Social Factors Influencing Family Planning Knowledge, Attitudes, and Practices in the Ngäbe Population in Bocas del Toro and the Comarca Ngäbe-Buglé, Panama

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Social Factors Influencing Family Planning Knowledge, Attitudes, and Practices in the
Ngäbe Population in Bocas del Toro and the Comarca Ngäbe-Buglé, Panama

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B.S., University of Puerto Rico, 2015

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Social Factors Influencing Family Planning Knowledge, Attitudes, and Practices in the Ngäbe Population in Bocas del Toro and the Comarca Ngäbe-Buglé, Panama

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Introduction

Family planning plays an essential role in improving maternal and child health, increasing female empowerment, and reducing poverty. In 2000, an estimated 20% of obstetric-related mortality and morbidity could have been avoided through the use of family planning services. As of 2007, these services have resulted in 215,000 fewer pregnancy related deaths. They have also resulted in 2.7 million fewer infant deaths and 568,000 fewer children losing their mothers due to pregnancy related deaths. The use of family planning also leads to increased birth spacing, which is beneficial to both women and infants. Fewer pregnancies which are farther apart decrease the risk of maternal death and disability. Babies born less than 18 months after a previous birth are at higher risk of fetal death, low birthweight, and prematurity. For this reason, the World Health Organization recommends at least 24 months after a live birth before attempting another pregnancy, which can be achieved by using family planning methods. In addition, the use of family planning leads to an increase in women able to participate in the workforce. This provides women with more decision-making power and more financial security, thus reducing poverty.

Despite the benefits, family planning services are not widely available worldwide. This lack of family planning services is disproportionately felt by the poor. Around 137 million women in developing countries have an unmet need for contraception. In Latin American countries, the poor were less likely to use modern contraception compared to national averages. This effect is disproportionately felt by disadvantaged populations, particularly indigenous people. Additionally, indigenous populations have even less access to family programs that provide culturally appropriate services. According to Terborgh et. al., the socioeconomic and cultural barriers to contraceptive use include poverty, illiteracy, rural residence, distrust of outsiders, belief systems, social disapproval, women’s status, and male attitudes. Indigenous populations are more likely to
live in poverty and less likely to have a formal education, factors that are associated with lower rates of contraceptive use and lack of knowledge about family planning methods. Their residence in predominantly rural areas hinders the access to family planning services due to geographical difficulties. Their history of maltreatment by colonial and government actions contributes to a distrust of outsiders. Traditional beliefs and religion together with societal expectations also influence the willingness to seek out and utilize family planning methods. Institutional barriers include discrimination by the government and language barriers due to the lack of education in their indigenous languages. Because barriers are specific to each population, it is important to have appropriate knowledge of their culture and their communities in order to address these barriers properly.
Background and Significance

Indigenous People and Public Health

According to the WHO, there are an estimated 370 million indigenous people living in over 70 countries, each with their own unique history and culture. They represent about 6% of the world population. Despite this, they are among the most marginalized populations in the world and face significant socioeconomic inequalities and health care disparities. Although indigenous populations make up less than 5% of the world’s population, they make up 15% of the world’s poorest. Research indicates that indigenous peoples have worse health and social indicators than other groups in the same society.

Recent efforts have been made in the field of global health to address these disparities. The United Nations General Assembly adopted the 2030 Agenda for Sustainable Development on 2015, which explicitly referenced indigenous people and called for the following: empowerment of indigenous peoples, inclusive and equitable education, and engagement of indigenous people in the implementation of the agenda. Additionally, included in the 2030 Sustainable Development Goals are indicators that either explicitly refer to or are relevant to indigenous people. Furthermore, the World Health Organization has spoken out against violations of human rights and health care disparities experienced by indigenous people. These health disparities include decreased life expectancy, heavy infectious disease burdens, malnutrition and stunted growth, increased risk of noncommunicable diseases, high infant and young child mortality, and high maternal mortality and morbidity.
Indigenous Peoples in Panama

According to the 2010 census, there are 411,592 indigenous people living in Panama. They represent 12.3% of the population of Panama. There are seven recognized indigenous groups in the country. Per the 2010 census, in descending order of population, these groups are: Ngäbe (260,058), Kuna (80,526), the Emberá (31,284), Bugle/Bokota (26,871), Wounaan (7,279), Teribe/Naso (4,046), and Bribri (1,068).\(^\text{13}\)

Historically, indigenous groups were excluded from the legal and political framework of Panama. They were mostly considered ethnic minorities that were to be integrated with the rest of population. In the last several decades, Panama has increased governmental recognition and protections for indigenous people. The Panamanian Constitution includes several provisions for the protection of indigenous people’s rights.\(^\text{14}\) Article 127 guarantees indigenous people the protection of collective lands and properties to ensure their economic and social wellbeing. Currently, Panama is divided politically in 9 provinces, 75 districts or municipalities, 5 indigenous comarcas and 620 corregimientos. A comarca is defined as “an indigenous territory with a semi-autonomous political organization under the jurisdiction of the national government. It is a geopolitical division and an administrative system with geographic limits and internal regulations but it is not independent of the State.”\(^\text{14}\) Between 1938 and 2000, the Panamanian government established these five comarcas: Ngäbe-Buglét, Kuna Yala, Emberá-Wounaan, Madungandi, and Wargandi. Within the comarcas, indigenous groups have the right of collective ownership of the land as well as some autonomy regarding natural resource use, governance, economic activity, culture, education, and health.\(^\text{14}\) It is worth noting that as of 2010 the majority of the indigenous population lived outside of comarca lands, with 195,285 indigenous people living in comarca lands and 222,274 indigenous people living outside of comarca lands.\(^\text{15}\)
Figure 1: Map of indigenous territories in Panama. Comarcas are shown in dark green. Source: United Nations Development Program: Panama.

There are other references to indigenous peoples in the Panamanian Constitution. Article 108 of the Constitution states that the State shall develop education programs for indigenous groups that are tailored to their own cultures. Article 88 declares that indigenous languages are to be studied and preserved, and that the State shall promote bilingual education in indigenous communities. As a result, there are government schools in indigenous communities where education is bilingual, taking place in both the community’s indigenous language and Spanish. The National Intercultural Bilingual Directorate was created in 2007 for the purpose of developing culturally relevant educational programs for indigenous peoples and regional education. Directorates set up by the Ministry of Health have helped develop intercultural, bilingual, educational programs for indigenous communities. Additionally, Article 124 states that the State...
shall give special attention to indigenous communities with the purpose of promoting their participation in economics, politics, and social life in the nation.\textsuperscript{14}

Despite these efforts, Panama has a high degree of inequality among its population. Its Gini Index, which measures the degree of inequality in the distribution of family income, is 50.4, making Panama the country with the 13\textsuperscript{th} highest income inequality by this measure.\textsuperscript{17} This is particularly evident when it comes to its indigenous population. According to the 2008 Standards of Living Survey, over 96\% of the residents of indigenous areas live in poverty and of those 85\% live in extreme poverty. Indigenous people represent 20.9\% of those living in poverty in Panama and 41.8\% of those living in extreme poverty.\textsuperscript{18}

In terms of health, numerous disparities persist in Panama, especially among the indigenous population. The Panamanian public healthcare sector is attempting to address these disparities via its two main branches: the Ministry of Health, or MINSA, and the Social Security System, or CSS. MINSA has the most expansive coverage, with 830 facilities around the country. These services are provided to the public at a low cost and are often the most affordable option for low-income groups. The CSS only provides services to employees who contribute a percentage of their monthly wages to the system. Their employers are also required to give a monthly contribution to the system. The vast majority of the population is covered by the CSS, either as contributors themselves or dependents of contributors.\textsuperscript{19} However, this has the potential to disproportionately leave the indigenous populations without coverage, as they are more likely to work in subsistence agriculture or other nontraditional jobs that do not contribute to the CSS system. Additionally, there are significantly fewer facilities and healthcare personnel in rural areas, where indigenous people typically live, than in urban areas, making it more difficult to access healthcare.\textsuperscript{19}
The Panamanian government has taken several measures to improve indigenous people’s health. The Ministry of Health passed resolution No. 322 in 2005, which states that health-care facilities located in the comarcas are required to provide services free of charge to the indigenous people. Additionally, healthcare is a right per comarca laws, including the right to receive healthcare services that integrate traditional medicine. In practice, however, these services are not always available or accessible. A 2010 study showed that 64% of indigenous people identified distance as being an obstacle in terms of access to health services. 44% stated that they were not able to access healthcare services due to lack of transportation and 11% stated the associated cost was a barrier to access healthcare. It is worth noting that only 20% of indigenous people have health insurance, compared with 50% of the general population. Other cited obstacles included mistreatment experiences with the healthcare system and lack of indigenous peoples’ participation within the system. All of these reasons are likely contributing to the general indigenous population being less likely to use healthcare services when they have an injury or illness.

Even if indigenous peoples are able to get to access healthcare facilities given distance, cost, and transportation barriers, there is a lower number of healthcare staff in the more rural areas with large indigenous populations, which means that they may be attending understaffed or unstaffed healthcare facilities. The government has attempted to address this by providing higher wages to those working in areas with indigenous populations but representatives of the Ministry of Health have stated that many non-indigenous staff are unwilling to work in these areas. Non-indigenous workers often lack the cultural background and do not speak the indigenous languages necessary to communicate and collaborate effectively with these populations.

The 2010 census shows all indigenous groups have worse outcomes than the general population of Panama for the most common health markers. All indigenous groups have lower life
expectancy, higher rates of infant mortality and malnutrition, less access to medical care, and lower utilization of medical care. When comparing these indicators between the different comarcas, the comarca Ngäbe–Buglé often has the worst outcomes. This is particularly true when it comes to maternal and child health. In 2006, infant mortality rates (deaths at less than 1 year of age) was 14.8 per 1,000 live births in the general population, but it was 39.5 per 1,000 among the comarca Ngäbe-Buglé. Maternal mortality rate was 0.8 per 100,000 in the general population, but 3.8 per 100,000 among the comarca Ngäbe-Buglé. In 2013, 34% of all women who died due to pregnancy or delivery related complications were from the comarca Ngäbe-Buglé. Because of the evident healthcare disparities experienced by the indigenous peoples in Panama, and especially the Ngäbe-Buglé, this study will focus on the Ngäbe population.
The Ngäbe

The Ngäbe, sometimes also called Guaymí, are the largest indigenous group in the country, representing 7.44% of the population of Panama. These indigenous people have been present in what is today Western Panama since pre-historic times. Currently, a significant portion of the Ngäbe population lives in the comarca Ngäbe-Buglé. This territory is shared by two distinct indigenous groups, the Ngäbe and the Buglé, each with their own culture and language, although their languages are believed to share a common root. The Ngäbe also live in the Bocas del Toro Province, primarily in the Bocas del Toro and Chiriquí Grande districts, where they make up about 70-80% of the population, and the Changuinola district, where they make up almost 50% of the population. The Chiriquí Province also has significant Ngäbe presence, particularly in the districts of Tolé, San Lorenzo, San Félix, and Remedios districts, where the indigenous population is the majority, and in the districts of Barú, Boquete, Bugaba and David. There is also a minority of Ngäbe living in the Veraguas Province, mainly in the districts of Cañazas and Las Palmas. The Ngäbe are also present in the southern part of Costa Rica.

The area encompassing current Western Panama and southern Costa Rica has been inhabited by nomad hunter-gatherer societies since before 5,000 BCE. Over time, these groups started farming and creating settlements with increasingly complex societal structures. There is evidence that these groups engaged in trade relationships, with some dominating others and some adopting elements from others. Archeologists believe that the Ngäbe people originated from these societies.

Documentation about the Ngäbe around the time of the Spanish conquest is scarce. Christopher Columbus visited the Bocas del Toro and Veraguas regions where he visited several villages and ended up establishing a Spanish settlement. There is no record of how Ngäbe society
was structured prior to this time. Initially, contact between the Ngäbe and the Spaniards was rare. However, after 1530 the Spanish launched a series of military attacks against the Ngäbe, which ended up in defeat for the Spaniards due to Ngäbe resistance. After the 17th century, the Ngäbe population was decimated due to attacks from the Spanish and another indigenous group, the “zambos-mosquitos.” The Ngäbe were forced to retreat to the mountains or to land farther away from their attackers. This led to the mixing of different ethnic groups and the expansion of Ngäbe culture during the 18th century. Groups that were deeper in the mountains remained relatively isolated, but other groups had contact with the Spanish colonizers in part due to the latter’s evangelization attempts. Despite these encounters with the Spanish and other indigenous groups, the Ngäbe were able to prevail the Spanish colonization by offering resistance and retreating into more remote and safer areas.

Life changed for the Ngäbe in the second half of the XIX century, when transnational companies established themselves in the region in order to exploit its natural resources. The initial deforestation of the area allowed for the sale of wood and later for the development of land to use for agriculture and livestock, resulting in the displacement of many indigenous people. The development of the Pan-American Highway in the 1930s further increased the contact the Ngäbe had with the outside world and resulted in more appropriation of indigenous land, exacerbating the displacement of this population.

The Ngäbe had previously relied on subsistence agriculture, but the total loss or reduction of land made this challenging for many. By the 1950s, hundreds of Ngäbe were working in the banana plantations on a seasonal basis in order to supplement what they earned from the land they still owned. Despite this, many faced financial hardships. The situation significantly worsened after 1961. Previously, around 2,000 Ngäbe worked for the Chiriquí Land Company banana
planation. However, in 1961 a union formed primarily by nonindigenous workers was established. As a consequence of this union, workers were no longer able to work seasonally because they were required to work for the plantation year round. At the same time, the banana plantation mechanized some of the jobs that the Ngäbe did. As a result of these changes, the number of Ngäbe workers decreased from 2,000 to 300 annually. This further aggravated the land problem, as workers who returned to their homes found their lands were already occupied by others or were too small to rely on for subsistence agriculture. The scarcity of land caused a migration to Costa Rica, to work in banana plantations there.

The workers who kept their jobs faced different struggles. The Ngäbe faced dire economic needs, which the plantations used to their advantage by offering them salaries lower than the legal minimal wage, offering low-quality housing, and evading paying benefits. Companies also took advantage of the Ngäbe’s low financial literacy by making “errors” in calculations when it came the time to pay workers their wages and thus underpaying them even more. To make matters worse, they were often marginalized at work, where they were seen as the lowest ethnic group, even below other indigenous groups and Afro-Caribbean people. They were assigned the least desired tasks that were rejected by other ethnic groups at a pay that other workers would not have accepted.²³

It is within this historical background that the Mama Chi religion was founded. From 1958 to 1962, several Ngäbe people reported having visions of revelations by the Virgin Mary. The messages communicated in these visions included the approach of the end of the world, the need to prepare for this, the need for unity, and the need to build chapels in every place the Virgin Mary revealed herself. On September 22, 1962, Delia Bejarano, a 20 year old Ngäbe resident of the San Lorenzo district, was with her 2 year old daughter when she had a vision. Delia reports she saw a man and a woman, Jesus Christ and the Virgin Mary, both of whom descended from heaven in a
cart, causing the earth to shake and Delia to fall down while holding her daughter. Delia recounts this encounter as follows:

“A moment later, the man talked and took the girl in his arms; it was not shaking anymore and they told me to get up and to not be afraid. Next they entered the house and both of them sat on a wooden bench […] The man said: This is the mother, I am the father; we are in heaven. She has come many times to the earth to ask the people to follow God’s path, for the salvation of the world. Now I have come myself to ask the Indians for a piece of land for God’s work; I made the heaven and the earth and I do not have where to establish my kingdom here on earth. Do you want to give me a piece of this land? I answered yes. Then he said: You have a two year period for you to accomplish this mission; you will gather all the Indians here and you will tell them that God is coming soon to live in this mountain range; that they should not make more “claridas”, or “balserías”\(^1\); that they should adore God in the revelation chapels, that for five consecutive years, until the end of the year 1967 they should be in constant prayer, apart from all festivity, waiting for the arrival of God; that they should work five days a week and Saturday and Sunday should be dedicated to the work of God. The Guaymí people is the people chosen to receive God, because it is the one most in need of divine justice.”

For the next two years, Delia shared this message among the Ngäbe, teaching the principles revealed by Mama Tata (mom and dad). During this time, the movement grew rapidly, bringing hope to the Ngäbe people. However, in 1964, Delia became ill with tuberculosis. Before her death she was able to name a successor, Sandalino Moreno, who was to serve as a temporary leader until her daughter, the Niña Chi, came of age.

Delia’s death caused a commotion among her followers. The fact that she had not resurrected as she had predicted caused some to doubt of her teachings. It also exacerbated the

\(^1\) Balsería: traditional encounter between two kin groups, who gather for exchange and competition. The first night, men watch the balsa, four foot long sticks that are used during the games, throughout the night, in what is known as the wake. The following day the competition would begin. Two players participated, with one attempting to hit his opponent in the back of the thighs with the balsa. The other player would then attempt to evade the attacks by moving as quickly as possible. Later the roles would be reversed. This lasted for three days. At the conclusion of this event, a fair would be held so the two groups could exchange goods. Throughout the duration of the events, the two groups would engage in drinking alcohol (chicha), face painting, and playing traditional music.\(^2\)
conflict between the more conservative Ngäbe, focused on traditional Ngäbe beliefs and oral history and tradition, and a younger group of more politically-minded individuals that advocated for modernization of the Ngäbe.

The following year, in April, 20, 1965, the younger group proclaimed the New Indigenous Order by creating a Free Ngäbe Republic, independent of Panama, in the Rio Balsa region. Mama Chi was named its official religion. Delia’s successor, Moreno, was named cacique-president of the new republic. A vice-president, twelve representatives, and seventy eight counselors were also named. The Ngäbe republic created a Constitution, a flag, and a national hymn, based in the teachings of Mama Chi. The New Indigenous Order also outlines the following objectives to be met by all Ngäbe: 1) registration of births and deaths via local leaders or corregidores; 2) control of entrance and exit to and from indigenous territories via an official permit; 3) use of modern techniques used by non-indigenous people in agriculture; 4) prohibition of polygyny; 5) prohibition of balsería and alcohol; 6) implementation of bilingual literacy programs, in Spanish and Ngäbere, for children and adults; and 7) all indigenous people, without exception, must live concentrated in caseríos so they can help and protect each other. However, the Ngäbe Republic was short-lived. In April 24, 1965, Moreno met with representatives of the Panamanian government, led by Major Omar Torrijos, and signed an armistice, agreeing to rejoin the republic of Panama.

These events led to the appearance of two ideological currents among Mama Chi followers that persist until this day. The most orthodox one is led by Delia’s daughter, Micaela, also known as Niña Chi. This current rejects any relation with the outside world. Niña Chi, who is currently living in an unknown area of Panama, even has a group of Ngäbe guarding her house to make sure
no non-indigenous people approach her. The second ideological current took on a more conciliatory view in terms of its relationship with the outside world.

After Delia’s promises of the arrival of a Messiah by 1967 went unfulfilled and the Ngäbe’s financial struggles worsened, the Mama Chi movement weakened and its number of followers decreased. Around this time, different Christian groups, including Catholics, Baptists, Adventists, Methodists, among others, sent missionaries to Ngäbe communities to convert them. Some groups focused on intensive evangelization while others, such as the Catholic Church, also focused on social programs to defend indigenous people’s rights. These evangelization efforts might have also contributed to the decline of the Mama Chi religion among the Ngäbe, but acceptance of these missionaries might have also signaled openness to outsiders.23

However, the Ngäbe struggle for their lands and the desire for self-determination encapsulated by the Mama Chi movement was far from over. Indigenous leadership among the Ngäbe and other indigenous groups were organizing to advocate for their populations. In 1969, the first National Indigenous Congress was held in Ngäbe land. The Congress met yearly for the following seven years, each time in a different indigenous territory, to discuss the common struggles for the rights of their land and recognition of their culture. This Congress was eventually dissolved but contributed to the reorganization of the political structure of the Ngäbe.24 During the rule of General Omar Torrijos, indigenous groups were in negotiations with the government to determine how to protect indigenous lands and how to handle projects that intended to utilize natural resources in indigenous lands (such as the construction of hydraulics, dams, mining, among other projects.). Despite these negotiations, no comarcas were established under Torrijos rule.24

The Panamanian government experienced several changes in power during the next several decades. Through these changes, indigenous leaders continued to claim for the rights to their lands.
Conflict continued between indigenous claims to their ancestral land, the claims of non-indigenous people who wanted to utilize the land’s natural resources, and the government. Despite attempts to have their collective land ownership rights recognized by the government it was not until March 7, 1997, that a compromise was reached and Law 10 created the *comarca* Ngäbe–Buglé. Because the Buglé were a very small indigenous group consisting of less than 10,000 people and shared some cultural similarities with the Ngäbe, they agreed to form a *comarca* together.

The Law 10 of 1997 represented the culmination of the Ngäbe fight for rights over the previous four decades. However, the creation of the *comarca* Ngäbe–Buglé was not without controversy. Importantly, article 48 of Law 10 of 1997 limited Ngäbe autonomy by granting the government the right to use natural resources within the *comarca*. Furthermore, the territory outlined as part of the newly created *comarca* excluded the Buglé lands in Northern Veraguas and Ngäbe lands in Bocas del Toro, leaving many indigenous people in lands outside of the protections granted by the *comarca*.

The exclusion of the lands in Bocas del Toro is particularly significant because a high percentage (70-80%) of its population is Ngäbe. However, most health statistics about the Ngäbe only represent those that live within the *comarca* Ngäbe–Buglé, despite the fact that a majority of the indigenous population lives outside *comarca* land. This is the reason this study was not focused only on Ngäbe within the *comarca* but also looked at the Ngäbe in the Bocas del Toro Province.
Family Planning among the Ngäbe

It is worth examining the disparities in reproductive health outcomes that exist between indigenous populations, particularly the Ngäbe, and the general population of Panama. In 2009, the general population had a birth rate of 19.8 births per 1,000 population. However, the birth rate was 33.4 per 1,000 in the comarca Ngäbe-Buglé and 31.4 per 1,000 in Bocas del Toro (which is primarily Ngäbe).\(^27\) The total fertility rate was 2.3 children per woman at the national level, but it was 4.9 children per woman in the comarca Ngäbe-Buglé and 3.76 in Bocas del Toro.\(^28\) While among the general population two-thirds of women who were married or in a union were using a modern family planning method, only 22% of the indigenous population were. Among all indigenous groups, usage among the comarca Ngäbe–Buglé was the lowest, with only 19% of women who were married or in a union using a modern family planning method.\(^22\) Furthermore, in 2009 unmet need for family planning among Ngäbe-Buglé women was 80%, more than double the national average (38%).\(^28\) For this reason, this study focused on family planning use among the Ngäbe population of Bocas del Toro and the comarca Ngäbe–Buglé.

To examine Family Planning among the Ngäbe, this researcher collaborated with Floating Doctors. Floating Doctors is an American non-profit organization that has been providing healthcare services to Ngäbe communities in Bocas del Toro and the comarca Ngäbe–Buglé since 2011. Some of these communities are located along the coast or on islands of the Bocas del Toro archipelago, where the easiest, or only, access is via boat. Other communities live in the mountains, in places that can be reached by bus or by hiking. People from these communities are able to receive care from government hospitals located in the main towns or smaller local community health centers. However, these are not always accessible. For this reason, Floating Doctors provides mobile clinics that provide service to the Ngäbe directly in their communities by traveling
to each community with the personnel and equipment necessary to run a clinic. The clinics are run by Floating Doctors’ staff and volunteers, mostly from Europe, the U.S., and Australia. Clinics begin with patient registration, followed by an intake process that includes recording demographic information of the patient, taking the patient’s vital signs, and eliciting the chief complaint. Later they are seen by a provider physician for a consult depending on their chief complaint and individualized needs. At the end of the consult, patients receive health promotion and prevention items such as toothbrushes, deworming tablets, and vitamins. Additionally, the pharmacy dispenses medications prescribed by the providers. Floating Doctors returns to each community every three months and follows up with patients previously seen. They currently visit 24 communities every 3 months.

In terms of family planning, Floating Doctors offers the injectable contraceptive medroxyprogesterone, which prevents pregnancy for three months. It offered this option to women who attend clinic, but there was no structured family planning program in place prior to the initiation of this study. Floating Doctors expressed an interest in improving its family planning program in order to better provide services to their population. Additionally, at the time Floating Doctors was considering the option of providing implantable contraceptives, which are inserted into the woman’s arm and prevent pregnancy for 3 years. For this reason, this researcher decided to examine the social factors that influence family planning use in this population, what barriers prevented women from using modern family planning methods, and willingness and interest in using the contraceptive implant as an option for family planning. Importantly, this researcher aimed to use the data obtained as part of the research to help provide culturally sensitive services to this population in the hope of addressing the healthcare disparities that they face.
Methodology

This study was conducted in the Ngäbe communities in the Bocas del Toro Province of Panama. The province is comprised of the Bocas del Toro archipelago and adjacent mainland. The study involved individual interviews with women from 12 Ngäbe communities. The communities were selected among those serviced by Floating Doctors in order to represent both coastal and mountainous communities (Figure 2). The number of respondents per community can be found in Table 1.

![Figure 2. Map of areas surveyed. Labeled are the eleven study sites for the study. Floating Doctors sets up mobile clinics at these communities approximately every three months, in order to provide medical services. The exceptions to this are the communities of Kusapin and Guacamayo, which Floating Doctors does not visit but are walking distance from Ensenada, and members from the former communities are frequently seen at the clinic for the latter.]

To be included in the study, respondents had to be women of reproductive age, defined here as between the ages of 18 and 50. They also had to have two or more children in order to target
women with increased likelihood of previous exposure to family planning methods. The first language among the Ngäbe is their own (Ngäbere), but most are also fluent in Spanish. Because interpreters were not available for the study, respondents had to be fluent in Spanish in order to be interviewed.

Data collection took place from June to August 2016 in Bocas del Toro, Panama. Upon arriving to each community, community leaders were contacted and the research was presented to them. A community meeting was then called, during which the researchers explained the research project with the aid of the community leaders. Interested participants were invited to schedule an interview with the researcher at a later date. At this time, verbal consent was obtained and then interviews were conducted by a proficient Spanish speaker. A cross-sectional questionnaire was designed by the researcher and the principal investigator. It included questions on demographic information, reproductive characteristics, sexual practices, knowledge of family planning, perceptions and attitudes about family planning, and barriers to family planning. No identifiable information was recorded.

Statistical Package for the Social Sciences (SPSS) V. 26 was for quantitative analysis. Chi-square tests, t-tests, one-way ANOVAs, and Pearson’s R correlation were used to assess associations between variables and to assess the statistical significance of hypothesized relationships. Statistical significance was set at <0.05.

The research protocol was reviewed and approved by the University of Connecticut Institutional Review Board, protocol #16-213-2.
Results

Demographics

A total of 148 women were enrolled in the study. Age range of women surveyed was 18 to 50 years old. Mean age was 32 (range 18 – 50) and median age was 31. The majority of women surveyed were in a relationship (83%), but only 11% of those in a relationship were legally married, 16% were single, 1% separated and <1% widowed. Average age among women’s partners was 36 (range 18 – 69) and the median age was 35. On average, mean age difference among partners was 6 years (range 0 – 23). Households had an average of 8 people (range 3-27), with 3 adults (range 1 -15) and 5 children (range 1 - 12).

Out of the women surveyed, 16% had no formal education, 54% had some primary school education, 25% had some secondary school education, and 5% had some higher education (Table 3). The vast majority of women knew how to read and write, with 87% being able to read and 85% being able to write. However, while all of those who knew how to read and write could do so in Spanish, only 54% and 39% of them could read and write in Ngäbere. Out of those in a relationship, 10% had partners with no formal education, whereas 46% of partners had some primary education, 39% of partners had some secondary education, and 5% had higher education. Among the women’s partners, 93% knew how to read in Spanish and 89% knew how to write in Spanish.

The most common occupation among the women surveyed was homemaker (82%). Other occupations included farm worker, shopkeeper, cook, student, housekeeper, and teacher. Among the women’s partners, 43% worked in the agriculture or fishing industries, 10% in construction and 7% in security. Other fields represented by less than 5% included restaurant industry, tourism industry, education and teaching, transportation industry, store owner, and religious leaders. While 76% of partners received income from their occupation, the same was true of only 22% of women.
80% of respondents stated that they made financial decisions together with their partners, 6% said the women decided how to spend the money and 14% of women said it was the man’s decision how to spend the money.

Among those surveyed, 40% did not identify with any religion, 14% identified as Evangelicals, 7% identified as Catholics, and 32% identified with other Christian groups. 7% of those surveyed identified with a traditional Ngäbe religion.

There were no statistically significant demographic differences between coastal and mountainous communities or between communities in Bocas del Toro and communities in the Comarca Ngäbe–Buglé.

*Family Planning Use*

Most women (60%) had used some type of modern family planning method at some point in their lives. The most commonly used method was the injection (47%). The frequency of ever use of modern family planning methods is shown in Graph 1. Current use of family planning was 32%. 28% had used a type of modern family planning method in the past but were no longer using any, and 40% had never used any modern method. Among respondents not using any modern family planning method, 79% said they were willing to use a modern family planning method in the future to delay or avoid pregnancy in the future.

*Unmet Need for Modern Family Planning Methods*

Fifty-one per cent of women had an unmet need for modern family planning methods. Unmet need was defined as sexually active women who stated they did not want to have any more children or who wanted to wait >1 year before having more children and were not using any
modern family planning methods. This calculation excluded pregnant women, postmenopausal women, and women who had had hysterectomies. There was no statistical difference between women in communities in Bocas del Toro Province and women in communities in the Comarca Ngäbe-Buglé in terms of unmet need.

As shown in Graph 2, respondents with unmet need reported that the most common reasons for not using modern family planning methods were concerns about family planning methods’ effects on their health (32%), lack of access (21%), reliance on withdrawal as a means for family planning (12%), religious beliefs (7%), and lack of knowledge about methods and how to obtain them (6%). In addition, 10% said they were not using modern family planning methods because they were rarely or not currently sexually active.

62% of all respondents stated that injectable contraceptives had side effects. When asked to name them, responses included changes in menstrual cycle, weight gain, headaches, breast pain, nausea, dizziness, uterine cancer, and other illnesses. There was no statistically significant difference between use of family planning methods among women who stated injectable contraceptives had potential side effects and those who did not. 50% of all respondents said they did not feel they had easy access to modern family planning methods. The most commonly cited reason for this was that they were not available at the nearest community health center and thus they would have to travel long distances to get access and that respondents were not able to afford modern family planning methods.

The majority of women (83%) had discussed with their partners the number of children they would like to have. Most women (71%) were in agreement with their partner about how many children they wanted, whereas 18% wanted to have more children than their partner and 6% wanted to have less. Most respondents (66%) believed that the decision to use family planning methods
should be a joint decision between them and their partners. 31% of respondents stated that they should be the ones to make the decision and 3% responded that their partners should make the decision. Of the women who were not using family planning methods, 4% of them said they were not using because their partner was opposed to their use.

Knowledge about Family Planning

To assess knowledge on family planning, women were asked to name as many family planning methods as they could. On average, respondents could name 2 family planning methods (range 0 - 6). Nearly 90% of respondents named the injection, 68% the pill and 28% the ring. Only 7% of respondents could not name any family planning methods. Frequency of methods spontaneously named can be seen in Graph 3. There was no statistical difference between the mean number of methods named by those who received information on family planning during prenatal visits; those who received information on family planning from healthcare providers; and those who talked with a healthcare provider about family planning in the last year.

The survey asked a total of 4 questions to assess women’s knowledge of the menstrual cycle and its relationship to fertility. On average, women scored a total of 3 questions correctly (range 1 - 4). The vast majority (87%) knew when their last menstrual cycle was. 60% of women knew that the time in the menstrual cycle affected fertility, but only 24% stated that the most fertile point in the menstrual cycle was the halfway point between periods. Most women (66%) reported that it was possible to become pregnant after giving birth but before menses resumed. There was no statistical difference between the mean number of correct answers by those who received information on family planning during prenatal visits; those who received information on family
planning from healthcare providers; and those who talked with a healthcare provider about family planning in the last year and those who did not.

**Factors Influencing Family Planning Use**

Women practicing indigenous religions were less likely than all others to be using modern family planning methods ($\chi^2 = 5.2$, $p = .034$) and to have ever used modern family planning methods ($\chi^2 = 11.1$, $p = .001$). Out of 10 respondents who identified with an indigenous religion, none were currently using modern family planning methods and only 1 had used one in the past. Women practicing indigenous religions were also more likely to have an unmet need for family planning ($\chi^2 = 10.6$, $p = .001$), with all 10 respondents with indigenous beliefs having an unmet need for family planning. There was no statistically significant association between other religious beliefs and current or lifetime family planning use. There was also no statistically significant association between identifying with no religion and current or lifetime family planning use.

Current family planning use was higher for respondents who: received information on family planning during prenatal visits ($\chi^2=8.5$, $p=.003$), received information on family planning from health care providers ($\chi^2=7.5$, $p=.006$), and those who talked with health care provider about family planning during the last year ($\chi^2=4.8$, $p=.029$). There was no significant association between current family planning use and age, location, education level, marital status, or number of pregnancies. Respondents who delivered their last pregnancy at a government facility were also more statistically likely than those who delivered at home to be currently using modern family planning methods ($\chi^2=4.3$, $p=.038$), with 35% of those who delivered at a government facility using modern family planning compared with 20% among those who delivered at home.
There was no statistically significant difference in modern family planning methods use among those living in coastal or mountainous communities. There was also no statistical difference between modern family planning use among respondents in Bocas del Toro Province communities and those in communities in the Comarca Ngäbe-Buglé. There was no statistically significant association between age, educational level, relationship status, number of pregnancies, and current or lifetime modern family planning use.

*Attitudes*

Respondents were asked questions to compare their own practices compared to the practices they would ideally want for their children (Table 4). To do this, respondents were asked to think about their own children and what they would recommend to them as a proxy for ideal practices. Given that respondents were required to have two or more children in order to be included in the study, asking respondents to state how many children they would ideally like to have had would have presented a challenge for those who might have liked to have less children than the number they actually had. To avoid this challenge and the possible data skew this could pose, respondents were asked about what they would recommend for their own children. This was based under the assumption that respondents would want what they consider ideal for their own children. Therefore, for the purposes of this study we are using these questions as a proxy for what respondents consider to be ideal practices.

On average, the respondents’ parents had had 8 children (range 1 - 18) and the respondents had had 5 children (range 2 - 13). Respondents said they would recommend to their children to have 2 children on average (range 0 - 5). Respondents’ average age at their first child was 17 (range 12 – 25), but they would recommend their own children to start childbearing at age 22 on average (range 15 - 39). The average birth space between respondents’ first and second pregnancy
was 3 years (range 0 - 14). However, they thought that ideal birth spacing for their children would be on average 5 years (range 1 - 11).

Almost all (99%) of women said they believed that family planning was beneficial for families. Common themes for why family planning was beneficial to families were analyzed. 24% of respondents said family planning is beneficial to families because it helps families decide when to stop having children. 18% of respondents said it was beneficial when families do not have the financial means to support more children. 9% of respondents cited improvements in maternal and child health as benefits of family planning. 8% of respondents noted that family planning is beneficial to families because it helps to increase birth spacing.

Almost all (96%) of women said they believed that family planning was beneficial to communities. Respondents cited the same reasons for why family planning is beneficial to communities as for families. 17% of them said it was beneficial to communities because of improvements in maternal and child health, 13% said it helps families that do not have the financial means to support more children, 12% said it helps families decide when to stop having children, and 5% said it helps increase birth spacing. In addition, 4% said that family planning was beneficial to the community because it helped with population control. There was no statistically significant relationship between perceived benefits of family planning and current or lifetime family planning use.

Reproductive History

On average, women had sex for the first time at age 15 (range 11 - 20) and became pregnant for the first time at age 17 (range 12 - 25). The average time between first and second pregnancy was 3 years (range 0 - 14 years). Due to the inclusion criteria, all women surveyed had 2 or more children. On average, women surveyed had had 5 pregnancies (range 2 - 14) and had 5 living
children (range 2 - 13). For their last pregnancy, 82% of women had at least one prenatal care visit, with the average women having 5 prenatal visits. Of the women who received prenatal care for their last pregnancy, 87% received it from a doctor, 7% from a traditional birth attendant, and 6% from a nurse. The overwhelming majority (92%) of those who received prenatal care obtained services from a government facility (government hospital or community health center). Out of those who received prenatal care in a government facility, 71% received information about family planning during their prenatal visits, with only 6 respondents stating that they received information on family planning while receiving prenatal care elsewhere.

Most women (72%) had their last delivery at a government facility, while 28% of women delivered at home. 70% were assisted in the delivery by a doctor, 26% of them by a traditional birth attendant, and 3% by a family member. 62% of respondents received information about family planning after the delivery.

It is worth noting that there were no statistically significant differences between women in Bocas del Toro Province and women in the comarca Ngäbe–Buglé, in terms of whether they received prenatal care, where they received it, and who they received care from. However, women from the comarca Ngäbe–Buglé were more likely than women from Bocas del Toro Province ($\chi^2=8.4, p = .004$) to have had their last delivery at home, with 48% of comarca women delivering at home compared with 22% of women from Bocas del Toro Province. Women who delivered in a government facility were significantly more likely than those who delivered at home ($\chi^2=8.4, p < .001$) to have received information about family planning after the delivery, with 72% of those delivering in government facilities having received information on family planning compared to only 34% of those who delivered at home. Women who delivered in a government facility were also significantly more likely than those who delivered at home ($\chi^2=4.3, p = .038$) to be currently...
using modern family planning methods and to have used modern family planning methods during their lifetime. 37% of those who delivered at a government facility were using modern family planning methods compared to 20% of those who delivered at home.

Contraceptive Implant

Only 22% of respondents had heard of the implant as a method for family planning prior to the survey. After receiving a brief explanation of the implant’s function and mechanism of action, 59% of respondents said they would be willing to consider the implant as an option for family planning.

Logistic Regression for Current Family Planning Use

A binary logistic regression analysis was conducted with current modern family planning use as the dependent variable (Table 5). This analysis showed that older respondents were significantly more likely to be currently using modern family planning methods ($p = .044$, odds ratio $= 1.1$). It also showed that greater age differences among partners was associated with increased modern family planning use ($p = 0.036$, odds ratio $= 1.2$). The results showed that women who received at least one prenatal care visit during their previous pregnancy were almost 15 times more likely to be currently using modern family planning methods than those who did not receive prenatal care for their previous pregnancy ($p = 0.010$). In addition, both the respondent’s age and the age difference between the respondent and the partner were significant. Older participants were more likely to be currently using modern family planning methods. Greater age difference between respondent and partner was also associated with increased likelihood to be using modern family planning methods. Other demographic and behavioral variables were not statistically significant.
Discussion

This study explored the social factors influencing family planning among Ngäbe communities in Bocas del Toro and Comarca Ngäbe-Buglé, Panama. Interviews were conducted with 148 Ngäbe women with 2 or more children between the ages of 18 to 50. Survey questions focused on knowledge, attitudes, and practices regarding family planning and reproductive health.

The main dependent variable for this study was use of modern family planning methods. The contraceptive prevalence for the women in this study was 32%. There was no statistically significant difference between current users of modern family planning methods and nonusers in terms of age, location, education level, marital status, or number of pregnancies. This was true for current and lifetime use of modern family planning methods. Thus these demographic factors do not seem to affect use of modern family planning methods in this population. The only exception to this was older age and increased age difference between partners, which were significantly associated with current modern family planning use in the logistic regression analysis when controlling for other demographic variables.

On the other hand, healthcare use appears to play a significant role. Those who received prenatal care during their last pregnancy were more likely to be using modern family planning methods and to have used them in the past. This relationship was true regardless of number of prenatal visits or pregnancy stage at prenatal care entry. This is consistent with studies in other populations which have found that women who discussed family planning during their prenatal care were more likely to use family planning postpartum.29, 30, 31, 32, 33

The relationship between respondents and the healthcare system appears to be one of the key factors. The association between receiving prenatal care and use of modern family planning methods indicates that contact with the healthcare system is influential when it comes to
reproductive health. Engagement with the healthcare system does not need to refer exclusively to healthcare institutions, as there were no statistical differences between those receiving prenatal care from a physician, a nurse, or a traditional birth attendant for prenatal care in terms of likelihood to use modern family planning methods. There were also no statistical differences in likelihood of use of modern family planning methods between those relying on government institutions, Floating Doctors, or their communities for prenatal care. Furthermore, there were no statistical differences between users and nonusers in terms of where they delivered their last pregnancy (government institution or home) or who assisted the delivery (physician, nurse, traditional birth attendant or other). Therefore, the determining factor seems to be whether or not a woman engages in care, not the type of care she receives. This association could be either because women who have access to prenatal care are also able to access modern family planning methods or because women who are likely to seek out prenatal care are also likely to seek out modern family planning methods.

This has several potential implications when considering future interventions. It suggests that increasing engagement in care, either by increasing access or by addressing factors that would increase women’s willingness to seek out care, would also increase modern family planning use. Additionally, because those receiving care from traditional birth attendants in their communities were just as likely to use modern family planning methods as those who received care in government facilities, traditional birth attendants and other community resources could prove to be very valuable for modern family planning programs. Some of the communities surveyed did not have a healthcare facility or a healthcare worker in the vicinity. In these communities, traditional birth attendants are trusted and respected members of these communities, worked closely with almost all women during their pregnancies and deliveries. Given the impact they have
in these communities, they could greatly contribute to prenatal family planning counseling, which could lead to increased family planning use.

One way healthcare use can be thought to influence modern family planning use is by providing education on the subject. For this reason, it is possible that by being engaged with the healthcare system, women have a better knowledge of modern family planning methods and then are more likely to use them. Indeed, current users of modern family planning methods were more likely than nonusers to have received information on family planning during prenatal visits, have received information on family planning from health care providers, and have talked with health care provider about family planning during the last year. However, these interventions did not have a significant impact on knowledge outcomes measured in the survey. Additionally, it is less likely that those that worked with traditional birth attendants received similar education on modern family planning methods. Further qualitative study would be needed to identify how knowledge influences modern family planning use. There were no statistical differences between the mean number of methods named or between the mean number of correct answers on questions about the menstrual cycle and fertility among those who received information on family planning during prenatal visits and those who did not; those who received information on family planning from healthcare providers and those who did not; and those who talked with a healthcare provider about family planning in the last year and those who did not.

One possible explanation for this is that increased knowledge of family planning itself does not influence whether women use modern family planning methods, but rather that the respondents who are engaged in the healthcare system are more likely to be currently using modern family planning methods. It is also possible that other outcome measures are needed to accurately assess the effect of interactions with the healthcare system on reproductive health knowledge. Another
possible explanation for this is that women who have more contact with the healthcare system are being exposed to pressure from the system to use modern family planning methods. More qualitative research is needed to better characterize women’s interactions with the healthcare system and how this might influence family planning use.

Another factor that played a role on use of modern family planning methods was religion. Among respondents, 48% identified as Christian of various denominations, 12% identified as followers of a Ngäbe religion, and 40% identified with no religion. The strong Christian presence likely reflects the evangelization efforts in this region, especially during the 20th and 21st century. The smaller percentage of followers of a Ngäbe religion is consistent with the decline of the Mama Chi religion, as well as this movement’s relationship with the outside world, which could make its followers less likely to agree to participate in this study. It is worth noting that when this researcher visited a community said to be predominantly Mama Chi, only two people agreed to be interviewed, despite the fact that this researcher spent several days in this community and talked with most women who lived there. Of the two interviewed, one identified with a Ngäbe religion and one identified with no religion. This cannot be explained without further qualitative research, but one possible reason for this is that people from Ngäbe religions are less willing to interact or share personal information with outsiders. It is also possible that they are less likely to want to disclose their religious beliefs to outsiders, which could explain why such a high percentage of respondents identified with no religion. It is also possible that this group has spiritual beliefs that they do not consider religious. Similarly there could be other factors that could have led a significant portion of the population to practice no religion. Further qualitative research is needed in order to learn more about Ngäbe religions and more insight into the beliefs of those who identified with no religion.
Given that religion influences family planning use in many cultures, this association was analyzed. Women practicing indigenous religions were less likely than all other religious groups to be currently using modern family planning methods. Additionally, women who identified as a member of a Ngäbe religion were more likely to have never used any modern family planning method. There was no significant relationship between members of any other religion and current or lifetime family planning use. There was also no significant difference between people who identified with no religion and current or lifetime family planning use. Seven percent of respondents with unmet need cited their religious beliefs as the reason they were not using any modern method. Out of these respondents, 2 identified as Evangelicals, 2 as Apostolic Christians, 1 as Methodist, and 1 as Ngäbe religion. Interestingly, despite women from Ngäbe religions being the group less likely to use modern family planning methods, 5 out of the 6 respondents that cited religious opposition to family planning use were Christian. This could further suggest that family planning use might be lower among followers of Ngäbe religions not due to religious doctrine, as it is the case for Christians, but due to a general distrust of outsiders. More research is needed to further understand the role of religion in the lives of Ngäbe communities and their influence on family planning, as was the goal of the second part of this research project. By understanding religious beliefs among the communities, family planning programs could provide education in a way that is cognizant and respectful of these beliefs. It also would allow family planning programs to provide options for family planning that are acceptable to the different religions present within these communities.

To maximize effectiveness, family planning programs should be focused on people who have an unmet need for family planning. The two main benefits of family planning are to prevent pregnancy if it is not desired or to delay pregnancy to increase birth spacing between pregnancies.
Therefore, for the purposes of this study a woman had unmet need for family planning if she was not using modern family planning methods and sexually active who wanted no more children or to delay pregnancy for more than 1 year. Pregnant women, postmenopausal woman, and women status post-hysterectomy were excluded from this calculation. Using this definition, 51% had an unmet need for family planning. In other words, over half of those surveyed could benefit from use of modern family planning methods.

Several barriers to modern family planning use were identified by respondents. Concerns about side effects and other effects on health that modern family planning methods can cause appear to be a deterrent for use, as identified by 32% of the respondents with unmet need. Because the injectable contraceptive is the most used and recognized method among this population, respondents were asked to whether injectable contraceptive had side effects. Among the 62% that were aware of possible side effects, many are documented potential side effects such as changes in menstrual cycle, changes in weight, and breast tenderness. Other responses were that injectable contraceptives caused illness, including cancer, or could be harmful to women. 38% of respondents did not report any potential side effects for this method. Knowledge about the existence side effects with injectable contraceptives had no statistically significant relationship with family planning use. It is possible that it is not the existence of side effects in itself that discourages use of modern family planning methods, but their nature, with those who stated injectable contraceptives having more serious side effects being less likely to use modern methods. More qualitative research is needed to further assess possible health concerns this population might have regarding modern family planning methods.

Additionally, 6% of respondents with unmet need cited lack of knowledge about methods and how to obtain them as a barrier to use. This indicates that there are gaps in knowledge and/or
misconceptions about modern family planning methods that could be deterring women from seeking them out. Comprehensive education on reproductive health that includes normal physiology and how it is affected by modern family planning methods could alleviate concerns about the method effects on health and side effects. This, in turn, could result in higher use of modern family planning methods and decreased unmet need.

Lack of access is another barrier to family planning use, as cited by 21% of respondents with unmet need. Additionally, 50% of all respondents did not feel they had easy access to modern family planning methods. Reasons for perceived lack of access included transportation and travel time to nearest facility that provides family planning methods and cost of purchasing methods. Respondents reported that availability of modern family planning methods at their nearest government health center was often inconsistent or nonexistent, as they would run out quickly or not be restocked for long periods of time. Facilities with a more consistent supply of modern family planning methods, such as government hospitals and pharmacies, are frequently not a viable options for communities farther away from these services or for those who cannot afford their fees. Increased accessibility might increase modern family planning use among those with unmet need.

It is important to note that 12% of respondents with unmet need reported they were not using modern family planning methods because they relied on the use of withdrawal. It is likely the actual number of respondents who rely on withdrawal is much higher, since there were no questions in the survey that directly addressed the use of withdrawal and respondents might not have associated the term family planning with withdrawal. Interestingly, the most common phrase to refer to the withdrawal method by women in these communities is “mi pareja me cuida” or “my partner takes care of me.” Some women reported that their partner was a “good partner” because they used withdrawal to prevent pregnancy, suggesting that culturally it might considered be the
responsibility of men to prevent pregnancy. Other respondents indicated that using modern family planning methods when their partners were using withdrawal to prevent pregnancy might raise suspicions of infidelity, as they should not need modern methods if their partner was “taking care of them.” These are possible cultural conceptions that influence family planning use and should be furthered researched. This study suggests that men play a significant role in the decision to use family planning methods and which ones to use. It also indicates that societal roles and cultural expectations also influence family planning use. For this reason, one of the objectives of the planned second part of the research was to explore the use of withdrawal within these communities and the role of men in family planning decisions.

It is clear that any family planning program that targets these communities needs to have an appropriate understanding of Ngäbe culture in order to reach all of the population. Out of those not using any modern family planning method, 79% were willing to use a modern family planning method in the future to delay or avoid pregnancy. Therefore, if the barriers to use discussed were addressed by increasing culturally appropriate education on reproductive health and family planning methods as well as increasing accessibility, use of modern family planning methods might increase. On the other hand, it is likely this high number of women reporting willingness to use was due to social desirability bias among respondents. For this reason, more qualitative research, where participants are able to speak at length about their beliefs, would better be able to determine actual willingness to use modern family planning methods as well as barriers to use.

An overwhelming majority of women reported that family planning was beneficial to both families and communities. However, this is more likely due to suboptimal question design and respondents’ desire to please the interviewer than to nearly unanimous consensus among respondents on these issues. Nevertheless, the answers respondents gave as to why family planning...
was beneficial illustrate what respondents value when it comes to family and communities. Values important to respondents elicited after respondents were asked why it was beneficial include the importance of families being able to make decisions regarding family size, the ability to make decisions regarding childbearing based on a family’s financial situation, and the promotion of maternal and child health.

A more accurate illustration of this population’s wish for more family planning can be gleaned from respondents’ practices and attitudes toward reproductive health. Respondents reported having on average fewer children than their parents (8 children compared to 5). On average they wanted their own children to have even fewer children (2, range 0 -5) than themselves. This could signify generational shifts toward having fewer children and a desire to reduce fertility rates. Furthermore, while on average respondents had their first child at age 17, they recommended that their children start childbearing at age 22. This demonstrates a desire to delay childbirth and reduce teenage pregnancies. Lastly, while respondents had an average birth spacing of 3 years (range 0-14) between their first and second pregnancy, they reported an ideal birth spacing for their children of 5 years on average. This illustrates a desire to increase birth spacing within this population. The WHO recommends a minimum birth spacing for 2 years, so family planning programs could target those first two years postpartum to promote maternal and child health. The WHO does not recommend birth spacing longer than 5 years, so education in this area could also be important. In summary, this comparison between actual practices and ideal practices shows that this population would like to decrease fertility rates, increase age of first pregnancy, and increase birth spacing, all of which could be achieved by use of modern family planning methods.

This study’s findings were mostly consistent with a 2017 study that assessed family planning needs in this population by surveying 70 people from communities where Floating
Doctors provides services. In the 2017 study, 90% of respondents were able to identify at least one modern family planning method compared to 93% in our study. The 2017 study found that 67% of women were not aware of the most fertile point of their menstrual cycle, while this figure was 76% in our study. A similar percentage of respondents of the 2017 study had an unmet need for family planning (53% compared to 51%), as defined: women who did not want any more children and were not using modern family planning methods. The same study also found a similar percentage of respondents with unmet need who would be willing to use modern family planning methods in the future (68% compared to 79%). The mean ideal number of children reported by respondents of the 2017 study was 2.5, while in our study the mean number of children respondents would recommend their own children have was 2.2. Additionally, in the 2017 study, 100% of respondents were in favor of use of modern family planning methods in their communities compared to 96% of respondents in our study who stated that family planning was beneficial to their communities. The consistency of results supports this study’s findings and suggests these results are reasonably representative.

Limitations

The most significant limitation of the study is that only women speaking Spanish were included due to the lack of a Ngäbere interpreter. Given that Ngäbere is the first language of many members of this populations, possible language barriers could have been present during this study. While this researcher is a native Spanish speaker, for respondents Spanish was most likely their second language and might not be the language they felt most comfortable with. Additionally, a minority of interviews were conducted by a non-native, although fluent, Spanish speaker. Importantly, the research excluded respondents who only spoke Ngäbere. This has the potential to
have skewed the results, as people who did not speak Spanish and thus are likely not as in contact outside of their own communities might have different opinions on family planning as those who speak Spanish and are better able to interact with outsiders. Further studies should strongly consider utilizing a Ngäbere interpreter for research with this population.

The data collection for this research took place in 8 weeks from June to August 2016. The sites were selected based on Floating Doctors’ clinical schedule to facilitate transportation to the communities. Nine of out the eleven communities surveyed are visited by Floating Doctors on a regular basis by invitation from the communities. The other two communities surveyed are walking distance of another community where Floating Doctors provides services and people from these communities often go to their clinics. For this reason, the people from the communities surveyed have exposure to foreigner-led medical clinics. Responses might be different among communities with less outside influence.

**Future studies**

This study focused on Ngäbe women of reproductive age with 2 or more children in areas served by Floating Doctors in Bocas del Toro, Panama. The reason for these inclusion criteria was to reach the population that was most likely to have been exposed to modern family planning methods. This is because frequently women are presented with family planning options during prenatal or postpartum care. However, we cannot say that the findings are generalizable to the Ngäbe population. It is important to include women with no children or with only one child when considering the role of family planning in the communities as a whole.

Additionally, the survey did not include men. Given that 83% of respondents had discussed the number of children they wanted to have with their partners and 66% believe that family
planning use should be a joint decision, understanding men’s perspectives on family planning and reproductive health is necessary to get a full picture. The planned second part of the research was meant to address this, as the target population included both men and women over the age of 18, regardless of number of children. Men and women over the age of 50 were also included in the study design to capture the perspective of the older generation in order to both determine if there are generational changes in viewpoints and determine how the older generation influences people of reproductive age.

Another consideration is that only respondents over the age of 18 were interviewed or were being considered for interviews for the second part of the research. Since on average respondents become sexually active at the age of 12, the teenage population is important to consider while building a family planning program. Future studies to determine how to provide to this population both information and access to modern family planning methods are needed.

**Outcomes and Recommendations for Floating Doctors**

The Ngâbe population has a clear unmet need for family planning. In order to provide family planning services that target this population with unmet needs, barriers to use must be addressed. Concerns about effects of modern family planning methods on health was a significant deterrent for use. Integrating comprehensive counseling on family planning methods, including their potential side effects, would be beneficial for this population. The injectable contraceptive was the most salient method among respondents, with almost 90% of them naming it as a family planning method. It was also the method used by the majority of respondents. The injectable contraceptive is convenient and accepted by a portion of the community. Better awareness of how
the injectable contraceptive works and how it affects women’s bodies might provide reassurance to this population and eventually increase use.

At the conclusion of the 2016 data collection period, this researcher made the following recommendations to Floating Doctors: 1) to screen for unmet need for family planning methods during the intake process at clinics by including questions about this in the documentation sheet; 2) to train all incoming volunteers how to give family planning counseling that is both culturally sensitive and targeted to the resources available in the area; 3) to train all incoming volunteers on the terminology surrounding family planning used in the communities; 4) to create a standardized consent process that includes a list of potential side effects of contraceptives to be used by all providers after offering family planning to ensure patients are able to give informed consent; 5) if financially feasible, to have a health educator at clinics to teach patients about health promotion, disease prevention, and topics such as reproductive health and family planning. The researcher summarized the preliminary findings of the research in the document found in Appendix A.

For this reason, this researcher created a guide for providers about family planning in the communities (Appendix B). It was meant to be read by incoming providers prior to their arrival to Panama and later reviewed with Floating Doctors staff during orientation after their arrival to base. The document included statistics from the survey about the reproductive health of the population, descriptions of the sexual education available to communities, a list in both English and Spanish of the terminology used in the communities surrounding family planning, information about available family planning methods in the community, facts about side effects of contraceptives, and guidelines on how to obtain informed consent.

This researcher also created a protocol for Floating Doctors’ family planning program (Appendix C). It consists of four components: 1) screening during intake, 2) counselling during
consult, 3) education and consent process, and 4) follow-up. The protocol suggests wording that can be used for screening both men and women and included in the intake form, and provides a sample script for counseling sessions, along with a guide to ensure informed consent is obtained. It also suggests a script to be used when following up with patients.

Additionally, this researcher created a list of frequently asked questions on the subject of family planning (Appendix D). As part of the survey, respondents were asked to list any questions they had about family planning. These questions were all recorded, and the most common ones were included along with answers for every question. This list was meant to be an aid for providers during clinics, to be a reference during family planning counseling sessions and find answers that use understandable language for the patients. It was also meant to be given in the form of a handout to patients so they can read the information provided once they leave clinic and they can share this information with others.

When this researcher returned to Panama in 2019, this researcher was able to observe the changes Floating Doctors had implemented since 2016. The intake sheet has been changed according to the suggestions, and now all patients of reproductive age, both men and women, are screened for unmet family planning needs. If a patient is found to have an unmet need for family planning, they are then flagged so the provider knows to bring the subject up during the consult and provide counseling. Floating Doctors also incorporated a session on family planning during orientation of incoming volunteers and staff members based on the information provided. All women who were given the injection are flagged and put on a list for follow-up and seen at subsequent visits by Floating Doctors. The frequently asked question list was given to Floating Doctors but is still not being used at this time. Furthermore, Floating Doctors had created a staff position for a health educator who worked exclusively on this during clinics.
Another significant barrier to family planning use in this population is lack of access. While Floating Doctors provides the injectable contraceptive free of charge, this option is only available to the communities once every three months, which might be challenging for some women. Additionally, some women might prefer other methods that are not available through Floating Doctors. For instance, 59% of respondents indicated they would be interested in the contraceptive implant. This option prevents pregnancy for three years and thus would be more convenient for women to get the implant once rather than to get the injectable contraceptive every three months. It also allows women to have increased birth spacing and prevent birth spacing of less than 2 years as recommended by the WHO. It would be beneficial for this population for Floating Doctors to collaborate with governmental healthcare services to provide this population with more family planning options that are more accessible.

Conclusion

There is a clear unmet need for modern family planning among the Ngäbe. Engagement with the healthcare system appears to have a significant impact in modern family planning use in this population. Measures that seek to increase modern family planning methods use should consider this relationship and look into ways to increase the population’s engagement with the healthcare system. These measures could include increasing access to healthcare among this population as respondents indicated this was a barrier to modern family planning use. Measures should also consider using community resources, such as traditional birth attendants, to bridge the gap and reach communities with less access to government healthcare institutions. The most commonly cited barrier to modern family planning use was concerns about how modern family planning methods would affect the user’s health. Any efforts to increase modern family planning
use should address these concerns and openly discuss the risks and benefits of these methods. It is also worth noting that cultural beliefs and practices can influence family planning use, as seen in this study with religion and the use of withdrawal. It is important to recognize the role Ngäbe culture plays in this population’s lives and tailor any family planning program accordingly.
Postscript

A second part of the study, focused on qualitative data, was scheduled to be carried out during the summer of 2019. The aim of this study was to explore cultural concepts of family, parenthood, and religion and their implications on healthcare, particularly on family planning, among Ngäbe communities of Bocas del Toro, Panama. The data collected during this second part was meant to complement and further expand on the results of the first part of the research. Since the first part of the research focused on quantitative data, more qualitative data was needed to further characterize the first set of results. The results showed a statistically significant relationship between religion and family planning use, particularly with Ngäbe religions. Given that there is little existing literature on this subject, this researcher wanted to collect data on Ngäbe religious beliefs. The first part of the project also did not examine family structure, men’s role in family planning, and views on parenting. Because these concepts are critical to understanding how to target a family planning program, this research explored this population’s cultural beliefs and social structure in order to better describe their relationship to family planning and reproductive health. Additionally, although most respondents reported a willingness to use modern family planning methods, only a minority was actually using them. This might be an indication that there were barriers to use that were not discussed during the first project, so qualitative interviews were planned to further probe into possible barriers to family planning use.

The study population for this study involved members Ngäbe communities who were 18 years or older. The inclusion criteria are being over the age of 18, belonging to a Ngäbe community, being able to give consent, and being fluent in Spanish. These inclusion criteria were selected to expand the study population from the first part of the study and obtain a more representative sample of the population.
The researcher planned to conduct sixty individual interviews with members of Ngäbe communities. Twenty interviews were to be conducted for each of the following groups: women aged 18-49, men aged 18-49, women 50 and over, and men 50 and over. The interviews were based on twenty open-ended questions about Ngäbe culture. These were designed to assess cultural constructs of family, parenthood, and religion, and how they relate to family planning. In addition, ten group interviews were planned. Each group interview was to include 5-8 participants and consist of ten open-ended questions about Ngäbe culture. The estimated sample size was to be 140 respondents. The interviews were to be administered by a native Spanish speaker. Participants were to be recruited by conducting a community meeting inviting people to participate at communities where Floating Doctors provides services.

The research protocol was reviewed and approved by the University of Connecticut Institutional Review Board, protocol #19X-216-1. On May 14, 2019, a month before the second part of this research project was scheduled to be carried out, Panama passed Law 84, article 15. This law regulates healthcare by creating a National Registry for Health Research. In accordance to the law, this protocol was registered with the Ministry of Health (MINSA), as protocol 1116. Additionally, the law required the protocol to be reviewed by one of 11 newly established and approved bioethics committees around Panama, associated with either universities or hospitals. Nine out of the eleven bioethics committees are located in Panama City, located at the opposite side of the country as Bocas del Toro. Floating Doctors reached out to the bioethics research committee of the University of Panama, but they declined to work with research projects associated with Floating Doctors given the geographical distance between Bocas del Toro and Panama City.

In order to navigate the newly established bioethics committee, this researcher received the help of Dr. Mario Tristan, Director of the Central America & Spanish Caribbean Cochrane Centre
& Network of the Central America Branch of the Iberoamerican Cochrane Center. Dr. Tristan connected this researcher with the bioethics committee Azuero Anita Moreno Regional Hospital and the bioethics committee at Dr. Luis “Chicho” Fabrega Hospital, the only two located outside of the capital. This researcher received no response from Azurero Anita Moreno Regional Hospital, but the bioethics committee at Dr. Luis “Chicho” Fabrega Hospital agreed to review the protocol. After a couple of weeks of email exchanges, the researcher finally obtained from the committee all of the information required to submit this project for review. The committee required the researcher to be sponsored by a local physician. The researcher talked with several members of Floating Doctors staff to obtain support. Dr. Ricardo Perez, a Panamanian native, agreed to collaborate and write a letter of support for this researcher. In addition, the committee required all project documents, including protocol, surveys, recruitment materials, to be submitted in Spanish, along with an endorsement letter from Floating Doctors, from the researcher’s institution, and from MINSA. Researcher also had to submit the curriculum vitae of all involved in the research project, including the principal investigator, the Floating Doctors’ sponsor, and the local physician, and this researcher.

All of these documents required contacting multiple people in different locations, and later had to be translated on site by the researcher, which meant that it took a significant amount of time to prepare them. After all the documents were completed, they needed to be submitted for review. The committee required all documents both in physical and digital format to be hand-delivered to their offices during office hours held twice weekly. These offices were about 350 kilometers from the Floating Doctors’ base which was a full day’s travel and several boat and bus rides. At this point, the researcher only had one week left on site, and thus it was not possible to deliver the documents in time, receive approval, and conduct the project.
References


## Number and percentage of subjects surveyed in each community

<table>
<thead>
<tr>
<th>Community</th>
<th>Province</th>
<th>Number of subjects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valle Escondido</td>
<td>Bocas del Toro</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>Norteño</td>
<td>Bocas del Toro</td>
<td>23</td>
<td>15</td>
</tr>
<tr>
<td>Río Oeste</td>
<td>Bocas del Toro</td>
<td>19</td>
<td>13</td>
</tr>
<tr>
<td>San Cristobal</td>
<td>Bocas del Toro</td>
<td>28</td>
<td>19</td>
</tr>
<tr>
<td>Playa Verde</td>
<td>Bocas del Toro</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Solarte</td>
<td>Bocas del Toro</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Nance de Risco</td>
<td>Bocas del Toro</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Bajo Cedro</td>
<td>Bocas del Toro</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>Ensenada</td>
<td>Comarca Ngäbe-Buglé</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Guacamayo</td>
<td>Comarca Ngäbe-Buglé</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Kusapin</td>
<td>Comarca Ngäbe-Buglé</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>La Sabana</td>
<td>Comarca Ngäbe-Buglé</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>148</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

*Note:* Eleven communities were surveyed in this study. Eight of the communities surveyed were in the Bocas del Toro Province, representing 117 of respondents (79%). Four of the communities surveyed were in the *comarca* Ngäbe-Buglé, representing 31 respondents (21%). These communities can be further classified as coastal or mountainous as seen in Table 2.
Table 2

Number and percentage of subjects surveyed in mountainous and coastal communities

<table>
<thead>
<tr>
<th>Community</th>
<th>Number of subjects</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal</td>
<td>73</td>
<td>49.3</td>
</tr>
<tr>
<td>Mountainous</td>
<td>75</td>
<td>50.7</td>
</tr>
<tr>
<td>Total</td>
<td>148</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note:* The following communities were classified as coastal communities: Valle Escondido, Ensenada, Guacamayo, Kusapin, San Cristobal, Playa Verde, and Solarte. The following communities were classified as mountainous communities: Norteño, Río Oeste, Nance de Risco, Bajo Cedro, and La Sabana.
Table 3

Level of Education among Respondents

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Number (%)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No formal education</td>
<td>23</td>
<td>15.3</td>
</tr>
<tr>
<td>Some primary school</td>
<td>80</td>
<td>54.1</td>
</tr>
<tr>
<td>Some secondary school</td>
<td>37</td>
<td>25</td>
</tr>
<tr>
<td>Higher education</td>
<td>8</td>
<td>5.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>148</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

*Note: Here some primary school includes grades 1 through 6, secondary school includes years 7 through 12, and higher education includes any university education, regardless of whether the respondent earned a higher education degree.*
Table 4

Actual Practices Regarding Reproductive Health vs Practices Desired for Child

<table>
<thead>
<tr>
<th>Practices</th>
<th>Respondents</th>
<th>Desired for Child</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of 1st pregnancy</td>
<td>17 years</td>
<td>22</td>
</tr>
<tr>
<td>SD = 3</td>
<td>SD = 4</td>
<td></td>
</tr>
<tr>
<td>Mean number of children</td>
<td>5 children</td>
<td>2 children</td>
</tr>
<tr>
<td>SD = 2</td>
<td>SD = 1</td>
<td></td>
</tr>
<tr>
<td>Mean spacing between 1st and second pregnancy</td>
<td>3 years</td>
<td>5 years</td>
</tr>
<tr>
<td>SD = 2</td>
<td>SD = 2</td>
<td></td>
</tr>
</tbody>
</table>

*Note:* Respondents were asked about their reproductive history, including age of first pregnancy, age at first and second pregnancy, and number of children. Additionally, respondents were asked to state what would be the ideal reproductive practices for their own children. This was used as a proxy for what would respondents consider ideal practices, given that respondents had to have two or more children to meet inclusion criteria and it might have been sensitive for some respondents to state that the ideal number of children was less than the actual number of children they had.
Table 5

Logistic Regression of Current Family Planning Use

<table>
<thead>
<tr>
<th>Variables</th>
<th>Sig</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td><strong>.044</strong>*</td>
<td>1.136</td>
</tr>
<tr>
<td>Education</td>
<td>.524</td>
<td>1.058</td>
</tr>
<tr>
<td>Relationship status</td>
<td>.740</td>
<td>1.270</td>
</tr>
<tr>
<td>Respondent paid with money for occupation</td>
<td>1.0</td>
<td>.000</td>
</tr>
<tr>
<td>Age of partner</td>
<td>.134</td>
<td>.916</td>
</tr>
<tr>
<td>Age difference between respondent and partner</td>
<td><strong>.036</strong>*</td>
<td>1.167</td>
</tr>
<tr>
<td>Education of Partner</td>
<td>.314</td>
<td>.922</td>
</tr>
<tr>
<td>Partner paid with money for occupation</td>
<td>.703</td>
<td>1.309</td>
</tr>
<tr>
<td>Number of people in the household</td>
<td>.230</td>
<td>.909</td>
</tr>
<tr>
<td>Age of first pregnancy</td>
<td>.927</td>
<td>.988</td>
</tr>
<tr>
<td>Birth spacing between first and second pregnancy</td>
<td>.083</td>
<td>.768</td>
</tr>
<tr>
<td>Prenatal care</td>
<td><strong>.010</strong>*</td>
<td>14.896</td>
</tr>
<tr>
<td>Number of prenatal visits</td>
<td>.058</td>
<td>.835</td>
</tr>
<tr>
<td>Place of last delivery</td>
<td>.119</td>
<td>.587</td>
</tr>
<tr>
<td>Age of first sexual encounter</td>
<td>.933</td>
<td>1.016</td>
</tr>
<tr>
<td>Constant</td>
<td>1.0</td>
<td>204521748.4</td>
</tr>
</tbody>
</table>

Note: Logistic regression with current family planning use as dependent variable. This analysis showed that older respondents were significantly more likely to be currently using modern family planning methods. It also showed that greater age differences among partners was associated with increased modern family planning use. The results showed that women who
received at least one prenatal care visit during their previous pregnancy were almost 15 times more likely to be currently using modern family planning methods than those who did not receive prenatal care for their previous pregnancy. In addition, both the respondent’s age and the age difference between the respondent and the partner were significant. Older participants were more likely to be currently using modern family planning methods. Greater age difference between respondent and partner was also associated with increased likelihood to be using modern family planning methods. Other demographic and behavioral variables were not statistically significant.
Graphs

Family Planning Method Usage

Graph 1. Respondents were asked to name all modern family planning methods that they had used, either currently or in the past.
Perceived Barriers to Modern Family Planning Use among Women with Unmet Need

Graph 2. Respondents with unmet need were asked to identify why they were not using modern family planning methods. Here a respondent with unmet need is defined as sexually active females who wish to delay or prevent pregnancy. This excludes pregnant women, postmenopausal women, and women status post-hysterectomies.
Graph 3. Respondents were asked to list all modern family planning methods that they knew.

The above figure shows what percentage of respondents listed each method.
Appendix A

FAMILY PLANNING IN NGÄBE POPULATIONS IN NGÄBE POPULATIONS: KNOWLEDGE, ATTITUDES, AND PRACTICES

This study was conducted during June-July 2016 by Carolina Vicens-Cardona and Avrey Novak. 148 Ngäbe women between the ages of 18 to 50 with two or more children were interviewed.

KNOWLEDGE OF FAMILY PLANNING

- Most women could name at least one method of FP, the most well-known being the Depo shot, followed by the pill, the ring, IUDs, female sterilization, and condoms.
- Despite being able to name methods, misconceptions and questions about said methods were common.
- Most women could not say the most fertile point of their cycle.
- Most women were aware of when their last period was.

ATTITUDES TOWARDS FAMILY PLANNING

- The overwhelming majority of women believe that FP services are beneficial for families and for the community in general, even if they don’t want to use FP themselves.
- Frequently cited benefits of FP were increasing birth spacing, promoting of maternal and infant health, and helping their financial situation.
- The top two reasons for not using modern FP modern are health concerns/concerns about side effects and reliance on the use of withdrawal.
- Lack of access and lack of knowledge are the next most common reasons cited for not using modern FP methods.
- Opposition from partner and religious prohibitions have also been cited as reasons not to use modern FP methods.
- When asked how many children women recommended their children to have the average response was 2.3 (range 0-4).

PRACTICES REGARDING FAMILY PLANNING

- 31.5% of women are currently using some FP method.
- 39.8% of women who are not currently using FP have used a form of FP in the past.
- 41.3% of women have never used any FP method.
- The Depo shot is the most widely utilized form of FP.
A WOMAN’S CHOICE – “LA VIDA ES DURA”

- It is culturally accepted and even preferred by some to have large families.
- When asked why FP is beneficial for families and communities, the most frequent phrase used was “la vida es dura.”
- Many women cited financial hardships as a reason to use FP, lamenting that in earlier times it was possible to support a large family but increased cost of living has made this unsustainable.
- It is important to consider that most women wish to have children, since motherhood gives them a role in the community.
- While volunteers/FD personnel might wish to push young women to use FP in order to pursue higher education or a career, it is important to be aware that women may not wish to do so or that they do not have the resources necessary for that to be possible. Therefore it is important to counsel on culturally relevant benefits of FP.
- FD’s priority should be to empower women to make the decision to use FP on their own by educating them on the benefits and consequences of using FP.

DEPO-PROVERA

- Also known as “inyección”, “vacuna”, or “aguja”
- Importance of discussing side effects
  - Changes in menstruation
  - Weight gain/loss
  - Nausea
  - Headaches
  - Dizziness
  - Lower back pain
  - Abdominal pain
- Common misconceptions
  - I need to be on my period to receive the shot.
  - The shot will make me ill.
  - The shot causes cancer.
  - The shot causes cysts.
  - If I have the shot now I won’t be able to have children later.
  - There is a clot growing inside of the uterus if I don’t have my period.
- Common questions
  - Is it safe?
  - How old do you have to be to start using Depo?
  - How long can you use Depo?
  - What happens if I miss the next shot? Will I become pregnant if I miss my appointment?
  - Can I get the shot early/late?
- Recommendations
  - A checklist should be created in order to standardize care.
The checklist should include a script that instructs volunteers on how to discuss FP with this population, how to present the Depo shot, and how to counsel about its use and possible side effects.

Checklist should also include a proper consent procedure to ensure women understand what it is and its implications, that they are actively choosing to use it and that they do not feel coerced or intimidated into using it.

Said checklist should be used while talking to every woman of reproductive age.

NEXPLANON

- Also known as “the chip”, although this can carry negative connotations so it is recommended it to refer to it as the implant.
- 22% of women had previously heard of Nexplanon.
- 49% of women surveyed said they would consider using Nexplanon.
- Those in favor cited its long term effect as a major advantage over the injection, as it would greatly diminish the cost and the effort on their part to use FP.
- Those against cited religious concerns. A recurrent belief was that the implant resembled the chip rumored to be the sign of the devil. Other concerns voiced included the belief that the implant was a chip that could trace their actions.
- Reluctance to use Nexplanon also stemmed from how foreign the implant seem and how they had never seen anyone use it.

Common questions:
- How do you insert it? Do you have to get an operation?
- What happens if you don’t get it taken out?
- Does it hurt?
- What are the side effects?
- Does it cause sickness? Is it safe?
- Does it hinder arm movement? What happens if I hurt my arm?
- How do you take it out?
- Can others see it?
- Can it get lost?

Recommendations:
- Some communities were more accepting of the implant than others. These communities should be targeted for the pilot project.
- When selecting target communities, access to other health care centers should be taken into account to ensure that women have access to medical services in case they encounter complications, side effects, or wish to have it removed.
- Hospitals and Centros de Salud near the targeted communities should be contacted and made aware of the pilot project to ensure their cooperation in removing units if necessary.
- Before offering Nexplanon units, multiple charlas should take place in targeted communities. Initial charlas should focus on the benefits of FP, different methods of FP available to that particular community, and the pros and cons of each type. Later charlas should focus on Nexplanon, explaining insertion and extraction (visuals are a must), side effects, and where they can get follow up care if needed.
- A checklist similar to the one suggested for Depo shots should be utilized.
Once all preparations are made, the implant can be offered to women at targeted communities during clinic. Interested women should receive a counselling session explaining again how Nexplanon works, insertion/extraction procedures, side effects, and follow up care. Women should be instructed to return three months in order to allow them time to think over the procedure. Depo shots can be administered so women are protected during this time period and in order to observe their tolerance to hormonal contraceptives. Then a team can carry out the insertion. Women should be given clear documentation in Spanish that states date and placement of insert, so that a woman can present said documentation to health centers if needed.
Appendix B

Family Planning in the Ngäbe Communities of Bocas del Toro: A Guide for Providers

The data provided below was obtained during a 2016 survey of 148 Ngäbe women between the ages of 18 to 50 who had 2 or more children. In addition, Floating Doctors (FD) personnel, Peace Corp Workers, and community members were interviewed to gain additional insights.

Why Is Talking About Family Planning (FP) Important?

- The average woman has her first pregnancy at age 16. In contrast, women reported the ideal age to begin having children as 22.
- On average women would like to wait 5 years between pregnancies. However, the average spacing between the 1st and 2nd births was 3 years. They reported that increased birth spacing would allow them to take better care of small children and would benefit both maternal and child health. Talking about FP would allow women to make the choice of how long to wait between pregnancies that most benefits their families.
- The average woman has 5 children. However, women reported the ideal number of children to have is 2. Women cited financial constraints as an important reason to have fewer children.
- More than 75% of women with 2 or more children did NOT want to have any more children. Despite this, only 32% were using FP at the time.
- There is an evident need to delay and/or avoid pregnancy.

“I think it is better [to have fewer children] because now we don’t have land or resources left. There is no food. I see that [FP] is important. It is necessary to teach people about this. Sometimes there is not enough money for food, clothes, education, or health, because there are a lot of expenses. Even just one person has a lot of expenses. What can I do right now that I have a family of nine?”  
- Community Member

What Kind of Sexual Education Do The Communities Have?

- Knowledge is widely dependent upon community and on individual education level.
- In some communities, sex-ed is taught at school by teachers. In other communities, parents are in charge of educating their children. In other communities, the subject is controversial or taboo and thus there is no formal sex-ed offered.
- Many rely on information they hear from family, friends, and other community members.
- When in doubt, DO NOT assume the patient has previous knowledge of FP.
- ASK patients what they have heard and what they know about FP. This will help address misconceptions and potential barriers to FP use.
- Women who received information about FP from health care providers were more likely to use FP. Take advantage of every opportunity to educate on this topic!
One of the most frequent requests among interviewees was to provide more reproductive health education, particularly to adolescents. Given that virtually all women interviewed became sexually active before their 20s and teenage pregnancy was the norm, it is essential to provide comprehensive and accurate information to teenagers, both boys and girls.

The Language of Family Planning

- Language barriers can be a source of misunderstanding and an obstacle to care.
- While Spanish is the predominant language used by FD to communicate with the Ngäbe population, it is important to remember that Spanish is the second language not only for most FD volunteers but also for the Ngäbe population, whose native tongue is Ngäbere.
- Even native Spanish speakers among volunteers must familiarize themselves with the regional terms used when talking about FP to avoid possible confusion.
- **Planificar:** while many volunteers may be used to referring to FP methods as “birth control” or “contraceptives,” asking patients if they use “anticonceptivos” will be met with blank stares. These terms are not commonly used or understood. Instead, it is better to ask about “planificar” or “planificación familiar.” Even then, it is helpful to define FP by clarifying it is “any method used by a couple to delay or avoid pregnancy.”
- **Cuidarse:** “Mi marido me cuida” or “Yo cuido a mi mujer” are phrases one may hear when asking why patients are not using modern FP methods. While this may sound like an endearing phrase meant to profess how couples take care of each other, this is actually how they refer to withdrawal as a means of FP.
- **La inyección, la vacuna, la aguja:** these are all terms used to refer to the Depo shot, with “la inyección” being the most common.
- **El DIU or la T:** this refers to the IUD.
- **La pastilla:** while in other Spanish speaking countries the term “la pildora” may be more prevalent, here most women refer to the pill as “la pastilla.”
- **El anillo:** refers to the ring.
- **Preservativos o condones:** both terms are used when talking about condoms.
- **Operación:** common term to refer to female sterilization. Vasectomies were virtually unheard of.

Side Effects and Health Concerns

- By far, the most frequently cited reason for not using modern FP methods was concern about potential side effects and health consequences.
- Most people have heard stories of other community members falling ill after using several methods of FP. Many have experienced side effects or complications themselves, and then attribute them to illness caused by FP since possible side effects were never explained to them.
- It is essential to provide counselling on possible side effects before administering any kind of birth control. Educating patients on how FP works and its effects is the most important step towards ensuring a successful FP program.
- While discussing FP, it may be tempting to downplay or avoid mentioning the potential side effects of FP since the benefits may be so obvious in the eyes of the volunteer.
However, it is deeply unethical to provide birth control without discussing potential side effects. Patients must provide informed consent, for which full disclosure of side effects is a necessary component.

On Withdrawal
- It is common for couples to rely on withdrawal (the “pull out” method) for FP.
- Most will not volunteer this information unprompted, so when talking about the subject ask specifically about withdrawal (“cuidarse”).
- Consider counselling on the reliability of the withdrawal method. Every year, 1 of every 5 women who use withdrawal as birth control become pregnant.
- Ask why withdrawal is the preferred method and consider encouraging the use of alternatives depending on the answer.

What about Religion?
- Many different religious beliefs are present within Ngäbe communities. Close to half of the population follow one of several Christian faiths, including Catholicism and various Protestant denominations. The rest either follow traditional Ngäbere religions, such as Mama Tata, or are not affiliated with any particular church.
- There is a great diversity of beliefs even among people of the same religion, and thus no assumptions should be made based on patients’ religions on their willingness to use FP. When in doubt, it may be helpful to ask patients about their beliefs and address their concerns. Be sure to respect any patient who chooses not to use modern FP methods due to their religious beliefs.

What About Abortion?
- Under Panamanian law, abortion is illegal except in cases of rape or medically necessary abortions. Approval is necessary to obtain an abortion under these circumstances.
- Performing or obtaining an illegal abortion is punishable by up to 6 years in prison.
- Women may seek the help of “curanderos” or “botánicos” for natural ways to induce an abortion. However, due to the legal ramifications, these practices are rarely discussed with outsiders.

On Consent
- It is culturally accepted and even preferred by some to have large families.
- When asked why FP is beneficial for families and communities, the most frequent phase used was “la vida es dura”, meaning “life is hard.” Many women cited financial hardships as a reason to use FP, lamenting that in earlier times it was possible to support a large family but increased cost of living has made this unsustainable.
- It is important to consider that most women wish to have children, since motherhood gives them a role in the community.
- While volunteers/FD personnel might wish to push young women to use FP in order to pursue higher education or a career, it is important to be aware that women may not wish
to do so or that they do not have the resources necessary for that to be possible. Therefore it is important to counsel on culturally relevant benefits of FP.

- **FD’s priority should be to empower women to make the decision to use FP on their own by educating them on the benefits and consequences of using FP.**
Appendix C

Checklist for Family Planning

Family Planning is a very complex and culturally sensitive subject. Because of the transient nature of FD volunteers and the lack of familiarity most have with Ngäbe culture, it is important to have a standardized protocol so volunteers from different backgrounds and experience levels are able to provide FP services effectively.

The proposed protocol consists of four components: 1) screening during intake, 2) counselling during consult, 3) education and consent process, and 4) follow-up.

Screening for Women

- All girls should be flagged for counselling on reproductive health and FP after menarche. It is recommended to continue counselling throughout adolescence. At the moment, an OBGYN history is taken at intake. We suggest the following modifications in order to screen for women with unmet need for FP.
  - After asking number of children:
    - Do you want more children?
      - If yes, go to next question
      - If no, skip the next question
  - Do you want them now or later?
    - If now, no further action required
    - If later, go to the next question
  - Are you or your partner using any FP method (condoms, “la inyección”, “cuidarse”)? Family planning is used to delay or avoid pregnancy.
    - If yes, flag as FP counselling/follow-up
    - If no, flag for FP counselling

Counseling for Women

- Have you ever heard of “planificar” or “planificación familiar? What have you heard about it?
  - Make sure to define FP, using phrases like “something couples do to prevent or delay pregnancy.”
- Are you using FP?
  - Why/why not? Write down reasons in order to follow up at subsequent clinics.
- Are you interested in FP?
  - Why not? What are your concerns?
- Talk about options
Consent for Depo-provera

- The injection contains the substance progestin, which is like the substance progesterone made naturally by a woman’s body. It works by preventing the release of eggs from the ovaries. It prevents ovulation.
- When women have their injections on time, the injection is more than 99% effective, which means there is less than 1 pregnancy a year for every 100 women using it.
- The injection must be received every three months. If you miss an injection, you might become pregnant.
- Getting the injection will not stop you from getting pregnant after you stop getting the injection. Most women who stop getting the injection become pregnant within a year to a year and a half.
- Changes in your period are normal. When using the injection for the first time, it is common for women to notice changes in their period, especially having irregular periods or having longer periods than usual. Some women get lighter periods and some women stop having their periods. This does not mean you are pregnant. This is normal and it is not bad for your health to not have periods, similar to how periods stop during pregnancy.
- Some women may experience side effects from the injection. These include headaches, abdominal pain, dizziness, nausea, fatigue, nervousness, and changes in mood. These side effects are not a sign of illness. If you experience any side effects and are concerned about them you can discuss them during the next clinic.
- The injection causes weight gain in some women. Most of the women who do gain weight, gain an average of 2-4 pounds per year. You might be interested in other options if weight gain is a problem for you.
- It is important to note that while the injection prevents pregnancy, it does not protect against sexually transmitted diseases. You should use condoms to protect yourself from sexually transmitted diseases.
- Before using the injection you should answer the following questions:
  - Have you ever been told you have high blood pressure?
  - Have you ever had yellow eyes or yellow skin or been told you have liver problems?
  - Have you ever had a blood clot, a stroke, or a heart attack?
  - Have you ever felt a lump on your breast or been told you have breast cancer?
- If you said yes to any of these, we can discuss other methods that can work for you.

* Make sure that you are in a private setting and that the patient is comfortable before obtaining consent and administering the injection.
Follow-up

- Are you satisfied?
- Are you experiencing any problems you think could be caused by the shot?
- Have you noticed changes in your period?
- Do you have any concerns?
- Do you know where to get the injection if you miss FD clinic?
- Do you know where to go if you have any problems?
- What questions do you have?

Consent for Nexplanon

- The implant is a small plastic rod, about the size of a matchstick, which releases progestin, a substance like progesterone, which is produced naturally by a woman’s body. It works similarly to the injection. It prevents the release of eggs from the ovaries (ovulation).
- The implant is more than 99% effective, which means there is less than 1 pregnancy a year for every 100 women using it.
- After 3 years a medical provider removes the implant. If you want to get it removed before the 3 years are over, you can do so with the help of a medical provider.
- Getting the implant will not stop you from getting pregnant after the implant is removed. Most women who get the implant removed are able to become pregnant right after it is removed.
- Changes in your period are normal. Some women might have irregular bleeding or prolonged bleeding. Other women might get lighter periods and some women stop having their periods. This does not mean you are pregnant. This is normal and it is not bad for your health to not have periods.
- Some women may experience side effects from the implant. These include headaches, abdominal pain, dizziness, nausea, weight gain, and changes in mood.
- It is necessary to perform a pregnancy test before inserting an implant.
- It is important to note that while the injection prevents pregnancy, it does not protect against sexually transmitted diseases. You should use condoms to protect yourself from sexually transmitted diseases.
- Before using the injection you should answer the following questions:
  - Have you ever been told you have high blood pressure?
  - Have you ever had yellow eyes or yellow skin or been told you have liver problems?
  - Have you ever had a blood clot, a stroke, or a heart attack?
  - Have you ever felt a lump on your breast or been told you have breast cancer?
- If you said yes to any of these, we can discuss other methods that can work for you.
* Make sure that you are in a private setting and that the patient is comfortable before obtaining consent and administering the injection.

**Follow-up**

- Are you satisfied?
- Are you experiencing any problems you think could be caused by the implant?
- Do you know where to go if you want the implant removed?
- Do you know where to go if you have any problems?
- What questions do you have?

**Screening for Men**

- At the moment, men are asked demographic information, including how many children they have.
- We propose to include additional questions during intake in order to screen for men who would benefit from FP counselling.
- For men who have children:
  - Would you like to have more children?
    - If yes, go to next question
    - If no, go to next question
  - Do you want them now or later?
    - If now, no further action required
    - If later, go to the next question
  - Are you or your partner using any FP method (condoms, “la inyección”, “cuidarse”)? Family planning is used to delay or avoid pregnancy.
    - If yes, flag for FP follow up
    - If no, flag for FP counselling
- For men who do not have children:
  - Are you sexually active?
    - If no, consider flagging for FP counselling
    - If yes, go to next question
  - Would you and your partner like to have children?
    - If yes, go to the next question
    - If no, skip the next question
  - Do you want them now or later?
    - If now, no further action required
    - If later, go to the next question
  - Are you or your partner using any FP method (condoms, “la inyección”, “cuidarse”)? Family planning is used to delay or avoid pregnancy.
    - If yes, no further action required
    - If no, flag for FP counselling
Counseling for Men

- Have you ever heard of “planificar” or “planificación familiar”? What have you heard about FP?
  - Make sure to define FP, using phrases like “something couples do to prevent or delay pregnancy.”
- Are you or your partner using FP?
  - Why/why not? Write down reasons in order to follow up at subsequent clinics.
- Are you interested in FP?
  - Why not? What are your concerns?
- Talk about options
  - What have you heard about these options?
  - What are you looking for/what would work best for you?
  - It would be great to have handouts with list of resources available to each community
Appendix D

Frequently Asked Questions On Family Planning (“Planificación Familiar”)

1. **When should I use FP?**
   You can use FP when you do not wish to become pregnant, either because you want to wait before having a child or because you do not wish to have children.

2. **How early can you start using contraceptive methods?**
   People can start using contraceptive methods when they plan to become sexually active. If they wish, girls are able to start using FP methods after their first period, even if they are not sexually active yet.

3. **Can single women use FP?**
   Anyone who is sexually active can benefit from FP. Some methods might also have medical benefits for women other than preventing pregnancy, so some might benefit even if they are not sexually active.

4. **Can women get pregnant while using FP?**
   It depends. FP methods work very well and are very good at preventing pregnancy. However, they aren’t perfect and they may fail. When choosing a contraceptive method, make sure to ask for how effective it is. Another reason for people getting pregnant while using FP is using FP methods incorrectly or imperfectly. For example, people might use broken or expired condoms, or forget to take the pill or to receive the injection.

5. **Is there FP for men?**
   Condoms are a very good method for preventing pregnancy. Additionally, it is the only method of FP that protects against sexually transmitted diseases. Men who do not wish to have any more children can also have a vasectomy, an operation that prevents men from having getting women pregnant. Men are able to have sex normally after the operation.

6. **Is it harmful to use FP? Isn’t it natural to be pregnant?**
   It is not harmful to avoid pregnancy. While it is natural for women to become pregnant, there is no physical need for women to become pregnant, and it is safe to delay or avoid pregnancies. Some FP methods may have side effects. It is important to discuss these with health care professionals when deciding which method to use.

7. **What FP methods work long term?**
   Reversible long-term methods include the copper IUD (DIU), which can protect you from pregnancy for up to 10 years, the hormonal IUD (DIU), which can protect you from pregnancy for up to 5 years, and the implant, which can protect you from pregnancy for 3 years.

8. **Can you get pregnant after 40?**
Yes. Women are able to become pregnant until they reach menopause. Menopause is when a woman stops having her period for good. This typically happens around age 50, but it may happen earlier or later. Every woman is different. This is why it is important to use FP if you do not wish to become pregnant, even if you are older than 40.

The Injection (La inyección)

1. **How does the injection work?**
The injection contains the substance progestin, which is similar to the substance progesterone made naturally by a woman’s body. It works by preventing the release of eggs from the ovaries (it prevents ovulation).

2. **Will the injection make me sick?**
Some people experience side effects after using the injection. Some of these side effects include headaches, nausea, dizziness, abdominal pain, nervousness, changes in mood, and weight gain. These side effects do not mean you are sick.

3. **Does it make you gain weight? Does it change your appetite?**
The injection causes weight gain in some women. Most of the women who do gain weight gain on average less than two pounds per year. However, you may be interested in other options if weight gain is a problem for you.

4. **Can you have kids after using the injection?**
Yes. The injection is effective for three months. After that you may become pregnant if you don’t get another injection. Most women who stop using the injection become pregnant after a year to a year and a half. Getting the injection will not stop you from having children after you stop getting it, even if you use it for many years.

5. **What happens if you don’t get the injection on time?**
You must receive the injection every three months in order for it to work. If you miss the injection, you may become pregnant.

6. **Why don’t I get my period? Where does the blood go?**
This is similar to how women don’t have their period while they are pregnant. Not having your period is normal when using the injection and it will not harm you. The blood does not get stuck inside the body and it does not form blood clots.

7. **Do I need to be on my period to have the injection?**
It is important to make sure that you are not pregnant before getting the injection. This is why you may be asked to get the injection while on your period or to take a pregnancy test. If there are pregnancy tests available, you do not need to be on your period to get the injection. If you have to pay for a pregnancy test, having the injection while you have your period is easiest.

8. **Does the injection cause cancer?**
Many studies have shown that the injection does not cause cancer. In fact, it may help protect against cancer of the uterine lining, also called endometrial cancer.

9. **Where does the injection go?**
   Typically, the injection is given in the upper arm. It can also be given in the buttocks. It is always possible to receive the injection in a private room. If you do not feel comfortable at the clinic space, talk to Floating Doctors and we will make arrangements to find a place where you feel comfortable receiving the injection.

10. **Can I breastfeed while using the injection?**
    Yes. It is safe to breastfeed while using the injection. It will not harm the baby.

**The Implant**

1. **How does the implant work?**
   The implant is a small plastic rod, about the size of a matchstick, which releases progestin, a substance like progesterone, which is produced naturally by a woman’s body. It works similarly to the injection. It prevents the release of eggs from the ovaries (ovulation).

2. **Will the implant make me sick?**
   Some people experience side effects after having the implant. Some of these side effects include headaches, nausea, dizziness, abdominal pain, nervousness, and changes in mood. It is important to talk with a medical provider if you are experiencing any side effects to see what the best options for you are.

3. **Can you have kids after using the implant?**
   Yes. The implant is effective for three years. After that you should go to a medical provider to have the implant removed. Most women are able to become pregnant right after getting the implant removed. Getting the implant will not stop you from having children after you have it removed.

4. **Why don’t I get my period?**
   Changes in your period are normal. Some women might have irregular bleeding or prolonged bleeding. Other women might get lighter periods and some women stop having their periods. This does not mean you are pregnant. This is normal and it is not bad for your health to not have periods. This is similar to how women don’t have their period while they are pregnant. The blood does not get stuck inside the body and it does not form blood clots.

5. **Do I need to be on my period to have the implant?**
   It is important to make sure that you are not pregnant before getting the implant. This is why you may be asked to get the injection while on your period or to take a pregnancy test. If there are pregnancy tests available, you do not need to be on your period to get the implant.

6. **Does the implant cause cancer?**
   No. Studies have found no relationship between the implant and cancer.
7. **Where does the implant go? How is it inserted? Does it hurt?**

The implant is inserted in the upper arm. The medical provider will give you local anesthesia (small local injection) so you don’t feel pain during the insertion. Then the medical provider will use a needle to insert the implant. The process should take around 5-10 minutes.

8. **Can I move my arm normally after getting the implant?**

Yes, you will be able to use your arm exactly like you did before. The implant shouldn’t change anything. Some women, particularly thin women, may be able to see the implant after it is inserted.

9. **Can I breastfeed while on the implant?**

Yes. It is safe to breastfeed while on the implant. It will not harm the baby.

10. **Can the implant track me? Does it send information to the government?**

No. The implant is a piece of plastic that only contains the medicine that stops you from getting pregnant. There is nothing electronic in the implant. The implant is not able to track your movements, record any information, or send information to anyone.

11. **Why does the implant go in the arm and not in the womb?**

The medication can travel throughout your body and get to where it needs to go. It is similar to how the injection is given in the arm, but it is still effective.