of transmission, and how to prevent infections. This study suggests a need to better investigate how a variety of factors shape women's decisions about utilizing family planning resources and how a lack of knowledge about the zika virus could negatively impact the health of future generations of Dominicans.

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INTRODUCTION

In 2011, the researcher encountered absolute poverty for the first time during a mission's trip to the Dominican Republic. One day during this trip, the truck bounced down the dirt round in a squatter community outside of the city of Jarabacoa. A young girl, perhaps six or seven old, emerged from her house, holding her infant brother. The girl adjusted her grip as the vehicle rumbled past, and she tried to hold up the baby by bracing him against her thigh. She watched the group disappear down the road in a cloud of dust. At a *colmado* a few houses down, an elderly man on crutches sat on an overturned bucket, adjusting the dirty bandages on his leg as the storekeeper shoed a chicken away from the muddy vegetables displayed on the counter. A group of adolescent girls, some of whom looked barely older than fourteen or fifteen, chatted in the shade of a tree across the street. Several of them held infants and toddlers on their hips. When faced with such economic hardships, how does one make choices regarding family planning? Do women have access to information and resources about contraception? Are these vulnerable women fully informed about various diseases that could negatively impact their own health and the health of their children?

LITERATURE REVIEW

Whereas the use of contraception is largely considered a personal choice, cultural ideas and social factors also play a significant role. Although women ultimately make decisions about whether to plan their pregnancies, social structures and cultural ideologies often shape their options. Pressures to have children or conversely to avoid pregnancy discount women's own desires about motherhood and invalidate their autonomy by removing the element of personal

choice (Beynon-Jones 2013; Negrão 2012). Consequently, investigating these pressures is instrumental to understanding the social construction of contraception. The social construction theory refers to how the real world is affected and created by social and cultural ideas and practices (Kleinman 2010). Social constructionism investigates the dialectical relationship between the objective and subjective reality and rejects essentialism, suggesting that contraception does not exist simply 'as is' (Greedharry 2011; Dreher 2015). Contraception therefore is not merely the resources and methods that women can use to prevent pregnancy, but also includes ideologies about women's right to choose and policies that limit or provide access to resources and information. Concerns about maternal health, religion, economic situations, and access to sexual education and resources all affect the social construction of contraception. Subsequently, sex and reproduction are not merely personal, but rather are also inherently political (Morgan and Roberts 2011). Whereas social constructions of contraception do not always reflect actual behaviors, ideologies about birth control nonetheless impact women's decisions regarding motherhood.

The medical institution often assumes that women make choices about maternity based solely on health factors and rational decision-making models defined by medical professionals (Beynon-Jones 2013). Teenage fertility in Latin America has increased in the past 50 years despite a decrease in the overall fertility rate globally. In addition, maternal mortality is a leading cause of death among adolescents in the region (Edgerton and Sotirova 2011). As a result, some countries have sought to address these issues by providing family planning counseling and other resources. However, young women may not want to avoid motherhood simply because government officials or medical professionals advise them to do so. Some women may wish to have children despite any risks or they may believe that the reward of motherhood is worth any

potential complications. They may believe that the potential negative effects of taking birth control, such as side effects from medication and community disapproval, outweigh the benefits of family planning (Beynon-Jones 2013). Additionally, contraception is often a burden in that women must convince their sexual partners to utilize certain methods (namely condoms) and challenge cultural notions about the purpose of sexual relations (procreation) (Beynon-Jones 2013; Morgan and Roberts 2012). Thus, the decision to use birth control is not entirely a personal choice nor is it one that women are willing to make simply because the medical establishment has instructed them to do so.

In addition to medical professionals' advice, religious doctrine also often affects cultural constructions of birth control and rates of contraception use. According to the Catholic Church, any use of artificial birth control is immoral and the only acceptable method of family planning is the natural or rhythm method (US Conference of Bishops 2017). Historically, the church has had a strong presence in Latin America and the Caribbean and has been a bastion of social conservatism; however, the church is also currently experiencing a cultural revolution that is challenging traditional doctrines, especially those concerning women's reproductive rights (Hagopian 2009). Despite the Catholic Church's condemnation of birth control and abortion, movements for increased access to contraception have proliferated in many countries in Latin America (Morgan and Roberts 2011). Likewise, abortion has been decriminalized in limited cases in several countries through the region, such as Mexico, due to concerns about high maternal mortality rates caused largely by complications from unsafe abortions (Edgerton and Sotirova 2011). An increasing number of Catholics have been alienated by the church's official doctrine against contraception, especially considering rates of poverty, gendered violence, and maternal mortality in Latin America (Edgerton and Sotirova 2011). Despite recent changes in

church doctrine, religion nonetheless plays a significant role in how the issue of birth control is framed and more conservative viewpoints on birth control still dominate discourse in some areas.

In contrast to the widespread presence of the Catholic Church in Latin America, a lack of education plays a similar role in young women's choices regarding motherhood. Adolescent pregnancy is far higher among girls who have received only primary education compared to those who completed secondary school or higher (Caffe et al. 2017). In countries where school attendance is not enforced or other barriers reduce rates of attendance (such as the economic need for children to work to help support the family or cultural ideas about the lack of value in educating women), many girls are unlikely to attend school consistently. Singh and colleagues (2005) found that, on average, only 64% of girls and 69% of boys regularly attend school in the Latin America; although improvements in public education have occurred since the collection of this data in 1999, a significant portion of the population of school-aged children still does not attend school. These disparities are likely to be even more prevalent in rural areas when compared to urban regions due to difficulties in finding reliable transportation to education facilities and other barriers. If many girls only have the opportunity to acquire a primary school education, then they may be more likely to become pregnant at a young age, therefore contributing to the high rate of adolescent pregnancy in the region.

Although education in general influences the social construction of contraception, access to sexual education in particular can have an even greater impact on women's choices about motherhood. Access to sexual education can significantly affect women's choices regarding birth control by providing women with an understanding that they can control their reproduction and that they have multiple options. However, the effectiveness of sexual education is dependent on the ideologies of those that create the curriculum. When education is provided, the state

determines what topics are discussed, and consequently instruction regarding family planning may be limited (Morgan and Roberts 2011). In areas where conservative Catholic ideas predominate, a clear explanation of various family planning options may not be included in these classes. An unwillingness to address teenager's sexuality often inhibits conversations about sex and can leave adolescents without an understanding of their family planning options (Ali, Miller, and Ponce de Leon 2017). Whereas some Latin American countries, such as Peru and Argentina, have instituted formal sexual education classes in public schools, other countries lack comprehensive curriculum (Gaspar de Matos et al. 2009). Therefore, girls in Latin America have differing levels of sexual education that may put them more or less at risk for unwanted pregnancies.

In addition to varying levels of education in general and access to reliable sexual education in particular, poverty also impacts the social construction of contraception. The rate of adolescent pregnancies is higher among those of lower socioeconomic status (Caffe et al. 2017). Considering that approximately 29% of people in Latin America and the Caribbean live in poverty, young women in this region are at a higher risk of adolescent pregnancy (Gonzalez 2016). In fact, Latin America and the Caribbean has the highest rate of adolescent pregnancies among all major regions (UNICEF 2007). This is likely due largely in part to a lack of use of birth control among the lowest socioeconomic classes. Despite overall increases in rates of use of modern contraception methods, rates among the absolute poor are still significantly lower than rates among higher socioeconomic classes (Gakidou and Vayena 2007). Although gains have been made in increasing access and use of family planning in Latin America and similar regions, poor women still face barriers that result in lower rates of contraception use. Poor women simply may not have the ability to make choices about planning their pregnancies due to this lack of

access. Impoverished women in Latin America have therefore been labeled as high risk by international health organizations with regards to adolescent pregnancy and pregnancy-related health issues.

Concerns about maternal health can also impact the social construction of family planning. Rates of maternal mortality in Latin America and the Caribbean range from 359 per 100,000 live births in Haiti to 14 per 100,000 in Puerto Rico, with most countries in the 25 to 100 per 100,000 range (*The World Factbook* 2015). In order to reduce rates of maternal mortality, some Latin American countries where rates have historically been very high have instituted various programs that include increased access to family planning resources (Villanueva-Egan and Schiavon-Ermani 2013). Subsequently, education about and access to contraception has increased in some areas in Latin America, as these experimental programs consistently demonstrate positive results. Even when cultural and religious concerns about birth control are prevalent, fears about maternal health may outweigh these ideologies. Reducing the number of deaths during and after childbirth is often deemed more important than following religious doctrine.

In terms of health concerns, the social construction of contraception can be further complicated by outbreak of disease that can compromise maternal and infant health, such as the zika virus. Although first discovered in Uganda in 1947, the zika virus was perceived as a mild disease until the recent outbreak in Latin America in 2015 (Zanluca et al. 2015). Symptoms of infection generally include fever, conjunctivitis, skin rash, and muscle aches, although many who are infected by the virus are asymptomatic (Center for Disease Control and Prevention 2017a). Zika is carried by mosquitos of the *Aedes* genus, specifically *Aedes aegypti*, which are prevalent throughout most tropical regions, although the virus can also be sexually transmitted (Ioos et al.

2014; Musso et al. 2015). The virus has spread throughout regions of Africa and Asia where this mosquito is common, but until the zika fever epidemics in Yap in 2009 and Micronesia in 2013, no major outbreaks had occurred (Zanluca et al. 2015). High rates of Guillian-Bare Syndrome, a neurological disorder that causes temporary muscle weakness and even paralysis, were reported during the outbreak in Micronesia, but the increased incidence of the disorder was not originally assumed to be connected to the concurrent zika outbreak (Center for Disease Control and Prevention 2017b; Darko and Mashburn 2016). Links to Guillian-Barre Syndrome and birth defects, namely microcephaly, have only recently emerged and have been cause for international concern (Goldthwaite and Valesquez 2016).

The 2015-2016 outbreak in Latin America and the corresponding rise in rates of several neurological disorders and birth defects in affected areas have challenged the assumption that zika is a mild disease. Initially diagnosed in Brazil in 2015, the virus has since spread to approximately fifty countries in Latin America and the Caribbean (Center for Disease Control and Prevention 2017a; Ministerio de Salud Publica 2016). Countries across Latin America have also reported increased rates of microcephaly and neurological disorders, namely Guillian-Barre Syndrome, that are correlated with the arrival of the virus (World Health Organization 2016). Concern about the spread of the virus has primarily centered around the birth defect microcephaly, or the underdevelopment of the fetal brain, which can cause life-long brain damage of varying degrees (Center for Disease Control and Prevention 2017a). In 2015, Brazil reported an increase of the rate of the microcephaly among children born to mothers who tested positive for or had symptoms of zika during their pregnancy (World Health Organization 2016; Calvet et al. 2016). More recent scientific studies (De Araújo et al. 2016; Goodfellow et al. 2016; Tognarelli et al. 2016) have supported this connection between zika infection during the first

trimester of a pregnancy and microcephaly, and the World Health Organization confirmed that zika was causally associated with microcephaly in May 2016. Due to the various health implications of the virus, WHO declared the zika outbreak a public health emergency of international concern in February 2016 (Tambo et al. 2017).

In light of concern for the health of fetuses who may be affected by zika, various countries throughout Latin America and the Caribbean have issued statements regarding how their citizens can help reduce cases of zika-related microcephaly. In early 2016, Brazil, Ecuador, El Salvador, and Colombia, among others, advised women to avoid becoming pregnant for various time periods ranging from six months to indefinitely (Goldthwaite and Valesquez 2016). In the Dominican Republic in particular, the Ministry of Public Health followed suit by instructing women to avoid pregnancy until the end of the crisis (Hoff 2016). Despite evidence that zika can be sexually transmitted, the burden of preventing cases of microcephaly was assigned primarily to women, who were expected to avoid pregnancy or a zika infection if they were already pregnant.

This advice to avoid pregnancy ignores barriers to obtaining family planning resources in the country (Morgan and Roberts 2012; Xaba and Rispel 2013). The Dominican Republic is one of eight countries in Latin America that constitutionally guarantees the right to life from conception and is one of five countries that criminalizes abortion in all cases (De Jesus 2014; Morgan and Roberts 2012). Even in cases where severe abnormalities are identified in the fetus via ultrasound, women cannot obtain safe, legal abortions. Therefore, women who learn that their child will have microcephaly or some other birth defect cannot choose to (legally) abort the pregnancy. Women who choose to seek an abortion due to fears that they will be unable to care for a child with severe disabilities face the various dangers that come with ‘back alley’ abortions.

According to Amnesty International (2016), acquiring family planning resources of almost any kind is similarly complicated. Although contraception is not criminalized, access can be limited and the most vulnerable populations, namely impoverished girls, are least likely to have reliable access to preventative services. Sullivan et al. (2005) found that female sterilization, namely in the form of tubal ligation, is available and is the most prevalent form of contraception used in the Dominican Republic. This suggests that less permanent forms of contraception, such as pills or injections, may not be widely available. In addition, tubal ligation may not be a desirable choice for young women since it is irreversible. Women who want to merely delay pregnancy may therefore have limited options when seeking family planning resources.

The Ministry of Public Health's advice to delay pregnancy may conflict with the social construction of contraception in the Dominican Republic. Religion likely plays a key role in how Dominicans conceptualize contraception use. Approximately 95% of the population of the Dominican Republic identifies as Catholic and the church opposes the use of all forms of birth control (Morgan and Roberts 2012; *The World Factbook 2015)*. As a result, birth control may be seen as taboo and women who want to utilize family planning may face stigma, which can create social barriers to accessing family planning services. Women may be legally allowed to seek contraception, but their sexual partners and/or families may not approve of its use due to their religious beliefs (Beynon-Jones 2013). Women may not want to face the disapproval of family, friends, and religious leaders and therefore may choose to not utilize birth control. Similarly, their own personal convictions and religious beliefs may play a role. In addition to their sexual partners' objections to using contraception, these women may likewise reject the use of family planning. Using contraception can violate their personal and religious beliefs, and thus they may not be inclined to use birth control to prevent pregnancy. Considering the potential health

implications of the zika virus in the future, potential barriers to family planning in the Dominican Republic need to be further studied.

Despite a decrease in international concern for zika in 2017, affected regions will likely continue to grapple with the health consequences of the virus and may continue to advise women to take care in planning pregnancies and avoiding infection. In November 2016, WHO officially declared that the outbreak was no longer a public health emergency, but the virus continues to spread throughout the region (World Health Organization 2016). Since zika is transmitted by mosquitos, this virus will likely continue to propagate in tropical regions indefinitely, as eliminating zika from the population is essentially an impossible task. Consequently, the virus may continue to cause increased rates of microcephaly for generations to come. Several countries, such as El Salvador, have continued to advise women to delay pregnancy until more is known about the long-term effects of the zika virus, but overall attention on zika has sharply declined since the end of 2016 (Tambo et al. 2007).

Regardless of concerns about the potential health implications of the zika virus, little research has been conducted to evaluate the effectiveness of various countries' responses to zika and any continued efforts to address its propagation within the region. Any advice to delay pregnancy due to zika is only effective if women have access to family planning resources, feel comfortable choosing to utilize birth control, and understand the risks associated with the spread of the virus. Therefore, any countries that suggest that women avoid pregnancy but fail to provide resources and/or education about the zika virus may not have success in convincing women to utilize birth control to decrease cases of microcephaly. Since the Ministry of Public Health in the Dominican Republic recommended that women delay pregnancy and because the literature suggests that access to contraception is limited, this research explores how the zika

crisis has potentially affected conversations about and access to family planning resources in the country. In conducting semi-structured interviews with medical professionals and local women, the goal is to understand if the Ministry of Public Health's advice led to an increase in access to family planning resources and an increase in the use of birth control among women. Whereas interviews with doctors and other medical professionals allows a better understanding of if the Ministry of Public Health has increased access to contraception resources, interviews with women provide insight into how women's personal choices about utilizing birth control have been affected due to fears about microcephaly or other factors. Investigating women's understandings of family planning and the zika virus are key to addressing any disparities between what the medical establishment believes women know and what women actually know. If access to contraception remained limited during the height of the crisis and women felt cultural pressures to not utilize birth control, then the Ministry of Public Health's advice to delay pregnancy might have only served to further complicate women's decisions regarding motherhood.

METHODS

This study was conducted utilizing two primary methodologies: individual interviews and ethnographic observations. All interviews were conducted in Spanish and all were completed between June 6 and August 1, 2017 in Santo Domingo, Dominican Republic.

Individual Interviews with Women

Women in the nearby community who were willing and available to participate in my study were sought to participate in individual interviews. Individual women were identified with

the help of two local informants who guided me through the community. By using their knowledge of the community and its members, they helped me to approach their friends and acquaintances as well as any women who were sitting outside their homes. The goals of my project were explained to these women and they were asked to sign a letter of informed consent if they were willing to participate. Women were then asked the open-ended questions listed in the appendix. Supplementary questions were asked to elicit more detailed responses and to investigate topics that were brought up by participants but were not mentioned of the original question set. Individual interviews were also recorded with a digital voice recorder and extensive notes were taken during and after each interview.

Analysis of Interviews

All interviews were transcribed and coded for major themes concerning access to family planning resources, use of contraception, beliefs about women's choices regarding the use of family planning, knowledge about the zika virus, misconceptions or lack of knowledge about zika, and the perceived impact of zika on women's health. All notes from these interviews were similarly analyzed.

Interviews with Medical Professionals

Interviews were conducted with medical professionals from public and private health facilities across the city of Santo Domingo. Medical professionals who have a direct role in women's healthcare or creating hospital policy about women's healthcare (especially reproductive healthcare) and who understand the potential impacts of the zika virus crisis on women's family planning decisions were sought out. The goal of seeking out these types of medical professionals was to understand how the medical institution was framing discussions concerning the zika virus and contraception. Some participants were identified during visits to

public and private medical facilities during the inventories of broken hospital equipment conducted as part of an internship with Advancing Communities by Educating and Serving (ACES) North America[1]. Most participants were identified with the aid of two informants during separate trips to nearby hospitals and clinics. If no doctors from the family planning or maternal care departments were available, then doctors and nurses from emergency rooms or general medical care were approached. All interviews were recorded and extensive notes were taken during and after each interview.

Analysis of Interviews with Medical Professionals

All notes from the interviews with the medical professionals were typed and coded to identify common themes, namely the availability of family planning resources, women's use of contraception, the medical institution's response to the zika virus crisis, and the impact of the zika virus on women's health and choices regarding contraception. Themes found in the interviews with medical professionals were compared to those found in the interviews with women in order to determine any overlap or discrepancies in common opinion.

Observations of Clinics and Hospitals

During visits to public and private clinics and hospitals in Santo Domingo, observations of any materials that provided information regarding pregnancy, contraception, and the zika virus (or other mosquito borne illnesses) were conducted. Any posters, pamphlets, or other relevant

[1] Work during the two months spent in the Dominican Republic was split between this research project and an internship with the international non-profit ACES North America, which has had a presence in the community for nearly four years. This internship included inventories of broken hospital equipment as part of a repair program with a U.S. university. Additionally, ACES has completed several community development projects in the area over the past few years. As a result, some medical professionals and women in the community may have agreed to participate in this study partially due to the researcher's connections with this organization and the work being completed for the internship. Appropriate efforts were made to distance this study from the work of ACES North America (i.e. seeking informants not involved in ACES community projects and recruiting doctors from other medical facilities that were not inventoried), but nonetheless the researcher's connections to this organization may have influenced interviewee's decisions.

materials were noted in the field notes and pictures were taken when possible. These observations were conducted in public sections of each medical facility, including waiting rooms and hallways, where these materials are visible to all patients.

FINDINGS

Interviews with Women

A total of 42 interviews with local women in a community in Santo Domingo were completed. All women in the study were between the ages of 18 and 60 and all of them lived in the same neighborhood in the city. Only one woman interviewed had no children; most participants had between two and five children. The vast majority of the interviewees professed to be Catholic or Protestant and all lived in poverty. The majority of the women were homemakers or held part time, low-wage service jobs at local restaurants or lottery ticket shops. Many lived with other female family members or their children but did not cohabitate with their husbands or boyfriends. Levels of literacy were also significant in the interviews with women, as not all of the women could read the letters of informed consent. Although the World Factbook (2015) cites a literacy rate of 91.8%, many of the women interviewed were illiterate or only semi-literate. Rates of literacy seemed higher among younger participants in the study and several older women in their 40s-60s were clearly illiterate and had family members sign their names on the letters of informed consent after the project was explained to them verbally.

The neighborhood in which the interviews were conducted was diverse in terms of socioeconomic status, but individuals of different classes were geographical segregated. On the far side of the community, most of the middle-class residents lived in gated apartment buildings closer to where the two main streets in the neighborhood met. In this section of the community,

there was significantly less trash and vendors in the streets; a large chain grocery store was also located nearby. Although residents from both sides of the neighborhood often interacted (as many wealthy residents attended churches on the poor side of the community), no one from the wealthier side of the neighborhood was interviewed. All of the women interviewed came from the middle section of the neighborhood, which was considerably poorer.

The neighborhood had one main road wound through this area in the neighborhood and connected at either end to two highways. Along the main road were several *metaleras* (metal recycling yards), *colmados* (small, family run corner stores), restaurants, and electronics stores. Most of the buildings in the area were one-story, with a few along the main road that were two-stories, and were constructed of concrete or a mixture of scrap sheet metal, wood, and plastic. None of the houses nearby had glass windows or screens to prevent insects from entering the home. Most of the residents who were interviewed lived on the winding dirt paths that led from the main road into the more residential part of the community. These areas of the neighborhood had little planning and the paths that connected them to the main road were impassable by car or even motorcycle at certain points. Trash was often piled in empty lots and several families allowed their goats and chickens to roam in any grassy areas. Due to the lack of planning and drainage, water would often stagnate in the paths after any amount of rainfall, making the paths almost impassable on foot at times (See Image 1). Most residents had some electric service, but blackouts were increasingly common and most families received less than 10 hours of electricity per day. Few residents paid for their electricity, but rather tapped their own wire into the grid illegally. Water service from the city was likewise limited. Houses that had plumbing connected to the city water pipes received water two to three times a week. This water was stored in cisterns or barrels that were often left uncovered. Water from the city was non-potable and could

only be used for bathing and washing. Residents therefore had to purchase five-gallon jugs known as *botellones* for drinking water.

Image 1. A street in the community of study. Due to a lack of city planning and drainage, rainwater often stagnates in the streets after rainstorms, especially during rainy season. Trash discarded outside also collects water. In addition to making many of these streets nearly impassable at times, this rainwater also provides a potential habitat for mosquitos.

Women were recruited with the aid of two individuals who were highly involved in the community. These gatekeepers assisted in navigating the community for personal safety and approaching potential participants. The first was a woman in her mid to late 30s who had four children. She described herself as a *comunitaria*, or someone who is involved in and works for the betterment of the community. Her work in the community meant that she was a trusted individual and knew many of the women who lived in the area. During several of the interviews, she helped to solicit responses from the respondents by helping to reword some questions to make them more understandable to the interviewees. The second informant was a man in his mid-forties who had lived in the community for nearly four years and was friends with many of the families who lived nearby. Whereas his knowledge of the community and the rapport with the locals was useful for the study, his status as a man did prove to be a minor complication.

During the interviews, he was asked to stand away from the respondent in case any of the women might feel uncomfortable discussing their use of contraception in front of him.

The majority of women were interviewed in or in front of their own homes; only four women were interviewed at their place of employment. With the help of the two informants, the researcher walked through the community to find women who were available to interview or to visit friends and acquaintances of the informants. Most women who were at their homes were either cleaning or taking care of their young children. Interviews with women at their homes usually took place on their front patio or in any open area nearby in the shade. The respondent and interviewer sat across from each other in whatever chairs were available with the research materials in the researcher's lap. Passersby or children often interrupted the interviews. Several women were also interviewed at their place of work. One woman worked at a clothing shop, another at a lottery ticket shop, the third at a restaurant and the last at a *metalera.* In these cases, the interviews were kept as brief as possible in order to not interrupt their work for too long.

Interviews were semi-structured and open-ended questions were utilized in order to elicit women's opinions and allow the interviewees to bring up any secondary topics that they believed were relevant. Participants were first asked about their knowledge of family planning, including any types of contraception that they could name as well as sources of birth control. Women were also asked about access to and personal use of family planning resources. Participants were questioned about the various types of contraception that they had utilized (if they used family planning at all) and why they chose to use or not to use birth control. The interview then transitioned to a discussion of their knowledge of and the impact of the zika virus on women's health and contraception use. Participants were asked about their knowledge of the virus (cause and symptoms) and sources of information about zika. Additionally, women were asked if they

believed that the health implications of zika, specifically its links to microcephaly, impacted access to family planning resources. Individual interviews lasted approximately four to ten minutes, depending upon the availability of the women. All but one interview was recorded, as the high noise level of the setting prevented a clear recording of the conversation in that case. All but one woman answered the questions regarding contraception and none refused to respond to the questions regarding the zika virus.

After the sixth week, new questions about adolescent pregnancies and the state of sexual education (both in school and from parent-to-child talks) were introduced. Almost all of the previous respondents had expressed concerns about the high rate of pregnancy among adolescent girls and the lack of sexual education for young people. In order to better understand access to information about family planning for young women several questions about the availability of sexual education in schools or other foundations were included. The aim was to understand where and when young women are receiving information about planning their pregnancies or if adolescent girls are missing this education, which would help explain the high rate of pregnancy for this age group.

In addition to individual interviews, one focus group was conducted with a local women's community group. After one of the organization's meetings at a public multiuse building, a focus group with the five members present at the meeting was conducted. They were seated together at a small table and were all facing the researcher. The group was asked the same questions that were utilized in the individual interviews. All of the women were allowed to discuss each topic before moving on to the next question. Similar to the individual interviews, the focus group was recorded and notes were taken during the interview. This interview lasted upwards of 45 minutes.

Major Themes from Interviews with Women

From the interviews with local women, several major themes emerged: knowledge about family planning, the role of religion, education, information, and family planning choices, economic reasons for utilizing birth control, fears about maternal health and multiple pregnancies, lack of knowledge and misinformation about the zika virus, and negative stereotypes of Haitian women.

Knowledge about family planning

Table 1. Types of Contraception Mentioned by Women

Type of Contraception	*Number of Times Mentioned*
Pills	31
Also known as *pildora* or *minipildora*	
Intrauterine devices (IUDs)	29
Also known as *aparato, DUI, trasvaginal*, or *aparatico*	
Injections	25
Hormonal Implant	22
Also known as *Norplant* or *tubito*	
(External) Condoms	11
Also known as *preservativo*	
Natural or Rhythm Method	9
Abstinence	2
Tubal Ligation	1

Mixed levels of knowledge about the various types of family planning resources that women could use were found, as shown in Table 1. Women mentioned the following types of family planning methods: hormonal pills, intrauterine devices (IUDs), injections, implants, condoms, the natural or rhythm method, abstinence, and tubal ligation. The most commonly mentioned types were pills, IUDs, injections, and implants. Most women could name at least one method of family planning, although four of the forty-two women interviewed knew no methods. The average number of methods named by each woman was three. The most informed women were those who had already had several children and were in their late 20s to early 40s. Most of

the respondents who could not name a single type of contraception were younger than 30 and women older than 30 often could name three or more types of birth control. Additionally, older women more frequently cited the use of multiple types of contraception over their lifetime.

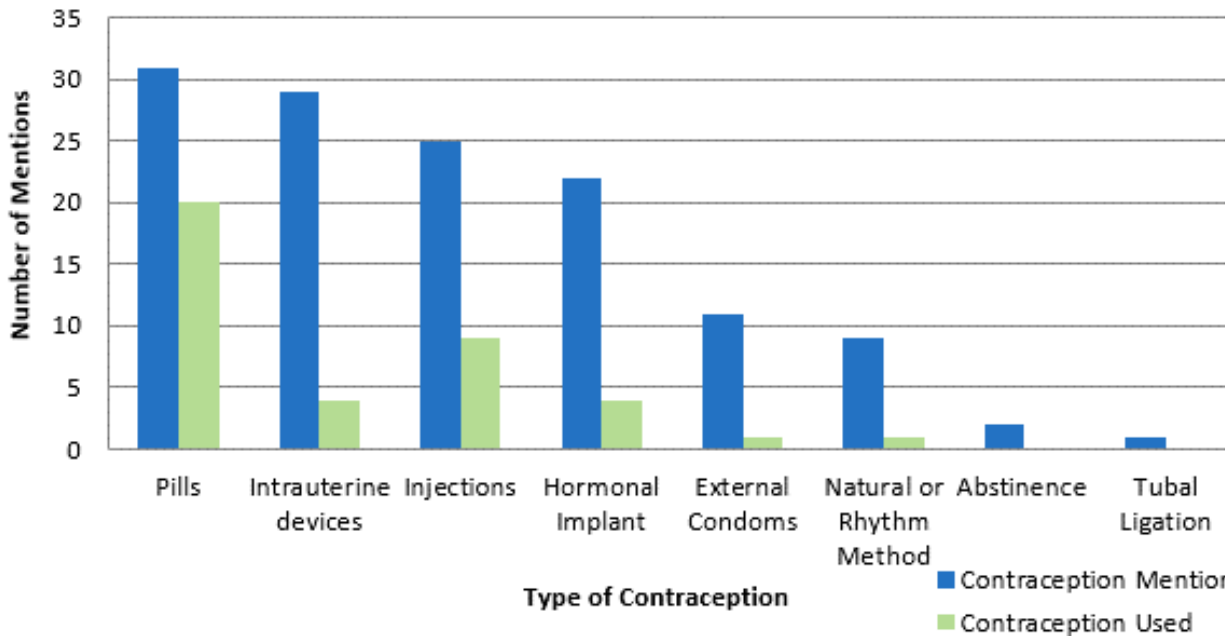
Although nearly every woman interviewed could name at least one type of contraception, not all of the women had used family planning resources. Ten women stated that they had never used any form of birth control while 32 stated that they had used at least one type of contraception at some point in their lifetime. For those women who had used birth control, the average number of types utilized was one, but some women had tried multiple types (usually between two to three). The most commonly utilized types were pills, IUDs, injections, and implants, with pills being by far the most popular (20 out of the 32 women had used pills at one point). See Table 2 for the types of contraception utilized by women. Slightly fewer women utilized birth control compared to those that could name at least one type of contraception, as demonstrated in Figure 1.

Table 2. Types of Contraception Used by Women

Type of Contraception	*Number of Women Who Have Utilized This Type of Contraception*
Pills Also known as *pildora* or *minipildora*	20
Intrauterine devices (IUDs) Also known as *aparato, DUI, trasvaginal,* or *aparatico*	4
Injections	9
Hormonal Implant Also known as *Norplant* or *tubito*	4
(External) Condoms Also known as *preservativo*	1
Natural or Rhythm Method	1
Abstinence	0
Tubal Ligation	0

All but four women could name at least one source of family planning resources. The sources listed by the women include: *boticas* (small pharmacies subsidized by the government) at public clinics and hospitals, private hospitals and clinics, private pharmacies, and private gynecological offices. All of the women who could name at least one source of family planning resources stated that these resources were offered for free at public medical facilities, namely local community clinics (*policlínicas*) or larger hospitals (See Image 2). Public hospitals and clinics were cited as the primary source of contraception counseling and resources due to the high cost of using private facilities and buying prescriptions out of pocket. None of the women interviewed who had utilized contraception stated that they had ever visited a private facility in order to acquire family planning resources. Only one woman mentioned that she had visited a gynecologist at a public hospital. The remaining women utilized local community clinics to acquire contraception.

Figure 1. Comparison of Types of Contraception Mentioned vs. Utilized



The role of religion

Despite an emphasis on the role of the Catholic Church in the literature, religion seemed to have far less of an impact on women's decisions about family planning than expected. Among those that did not plan their pregnancies, very few women cited religion as the reason for not using contraception. Ten women stated that they never used family planning resources of any kind, but of those ten, only two stated that they had chosen not to use contraception due to religious beliefs. The remaining eight stated that they did not use contraception either because they were not and had not been sexually active or because they did not know about their family planning options during their childbearing years. Therefore, only a small fraction of the total number of women interviewed stated that the Catholic Church's anti-contraception doctrine influenced their decision to not utilize birth control.

However, one women's group affiliated with a local Catholic parish declined to be interviewed after learning that my project included questions about family planning. This group declined any further participation in the study, even when the group was asked to be interviewed while omitting any questions pertaining to family planning from the interview. This group's affiliation with a local Catholic church could mean that the women of this particular group adhered more strongly to the doctrine of the church than most of the other women who participated in my study and who were interviewed individually. Nonetheless, their unwillingness to even discuss contraception demonstrates that the Church still does play a role in attitudes towards the use of family planning resources and strategies.

Even though religion did not seem to have much of an explicit role, it is possible that religion impacts women's decisions in more subtle ways. One woman initially agreed to participate in the study after being informed that there would be a section of the interview

discussing contraception, but later she refused to answer those questions. Although she did not outright state that she did not want to answer the questions regarding birth control, she immediately switched the topic of the conversation and began to discuss zika when asked the first question about contraception. Consequently, this section of the interview was skipped. Whereas she was the only woman who refused to answer the questions regarding family planning, others seemed to be somewhat uncomfortable discussing family planning. Several women gave short, one sentence answers in response to the questions regarding contraception. They may not have felt entirely comfortable openly discussing contraception, which is potentially due to their religious beliefs. Overall, the Catholic Church may have less of an impact than anticipated on women's individual decisions about whether to use contraception, but its influence cannot be completely discounted.

Education, information, and family planning choices

Sexual education is present in most public schools, but it seems to have been recently instituted and overall appears to only provide very general information. Most of the women interviewed who were in their 30s or older stated that they did not receive any sex education when they attended school. The majority of women received orientation about sex and family planning at either a public health facility or a private women's health clinic, such as Profamilia or Las clinicas de Red Segura. Several women discussed how they did not receive any family planning education until after they had already had one or more of their children. Almost all of the women in the study, regardless of their age, agreed that few parents speak with their children about sex or family planning. However, some of the younger women discussed how they had received some sexual education in school between the 6th and 8th grades. These discussions of sex are often lack specific details or students are merely told parables warning against having

premarital sex. Therefore, these lessons do not offer much direct or practical advice to young students who are engaging in sexual relationships. Several women mentioned how some teachers may feel embarrassed to talk openly about sex with their students and/or do not want to be accused of giving adolescents any "ideas" and therefore speak only in the broadest of terms. Additionally, the women who had received sexual education in school stated that most teachers do not discuss how to plan pregnancies or talk about any forms of contraception.

Overall, access to information about their options for planning their pregnancies seemed to be a very important variable in women's decisions. Several women expressed that they had multiple children when they were adolescents because they had been unaware of their family planning options. Due to a lack of adequate sexual education in schools and parents' hesitancy to address sex and family planning with their children, many young women are unaware of their options. Consequently, young women may begin to have sexual relationships without any knowledge of how to reliably prevent pregnancies. Considering the high rate of adolescent pregnancies in the Dominican Republic, this is likely the case. Besides the two women who stated that they would not use contraception due to their religious beliefs, all of the women interviewed viewed family planning favorably. Among those who had not used contraception and were not influenced by religion, all that were of childbearing age stated that they would use family planning in the future once they had a sexual partner. The three women that were past childbearing age but had not utilized contraception expressed that they had simply not known about their options for planning their pregnancies and that, given the chance, they would likely have considered using contraception.

Economic reasons for utilizing birth control

Of the women who responded to questions regarding birth control, all mentioned poverty as a potential reason for utilizing birth control. Over 30% of the population of the Dominican Republic lives below the poverty line (*The World Factbook* 2015). Several women stated that some women choose to limit the number of children because they cannot afford to care for a large family. However, none of the women interviewed stated that they had utilized birth control in order to limit their family size.

Fears about maternal health and multiple pregnancies

Thirty women mentioned their concerns about the impact of multiple pregnancies on maternal health. Nearly all of the women who had admitted that they had utilized birth control stated that they had chosen to do so partially due to a desire to allow for a longer recovery period between births. Although none of the women could specifically mention any of the potential health impacts of having several children in quick succession, they expressed that they had utilized birth control between pregnancies for this reason. Therefore, for some women, contraception was utilized not necessarily to limit the overall number of children, but in order to reduce health complications related to short maternal recovery periods. Considering the high rate of maternal mortality in the Dominican Republic, women's fears about complications during pregnancy and childbirth are warranted (*The World Factbook* 2015).

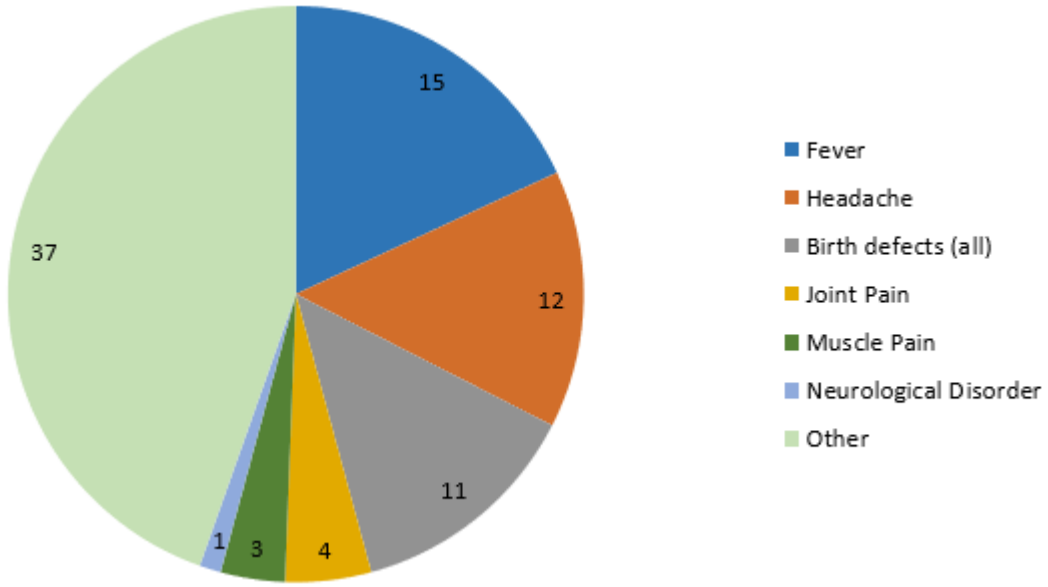
Lack of knowledge and misinformation about the zika virus

Knowledge about the symptoms of a zika infection and the virus' health implications was mixed among the women interviewed. The Center for Disease Control and Prevention states that the primary symptoms of a zika infection are fever, rash, conjunctivitis, muscle and joint aches, and headaches. Zika has also been linked to the neurological disorder Guillain-Barré Syndrome

and the birth defect microcephaly (Center for Disease Control 2017; World Health Organization 2016). However, most of the women interviewed could name only a few of these symptoms. Of the 42 women interviewed, 23 women could name at least one symptom of zika identified by the CDC; 19 women could name no symptoms (either rumored or real). Fifteen women mentioned fever and twelve stated that zika caused headaches, but none mentioned rashes or conjunctivitis, which are significant signs of the virus. Only a few women mentioned joint and muscle pain. Whereas eleven women were aware that zika has been linked to birth defects and can negatively impact the health of a developing fetus, only two women could name or describe the specific birth defect microcephaly. The other women who mentioned birth defects simply stated that infants affected by zika were "malformed."

Of the women who named at least one symptom, several mentioned symptoms that are unrelated to zika. Diarrhea and nausea and vomiting were the fourth and fifth most cited symptoms, respectively, but neither are caused by zika. In addition, eight women believed that a zika infection can be deadly even though neither the CDC and the World Health Organization have recorded any deaths that were the direct result of a zika infection. Many of those who were concerned about the supposed deadliness of zika also believed that zika could cause complications with other medical conditions. However, there is no literature at this point that demonstrates that zika can worsen other health conditions. Other symptoms mentioned include dizziness, fatigue, miscarriages, and premature births, none of which have be linked to zika.

Figure 2. Symptoms of Zika Mentioned by Women



The figure above shows the number of times different symptoms of zika were mentioned by women. The "Other" category encompasses all symptoms that were mentioned by women but are not considered symptoms of zika according to the Center for Disease Control and Prevention (https://www.cdc.gov/zika/index.html). Two key symptoms of a zika infection, rash and conjunctivitis, were not mentioned by any of the women and are not included in this chart. This figure illustrates how nearly half of the symptoms mentioned by women do not pertain to a zika infection and thus shows how many women do not completely understand the symptomatic expression of zika.

The vector of zika was also debated. Whereas sixteen women were unsure of how zika was transmitted, fifteen stated that environmental contamination caused the virus. Only eleven believed that it was transmitted by mosquitos. Of the fifteen women who believed that zika was caused by environmental factors, six seemed to have interpreted the Ministry of Public Health's advice concerning how to prevent zika infections in a way that was not intended by the medical

establishment. Although the Ministry of Public Health's advice was concerned with the reduction of mosquito habitats, some women had other ideas about why they should perform these behaviors. Several women stated that they were told to keep their houses and patios clean and to pick up trash, and thus they believed the virus was caused by a lack of hygiene. Their understanding of this advice did not match the message that the medical establishment had intended to send, which was that zika is caused by mosquitos. On the other hand, five women expressed their doubts that the zika virus was carried by mosquitos by stating that the Ministry of Public Health had originally claimed that the zika virus outbreak in the Dominican Republic was the result of environmental contamination. These women stated that the original narrative about the outbreak specified that the virus had been sent to the country via environmental contamination from another unnamed country and the zika virus crisis had been merely temporary. As a result, some women stated that zika was no longer a concern because sufficient time had elapsed for the contamination that caused zika to have dissipated or been cleaned up. These different theories about how zika is transmitted suggests that many of these women do not have the same understanding about the virus as the medical establishment.

In addition, at least four women mentioned that some hospitals had offered vaccines for the zika virus. Although none of the women interviewed had received this purported vaccine, these women stated that it had been offered in several sectors of the city as part of the Ministry of Public Health's plan to combat the spread of the virus. However, no vaccine for zika currently exists (Center for Disease Control 2017).

Negative stereotypes of Haitian women

Several women expressed that they believed that Haitian women do not use birth control under any circumstances. Five women brought up the topic of Haiti and Haitian women without

being prompted. They stated that Haitian women were choosing not to utilize family planning for two primary reasons. First, they believed that Haitians believe that more children mean more blessings, and therefore having a larger family is more desirable, even if one does not have the resources to properly care for multiple children. The women interviewed simply stated that "it's their culture" to not use birth control for this reason. Second, at least four of the five women who discussed "the Haitian problem" stated that they believed that high birth rates among Haitian immigrants were part of a "plan of invasion." According to her, Haitian women were having as many children as possible in order to passively overtake the country in order that eventually Haitians would outnumber "true" Dominicans. Haitian women's decisions to not use birth control was seen as aggressive and even sinister, and there was no consideration of actual Haitian women's opinions or beliefs about contraception or any barriers to accessing contraception (ex: lack of sexual education, fear of judgment from Dominican doctors, lack of knowledge about available family planning resources, etc.).

Interviews with Medical Professionals

Overall, a total of 17 medical professionals were interviewed. Participants were located by visiting hospitals and clinics (both public and private) in person with the help of an informant who knew where many clinics were located and/or who were familiar with the medical system and knew several doctors who worked at local clinics. The first informant was a woman in her mid-30s who worked for a health related non-profit and who had previously worked with doctors and nurses at several local clinics. The second was a woman in her late 20s who worked in administration in a private hospital in the city. When visiting hospitals and clinics, the informants helped to navigate the various departments, acquire permission to conduct interviews, and find medical personnel who could be interviewed. All interviews were arranged on-site with

whichever medical professionals were available at the time of the visit. Most of the available doctors were from emergency rooms, as all other doctors had scheduled appointments. The interviews typically lasted between five to ten minutes and covered only general topics since most doctors were between patients and had very limited time.

Doctors and administrator's distrust played a significant role in the interviews with medical professionals. When attempting to identify medical personnel who could be interviewed, there was often much hesitancy from administration at private facilities. Two hospitals asked for official documentation (which was designed for studies conducted by local universities) and approval from the executive director who was not available at the time of the any of the interview attempts. In addition, none of the interviews with medical professionals could be recorded due to a pervasive distrust of the intentions of the study. Although the purpose of the study was explained to all potential participants, none of the doctors were comfortable with being recorded despite reassurances that their name and any identifying information would not be connected with the data. Detailed notes were taken to compensate for the inability to record the interviews. All answers to major questions and any significant insights were written down.

Image 2. A public clinic in the community. All clinics visited during the study were approximately the same size and had a nearly identical physical arrangement. The building had a small waiting room in the front with a check-in desk and three to four cubicles for meetings with doctors in a back room. Each cubicle had a desk and two chairs, one for the doctor and another for the patient. Patients' privacy was extremely limited, as a half wall separated the cubicles. One small private exam room was also off of a hallway in the back. Patients receive most of their prescriptions for free or at a subsidized price at the *botica*, which was located in a separate building on the grounds of the clinic (to the right, off camera). All public clinics had a small pharmacy.

Major Themes from Interviews with Medical Professionals

From the interviews with medical professionals, several major themes emerged: availability of family planning resources; the role of religion; education, information, and family planning choices; and the success of the Ministry of Public Health's anti-zika campaign.

Availability of family planning resources

Contraception was purportedly widely available at public clinics and hospitals. The most common types of family planning resources offered were pills, injections, IUDs, and implants. Most of the public facilities had posters or advertisements about pregnancy and/or family planning in the waiting rooms. At the three maternal hospitals visited, these signs were present throughout the hospital, but in other facilities they were relegated to the maternal and pediatric

wings. All but one of the eight public hospitals visited had family planning departments that were clearly denoted on the directory and relevant directional signs throughout the hospital. Although all three of the public clinics visited offered family planning counseling and resources, none had a specific family planning department due to the small size of the facilities.

Whereas all facilities offered family planning counseling, only public institutions directly provided resources. All public facilities (both hospitals and clinics) provided free birth control subsidized by the national government at *boticas*, but none of the private facilities visited had pharmacies on site. All of the doctors interviewed at private institutions stated that women could receive family planning counseling at these facilities, but that women would need to find a pharmacy to purchase their prescriptions.

The role of religion

All sixteen of the doctors interviewed stated that religion plays an insignificant role in women's decisions about using contraception. Two stated that some women still feel embarrassed to ask about family planning resources because they are afraid of judgement from the Catholic church. These doctors mentioned how some women who come to the hospital for family planning resources feel as if they are living a "double life" by being Catholic and using contraception. Despite this conflict between faith and a desire to plan their pregnancies, women still chose to utilize birth control. However, none of the remaining doctors believed that women faced direct pressure from the church and stated that, although the country is predominantly Catholic, most women still use contraception of some kind for economic or personal health reasons. The choice to use or not to use contraception, then, is seen merely as a personal choice.

Education, information, and family planning choices

All of the medical professionals interviewed from public facilities stated that their institutions gave free talks about family planning to the community and to patients. At the three clinics, they stated that doctors often worked with local community organizations to give family planning *charlas* (talks) to women. Medical professionals at public hospitals stated that the family planning departments would occasionally give informational talks to women on site. These talks usually discussed the various types of contraception offered at public clinics and hospitals and instructed women about the importance of planning their pregnancies. However, none of the medical professionals interviewed could provide many details about the exact curriculum of these talks or knew when and where they were held.

On the other hand, none of the medical professionals at the private facilities stated that their institutions provided family planning talks outside of counseling appointments for patients. When asked about what their facilities had done to promote the use of contraception, most of the doctors at private facilities stated that their institution did not engage in community work. Private facilities provide services to their patients, but they are not active in giving information to the local community. Several doctors mentioned how community outreach was the responsibility of the public health sector, not of the private. Only patients who can pay for their services can receive any information about family planning.

The success of Ministry of Public Health anti-zika campaign

Almost all of the medical professionals interviewed at public facilities believed that the Ministry of Public Health's campaign to combat zika had been highly effective at reducing the number of cases of zika and zika-related health complications. Several of these doctors stated that representatives from the Ministry of Public Health had provided special trainings for certain

doctors at their facilities about how to identify and report any suspected cases of zika to the national government. However, none of the interviewed doctors had actually received this training. The campaign focused primarily on the prevention of zika infections and protecting the health of pregnant women in particular. Patients were told to clean up any trash and cover and bleach any water sources. Women were also instructed to wear long clothing, use insect repellent, and sleep under mosquito nets in order to protect themselves and their children. Sexual transmission was also mentioned, but several doctors stated that it was not the focus of the campaign because most cases were contracted by mosquito. Most doctors agreed that, due to the campaign, most women had a basic knowledge of the zika virus, including how it is transmitted, its symptoms, and how to prevent infection. Overall, the medical professionals provided a very optimistic view of the Ministry of Public Health Campaign and considered it a total success.

Medical professionals at private clinics were more hesitant to discuss the Ministry of Public Health's campaign. All of the doctors interviewed at private facilities stated that their institutions had not taken part in the national campaign. The private sector, therefore, was disconnected from any efforts to spread information of the zika virus. The responsibility of providing information fell to the public sector. Considering that most women utilize public medical facilities due to the high costs associated with private clinics and hospitals, most women would likely get information from public facilities anyways. Nonetheless, it is important to note that the private healthcare system does not assist public institutions in providing education about zika and contraception.

Ethnographic Methods

In addition to interviews, ethnographic methods were also utilized. Through involvement with a local community group, a mobile family planning clinic in a nearby neighborhood was

observed. At the clinic, the staff as well as some of the women who came to receive free contraception or prenatal checkups were interviewed. The clinic also provided a free sexual education class, which provided in-depth information about sexually transmitted diseases and instruction on all the forms of contraception that they provided. They also conducted a demonstration of how to properly use a condom. A sexual education class and the condom demonstration was observed and recorded in the field notes. In visiting various hospitals and clinics through the city, waiting rooms and doctors' offices were observed. A general description of who was in each waiting room (gender, approximate age, with children and/or pregnant, etc.) as well as educational materials available was recorded. Any instances of posters or other materials that discussed the zika virus or other mosquito-borne illnesses, especially dengue and chikungunya, were also noted. Any kind of information about pregnancy and maternal health and/or family planning was sought. When possible, the state of the exam rooms for prenatal checkups and ultrasound equipment was observed. Notes on these observations were taken during each visit and after leaving each hospital.

Observations at mobile family planning clinic

The mobile clinic consisted of a large truck that had been converted into a mobile doctor's office. The truck was parked in a dead-end alley near the apartment of the president of the local community's *junta de vecinos* (neighborhood group). A generator attached to a trailer provided electricity for lighting and air conditioning in the office space. The office consisted of a small desk with a chair for the single doctor and the patient. Brochures for all types of family planning resources as well as other services provided at the clinic's main building (such as prenatal checkups, STI testing, and mammograms) were displayed at the right hand of the desk. To the left was a doorway with a curtain that led to a small exam room with a doctor's exam

table. Patients at the clinic would sign-up for an appointment and wait for their turn to meet with the doctor one by one in the plastic chairs arranged in the shade outside the truck. Five pregnant women and one teenager seeking contraception counseling attended the clinic.

The clinic offered various types of contraception, including pills, IUDs, injections, implants, and condoms for free. At the sign-in table, they presented physical samples of each type of contraception and the *promotora* gave a demonstration using a wooden penis on how to properly put on a condom to a group of five young women who had come to the clinic for maternity care and family planning counseling. See Image 3 for a photo of the samples of contraception provided at the clinic. While the patients were waiting for their turn to meet with the doctor, the *promotora* also gave a short lesson on sexually transmitted diseases. During her presentation, she passed around informational cards that detailed the symptoms and health implications of several STIs and had graphic images of infected men and women. The *promotora* discussed the most common STIs, such as chlamydia and herpes, and listed their symptoms and treatment options.

Image 3. A photo of samples of contraception offered at the mobile clinic. The top of the binder contains several condoms. The bottom (clockwise, starting at the top left) contains an implant, injections, two types of pills, and an IUD. To the left is the wooden dildo used to demonstrate how to properly put on a condom. This binder was prominently displayed at the sign-in desk of the clinic.

All the patients received a free giftbag from the clinic. These bags included a free t-shirt, purse, several informational pamphlets about family planning, and a condom. The informational pamphlets in each bag discussed how women have the right to plan their pregnancies and listed reasons why women might choose to plan their pregnancies. One pamphlet listed the services that they provide at their main clinic in a neighboring community as well as the price of those services (counseling and resources were available for free at this outreach, but patients at the main facility must pay a fee).

Observations in hospital and clinic waiting rooms

Whereas some waiting rooms in public facilities had posters with information regarding zika or other mosquito borne illnesses, none of the waiting rooms in private facilities did. Only two waiting rooms had informational posters explicitly about zika, although several others did have information about how to eliminate habitats for mosquitos. At least three waiting rooms had

posters for dengue and/or chikungunya, and several others had information about various other diseases, such as H1N1 and tuberculosis (see Image 5). Two facilities had posters that instructed pregnant women to protect themselves from mosquito bites due to the danger of zika (see Image 4). In private facilities, most waiting rooms had no advertisements of any kind except for the occasional poster about private medical insurance.

Image 4. A poster from the "Salud Somos Todos" ("We Are Health") campaign from the Ministry of Public Health in the waiting room of a public hospital that states, "A mosquito can affect your family. Protect it from zika." A figure of a pregnant woman is at the center of the poster, which seems to emphasize the importance of protecting developing fetuses from the virus.

Public waiting rooms were also often overcrowded with women and children. In the maternal hospital waiting rooms pregnant women often had to stand for hours while waiting their turn to see a doctor due to a lack of adequate seating. Men were not allowed inside any waiting rooms at maternal hospitals and would often stand outside of the entrance. When a woman finally had her turn to be examined, she was ushered by a nurse into a cramped exam room with several sonogram machines. Between each machine was a single curtain to protect each patient's privacy. Women were instructed to lay on the exam table and lift their clothing over their stomachs. Many women wore dresses and thus had to expose themselves almost completely, but often they had nothing to cover themselves with other than an occasional paper towel. Other doctors, nurses, and patients walking by were able to see them and therefore these women had very little privacy. The sonogram machines were often old or only semi-functional; several were missing important attachments and could only provide a blurry image. Most of the printers for the machines were broken; consequently, women could not receive a photograph of their child after the exam. Due to the low resolution of the picture provided by the machines, doctors often found it difficult to identify any potential problems with the developing fetuses.

Image 5. A bulletin board in the waiting room of a public clinic. Various posters discuss infectious diseases, such as cholera and chikungunya (another mosquito-borne illness), but none mention the zika virus.

Summary of Major Themes

Overall, the use of family planning resources seems to be much more widespread than originally anticipated. Almost all women had some working knowledge of family planning, including the names of different types or methods and at least one potential source of resources. Both the women and medical professionals interviewed stated that contraception is provided for free at all public clinics and hospitals. The role of religion, specifically the anti-contraception doctrine of the Catholic Church, played far less of an explicit role than expected. All of the medical professionals interviewed expressed how religion played a minimal role in women's decisions about planning their pregnancies. Both women and medical professionals also espoused the belief that Haitian women chose to not use family planning resources either due to their culture or in an effort to passively conquer the island. These beliefs reflect the wider socio-political context and longstanding animosity between Haiti and the Dominican Republic, which is exemplified by the revoking of citizenship of children born to Haitian immigrants in 2015

(Libresco 2015). Many women had understandings of the zika virus, including how it is transmitted and its symptoms, that did not mirror those of the Ministry of Public Health. This suggests that women do not have a complete understanding of the symptomatic expression of a zika infection. Most women who named any symptoms principally cited vomiting and diarrhea, neither of which are recognized as symptoms of a zika infection by the CDC. In addition, several women discussed their theories about how zika is spread, which are different from those espoused by the medical establishment. Many women believed that zika is spread through environmental contamination and some expressed doubt about the Ministry of Public Health's claims that zika was carried by mosquitoes.

DISCUSSION

The Social Construction of Contraception in the Dominican Republic

Although discourse on the zika virus from the international health community has focused on microcephaly and concern for developing fetuses and has framed the zika virus as a women's health problem, this seems to have had a negligible impact on women's decisions about motherhood in the Dominican Republic. Many women were already choosing to use birth control (or choosing not to) before the zika virus crisis for other reasons and therefore the introduction of the virus has had a limited influence on their decisions. This study reveals several primary factors in addition to zika that affect women's social construction of contraception and women's decisions in the Dominican Republic: religion, fears about maternal health, and concern about adolescent pregnancies and a lack of sexual education.

The role of religion

Although religion may not be as influential in women's actual decisions about family planning as expected, faith cannot be completely disregarded. Some women clearly adhere to the

church's anti-contraception doctrine, while others express the influence of their faith in more subtle ways. Despite multiple women's claims that the church has no strong position on the use of artificial birth control, the refusal of the first women's group to be interviewed and statements by two women that they did not utilize contraception due to their faith demonstrates that religion is still an important factor. For some women, religion is the most crucial factor in their decisions about family planning. On the other hand, the influence of religion also manifests in more subtle ways. Although religious motivation was not always explicitly present in the interviews, some women seemed uncomfortable by the questions regarding contraception. Their short, terse responses are a potential indicator that they may not have wanted to discuss contraception openly despite their personal use of birth control.

This conflict for religious women who utilize contraception demonstrates that belief does not always equal behavior. Some medical professionals mentioned that some Catholic women do choose to use contraception, but hide this choice due to fear of rejection by the church community. Considering that all of the women interviewed are Christian (and several stated specifically that they are Catholic), some of the women who use contraception may do so despite their knowledge of the church's position on family planning. Some women may believe in the church's anti-birth control doctrine, but the other factors discussed in this section may outweigh their desire to conform to this policy. Choosing to not utilize birth control for religious reasons may be an option that only some women may have, as other factors (namely socioeconomic status) may create difficulties for women with large families. While behavior does not always mirror belief, women may still choose to hide their behaviors because of their beliefs. In the case of Catholic women who utilize birth control, they may feel pressured to hide their use of birth control in order to not face backlash from the church community. By publicly admitting to their

own use of contraception, they may have felt as if they were betraying their faith. In addition, since these interviews were not conducted in private spaces, they may not have wanted to openly discuss contraception due to fears that someone from the church community might overhear them, which could lead to judgement or ostracization. The fear of stigma in religious communities likely still plays a role. Overall, women must negotiate this matrix of different factors in order to make decisions of family planning.

Whereas religion may not always affect women's decisions about family planning in practice, faith is nonetheless relevant to the discourse about the use of contraception in the Dominican Republic and understanding how to improve sexual education. Due to the widespread presence of the church in the Dominican Republic, religion likely heavily influences policy, including those that affect sexual education in public schools. Although family planning resources are available, this study demonstrates that young women are often uniformed about their options and consequently experience early pregnancies. Adolescents are not receiving comprehensive sexual education when they need it most, which is likely partly due to resistance from the catholic church. Religion is more relevant to discussions of contraception on the larger scale even if it does not always impact women's decisions directly. However, pressures from the church to limit sexual education and informational campaigns regarding contraception indirectly affect all women's decisions. If women do not know their family planning options because the church has prohibited to dissemination of information, then women cannot make fully informed decisions. The church's influence at the larger scale is a significant factor in women's decisions whether or not it is fully recognized by women. Therefore, any new policies about the implementation of sexual education must consider potential resistance from the church, but also how women are making the decision to plan their pregnancies despite religious doctrine.

Fears about maternal health

Among women who utilized birth control, fears about maternal health complications from multiple pregnancies in quick succession seemed to be a primary motivation. Fears about the dangers of pregnancy (such as hypertension, diabetes, complications during childbirth) and the high rate of maternal mortality in the Dominican Republic has also spurred conversations about access to contraception. Even the women noticed complications due to multiple childbirths and have used contraception less for prevention of pregnancy and more for the recovery of the body between pregnancies. Since the vast majority of women in the Dominican Republic have multiple children, they are often personally aware of the toll of pregnancy on the body and are concerned with reducing the risk of complications. Even without formal education about these adverse health effects of multiple pregnancies in quick succession, women are aware of these issues because they are personally relevant to their lives and experiences as mothers. In promoting the use of contraception, these concerns that women already have about pregnancy should be addressed so that women gain a broader understanding of how to reduce these complications that they already fear.

Concern about adolescent pregnancies and a lack of sexual education

In addition to the fact that most women stated that parents do not talk to their children about sexual matters (including family planning) and there is limited access to sexual education in schools, the women interviewed expressed their preoccupation with high rates of adolescent pregnancies in the Dominican Republic. Young girls may not be educated about their birth control options when they begin to have sexual relationships and, as a result, are at risk for unintended pregnancies. Women's personal experiences as young mothers impact their social construction of contraception and their concerns about young mothers. Based on their own

experiences of not receiving sexual education and having children as adolescents and teenagers, many older women are concerned about the next generation of women. Many older women have firsthand knowledge of the difficulties of being young mothers and the health consequences of giving birth at such a young age. Consequently, they want to encourage girls to plan their pregnancies to avoid this situation. Future policies must do more to address the lack of sexual education among young women so that women's concerns can be addressed. Older women should be empowered to share their personal experiences with young motherhood, seeking maternal healthcare, and using contraception in order to educate young girls. Although some efforts to provide sexual education have already arisen due to these concerns, these programs do not seem to be wholly effective.

Concern about rates of adolescent pregnancies has likely provoked more conversations about the state of sexual education in the public education system. Although the literature lacks a thorough discussion of current sexual education programs in public schools in the Dominican Republic, this study suggests that some sort of curriculum has been implemented recently. Without further investigation of the breadth of topics discussed in these classes and the history of their implementation, it cannot be determined precisely why they have been introduced or for how long they have been provided. Based on widespread concern about high rates of adolescent pregnancies, it is likely due in part to an effort to reduce birth rates among teens.

However, based on women's discussions of these sexual education classes, there is a need to improve the clarity of curriculum by speaking openly and directly about contraception and sexual relationships. Several women criticized schools' hesitancy to speak openly about adolescents' sexual activity despite the fact that many teenagers are having sex. Women know that girls are having sexual relationships due to their own experiences when they were younger

and by their observations of how many adolescent girls are having children. Several of the women stated that they were not aware of their family planning options as young women and therefore did not utilize birth control when they engaged in sexual behavior. Their personal experiences have translated into these concerns about access to sexual education for teenagers. Therefore, if these sexual education classes are to be effective, they must provide clear information about sex and contraception.

Zika and Family Planning Decisions

Overall, this study suggests that the zika virus crisis had an impact on conversations about contraception in the medical community but had a limited effect on women's behaviors regarding family planning. Part of this lack of impact on women's decisions about birth control is a lack of understanding or a misunderstanding of the virus and its health implications.

All of the medical professionals suggested that zika plays a prevalent role in discussions of family planning despite a lack of evidence that the outbreak has caused changes in women's family planning decisions. This suggests a potential disconnect between the ideology of the medical establishment and women's behaviors and understandings. Several doctors stated that, during the crisis of 2015-2016, fear about zika and its health implications (namely microcephaly) impacted conversations about contraception between doctors and patients. In other words, doctors made efforts to tell women about the health implications of the zika virus and gave them advice about how to prevent infections and reduce mosquito populations. As a result, doctors stated that more women chose to use birth control during the outbreak due to fears about having children affected by microcephaly. Most doctors believed that women understood the zika virus crisis in the way that it was framed by the Ministry of Health. However, this was not reflected in the interviews with women. Due to the medical establishments' understanding of the various

implications of the zika virus, including its links to microcephaly, it is likely that doctors were concerned about women having children during this outbreak. Doctors may be more inclined to discuss or provide birth control to women due to a fear about children born with microcephaly. However, these concerns were not necessarily passed onto the general public in the way that the medical establishment intended.

None of the women interviewed stated that zika impacted their choices or knew of any other women who had postponed a pregnancy due to concern about the virus. This suggests that the other aforementioned factors play a larger role in women's decisions about utilizing birth control. Although medical professionals may have stressed the importance of using contraception during this time period to the women interviewed, other factors may have taken precedence in women's decisions.

Bearing in mind that most of the women interviewed understand very little about zika, women may not comprehend the reasoning behind advice to postpone pregnancy or the danger that the virus poses to developing fetuses. Women's beliefs about zika should be understood in the context of their own experiences with similar diseases, but nonetheless women's misunderstandings about zika potentially have negative health implications. Without the knowledge that zika can cause microcephaly, women lack the ability to make an informed decision about whether to utilize birth control due to zika. The medical institution must reconcile differences between doctors' and women's understandings about zika. If doctors want women to make decisions regarding pregnancy based on concerns about zika, then medical professionals must ensure that women comprehend the official narrative about the virus. This includes confronting rumors about how the virus is caused by contamination, not mosquitos, in order for women to understand that zika is a continuing issue and not a momentary trouble. Although

women may follow the Ministry of Public Health's advice to clean up trash and standing water, they are often motivated by their belief that zika is caused by a lack of hygiene rather than a desire to eliminate mosquito habitats. Women, therefore, are only receiving a part of the medical establishment's message, which suggests a need for the Ministry of Public Health to revise their strategies for providing information about zika to the public.

LIMITATIONS

This study was conducted entirely in Santo Domingo, which is one of the most heavily populated and urban areas of the island. Therefore, the findings of this study may not be representative of the entire country, especially in the rural regions where access to healthcare in general and family planning resources in specific is likely to be far more limited. Due to the lack of infrastructure in other regions of the country, many women live in isolated communities in the more mountainous area of the island. As a result, accessing contraception may be far more difficult considering that rural women will have to travel longer distances to reach hospitals or clinics where birth control may be available. Public clinics and hospitals in rural regions are likely to have far fewer resources and therefore even women who are able to travel to these facilities may not have the same access to family planning resources as their urban counterparts.

Although the researcher's initial intention was to conduct focus group, individual interviews were utilized due to the inability to identify women-only community groups in the community (or community groups that had several women members. Focus groups were initially selected due to an understanding of the sensitivity of the topic of contraception and a desire to create a more comfortable and supportive environment. The assumption was that women would be more willing to speak about their personal use of contraception with a group of their peers compared to a one-on-one conversation with a foreigner. In addition, all women interviewed

were part of a convenience sample, as acquiring a more methodological sample was not possible. Women were approached with the help of two key informants who reached out to women that they knew in the community. Thus, the sample was limited to certain residents in the nearby community.

These discussions of family planning also excluded two key populations: young girls and men. Although many of the women discussed adolescent girls' lack of knowledge and use of contraception, all participants were age 18 or older. In order to fully understand what young girls know and think about sexual relationships and family planning, this population should be interviewed. Similarly, men should also be asked about their understandings of contraception. Whereas some of the women's comments during these interviews suggest that family planning is usually solely the responsibility of women, men nonetheless have a significant role in reproduction. Understanding what men think about contraception and investigating to what degree they are invested in family planning decisions is important to this discussion of the use of birth control in the Dominican Republic.

CONCLUSIONS

In order to develop the most effective public health policy concerning family planning, policy makers must move beyond evaluating the social construction of contraception by the government and society at large to investigating women's actual behaviors and understandings. Whereas conversations about cultural ideas about birth control are theoretically important, how people behave does not always follow what people believe. That is, some women may believe in the Catholic Church's doctrine, which includes the rejection of all forms of artificial contraception, but still may utilize family planning resources. Religion remains a significant

factor in terms of limiting access to information about contraception, but other variables are often more salient in women's actual behaviors. Poverty, maternal health concerns, and women's own desires about motherhood need to be considered when discussing women's choices about planning pregnancies. Women's personal experiences and understandings of motherhood need to be better understood. Due to a lack of education (especially sexual education), women make decisions about motherhood based on what they know from their lives. Policy makers must endeavor to understand women's actual behaviors and ideas regarding the use of contraception in order to better address any gaps in knowledge or access.

There is a clear need to expand sexual education in schools. Although the state has already provided family planning resources, this access is only useful to women if they know that they have a choice to utilize birth control. That is, access and education must go hand in hand. Although this study suggests that most women in their late 20s or older have at least a rudimentary understanding of the family planning resources that are available to them, this knowledge should be expanded upon. Older women's anxieties about their own lack of understanding of contraception during their adolescence and their current concerns for young girls demonstrates that many women are in favor of expanding and clarifying sexual education curriculum. The majority of women interviewed expressed concern about adolescent pregnancies while also acknowledging that most parents do not discuss sexual matters with their children and that sexual education in schools is limited (if present at all). Women's apprehensions about these issues and their own experiences with difficulties in finding family planning information need to be addressed.

By providing women, especially adolescent girls who are just beginning to have sexual relations, with better sexual education, various widespread public health issues can also be

addressed. If women know their birth control options and have access to counseling and resources, then they are less likely to become pregnant at a young age. Giving women the option to plan their pregnancies also may help to address high maternal mortality rates. Based on the interviews, women are motivated to use contraception in order to protect their own health due to their experiences with complications related to pregnancy and childbirth. If greater access to sexual education and family planning resources is provided, more women may choose to utilize birth control in order to allow for a greater recovery period between pregnancies. This will reduce the risk of health complications due to several pregnancies in rapid succession. Whereas there are no guarantees that expanding education and access to contraception will lead to an increase in the use of birth control among this vulnerable population, this change will nonetheless expand young women's agency. Women should be able to make decisions about when to become mothers. By giving women the knowledge of how to prevent unwanted pregnancies, they can make more informed decisions. Women cannot make the choice to use or not to use birth control without at least a basic understanding that they can plan their pregnancies.

Furthermore, the findings suggest a great need to revise education strategies about the zika virus. All of the medical professionals interviewed stated that most women have the same understanding of zika (including its primary symptoms and mode of transmission) as the medical establishment thanks to the Ministry of Public Health's campaign, but many women clearly had differential understandings of the virus. Medical professionals need to understand how women think about the zika virus in order to address any misconceptions about its symptoms or vector. If the Ministry of Health is to have a campaign that effectively gives women the same understanding of the virus as the medical establishment, then they must address discrepancies

between what doctors and women believe. There must be an understanding that women's differing viewpoints on zika are not necessarily wrong, but rather are based on their own experiences with similar diseases and a lack of understanding of how zika differs. Nonetheless, if the medical establishment's aim is to prevent cases of microcephaly, then they must inform women how zika does not fit into their existing frameworks of disease.

If women are unaware of the potential impacts of the zika virus on their own health and the health of their children, then future generations of Dominicans could be negatively affected. Without an understanding of how zika can cause microcephaly or how the virus is transmitted via mosquitos, women and their partners cannot make informed decisions about planning pregnancies and taking steps to prevent infections. Although many women are likely to choose to have children despite the potential risk, women should nonetheless understand that risk in order to make informed decisions about their health and their children's health. Therefore, revisions must be made to the medical establishment's assertions that most women have a basic comprehension of the zika virus and to any tactics that are currently being utilized to provide information to the public. Considering that these findings suggest that many women have differential understandings of zika, other methods of disseminating information should be considered. Medical professionals need to be better trained about what methods of providing information about health issues to the public are the most effective. These methods must address women's own theories about disease in order to address discrepancies between what women and what medical professionals think about zika. Education about the zika virus must continue in order to reduce the likelihood of another serious outbreak.

Inadequate education about the zika virus can have widespread public health implications in the future. If women are unaware of the potential risks of zika and how different theories

about disease transmission, they are less likely to take preventative measures to eliminate mosquito habitats. Women will likely only act to reduce mosquito populations by cleaning up trash on the street and removing any standing water if they understand that these actions can help to combat certain infectious diseases, especially zika. Otherwise, women may not follow the Ministry of Public Health's advice. Consequently, the Dominican Republic could see a resurgence of cases of zika and zika-related microcephaly in the future. Measures already in place to address the spread of zika (and other mosquito borne illnesses) must be maintained and new efforts to educate the public about the virus and family planning options must be launched in order to protect the health of future generations of Dominicans.

FUTURE RESEARCH

Based on the difficulties of conducting field research in the Dominican Republic, several methodological considerations are suggested. Since formal interviews and appointments are difficult to arrange with medical professionals, an informant with connections to hospital staff should be utilized when arranging to meet with medical professionals at hospitals and clinics in order to create trust with potential participants and gain any required permission from hospital administration. Future research should focus on more ethnographic methodologies or utilize informal interviews, especially when speaking with average citizens. A more conversational approach may help to reduce any anxieties on the part of the interviewee, many of whom may be self-conscious of their lack of education and poverty. In addition, verbal rather than written consent will likely be more effective. Due to mixed levels of education, especially among the poor, not all participants may be fully literate and may not be able to read or sign written consent forms. Finally, acquiring a representative sample is likewise complicated since accurate data

about demographics of each neighborhood is unavailable due to a lack of records. Although representative samples are more desirable in research, snowball and convenience sampling frames are likely more effective.

Initially the research goal was to discover whether the zika virus crisis had affected access to family planning resources in the Dominican Republic, but the research question was not fully answerable based on the data. Future research aimed at addressing this question should focus on historical analyses of access to contraception (especially resources provided by the national government) and sexual education in public schools. In addition, despite what the literature suggested about attitudes towards birth control due to the strong presence of the Catholic Church, access to and use of contraception is far higher than expected. Therefore, more in-depth analyses are needed of the role of religion in women's decisions about family planning in the Dominican Republic and other countries in the Caribbean and Latin American regions in order to better understand what other factors may also influence women's decisions. Although the role of the Catholic Church is important theoretically in that religion does affect the social construction of contraception in the country, it is not as important in women's decisions in practice. Further studies should further address the disparities between the social construction of birth control by the medical establishment and women's actual behaviors and how educational campaigns need to address women's beliefs and understandings.

APPENDIX
Interview Questions

Interview Guide for Women's Groups and Individual Women

Interviews with women included semi-structured questions about their knowledge of contraception (sources of information, sources of resources, personal use of birth control, why women choose to utilize contraception, etc.) and zika (sources of information, their familiarity with its symptoms and mode of transmission, etc.) as well as how the zika virus has affected conversations about and access to contraception. The following questions were written originally for women's groups and thus grammatical structures were changed according when speaking with individual women. These questions were originally written in English and were translated to Spanish under the supervision of Dr. Buedel and are provided below in both languages.

English Interview Guide for Women's Groups

1. From what I have heard, access to contraception can be very limited in the Dominican Republic. What types of contraception are available to women if they choose to use it?
2. How many of you actively use contraception of any kind?
3. How many of you have used contraception of any kind in the past but are not currently using it?
4. Can you tell me about a time when you did use contraception?
5. Can you tell me about a time when you didn't use contraception?
6. If a woman wanted to use contraception, where might she go in order to get it?
7. Has the availability/number of potential sources of contraception changed over your lifetime?
8. Was contraception available in the past from other sources that currently do not provide it?
9. Was contraception not available in the past from sources that currently do provide it?
10. What type of contraception is the most widely available or accessible for women?
11. What type of contraception is the most affordable for women?
12. Has the cost of different types of contraception changed?
13. What have you heard about zika?
14. What does one do about zika? / What are ways to prevent getting zika?
15. Do you or other women you know have concerns about the zika virus?
16. What do the Ministry of Public Health and the hospitals not understand about the zika virus?
17. Has the arrival of the zika virus in the DR affected your choice about utilizing contraception?
18. Do you think that the zika virus has affected conversations about access to contraception and other family planning measures in your community?
19. Do you think that the zika virus has affected access to contraception and other family planning measures in the DR?
20. Is there anything else that we did not discuss that you think is important for understanding access to contraception or the zika virus in the Dominican Republic?

Guía de entrevista para los grupos focales de mujeres en español

1. De lo que he oído, el acceso a la contracepción puede ser muy limitado en la Republica Dominicana. ¿Qué tipos de contracepción son disponibles a la mujer que quiere usar la contracepción?
2. ¿Cuántas de ustedes activamente usan la contracepción de cualquier tipo?
3. ¿Cuántas de ustedes han usado la contracepción de cualquier tipo, pero ahora no la están usando?
4. Para ustedes que contestaron de manera afirmativa a la pregunta anterior, ¿Estarían dispuestas a describir la situación en que usaron la contracepción?
5. ¿Puedes decirme sobre una vez cuando, por cualquiera razón, decidió no usar la contracepción?
6. Si una mujer quiere usar la contracepción, ¿Adónde puede ir para conseguirla?
7. ¿Durante su vida, ¿Ha cambiado el número de fuentes potenciales de la contracepción?
8. ¿La contracepción estuvo disponible en el pasado por una fuente que ahora no la provee?
9. ¿La contracepción estuvo no disponible en el pasado por una fuente que actualmente la provee?
10. ¿Qué tipos de la contracepción están las más disponibles para la mujer?
11. ¿Qué tipo de la contracepción es la más económica para la mujer?
12. ¿Han cambiado los precios de diferentes tipos de la contracepción?
13. ¿Qué han oído ustedes sobre el virus zika?
14. ¿Qué puede hacer la mujer para no enfermarse del virus zika? Es decir, ¿cuáles son algunas maneras de prevenir la infección del virus?
15. ¿Ustedes u otras mujeres se preocupan por el virus zika?
16. ¿Qué no saben el Ministerio de la Salud Publica y los hospitales sobre el virus zika?
17. ¿La llegada del virus zika ha afectado sus elecciones sobre el uso de la contracepción?
18. ¿Creen ustedes que el virus zika ha afectado conversaciones sobre el acceso a la contracepción y otras medidas de planificación familiar en sus comunidades?
19. ¿Creen ustedes que el virus zika ha afectado el acceso a la contracepción y otras medidas de planificación familiar en la Republica Dominicana?
20. ¿Hay algo más que no hemos discutido que ustedes creen que es importante entender sobre el acceso a la contracepción o el virus zika en la República Dominicana?

Interview Guides for Medical Professionals

Semi-structured interviews with medical professionals addressed the spread of the zika virus in the Dominican Republic, the medical institution and governments' responses to zika, patients' knowledge about the virus, access to contraception, and female patients' desire to acquire family planning resources. These questions were originally written in English and were translated to Spanish under the supervision of Dr. Buedel and are provided below in both languages.

English Interview Guide for Medical Professionals

1. Although the number of new cases of the zika virus has decreased since the end of last year, how much of an issue is the zika virus in the Dominican Republic?
2. How has the local government or your medical institution addressed concerns about the zika virus?
3. Has concern about the zika virus and its health implications changed since the number of new cases of infection have decreased?
4. What do most of your patients already know about the zika virus?
5. What do you tell your patients about the zika virus?
6. What do you tell your male patients about preventing infection by the zika virus?
7. What do you tell your female patients about preventing infection by the zika virus?
8. Have any women expressed fears about zika? If so, what exactly have their concerns been and how have you counseled them?
9. Have you seen any cases of zika-related microcephaly or zika infections in pregnant women at this hospital/medical clinic?
10. From what I have heard, access to contraception can be very limited in the Dominican Republic. What types of contraception are available to women and their partners if they choose to use it?
11. Do women and/or their partners ever ask for access to family planning resources of any kind?
12. Do you provide or would you consider providing family planning resources to women and/or their partners?
13. Do you think that using contraception to avoid pregnancy due to fears of the zika virus is a viable option for women and their partners?
14. Do you think that the zika virus crisis has caused more women and their partners to seek out contraception or other family planning resources?
15. Is there anything else that we did not discuss that you think is important for understanding access to contraception or the zika virus in the Dominican Republic?

Guia de entrevista para los profesionales médicos en español

1. Aunque el número de casos nuevos del virus zika ha disminuido desde el fin del año anterior, ¿a cuál punto es el virus zika en problema en la República Dominicana?
2. ¿Cómo ha respondido el gobierno local o su institución médica a las preocupaciones sobre el virus zika?
3. ¿Han cambiado las preocupaciones sobre el virus zika y sus implicaciones para la salud pública desde el número de casos nuevos de zika ha disminuido?
4. ¿Qué todavía saben sus pacientes sobre el virus zika?
5. ¿Qué usted dice a sus pacientes sobre el virus zika?
6. ¿Qué dice a los hombres que son sus pacientes sobre cómo evitar la infección del virus zika?
7. ¿Qué dice a las mujeres que son sus pacientes sobre cómo evitar la infección del virus zika?
8. ¿Algunas mujeres han expresado sus miedos sobre el virus zika? ¿Si es la verdad, ¿Qué preocupaciones tienen y como usted les ha aconsejado?
9. ¿Ha visto unos casos de microcefalia relacionado con el virus zika o infecciones del virus en mujeres embarazadas en este hospital/clínico?
10. De lo que he oído, el acceso a la contracepción puede ser muy limitado en la República Dominicana. ¿Qué tipos de contracepción son disponible a mujeres si quieren usarla?
11. ¿Algunas mujeres o sus parejos piden al acceso a recursos de planificación familiar de cualquier tipo?
12. ¿Usted provee o proveería recursos de planificación familiar a mujeres y/o sus parejos?
13. ¿Usted piensa que el uso de la contracepción para evitar el embarazo debido a sus miedos del virus zika es una opción viable para algunas mujeres y sus parejos?
14. ¿Usted piensa que la crisis del virus zika ha causado que más mujeres y sus parejos busquen la contracepción y otros tipos de planificación familiar?
15. ¿Hay algo más que no hemos discutido que usted piensa que es importante para entender el acceso a la contracepción o el virus zika en la República Dominicana?

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