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Analysis of the dietary taboos affecting dietary diversity of women of reproductive age in the South and Grand'Anse departments of Haiti

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This thesis entitled:

Analysis of the dietary taboos affecting dietary diversity of women of reproductive age in the South and Grand'Anse departments of Haiti

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Résumé

Contexte. La sous-nutrition est un problème de santé publique, surtout pour les femmes et les enfants dans les pays en voie de développement. Des tabous alimentaire pour cette population existent dans plusieurs régions du monde. Ce mémoire décrit la recherche sur les tabous alimentaires et les facteurs qui peuvent influencer la diversité alimentaire des femmes en âge de procréer. Cette recherche fait partie d'un projet d'intervention qui vise à réduire la mortalité maternelle et infantile dans le Sud et la Grand'Anse d'Haïti, un pays où environ la moitié des femmes en âge de procréer sont anémiques et un tier des enfants d'âge préscolaire ont une carence en vitamine A (WHO 2009, ICF 2018).

Objectifs. L'objectif de ce projet est d'identifier et comprendre les tabous alimentaires qui existent chez les femmes enceintes et allaitantes dans la région. Un deuxième objectif est d'identifier les déterminants de la diversité alimentaire des femmes en âge de procréer et de déterminer si les femmes enceintes ou allaitantes ont une alimentation moins diversifiée que les femmes qui ne le sont pas.

Méthode. Le devis mixte combine la recherche qualitative et quantitative. Les données qualitatives ont été recueillies avec des groupes de discussion. Pour la collecte de données quantitatives, des entretiens ont été menées auprès de mères d'enfants de moins de cinq ans, suivi par un relevé alimentaire de 24 heures. La diversité alimentaire des participantes a été évaluée avec la DAM-F de la FAO. Les déterminants de la diversité alimentaire ont été identifiés avec des analyses de régression logistique.

Résultats. Les participantes des groupes de discussion ont identifié plus de 100 tabous alimentaires. La diversité alimentaire a été influencée par la région, ainsi que les caractéristiques du ménage et de la mère. Les femmes allaitantes atteignent moins souvent une diversité alimentaire minimale et consomment moins souvent les aliments des « autres légumes » et « autres fruits », mais ces résultats sont significatifs seulement dans le modèle non ajusté.

Conclusion. Les tabous alimentaires pour les femmes enceintes ou allaitantes existent dans le Grand'Anse et le Sud d'Haïti. Il y a une grande variété de croyances entre les communautés et même dans la même commune. Ces restrictions alimentaires peuvent diminuer la consommation de micronutriments comme la vitamine A et le fer dans une

population déjà à risque de malnutrition. Des messages clés à inclure dans les activités éducatives du projet vont être formulés à partir des résultats de la recherche.
Mots-clés : Diversité alimentaire, tabous, maternelle, enceinte, allaitante, Haïti, micronutriments, sous-nutrition

Abstract

Context. Undernutrition, including micronutrient deficiencies, is a global public health issue, particularly for women and children in developing countries. Dietary taboos in this population have been found to exist in many regions of the world, including in Haiti. This thesis describes research looking at dietary taboos and other factors impacting dietary diversity of Women of Reproductive Age (WRA). It is part of an intervention project aiming to decrease maternal and child mortality in the South and Grand'Anse of Haiti, a country where approximately half of WRA are anemic and one third of preschool-age children are deficient in vitamin A (WHO 2009, ICF 2018).

Objectives. The objective of this research is to identify and understand food taboos for pregnant and breastfeeding women in the area, to determine what factors influence dietary diversity of WRA and if pregnant or breastfeeding women consume a diet that is less diverse than that of a woman who is not.

Methodology. The research design included both qualitative and quantitative components. Qualitative data regarding food taboos was collected through focus groups. Quantitative data was collected through surveys and 24-hour recalls done with WRA who have a child under the age of five. Dietary diversity of survey participants was assessed using the FAO's MDD-W and it's determinants were analyzed through adjusted logistic regression calculations.

Results. The focus groups revealed over 100 dietary taboos. Determinants of dietary diversity were related to the region, as well as characteristics of the household and mother. Breastfeeding women were less likely to attain the MDD-W and to consume "other fruits" and "other vegetables" though these findings were only significant in the non-adjusted model.

Conclusion. Dietary taboos exist in the Grand'Anse and South areas of Haiti for pregnant and breastfeeding women. These taboos vary largely between communes and even within the same community. The restriction of these foods could negatively impact the dietary intake of many micronutrients, including vitamin A and iron. Key messages to include at educative activities through the intervention project will be formed based on results of this work.

Key words: Dietary diversity, taboos, women, maternal, pregnant, breastfeeding, Haiti, micronutrients, undernutrition

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List of Abbreviations

A3PN: Prenatal, Perinatal, Postnatal and Nutritional support in Grand'Anse and Southern Haiti

CHW: Community health worker

CRS: Catholic Relief Services

DRC: Democratic Republic of the Congo

ES: Enumeration Sections

FAO: Food and Agriculture Organization

FCS: Food Consumption Score

FG: Focus groups

FPGL: Fondation Paul Gérin-Lajoie

GAE: Grand'Anse East

GAW: Grand'Anse West

HDDS: Household Dietary Diversity Score

IEC: Information, Education and Communication

IHU: International Health Unit

MDD-W: Minimum Dietary Diversity for Women

MDD-IYC: Minimum Dietary Diversity

MDG: Millennium Development Goal

MUAC: Middle upper arm circumference

NS: Nurse Supervisor

OR: Odds Ratio

TRANSNUT: WHO Collaborating Centre on Nutrition Changes and Development

UN: United Nations

WDDS: Women's Dietary Diversity Score

WRA: Women of reproductive age

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1. Introduction

Globally, close to 4 million cases annually of stunting, wasting, micronutrient deficiencies, infant or child deaths are the result, at least partially, of inadequate maternal or child nutrition (Raman, Nicholls et al. 2016). In September of the year 2000, the UN's participating countries joined to set eight Millennium Development Goals (MDG) to improve the lives of the poorest and most vulnerable people around the world (UN n.d.). The fourth MDG had the objective of decreasing the mortality rate of children under five years of age by two thirds. The fifth MDG specifically targeted maternal health, with fixed targets of reducing the maternal mortality ratio by 75% from 1990 rates and providing all women with access to reproductive health services by 2015 (WHO 2015). Though they target very different age groups, these two goals are interconnected as maternal health will be an influencing factor of child health. Though substantial improvements in maternal health were made around the world in the years that followed the development of the DG, these objectives were far from being met, and are still not achieved today (WHO 2015a). In 2015, the Sustainable Development Goals were developed by the international community and included 17 goals, several of which relate to maternal and child health as well. Goals number 1, 2, 4, 5, 6, 8, 11 and 13 are indirectly related to maternal and child health and goal 3 directly targets health problems, including maternal and newborn health issues (UN 2015).

Dietary intake is an important influencer of maternal health. A large focus is often placed on insufficient caloric intake of pregnant women in developing countries however, micronutrient deficiencies also contribute largely to maternal morbidity and mortality (Kolsteren 2001, Tomkins 2001). Women who are pregnant and/or breastfeeding have higher requirements than usual and are therefore at a greater risk of deficiency. Deficiencies of iron in WRA and children in Haiti is common and well documented, as are deficiencies of vitamin A in children. Deficiencies of both of these micronutrients are shown to lead to increased rates of morbidity and mortality in women and children, both directly and indirectly. Approximately half of WRA and two thirds of children under five are anemic (ICF 2018). Anemia in pregnancy can increase risk of maternal mortality as well as increase risk of complications such as preterm birth (Kolsteren 2001, Daru, Zamora et al. 2018). Vitamin A deficiency increases risk of all-cause and diarrhea-related

morbidity in children between the ages of six months and five years. Because maternal stores of vitamin A alter the levels of the nutrient in breast milk, sufficient intake for both mother and child is crucial (Imdad 2010).

Dietary diversity has been shown to be an important factor in adequate micronutrient intake (FAO 2016). In developing countries, dietary diversity is often below recommendations as most meals are composed of the same staple foods (Vorster 2001, Ruel 2003). Lack of access to a variety of foods, whether this be due to environmental, geographical or economic reasons, is often to blame for this. However, research also points to other contributing factors, including cultural influences on diet, especially for expectant or lactating women. Around the world, tradition can determine, to a small or large extent, what a woman will eat or not eat during these life stages (Wiese 1976, Ayo 2003, Raman, Nicholls et al. 2016, Riang'a, Broerse et al. 2017). The adherence to dietary taboos can greatly restrict diet during a time when nutrient requirements increase. Not only can this be harmful to a woman, but the impact can also be seen on her fetus or infant (de Sa, Bouttasing et al. 2013, Abu-Ouf and Jan 2015, Zerfu 2016). Haiti is a country of particular interest as it continues to lag far behind all other countries in Latin America and the Caribbean in terms of maternal health (FAO 2015). While many socioeconomic factors impact maternal health, research has reported many dietary taboos for pregnant and breastfeeding women in Haiti, including in the Grand'Anse region (Wiese 1976, Dempsey and Gesse 1983, Harris 1987, Dornemann and Kelly 2013). Acknowledging, understanding and addressing these traditions can aid in improving maternal dietary diversity despite poor socioeconomic standing.

The following literature review will report the importance of improving maternal health as well as the determinants of dietary diversity. Some of the existing dietary taboos, as well as their origin and potential impact on the population, will also be discussed. A particular look will be cast at the maternal health situation in Haiti and the dietary taboos that exist there.

2. Literature Review

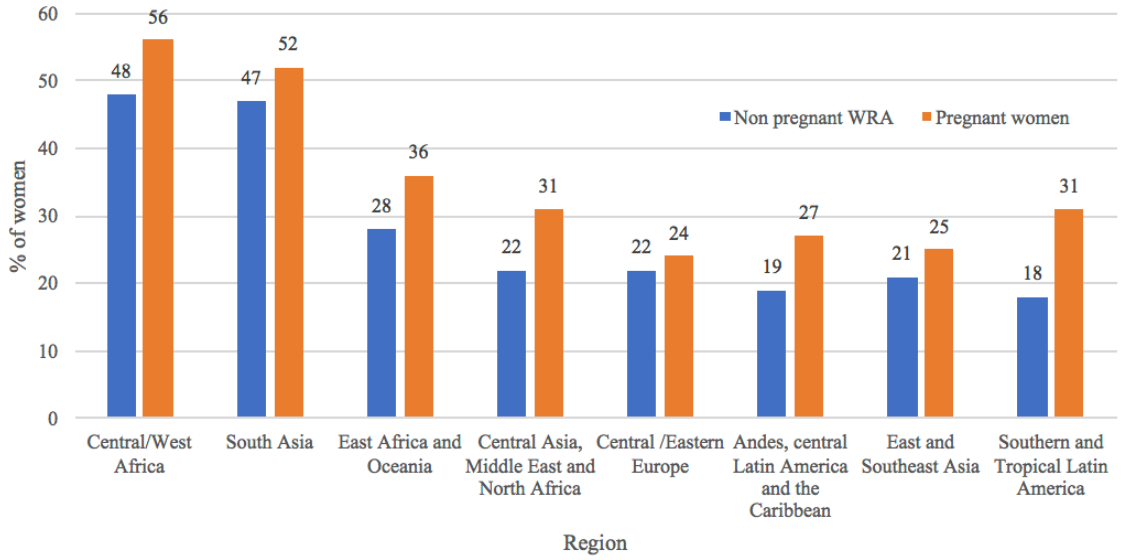
The first chapter of this literature review presents the importance of micronutrient adequacy in woman of reproductive age, with a particular focus on those who are pregnant and/or breastfeeding. The consequences of an inadequate intake for this population are outlined. The second chapter continues to discuss dietary diversity, why it is essential for pregnant and breastfeeding women, its relation to dietary quality and the factors that influence it. Dietary taboos, one of the determinants of dietary diversity, will be discussed in the third chapter. A summary of the various food taboos found in developing countries worldwide will be presented. The last section will place a particular focus on the situation in Haiti and the cultural beliefs influencing the dietary choices of pregnant and breastfeeding women in the country. The data presented in this literature review comes from studies that have taken place in developing countries**.**

2.1 Maternal Undernutrition

2.1.1. Maternal Micronutrient Requirements

Women of reproductive age (WRA), most often defined as those between 15 and 49 years old, are at greater risk of micronutrient deficiency, one element of undernutrition. Women who are menstruating require more iron than men due to blood loss, and pregnancy or lactation increases iron and all nutrient needs (WHO 2014). Children under five years of age and women of reproductive age are most commonly affected by iron deficiency anemia. Globally, over 500 million WRA are anemic and approximately half of these cases are caused by iron deficiency (Stevens 2013). Figure 1 below illustrates the rates of anemia in non-pregnant WRA and pregnant women according to different regions of the world. Increasing iron intake in women will help bring down the occurrence of anemia and improve their productivity, cognition, physical ability and overall well-being (Stevens 2013).

Figure 1. Regional rates of anemia in non-pregnant WRA and pregnant women



While iron needs are increased in WRA, requirements of other nutrients are similar or slightly less than in men because women are often of smaller weight and height. However, if a woman is pregnant or breastfeeding, her requirements for all nutrients increase significantly, likely surpassing those of men (WHO 2014a, FAO 2016).

Regardless of their life stage, all WRA are still more vulnerable to malnutrition than men, and are more likely to suffer from inadequate intakes of vitamins and minerals. This is especially true in developing countries where it may be common practice for women to eat the smallest portions of food, and only after other family members have eaten (USAID 2012, FAO n.a.a). In addition to this, women often eat smaller quantities of certain iron-rich foods like meat because it is saved for the men (Brown 2009, FAO 2016, FAO n.a.). A study done in Tanzania demonstrated that even during the harvest season, where more money was available from the sale of crops, men would often use the extra profit to buy meat and other pre-made foods or meals for themselves but not for the rest of the household (Ochieng 2017). The majority of foods consumed by women are generally rich in starchy carbohydrates, which are often less expensive and widely available, while meat or fish is often perceived as economically inaccessible (Rashid 2011, Mucha 2016).

A diet composed mainly of starchy foods while low in animal products contributes largely to insufficient intakes for iron, vitamin A, B12, and other B vitamins found in meat products. A study from Africa found that a diet including more protein and nutrient rich foods such as meat and fish was significantly associated with adequate nutritional status, even more so than caloric intake (Rashid 2011). Arimond et al. looked at women's nutrition and intake in Bangladesh, Mali, Burkina Faso, Philippines and Mozambique using 24-hour recalls. Sample sizes varied greatly with each country; 102 women provided one dietary recall in Mali while 2045 women participated in the Phillippines and some of the women provided a second dietary recall. In the urban areas studied, 57% to 66% of calories came from carbohydrates, and this increased to 82% in rural areas (Arimond, Wiesmann et al. 2010). General recommendations for carbohydrate intake are considerably lower, 45-65% of total caloric intake (IOM 2005). When considering micronutrient intake, over half of the participating non-pregnant non-lactating women were not meeting their needs for most of the micronutrients measured. The population was likely to be deficient in niacin, folate, riboflavin, calcium, iron and B-12. The situation was worse for pregnant or lactating women, where prevalence of adequacy was less than 50% for all micronutrients analyzed. The probability of adequacy for vitamin A, thiamin, riboflavin, niacin, vitamin B-6, folate, vitamin B-12, vitamin C,

iron, and zinc were measured using the probability approach by comparing the distributions of estimated usual intake with those of micronutrient requirements provided by the WHO/FAO. Iron needs, which are different for women of reproductive age, were based on the Institute of Medicine recommendations and adjustments were made for each country to take into account different rates of absorption. Absorption was also assumed to be approximately 23% for all pregnant women. Absorption rates for zinc also varied with each country. Probability of adequacy for calcium was based on the method by Foote et al, using an Adequate Intake level (Foote 2004, Arimond, Wiesmann et al. 2010) .

2.1.2 Consequences of maternal micronutrient inadequacy

Despite many scientific advances made to protect the health of a mother and child during pregnancy and breastfeeding, approximately 1 in 180 girls of reproductive age in developing countries die from a problem related to pregnancy or childbirth, compared to 1 in 4900 in developed countries. About three quarters of these deaths are caused by excessive bleeding, infections, preeclampsia, eclampsia, delivery complications and high-risk abortion practices (WHO 2018). Most of these deaths can be prevented; undernutrition is at least partially related to many of these issues.

During pregnancy and breastfeeding periods, nutrient needs increase and women require higher amounts of calories, vitamins and minerals (FAO 2016). Caloric intake below one's needs is one factor of undernutrition that affects pregnancy outcomes. This may lead to a body-mass index (BMI) under 18.5, which is considered as underweight. Chronic malnutrition in earlier years can also lead to stunting, defined as height-for-age two standard deviations below that of the reference population, and eventually short stature in adulthood (Georgiadis 2017, Rogol 2018, WorldBank 2019, AMBOSS n.d.). The latter condition has been associated with a significantly increased risk of preeclampsia (Sohlberg 2012), which is characterized by high blood pressure in pregnant women, combined with protein in the urine and other complications. If untreated, the condition can worsen and also progress into eclampsia where the woman may suffer from seizures and possibly fall into a coma (Shah 2008).

Iron requirements are even greater during pregnancy than for menstruating women though consumption of high iron foods such as meat continues to be low among this population. This is believed to be among the main reasons for iron deficiency found in 42% of pregnant women globally (Mawani 2016). Combined with maternal short stature, this deficiency significantly increases the risk of a woman dying during childbirth due to excessive blood loss and contributes to 20% of maternal deaths (Requejo 2010). Women who are anemic during their first trimester have a 300% greater risk of having preeclampsia (Endeshaw 2014). Preeclampsia has also been linked to a deficiency of other micronutrients such as calcium (Kolsteren 2001).

2.1.3 Consequences of maternal micronutrient inadequacy on infants

When a pregnant woman has a low BMI or low gestational weight gain due to a lack of certain nutrients, not only is she at greater risk of morbidity and mortality but the negative effects can be extended to her future child as well. Her infant will be at greater risk of mortality or other negative outcomes such as intrauterine growth restriction and being born at a low birth weight (Strauss 1999, Han 2011, Purandare 2012, Davis 2014, Wen 2015, Baugh 2016).

The nutrients a pregnant woman consumes and stores can alter the amount that is supplied to her fetus (Saaka 2012). Iron deficiency anemia in a pregnant woman also increases the risk of a child being born prematurely or with low birth weight; both of which can place him at greater risk of future iron deficiency (Hack, Klein et al. 1995, Kolsteren 2001, Pasricha, Drakesmith et al. 2013). A maternal deficiency of vitamin B-12, found mainly in meat, poultry, fish, eggs and milk, is also linked to certain negative birth outcomes such as preterm birth or babies born at a low birth weight (Rogne 2017). In the short term, a baby born with low birth weight may be at greater risk of infections, below average growth, and neurodevelopmental issues which can affect emotions, learning, language and more (Hack 1995, Howe, Sheu et al. 2016). Additionally, a baby born with a low birth weight or with decreased neurocognitive development due to undernutrition, may suffer the consequences of these conditions into adulthood (USAID 2012, Sumarmi 2016). Decreased ability to work can lead to continued lower socioeconomic status and increased risk of undernutrition (WorldBank 2006).

Maternal undernutrition can have a serious impact on child health and nutrition even after delivery. While some protective adaptations will occur when a lactating mother has a sub-optimal nutritional status, breast milk content of certain vitamins will still suffer. Breastmilk levels of vitamin A, thiamin, riboflavin, pyridozine and cobalamin, and minerals such as iodine, are dependent on a mother's intake and bodily stores. If a mother is deficient in these nutrients, the lower breast milk content may increase a child's risk of deficiency. The most evident case of such is with vitamin A. To this day, vitamin A deficiency impacts the global disease burden more than any other vitamin (Black 2008). Globally, about 250 million children of preschool age suffer from insufficient vitamin A (WHO n.d.). Xerophtalmia, the excess dryness of the eye that can lead to blindness, is one of the many consequences of vitamin A deficiency. It also affects the immune system and is linked to increased mortality from diarrhea or measles (Stevens, Bennett et al. 2015). However, even in cases where mothers may not be consuming a nutritionally adequate diet, exclusive breastfeeding remains the best practice for infants until six months of age; breast milk has the ideal nutritional composition for an infant and contains many antibodies to aid the child's immunity (Newman 1995, Andreas, Kampmann et al. 2015). Breastfeeding decreases the infant's risk of illness from water or other contaminated sources. While partial breastfeeding is preferable to none at all, exclusive breastfeeding until 6 months of age offers the best protection; one study found that children of 0-5 months of age who were breastfed, though not exclusively, were twice as likely to die from diarrhea or pneumonia than those who were exclusively breastfed (Black, Morris et al. 2003).

2.2 Dietary Diversity

2.2.1 Definition of Dietary Diversity

Dietary diversity is formally defined as the number of foods or food groups eaten by a person in a specified duration of time, usually 24 hours (FAO 2016). Because dietary diversity assessments are generally based on this 24-hour recall, they are not always an accurate reflection of habitual nutritional intake. Thus, it does not provide sufficiently precise data to make conclusions regarding an individual's micronutrient intake. This tool can instead be used to estimate micronutrient adequacy on a larger scale,

such as to estimate if a population, or a sub-set of a population, is consuming sufficient amounts of vitamins or minerals across a country or in parts of that country (FAO 2016). To increase precision, a second dietary recall can be done or usual intake can be evaluated by looking at the average number of food groups consumed over a longer period of time. The FAO has created the Minimum Dietary Diversity for Women (MDD-W), which categorizes foods into ten food groups:

1. Grains, white roots, tubers, and plantains
2. Pulses
3. Nuts and seeds
4. Dairy
5. Meat, poultry and fish
6. Eggs
7. Dark green leafy vegetables
8. Other vitamin A-rich fruits and vegetables
9. Other vegetables
10. Other fruits

A woman is considered to have attained MDD-W if she has consumed 5 out of the 10 previously mentioned food groups in the last 24 hours (FAO 2016).

In developing countries, dietary diversity is often insufficient as traditional diets are generally monotonous and the same foods may be consumed day after day, for an extended period of time, especially during a season when there is less food available (Mucha 2016, Zerfu 2016).

2.2.2 Dietary Diversity and Nutrient Intake

Research suggests that dietary diversity and micronutrient adequacy are closely linked. Before the development of the MDD-W, Arimond et al. studied women's intake and the relationship between their mean probability of adequacy for 11 micronutrients and dietary diversity. A comparison was done between women who were pregnant or lactating and those who were not in the countries of Mozambique, Burkina Faso, Mali, Philippines and Bangladesh. They utilized 8 different food group diversity indicators,

dividing foods into 6, 9, 13 or 21 categories and with one measurement done including foods consumed in amounts less than 15g and another measurement disregarding them. The 11 micronutrients studied were thiamin (B1), riboflavin (B2), niacin (B3), pyridoxine (B6), folate (B9), cobalamin (B12), vitamin C, vitamin A, calcium, iron and zinc. Results supported the theory that increasing dietary diversity would increase micronutrient intake, even when not increasing caloric intake. A majority of the women participating in this study were not meeting recommended intake levels for most, if not all micronutrients (Arimond, Wiesmann et al. 2010). One limitation of this study is that some recalls were excluded from analysis due to intakes that were deemed either too low or too high to be realistically accurate. In Burkina Faso one quarter of the intakes collected were not considered in the final data analysis because of intakes judged as "extreme". As approximately one quarter of dietary recalls were affected, the threshold for a dietary recall to be considered extreme should have been changed for this country (Arimond, Wiesmann et al. 2010). In all cases, dietary diversity and mean probability of adequacy were positively correlated. This work had a significant impact on future research in the area and even on the development of the MDD-W.

Dietary diversity measures are increasingly being used as an indicator of micronutrient adequacy in a woman's diet in Senegal, Bangladesh, India, Nepal (Rashid 2011, Bhandari 2016, Pal 2017, Tine 2018). FAO and FANTA developed the MDD-W to be used as a proxy indicator of the micronutrient adequacy of WRA; women consuming the minimum five out of ten food groups set in the MDD-W are more likely to meet their micronutrient needs (FAO 2016).

2.2.3. Determinants of dietary diversity

Saaka, who studied maternal dietary diversity and pregnancy outcomes in Northern Ghana, determined the factors that impact dietary diversity in the country. Results identified the wealth index of a household and antenatal care session attendance as the only factors that independently predict maternal dietary diversity score (Saaka 2012).

A 2016 report authored by Kiboi and colleagues looked at research done in Kenya and assessed various determinants of dietary diversity for 254 pregnant women in the

country (Kiboi 2017). The authors divided the food groups into 16 groups, based on the FAO guidelines for household and individual dietary diversity standardized in 2008. Of the original 16 groups, 14 were considered as contributing to a woman's dietary diversity score, this is more than the FAO recommended 10 groups to include when calculating MDD-W. Authors divided the dietary diversity score into three categories: low (defined as the consumption of three or fewer food groups), medium (consumption of four or five food groups) and high (consumption of six or more of the 14 food groups). Statistical analysis revealed that the variables impacting dietary diversity were the woman's education level, job, monthly income, household belongings, whether or not her family owned land and health status (Kiboi 2017).

These studies suggest that dietary diversity is determined by socioeconomic factors such as household wealth, income, education and land ownership. It has been suggested that until poverty is eradicated, cases of preterm births and intrauterine growth restriction due to maternal undernutrition will continue to occur (Kramer, Seguin et al. 2000). Though environmental, economic, and sociopolitical changes will have the greatest impact on the issues of malnutrition in women of reproductive age, smaller, local interventions in the health sector could lead to improved dietary diversity (Schultink and Arabi 2009).

A study in Tanzania looked at the dietary diversity of households, children and women over two months from December 2015 to January 2016. In this population, 34% of children under five years of age are stunted, 5% are wasted and a significant portion of children and women of reproductive age are underweight, 14% and 5.5% respectively. In general, dietary diversity in the country is low. The majority of the population consumes a diet high in starchy foods and other food groups that contribute little to micronutrient adequacy: oils and fats, spices and condiments and beverages while taking in little fruit or animal products. The MDD-W was used to assess dietary diversity of the women. This research found that while close to 100% of households consumed grains (100%), spices, condiments or beverages (99%), vegetables (98%), fats (95%) or sugary foods (83%), a much smaller proportion consumed legumes, nuts or seeds (54%), fruits (39%) or fish, seafood, milk or dairy (16%). Consumption of eggs was at less than 1% of households surveyed and the consumption of meat was also rare, particularly among women and

children. Using the MDD-W as standard of measurement, only 46% of participant women attained a minimum level of dietary diversity. In analyzing the survey results, it was found that dietary diversity was lower in female-headed households. It was hypothesized that this could be due to the likely lower income of these households. Age and education level of the head of household was also significantly associated with dietary diversity; if the head of the household was more educated, women's dietary diversity score was likely to go up while an older head of household had a tendency to decrease dietary diversity scores for both women and children. Households with land or with self-production of vegetables had women with greater dietary diversity (Ochieng 2017).

Another Tanzanian study taking place over 13 months starting in October 2008 also looked at the factors impacting dietary diversity through qualitative data collected through focus groups (FG) and more in-depth individual interviews. According to participants, income, agrobiodiversity (production of more agriculturally diverse crops in a sustainable manner by households that have access to land) the cultivation of crops and food availability all played a role in determining their dietary diversity. Those with more money could not only buy a greater variety of foods but could also purchase seeds, tools and whatever else was needed to grow more crops. The number of people living in a household was discussed as a factor that could potentially increase or decrease dietary diversity; less financial stability from having to feed, clothe and care for a greater number of people would likely decrease the quality of the diet however having fewer leftovers due to the decreased amount of food purchased might help ensure the family consumes a greater variety of foods. A finding similar to the study of Ochieng et al., was that having a female headed household seemed to decrease dietary diversity due to decreased income and because male family members may interfere with a woman's use of land. A final factor that came up as a potential hindrance to adequate dietary diversity was the existence of dietary taboos; snails and monkeys are the main taboo foods for the general population though others exist, varying between households (Powell 2017).

A study from Bangladesh found similar factors playing a role in the dietary diversity of the population. Consumption of both fish and legumes decreased considerably over the last decades due to decreased availability; the former due to

overfishing and the latter due to changes in agriculture technology. To identify other influencers of dietary diversity, information from 7, 440 households was collected and their food purchases over two weeks were studied. Purchases of foods from 12 pre-defined food groups were analyzed; a food contributed to dietary diversity if it belonged to one of the following groups: cereals; roots and tubers; pulses and legumes; milk and milk products; eggs; meat; fish and seafood; oils and fats; sugar and honey; fruits; vegetables; and a miscellaneous category. As expected, greater income was positively associated with greater dietary diversity. Similarly to the Tanzanian studies, households with female headship were likely to have a lower dietary diversity. When adults in the household were educated, there was a positive association with dietary diversity, particularly if the woman was educated. Having a woman in the household with a primary or secondary education increased dietary diversity by 4.8% and 5.8%, respectively. For households where males had a primary or secondary education, dietary diversity increased by 1.7% and 4.1%, respectively. Food prices and number of people within a household were also found to be significantly associated with dietary diversity (Rashid 2011)

2.2.4. Dietary Diversity and Pregnancy Outcomes

In addition to its positive correlation with micronutrient adequacy, a study looking at pregnant Ethiopian women also found adequate dietary diversity to be linked with decreased risk of anemia, pre-term birth and having low birth weight babies (Acham 2012, Zerfu 2016). Another example of the importance of dietary diversity is demonstrated in a 2014 case-control study that associated fruit and vegetable intake with a statistically significant decrease in risk of preeclampsia (Endeshaw 2014).

A study looking at women from Northern Ghana who were 34-36 weeks pregnant investigated the link between dietary diversity and delivery complications, particularly preterm birth and low birth weight. This study used 11 food groups: cereals, tubers, vegetables, fruits, meat, fish, eggs, legumes, milk and milk products, fats and oils, sugar and sweets. While women living in wealthier households had a significantly more diverse diet, it was found that even after accounting for maternal education, occupation, household wealth and other potential confounding variables, lower maternal dietary

diversity still had a statistically significant impact on risk of delivering a low birth weight baby. Mothers who had a less diverse diet in their third trimester of pregnancy were at over two times greater risk of giving birth to a baby of low birth weight. There was no statistically significant connection between dietary diversity of the mother and the possibility of delivering preterm (Saaka 2012).

2.2.5. Maternal and Child Dietary Diversity

Research is also revealing the significant connection between a mother's dietary diversity and the dietary diversity of her child, as shown in Table I. This has been supported by results published through USAID which looked at 24-hour recalls done with mothers in Cambodia, Haiti and Ghana. The participating women were of reproductive age (15-49 years old) and had a 6-23 months old child. Dietary diversity was analyzed based on an indicator using 9 food-group categories for women and seven food-groups for children. Children were considered as having met their minimum dietary diversity if they consumed foods from four or more of seven pre-determined food-groups. No minimum score was mentioned for women, however the mothers with the highest scores were those having consumed foods from at least 5 of the 9 groups. In Cambodia, if a mother had consumed food from a particular group, her child was 7 to 19 times more likely to consume a food from this same category. This same pattern was seen in the other two countries but to a lesser extent, though in all cases if a woman consumed a more diverse diet, there was increased likelihood her child did as well. Of the mothers who ate foods from at least five of the nine food groups, 50 to 80% of their children achieved their own minimum dietary diversity. On the other hand, of the mothers having consumed two food groups or less, only 10% of the children had an adequately diverse diet. This study took into account a variety of socioeconomic, demographic and health factors that could impact dietary diversity (USAID 2012).

Similarly, Nguyen et al. (2013) looked at the association between dietary diversity of mother and child as well as the different factors that influence it in Bangladesh, Vietnam and Ethiopia. This was done by studying 24-hour recalls and using a dietary diversity score based on seven food groups for both mother and child. They found, in all three countries,

that if a mother consumed four or more of the seven food group categories, her child was more than two times as likely to also consume as much, achieving minimal dietary diversity. Even after adjusting for multiple factors such as socioeconomic status, mother's education and child's age, the positive association between mother and child achieving minimal dietary diversity was still statistically significant. In Vietnam and Bangladesh, however, a woman's intake of meat, dairy, fruit or vegetables, or lack thereof, did not predict the consumption of these foods in her child. The first finding suggests children do not always benefit from the same types of foods as mothers, which is especially true for children 6-11 months whose dietary diversity was significantly lower than that of 12-23-month-old children. In the case where there is lack of these foods in the mother's diet, but not in that of the child, this may indicate that mothers may avoid consuming certain nutrient rich foods in order to ensure their child has greater access to these (Nguyen 2013).

Table I. Relationship between maternal and child dietary diversity

Project	Methodology	Country	Participants	Findings/Outcomes
USAID, 2012	24-hour recall Foods divided into 9 groups for women, 7 groups for children	Cambodia Ghana Haiti	Women 15-49 years old, with a child of 6-23 months	If a mother consumes food from a food group, the child is also more likely to do so 50-80% of children who had mothers consuming foods from 5+ categories had an adequately diverse diet, compared to 10% of children who consumed foods from 2 or fewer food groups
Nguyen et al., 2013	24-hour recall Foods divided into 7 groups for women and children	Bangladesh Ethiopia Vietnam	Children 6-24 months old and their mothers	If a mother consumes foods from four or more groups, the child is two times as likely to do the same, consuming an adequately diverse diet

2.2.6 Maternal Dietary Diversity and Breastfeeding

Appropriate breastfeeding practices, including exclusive breastfeeding until six months of age, are strongly tied to a decrease in the risk of illness, and mortality, and increased recovery from illness (WHO 2019). It provides a free and complete nutrition for the child while also strengthening his immune system, balancing hormones, decreasing risk for many diseases later in life and much more (Hanson, Korotkova et al. 2003, UNICEF 2015). Breastfeeding is also beneficial for the mother; the act reduces excessive bleeding if done immediately after giving birth and reduces risk of cancer and type 2 diabetes in the long term (Chowdhury 2015, UNICEF 2015). Additionally, it is a free method of family planning; continued breast feeding decreases the risk of a woman becoming pregnant again, allowing her adequate time to recover (Kramer 2004). Increasing rates of exclusive breastfeeding could prevent close to one million child deaths annually (UNICEF 2015).

If a mother is undernourished, or feels her food intake is not sufficient to produce quality breast milk, she may refrain from breastfeeding her child or offer him other food or drinks in addition to her milk (Roman 2007, Dornemann and Kelly 2013). In other literature, Decelles et al. (2017) found a multitude of other barriers to exclusive breastfeeding. In addition to mothers having the impression that their own diet hindered their ability to produce a nutritionally adequate milk for their child, they perceived that an infant's crying as a sign that the child was not satisfied solely with breast milk (Decelles 2017).

2.3. Dietary Taboos

2.3.1. Cultural taboos as a determinant of dietary diversity

In almost every country and every culture around the globe, there exists a different set of beliefs regarding what behaviours will facilitate pregnancy, child birth and delivery as well as those that will render them more difficult. Culture can influence the mothering experience as a whole and can even dictate the risk of positive or negative outcomes for mother and child (Choudhry 1997). In a literature review done in 1967 by

Mead and Newton, 222 different cultures were observed and each one revealed its own specific set of beliefs on what to do or not do during pregnancy and lactation (Mead 1967, Choudhry 1997). Certain foods are sometimes recommended, but mostly avoided because they are considered problematic for the mother, fetus or baby. Unfortunately, many of the dietary taboos involve foods that are good sources of protein, iron and micronutrients, all of which are critical during pregnancy, and often not consumed in sufficient quantity by women in low and medium income countries. Though this data is dated, it illustrates that dietary taboos, though they may differ, are not exclusive to only certain cultures or regions and they can present a barrier to adequate nutrition. Their research continues to be referenced to this day (Hanlon 2010, Nguyen 2016).

Data from 405 pregnant women was collected in Nigeria between the years 2001 and 2002 through questionnaires and the analysis of anthropometric data. As expected, younger age, low education level and lower income were all significantly associated with greater adherence to cultural dietary taboos. Another interesting finding was that mothers with lower BMI were also more likely to practice these traditions (Oni 2012).

Cultural beliefs and dietary taboos can further impact a diet that is already limited due to restricted economic means (Wiese 1976, Raman, Nicholls et al. 2016). Thus, having a complete understanding of all factors impacting nutrition during pregnancy and breastfeeding is critical to tackling the issue of maternal nutrition.

2.3.2. The Origin of Dietary Taboos

The exact origin of food taboos and dietary restrictions, as well as their perpetuation throughout generations, is not known. Meyer-Rochow studied three countries; Malaysia, Papua New Guinea, and Nigeria and two religious groups; Hindus and orthodox Jews. He researched their traditional food avoidances in an attempt to understand how they came to be. He concluded that at the core of the dietary restrictions, even for those that seemed purely religious, there was generally a medical or ecological reasoning. Some originated for reasons such as protecting a limited resource or making better use of it to avoid its overexploitation (Meyer-Rochow 2009).

The Ache people of Paraguay consume only 50 types of animal or fish products and 40 plant and insect species as foods despite having access to hundreds more. In fact,

98% of their caloric intake comes from the same seventeen food items. It seems that these dietary habits have formed based on the caloric return of a food item; hunters and gatherers will prioritize foods that provide them with more calories than the calories expended to obtain the item. Though these are not examples of specific taboos, avoidances such as these may eventually transform into a taboo through generations (Meyer-Rochow 2009).

Taboos may have also originated from a desire to protect the health and wellbeing of a population. If a person suffered an allergic reaction or other negative effect following the consumption of a food, others may have consequently avoided this item, resulting in the creation of a taboo. A population may have also noticed that certain foods negatively affect health over time and constructed taboos around this. For example, in areas of the Amazon, fishermen may consider certain large fish to be a taboo food. These same fish can be dangerous to eat because of their high levels of contaminants such as mercury. Avoiding these items may have originated for a completely understandable reason even if this information was not known. Another example is pork, a meat often considered taboo. Though this may not be a particularly harmful food today, in the past, pork meat was often linked to illness (Meyer-Rochow 2009).

Many of the dietary taboos around the world, especially those surrounding pregnancy and lactation, have been tied to an adherence to humoral medicine. This model of health is believed to have originated with Hippocrates in Greece in the 4th century BC and is now found throughout the continent of Asia, Latin America and in many countries in other continents of the world (Bachrach 1982, Foster 1987). The theory includes the traditional belief that hot and cold within the body must be balanced to maintain good health (Wiese 1976, Foster 1987). The equilibrium can be disrupted by factors such as life stages and pregnancy is considered among the hottest life stages while the postpartum period may be cool (Foster 1987, Purnell 2013). Foods, medications and supplements also have hot, cold or neutral properties and in the event of an imbalance, these can aid or worsen the condition (Foster 1987). The treatment is generally meant to return the body into its state of equilibrium so a hot condition would necessitate a cold treatment and vice versa (Scott 1974, Foster 1987). An example of the negative repercussions of this can be seen in certain Asian cultures and Puerto Rico, where iron tablets, considered a hot

supplement, are discouraged for pregnant women. It is believed that they worsen an already "hot" life stage (Scott 1974, Meyer-Rochow 2009). Research that looked at Ethiopian women living in Israel also illustrated a situation where women would not take the recommended iron supplements during pregnancy. It was believed that these were not necessary or that they would cause a variety of issues including excess growth of the unborn baby and in consequence a difficult child birth experience (Granot, Spitzer et al. 1996). Though in cultures that adopt this humoral medicine system there is a general consensus that foods will have characteristically hot or cold properties, there is much debate over which foods are hot, which are cold and which are neutral, even within closely situated or neighbouring communities (Manderson 1987, Greenwood 1992, Choudhry 1997).

The belief in humoral medicine in Latin America was often dismissed as superstition. Not much attention was paid to it until the 1950s despite the fact that it was already seen in Peru as early as 1877 (Foster 1987). Today, anthropologists have largely acknowledged the major role of this commonly used ethnomedical system in the region. Foster focuses on the information supporting the theory that this branch of humoral medicine stems from that found in ancient Greece and Persia (Foster 1987). He supports his claims by describing the likely path with which the humoral theory spread to Latin America; brought to Europe from the Arab world and spreading from Europe to Latin America when the Spanish, French and Portuguese colonized the area (Wiese 1976, Foster 1987). It became a part of popular medicine not only through the medical system but also through religious workers (Foster 1987). The continued adherence to these methods today is due mainly to traditions being passed down by word of mouth from one generation to the next (Bachrach 1982).

2.3.3. Taboos related to Humoral Medicine

The hot or cold properties designated to foods can lead to the formation of dietary taboos, as illustrated in Table II. Connections to humoral medicine are seen in India; cold foods are deemed beneficial for pregnant women while hot foods are considered very dangerous and according to some beliefs they may even lead to a spontaneous abortion. Hot foods however are seen as beneficial just prior to the date a woman is to give birth;

according to tradition they may aid the expectant mother have an easier delivery. Researchers have identified a large variety of foods considered hot in India, many of them nutritious and belonging to different food groups. Meat, eggs, fish, ghee, eggplant, onion, garlic, papaya, dates, beans and other legumes are all considered hot and therefore must be avoided during pregnancy (Choudhry 1997). Less nutritious items such as sugar, alcohol, coffee, tea and spices also belong to this group. Foods classified as cold are not as common and include coconut and green leafy vegetables. Wheat, rice, yogurt, banana and buttermilk were classified as either hot or cold depending on the region of India studied. The consumption of meat during pregnancy is also thought to lead to a number of other ailments such as vomiting, skin problems and even fetal malformations (Choudhry 1997). This may be unrelated to its classification as a hot food and due to other beliefs as well.

In certain cultures, cold foods will be the foods proscribed during pregnancy or breastfeeding. The women will be cautioned against cold foods because they may make her sick. In countries of South Asia, in the six weeks post-delivery, cold foods are often avoided by new mothers due to the belief that these can cause fever, weakness or body aches, potentially over a long-term period. Yogurt was also among the avoided foods. In Pakistan, the consumption of cold foods by pregnant or breastfeeding women is believed to cause a variety of symptoms such as abdominal pain, diarrhea, pain and coughs. Fish and seafood are among the foods considered cold in Pakistan. They are seen as unsuitable for a breastfeeding mother due to the belief that they will cause her stomach pain (Raman, Nicholls et al. 2016).

In China, there exists the traditional belief that by losing blood and energy during delivery, a woman is losing too much heat from her body (Fishman, Evans et al. 1988, Raman, Nicholls et al. 2016). Chinese women often follow the tradition of *zuo yuezi*, a period of rest, that can last over a month (Raman, Nicholls et al. 2016). During this time period, to restore her bodily balance, the consumption of hot foods is recommended (Fishman, Evans et al. 1988, Raman, Nicholls et al. 2016). These foods are often high in protein, such as meat and eggs (Poh 2005, Raman, Nicholls et al. 2016). Other than these, recommended foods are those that are considered to be easy for the digestion, such as millet soup and brown sugar mixed with water (Raman, Nicholls et al. 2016). Though

this recommendation of rest and high protein foods is positive, many other typically consumed foods, including most fruits and vegetables, are taboo during this period. This is especially problematic for women who cannot afford sufficient quantities of meat or eggs and are therefore left with an extremely inadequate diet. A study looking at the dietary intake of Chinese women in Kuala Lumpur (Malaysia) found that on average, women were consuming 19% less than their caloric needs (Poh 2005). Not only are women restricted in the food they eat, but this period of rest also includes other limitations; women must often stay in bed in a room with limited access to sunlight. Many women may complete the period of zuo yuezi in a weaker state than when they began (Raman, Nicholls et al. 2016).

Authors Santos-Torresand & Vásquez-Garibay conducted a cross-sectional study from 1998-1999 and researched dietary taboos in lactating women. They interviewed participant mothers from Guadalajara, Mexico in the 45 days after delivery. All mothers gave birth in baby-friendly hospitals. In Mexico, similarly to the Chinese tradition, when a pregnant woman gives birth she is seen as having lost much of her bodily heat. It is thought that this leaves her more vulnerable to illness from cold air or cold foods. These cold foods, considered taboo, include most vegetables, many fruits (particularly those that have a thick skin or are bitter or juicy), avocado, corn, beans and certain meats like poultry or rabbit. Hot foods are limited and include red meat, onions, and flavoured drinks. Their findings suggest that as a result of certain cultural beliefs and a multitude of restricted foods, mothers giving birth will at times refuse the foods provided and recommended by the nutritionists and nurses working in the hospital. The participants who came from urban areas showed significantly more adherence to dietary taboos than those who had lived exclusively in rural regions. When it came to predicting adherence to dietary taboos, this variable was shown to be more important than a mother's age, or number of pregnancies, among other factors. This finding was in contrast to previous studies, and authors believed it was because when low-income families move to the city they will try to keep the traditions passed on from older generations in an attempt to maintain their identity (Mahmood, Atif et al. 1997, Santos-Torres and Vasquez-Garibay 2003).

In Vietnam, though fruits and vegetables are considered "cold" and therefore not recommended, if the latter are boiled they are then considered acceptable for new mothers. On the other hand, in Bali, the consumption of vegetables is strongly recommended as this is believed to produce fresher tasting milk for the baby. In Nepal, cold foods such as green vegetables, pumpkins and apples are avoided in the first 2-3 months after delivery due to the belief that if the mother consumed these, it would contaminate the milk and cause the child to have diarrhea (Raman, Nicholls et al. 2016).

Table II. Taboos related to humoral medicine and the hot/cold properties of food

Research article	**Countries**	**Beliefs**	**Foods**
Choudhry, 1997	India	Cold foods are considered beneficial for pregnant women Hot foods are considered dangerous, and could lead to spontaneous abortion, until right before delivery	**Hot foods:** Beans and legumes, eggs, meat, fish, eggplant, garlic, onion, papaya, dates, ghee, sugar, alcohol, coffee, tea and spices **Cold foods:** Green leafy vegetables and coconut **Variable according to region:** Rice, wheat, buttermilk, yogurt and banana
Santos-Torres, M. I. & Vasquez-Garibay, E.	Mexico	Women are vulnerable to cold air and cold food after delivery	**Hot foods:** Red meat, onions, flavoured drinks **Cold foods:** Most fruits and vegetables, avocado, corn, beans and certain meats like poultry or rabbit
Raman, S., Nicholls, R., Ritchie, J., Razee, H. & Shafiee, S.	Pakistan	Cold foods are thought to cause abdominal pain, diarrhea, pain and coughs in women who are pregnant or breastfeeding	**Cold foods:** Fish and seafood
	China	Hot foods are recommended postpartum as women are thought to have lost a lot of heat and energy during delivery	**Hot foods:** Meat, eggs, millet soup, sugar water **Cold foods:** Most fruits and vegetables
	Vietnam	Cold foods are not recommended	**Cold foods:** Most fruits and vegetables, unless boiled

	Nepal	Cold foods are thought to contaminate breastmilk or cause diarrhea if consumed by a mother in the first 2-3 months postpartum	**Cold foods:** Green vegetables, pumpkins and apples

2.3.4. White coloured foods

White coloured foods are considered taboo during pregnancy or breastfeeding in some parts of the world. In Ethiopia, women avoid white foods such as banana, fatty cuts of meat, milk and dairy products, potato and porridge in order to avoid the risk of discolouring the body or head of her baby (Zepro 2015, Vasilevski and Carolan-Olah 2016). In India, bananas may be seen as harmful for pregnant women because their consumption could lead to fever in the mother, coughs and could be dangerous to the fetus (Choudhry 1997). In Vientiane, the capital of Laos, white skinned animals were found to be prohibited to expectant mothers, believing it would cause them weakness (Barennes 2009).

In some cultures, many white-coloured foods are avoided though it is not known if this is due to the food's colour or for another reason. For example, in Gambia, catfish, bread, egg, and banana were foods often proscribed during pregnancy or breastfeeding according to mothers. The consumption of catfish was believed to result in a flaccid baby with excess salivation while a pregnant woman eating eggs would run the risk of having a mute, unintelligent or stuttering child. A pregnant woman consuming banana or bread was believed to have increased risk of a difficult delivery and large baby (Pérez 2013). Similarly, eggs, certain fish, bananas and other white foods are also avoided in Nigeria (Ogbeide 1974). Though these findings stem from decades ago, a 2016 study revealed that many of these white-coloured foods remain taboo; eggs, garri (made from cassava), noodles and wheat were avoided during pregnancy by close to 20% of the population. Catfish and rice were also named as dietary avoidances (Ekwochi 2016).

2.3.5. The desire for an easier delivery

One belief that often comes up when discussing dietary taboos during pregnancy is that the quantity of food must be decreased, or certain foods avoided, in order to have a

smaller baby. This belief is found in Burkina Faso. In their study published in 2009, Huybregts et al. revealed that 36 of the 37 women interviewed stated that they ate less when pregnant, avoiding specific foods. The reasons for these actions include the desire for an easier delivery as well as decreased appetite, increased nausea, and decreased stomach size due to compression from the fetus (Huybregts 2009). In Laos, some communities considered coconut a food to avoid during pregnancy; saying the food would lead to excess weight gain in the unborn baby and therefore cause a difficult delivery (Raman, Nicholls et al. 2016). When speaking with Ethiopian women regarding their traditions, flaxseed, honey, milk and nuts were among the common foods said to be avoided as they were thought to lead to a baby becoming too fat. These same foods were also avoided due to the belief that they could lead to a spontaneous abortion or result in a stillbirth. Potatoes, sweet potatoes and sugarcane were also mentioned as restricted foods in order to limit the baby's growth to have an easier delivery (Vasilevski and Carolan-Olah 2016). A published study revealed that migrant women from Ethiopia often gain less than the recommended amount of weight when pregnant (Salim 2012). This may potentially be on purpose to avoid giving birth to a larger child (Vasilevski and Carolan-Olah 2016). Comparably, in India, it is common for women to purposefully eat less than usual in order to avoid difficult deliveries of large babies. In 1989, a report declared that the average weight gain during pregnancy in India ranges from 5 to 6 kg, much less than the recommended 11 to 16kg (Choudhry 1997).

Between April and August 2015, a project in Kenya studied 154 women, pregnant or having just given birth, from the rural area of Uasin Gishu. Individual interviews were conducted with mothers attending health care workshops regarding maternal and child health. The participants were recruited from 23 public health facilities dispersed around the region. Over half of the women, 54%, were not educated past primary school. The goal of the research was to identify the dietary taboos existing in this area and the reasoning behind them. Nine key informants, individuals from different backgrounds who worked as traditional birth attendants, were also approached for interviews. They were questioned regarding what foods were recommended or proscribed during pregnancy, who provided pregnant women with this advice and what their personal opinions on the topic were. This is a critical component of the research as traditional birth attendants are

often the ones accompanying women before, during and after delivery and they can be an important source of information for women. Results showed that pregnant women mainly got their dietary advice from their grandmothers and other older women including mothers, neighbours, relatives and friends. In fact, unless a woman was diagnosed with an illness requiring medical follow up, health care workers were not the primary source of dietary advice. Many foods were found to be restricted to pregnant or breastfeeding women, and for a multitude of reasons. It was believed that these restrictions would protect and benefit the health of both the woman and child as well as reduce the risk of complications during delivery. Meat was among the most frequently reported taboo foods for women, mentioned by 87% of participants. Much of the restriction was dependent on what happened to the animal during its lifetime; whether it was hit by lightning, had pregnancy complications or was strangled. If a woman did not know the animal's complete history, she was told to avoid eating the meat all together. Additionally, eating excess meat, defined as more than one time per week, was also ill-advised even if the life history of the animal was known. It was believed that the baby would grow too large and this could lead to a difficult delivery. Over 2/3 of women, 68%, also mentioned eggs as foods to be restricted throughout pregnancy; they are believed to be unsuitable for pregnant women who are perceived as fragile. Similarly to meat, the consumption of eggs was believed to result in a large baby. High blood pressure was another complication that many believed could result if a woman ate eggs while pregnant. Avocado was mentioned by one fifth of women as a dietary taboo; it was believed that the consumption of it would also result in a difficult delivery due to a large baby. One quarter of women mentioned deep fried foods and other items containing large amounts of oil as foods to be restricted during this life stage, believing it could lead to maternal high blood pressure, malaria or a large baby. Fresh milk and plantain were among other less common food taboos, mentioned by 7% and 4% of participants respectively, also believed to lead to excess growth of the fetus. In addition to the multitude of foods being restricted for pregnant women in fear that they will have a difficult delivery due to a large baby, women were also told to vomit if a meal they had consumed was considered to be too fatty (Riang'a, Broerse et al. 2017).

A study of dietary practices during pregnancy in Northern Tanzania revealed possible problematic eating habits in the Maasai women of the region. Data was collected through interviews with twelve pregnant women. Results revealed that a major belief among pregnant women was that eating less was recommended to avoid complications from having a large baby such as the necessity for a C-section or even death. In addition to eating less calories overall, specific foods such as milk, meat, beans, eggs, sweets and butter were also considered taboo. At times, the women would resort to eating in secret; if their mother-in-law or other elder women of the community saw them consume a meal they deemed too large, fatty or inappropriate during pregnancy, they would be given a concoction to make them throw up. According to one participant, this practice occurred once per week on average. Faced with these dietary restrictions, the women also discussed feeling fatigued and worried over their lack of consumption of vegetables. However, an interesting finding from this study is that the majority of women stated that if faced with contradictory advice from elders and a healthcare worker, they would likely stick to tradition and heed the advice of their elders. This finding emphasizes the importance of including multiple members of the society in any nutritional intervention and not only the pregnant women themselves as they are often not fully in control of their own intake. It also highlights the importance of having culturally appropriate projects, as there is no one-size fits all approach when it comes to improving maternal nutrition and health in developing countries around the world (Lennox 2017).

Instead of facilitating delivery, these habits of reducing food intake or avoiding many foods actually have the opposite effect; undernutrition increases the possibilities of a complicated childbirth. A pregnant woman who lacks sufficient calories and nutrients will be at an increased risk of pre-eclampsia, the need for an emergency C-section, preterm birth, early postpartum hemorrhage, stillbirth, small-for-gestational-age babies and more (Purandare 2012, Vasilevski and Carolan-Olah 2016).

2.3.6. Other Taboos

Many other dietary taboos exist, particularly for pregnant or breastfeeding women. At times researchers may not uncover the reasons for these restrictions. It is also

possible that women may no longer know why a food is taboo and avoid it simply to follow tradition.

In Cambodia, women of the Khmer ethnic group having just given birth traditionally consume a dish containing beef, pork and fish, in order to bring heat back to the body. However, many other local foods that would normally make up the base of their diet are considered taboo and therefore restricted. These foods included pineapple, banana, jackfruit, fish, cucumbers and certain meats (Raman, Nicholls et al. 2016). For those who cannot afford meat or fish in sufficient quantities or at all, this may lead to a deficient diet. In the rural areas of Bengal, of India and Bangladesh, many foods were avoided after delivery. Green leafy vegetables, fibrous vegetables, certain squashes, eggs, shell fish, eggplant, peppers, spices, and many fruit such as grapes, bananas, melons, oranges, limes and lemon are all among the restricted foods (Raman, Nicholls et al. 2016). In India, one of the taboo foods is papaya with the belief that the consumption of this fruit can lead to an abortion. Further inquiry suggests that this belief can stem from the widespread view in the country that eating papaya can bring on amenorrhea (Choudhry 1997).

In the Kenyan population of Uasin Gishu, the most common dietary taboo mentioned by the population was the avoidance of organ meat; 96% of those interviewed mentioned this restriction (Riang'a, Broerse et al. 2017). Many women had not consumed these foods in years as it was forbidden to all women except those considered infertile or having reached menopause. The origin of this taboo seems to be deeply rooted in the patriarchy of the society; a woman eating organ meat is considered disrespectful. It is even said that if a woman eats animal tongue, then she will talk too much, instead of listening to the man (Riang'a, Broerse et al. 2017). This belief is so deeply rooted in the culture that it is preferable to throw the organ meat away than to have a woman consume it. Interestingly, just under one quarter of women stated that liver is a highly recommended food during pregnancy and it will often be put aside and saved for a woman who is expecting. In this population, six percent of women mentioned cabbage and kale as foods to avoid during pregnancy because they were seen as items that lacked nutritional value and potentially giving the mother-to-be heartburn (Riang'a, Broerse et

al. 2017). In Kenya, a woman's dietary beliefs and their application could vary greatly depending on factors such as ethnicity and source of information. Some foods, such as liver, beans, plantain and milk, were both recommended and proscribed for pregnant women, certainly adding to confusion in the population regarding what to eat. The authors concluded that when possible, instead of forcing women to eat the foods they were traditionally told to avoid, it would be best to find alternative foods that can help them achieve a high-quality diet. Unfortunately, this is not always possible in developing countries where a large variety of foods may not be available depending on the season or the cost. However, when educating women on the appropriate eating habits during pregnancy, these dietary taboos should be addressed and discussed. The authors also mentioned that dietary recalls would have enhanced the research project by aiding the analysis of dietary quality of the participants (Riang'a, Broerse et al. 2017). A comparison of these dietary recalls with non-pregnant, non-breastfeeding women of similar characteristics would also add an interesting component by verifying the actual effect of these dietary taboos on the target population.

A study took place in the south of Tanzania that researched rates of anemia during pregnancy as well as the dietary taboos that came into effect during this life stage. The majority of women, 69%, reported having at least one dietary restriction when pregnant. Twenty-four food items were mentioned as possible foods to avoid, the most common dietary taboos being fish and meat, avoided by 39% and 33% of the women respectively. Eggs were another taboo food, avoided because they are believed to cause baldness in the child. All of these can be important sources of protein and iron for the women. The authors had full necessary data for 413 women and found that 11% were severely anemic, defined as <8g Hb/dl (Marchant, Armstrong Schellenberg et al. 2002). Addressing these taboos and appropriate nutrition habits when pregnant is critical for this population.

2.4. Haiti

2.4.1. The situation in Haiti

Many factors result in an unsatisfactory situation for women and children throughout Haiti; 59% of the population live in poverty, making less than $2.41 US per

day, and 24% live in extreme poverty, with less than $1.23 per day (WorldBank 2014). The nutritional vulnerability in WRA is apparent throughout the country where food insecurity is widespread and consuming sufficient calories may be a challenge; about 12% of WRA are classified as having a low weight-for-height with a BMI <18.5 (IFPRI 2014, USAID 2014). Women often suffer from nutrient deficiencies, especially protein and iron; 54% of pregnant women are anemic (Purnell 2013). Maternal and child mortality rates are the highest in Latin America: 359/100 000 live births and 50.9/1000 live births respectively (FAO 2015, WorldBank 2015, WorldBank 2019). One in 80 women will likely die due to pregnancy or delivery related causes (UNFPA 2015). Additionally, about 23% of babies are born with a low birthweight (WorldBank 2018).

While almost all children in Haiti are breastfed (97%), only an estimated 40% are exclusively breastfed until 6 months of age (Cayemittes 2013). Almost three quarters, 73%, of children age 6-24 months suffer from anemia and vitamin A deficiency is quite common in children, affecting one third of those of preschool age. It is estimated that the country loses about $56 million US in GDP, about 0.7%, due to the micronutrient deficiencies (WorldBank 2011).

The 5th MDG was to improve maternal health, and one of the specific targets of this goal was to reduce maternal mortality by 75% from 1990 to 2015 (WHO 2015a). While many regions including Sub-Saharan Africa, Southern Asia and Eastern Asia made great progress, decreasing maternal mortality by 50% or more, Haiti's progress in this area has been slower (WHO 2018). Though maternal mortality in the country has decreased by 43%, this is still lengths away from the 75% goal reduction, and the target global maternal mortality rate of 70 per 100,000 live births (WHO 2015a, WHO 2018, TAC-Economics. n.d.).

Having access to sufficient health care services is critical for pregnant women; diagnosing and treating any potential deficiency or problem can decrease the risk of future complications. Additionally, health care appointments during pregnancy would provide women the opportunity to receive the necessary information regarding appropriate nutrition during pregnancy. Unfortunately, there is a large gap in the health care system for women in Haiti; though 90% of pregnant women went to one or more

pre-natal health care visits, only two thirds went to four visits, the minimum recommended. This is likely impacted by the fact that there are many challenges for women when it comes to health care access; 76% stated economic barriers, 21% stated going alone posed a difficulty and 9% declared needing permission before visiting a health care center. Only slightly more than one third of women gave birth in the presence of a health care professional or in a health care setting, 37% and 36% respectively. After delivery, over 60% of women did not return for a follow-up visit at a health care center. With no formal nutritional education on proper practices for herself or her child throughout pregnancy and after delivery, inaccurate information concerning what to eat can become the standard (Cayemittes 2013). Women's dietary diversity in the country can be very limited, even more so than in other developing countries. For example, in a study conducted through USAID looking at the dietary intake of mothers in Cambodia, Ghana and Haiti, it was found that the base of the diets in all three countries was starchy, high-carbohydrate foods. The data was collected through 24-hour dietary recalls gathered during Demographic and Health surveys. Maternal dietary diversity was calculated with an indicator based on nine food group categories. Eggs, organ meats, dairy and other animal by-products were not common foods mentioned in the recalls in any of the three countries. While meat or fish were more frequently consumed in Cambodia or Ghana, Haitian mothers consumed more legumes. Haitian mothers had the least diverse diet, with less than one third of participants consuming any fruits or vegetables. On average, women in Cambodia or Ghana consumed foods from four of nine food groups while those in Haiti only ate foods from three of these (USAID 2012). When baseline dietary intake of women is already extremely low, additional barriers can aggravate an already insecure situation where dietary quality and adequate nutritional intake is likely unsatisfactory.

2.4.2. Taboos in Haiti

2.4.2.1. Taboos Based in Humoral Medicine in Haiti

In 1970, Wiese was among the first to discuss the effects of dietary taboos based in humoral medicine on maternal nutrition in Haiti. Wiese explored the possibility of finding a tie to humoral medicine in Haiti when she collected data from September 1969

to September 1970. She interviewed ten midwives or herbalists in the country; persons with this title often accompany women through childbirth and provide them with nutritional advice after delivery. Despite their widespread and established role in aiding women through their delivery, they often lack formal training in proper nutrition practices. The research took place in Jérémie, an area situated in the Grand'Anse region. Results suggested strong ties to the humoral theory, particularly in regards to the classification of certain life stages as hot or cold and the avoidance of certain foods in consequence (Wiese 1976).

In Haiti; the traditional belief is that menstruation, pregnancy or breastfeeding are very hot states and whenever a woman's body is at such a point, cold foods should be avoided (Wiese 1976, Purnell 2013). According to tradition, the consumption of proscribed foods would potentially result in the woman developing a cold or pneumonia, hemorrhage and other issues that can also affect the breastfed child. Identified cold foods include cashews, mango, coconut, cassava, banana, grape fruit, lime, okra, watermelon, tomatoes, cane syrup, orange, cantaloupe, pineapple and chayote (Wiese 1976, Lipson 1998, Purnell 2013). Cabbage, conch (a mollusc), carrot, watercress and brown rice are all considered neutral foods. Eggs, pigeon, soup, broth, pork, rum, nutmeg, garlic, polenta and tea are generally considered hot foods (Wiese 1976, Purnell 2013). Many cold foods are a good source of calories and nutrients while the majority of the hot foods include beverages and spices. It is therefore evident that the avoidance of many cold foods by pregnant and breastfeeding women can significantly decrease their dietary diversity. This leaves them more vulnerable to undernutrition and the risks that are connected with it (Wiese 1976, Purnell 2013).

Wiese looked at the dietary practices of new mothers in Haiti, the causes for these practices and the effect that they had on nutrition. After analyzing this information, she discussed how to bring about improvements to maternal nutrition. To assess dietary diversity for this population, the author composed an initial list of foods available in the region. There was a total of 74 foods available; 47 of these foods being considered staples to the Haitian diet and therefore, by definition, economically accessible for most women, while the 27 other foods were not. The list of foods available to the women was further reduced by seasonal availability, with ten more products now considered inaccessible.

Therefore, from an original list of 74 food items possibly consumed by the population in the studied area, only half were actually accessible to the population once economic and seasonal factors were taken into account. From this list, further restrictions resulting from the hot/cold food theory based in humoral medicine were applied. Twenty-seven of the remaining 37 foods listed were among those restricted to pregnant and breastfeeding women because of the cultural taboos. With only 10 foods theoretically being consumed, it would be extremely difficult for pregnant women in this region to meet their nutritional requirements. This would leave them more vulnerable to deficiencies and therefore complications with their pregnancy or childbirth. Her research suggested that these traditional beliefs were possibly the most powerful factors influencing dietary diversity, more so than technological, economic and environmental elements (Wiese 1976). In order to ensure that these results are not simply a misrepresentation of the area's traditions due to bias, an additional ten herbalists were questioned on the subject. Each of these participants lived far apart in the South region of Haiti. They classified foods in categories from very cold to very hot and as dangerous or not to breastfeeding women. The statistical analysis resulted in an acceptance of the hypothesis; the avoidance of cold foods, due to an adherence to the humoral medicine theory, is a common practice in south Haiti that has the potential to severely limit the diet of breastfeeding women (Wiese 1976).

Though this research is dated, it continues to be a reference point for many researchers today as it is often considered the first major project to address the impact that humoral medicine can have in the region. One critique of this report, however, states that the claim that a typical pregnant Haitian woman only has access to about 10 foods is not backed by other evidence. Though economic power, seasons, absence of adequate technological development and dietary taboos must all be taken into account, it may be too restrictive in assuming Haitians cannot buy any of the other available foods. Pregnant women and new mothers should have been interviewed to back up these claims.

However, another study seemed to substantiate findings from Weise's study. According to a 1983 study interviewing Haitian women living in Miami and having lived in the US between 5 and 30 months, rice, bananas, okra and fish, were all restricted for breastfeeding women as they were classified as cold foods (Dempsey and Gesse 1983).

2.4.2.2 Taboos Against White Coloured Foods

In Haiti, white foods such as lima beans, white beans, lobster, milk and mushrooms are considered taboo postpartum due to the belief that they will cause hemorrhage or increase vaginal discharge in women having just given birth (Lipson 1998).

A 2011 study taking place in the town of Léogâne, found in the Ouest department of Haiti, looked at the current breastfeeding practices in this area while also researching the reasoning mothers use when choosing the dietary practices for their child. Over 1000 mothers were interviewed. An additional 25 in depth interviews with mothers from 22 to 35 years old were conducted, along with two FG with grandmothers, one with fathers from 29 to 63 years old and one with medical professionals. Discussion groups with traditional birth attendants and mothers between 19 and 35 years old also took place. Each FG had between 5 and 10 participants. Quantitative data was also included, with information collected from surveys. Though there were many disparities when discussing dietary taboos, the avoidance of white foods such as milk, white beans, pork and certain fish was often mentioned. Mushrooms, coconut and eggs were also mentioned as dietary restrictions by some of the individuals interviewed (Dornemann and Kelly 2013).

According to Harris (1987), white foods were mentioned as taboo after delivery for different reasons; one woman stated that it would increase vaginal discharge while another stated they were not recommended due to a build-up of pus in the two months after giving birth. It was unclear whether these foods would cause the pus build-up or worsen it (Harris 1987).

According to Roman (2007), mothers having received no prenatal care and taking part in a FG in Robin of the Grand'Anse region of Haiti mentioned that sugarcane, coconut and bananas were all to be avoided during breastfeeding as it could lead to the spoiling of a mother's milk and make the baby sick. This may or may not have been due to the colour of the food; the reason why these foods caused this effect was not mentioned and avocado was said to have a similar effect as well. Survey data, however,

revealed that only two of the women questioned mentioned consumption of the "wrong" food as a cause for inadequate or spoiled breast milk (Roman 2007).

A variety of other dietary taboos, seemingly unrelated to humoral medicine or the colour of the food, exist in the country. A 1987 study explored pregnancy and breastfeeding practices in the Haitian population by interviewing 11 Haitian mothers currently living in the U.S. Of these women, six had given birth in Haiti, two in the U.S and three had delivered in both countries. The women had been living in the United States between 1 and 10 years, with a 3.8 year average. The objective of the study was to gather information regarding cultural practices related to pregnancy and breastfeeding and the adaptations made when introduced to the American traditions surrounding these life stages. According to information collected in these interviews, few dietary restrictions exist during pregnancy. The expectant mother should generally eat whatever she desires that is tolerated by the fetus (meaning whatever foods do not give her nausea or upset stomach). This differs once the child is born. The interviews in this study did not have a formal structure but 5 of the eleven participants discussed what foods were restricted during the postpartum period. Certain fish, lima beans, tomatoes, white beans, black mushrooms, okra, and lobster were all considered proscribed by some, following delivery (Harris 1987).

The Dempsey & Gesse study found that eggplant, black pepper, cold liquids and milk were all considered taboo foods after delivery according to at least some of the participants. Tomatoes were avoided due to the belief that they would lead to increased vaginal discharge (Dempsey and Gesse 1983)

2.4.2.3 Contradictory and Inconsistent Information

Much of the research available from Haiti provides differing viewpoints on what foods are recommended and which are taboo. For example, though they are sometimes forbidden due to their colour or classification as a cold food, white foods such as porridge, bean sauce, rice and beans and plantains are sometimes considered to be among the foods recommended to expectant or breastfeeding mothers according to Haitian tradition. Some say they aid pregnant women or new mothers by providing them with

vitamins and giving them the necessary strength (Harris 1987, Lipson 1998, Kemp 2004, Dornemann and Kelly 2013, Purnell 2013). Chayote as well as red foods such as beets, pomegranates and papaya are also sometimes recommended but this was not seen widely in the research (Miller 2000, Roman 2007, Purnell 2013). Additionally, these foods may not be readily available or accessible to most Haitian women while most of the restricted foods are local and inexpensive.

The 2011 study in Léogâne revealed the potential for confusion in the area over what it means to eat well when pregnant or breastfeeding. Though there was consensus that in order to properly breastfeed, eating well was critical, there was little consensus over what this meant. While medical professionals advocate the consumption of a varied diet, the presence of traditional dietary taboos and restrictions resulted in women likely receiving conflicting advice. Taboo foods included cabbage, potatoes, grapefruit, goat, avocado, peanut butter, butter, and carbonated drinks such as soft drinks in addition to the white coloured foods mentioned previously (Dornemann and Kelly 2013).

2.4.2.4 Impact of taboos on Breastfeeding

Roman discussed research taking place in rural areas of the Grand'Anse region and looked at reasons women would have for not breastfeeding. Surveys discussing a variety of factors surrounding breastfeeding practices took place in 4 villages. Some of the survey questions looked into reasons why a woman might believe she did not have sufficient milk to feed her child. These questions revealed many of the factors involved and some were directly or indirectly related to dietary taboos. One of the 48 mothers having answered the survey stated that consuming the wrong food would result in inadequate breast milk. Sixteen women mentioned not eating enough as a reason for inadequate breast milk production. Three women said that inadequate access to food or drink would also be a barrier to breastfeeding. One woman from a village said that drinking lemonade would hinder breastmilk production. Similarly, though half of the participating mothers said that nothing could spoil breast milk, one woman surveyed mentioned that eating the wrong food could ruin it and render it unsuitable to feed a child. When looking at where the women got their information regarding appropriate breastfeeding techniques and practices, 15 of the 50 women surveyed got this information

from a health care agent. One woman got her information from a doctor and nine women got some form of teaching from a nurse. The other half of the women got information from different sources; eight from midwives[1], six from their mother, three from a friend and three got information from multiple sources while five stated receiving no advice (Roman 2007).

2.5 Conclusion

Pregnancy is a particularly vulnerable time for many women in developing countries. Increased caloric and micronutrient requirements combined with a food insecure environment contribute to undernutrition. Additionally, women are faced with numerous dietary taboos during this life stage, exacerbating the situation. Research has unveiled some of the many cultural traditions regarding what foods to consume and what foods to avoid for pregnant and breastfeeding women. The idea that foods influence pregnancy and breastfeeding outcomes is common, however there is great variety in the beliefs about what foods to consume and what foods to avoid. Though they vary with geographical location, country history and more, these cultural beliefs have the potential to dictate a woman's dietary intake. Additionally, many of the dietary taboos contradict each other and women receive different information from different sources, whether the sources be health care workers or family and friends. Unfortunately, at times, even health care agents may be sources of inaccurate dietary advice if they are lacking training on the topic and are influenced by other incorrect sources of information. A lack of accurate and consistent advice leaves room for unsound information to spread and cause confusion. Not knowing what is truly considered to be eating well during pregnancy or breastfeeding may lead to a woman avoiding more foods or spending money on more expensive foods instead of locally accessible ones. Both of these can result in a decreased nutrient and caloric intake. The mother may end up being insecure about the quality of her breast milk and as a result rely on formula or other inappropriate foods to feed her infant. This may partially explain the low rates of exclusive breastfeeding, about 40%, as well as the low percentage of women breastfeeding their child beyond 18 months of age, about 39%

[1] It is worthy to note that there's confusion on how well trained midwives are in Haiti. Often, the traditional birth attendant (matwon) with no official credentials is mentioned as "midwife" in the literature.

(Cayemittes 2013). The adherence to recommended maternal breastfeeding practices may be negatively impacted by the numerous myths surrounding this life stage combined with the lack of necessary education and health care support. While qualitative research confirms the existence of such cultural beliefs and their potential to influence a woman's food consumption, quantitative research may fail to find a significant difference between the diets of pregnant or breastfeeding women and those that are not. This was the case of a study in Burkina Faso; many women reported dietary restrictions when expecting a child, however quantitative data reported no difference in dietary patterns between those who were pregnant and those who were not. It was hypothesized that this could be due to the women adopting new habits in order to adapt to the dietary taboos, or simply not following the taboos, likely due to contradicting advice. However, though they were not necessarily decreasing their intake in comparison to other WRA, they were also not increasing their intake and the participants were not meeting the recommended nutrient intake (Huybregts 2009).

Though expectant and breastfeeding mothers may not be eating less than other women, they are also not eating significantly more as per recommendations considering their increased requirements. This is especially true for women in developing countries who are likely already not eating enough or may be suffering from a number of nutrient deficiencies. In fact, many women in the studies were not meeting their dietary requirements no matter what life stage they were in. To ensure that as many barriers to adequate nutrition are addressed, dietary taboos must be considered when implementing projects regarding maternal nutrition. Additionally, all family members should be part of the project; older female relatives are often a major influence on a woman's dietary choices even in the presence of advice from doctors and other medical professionals.

Many factors including but not limited to: poverty, natural disasters and insufficient government aid or intervention have a major influence on dietary intake, both quantity and quality. Unfortunately, making changes in these areas can be a very lengthy process as it often requires large scale national and international interventions. Dietary taboos are also among the factors that may contribute to decreased dietary diversity, particularly among pregnant and breastfeeding women in low income countries. While national programs providing supplements or fortified food to increase women's micronutrient intake can be

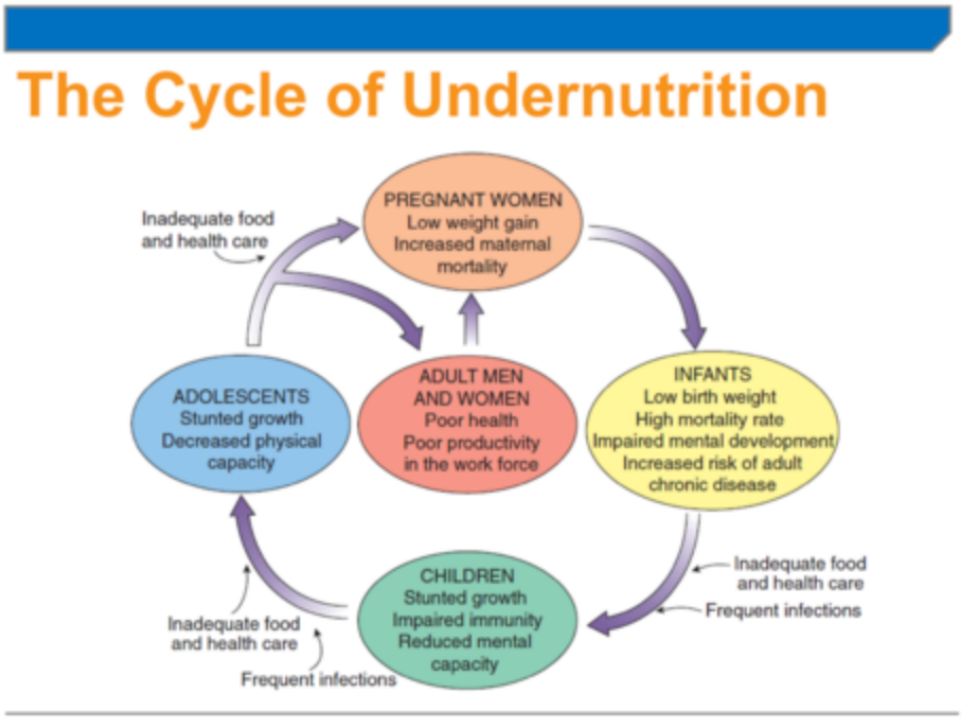
considered in the short term, these do not address the cause of the issue and a more sustainable solution is necessary. A longer-term solution should favour an environment where women can attain and maintain an appropriate weight and nutritional status in order to greatly decrease maternal, fetal and infant risk of morbidity or mortality. Local, educative activities discussing dietary taboos and appropriate nutrition during pregnancy and breastfeeding can contribute to this goal. By focusing on the nutritional benefits of dietary diversity and many of the locally available, low cost foods, women can be empowered to make better food choices that can improve their health outcomes as well as that of their child.

3. Rationale and Objectives

3.1 Rationale

The United Nation's MDGs encouraged countries to unite and prioritize interventions and legislation that would improve the quality of life of the world's most vulnerable. Unfortunately, many countries did not achieve these objectives, and undernutrition, including micronutrient deficiencies, continue to impact billions globally (Miller 2013). In some cases, the situation has even worsened (FAO 2018). Though supplementation and fortification programs may solve the problem in the short term, they are often a band-aid solution and does not get to the root of the problem; an insufficiently diverse diet low in necessary vitamins and minerals. Malnutrition in the fetus or infant can result in negative effects that produce long term consequences (Saaka 2012, UNICEF 2015, FAO 2016). The morbidity associated with undernutrition, for example illness due to decreased immunity, feeds into a vicious cycle by also increasing risk of malnutrition. Undernutrition will likely follow children and adolescents into adulthood, leading to decreased productivity and therefore decreased income, resulting in continued poverty and food insecurity. As undernourished WRA become pregnant, the poverty and risk of malnutrition can be passed on from one generation to the next. This cycle is briefly explained in Figure 2, below. Previous literature has shown that many factors can influence dietary diversity, a strong indicator of micronutrient adequacy. While many of these determinants are based on socioeconomic status such as household income, maternal education and land ownership (Kiboi 2017, Ochieng 2017), others are not.

Figure 2. The cycle of undernutrition Source: (Smolin 2010)



Taken from *Nutrition: Science and Applications* (2nd edition, p.758), by L. A. Smolin, & M.B. Grosvenor, 2010, New Jersey: Wiley.

Research has shown that the existence of a variety of different cultural beliefs also affect dietary diversity, restricting the consumption of many foods during pregnancy and lactation (Raman, Nicholls et al. 2016). A variety of food taboos in Haiti have been discussed in published literature; Weise discussed the taboos resulting from a strong adherence to humoral medicine, as did Dempsey & Gesse in their research. Other taboos involve white coloured foods, as was found according to different studies conducted by Lipson, Harris and Dörnemann and Kelly. Many other food restrictions were mentioned but it was not known why these items were proscribed. The food taboos in Haiti can result in women having decreased confidence in the information given to them by a health professional and in the nutritional value of many inexpensive, local foods that may highly benefit them. Unfortunately, expansive research on this topic in Haiti is quite limited; much of the literature is dated, does not include our target region and/or includes a very small sample size (Harris 1987, Lipson 1998, Dornemann and Kelly 2013).

It is the objective of this research to use FG to look at the dietary taboos existing in the area in order to better understand the multiple barriers to healthy eating faced by pregnant and breastfeeding women. Qualitative research is a critical tool in investigating the reasoning behind certain behaviours and allows researchers to gather a large amount of data in little time (Hammarberg, Kirkman et al. 2016). The existence of dietary taboos in Haiti has been documented in the past, however the FG allows for better and updated knowledge of these food restrictions. This is essential for educational activities; if a culturally appropriate, persuasive message is to be passed on to the community, a full understanding of the beliefs behind the taboos is crucial. Because the FG are done with mothers who have a good understanding of the realities of their communities, much of the beliefs and perceptions influencing the dietary choices of this population in the area can be revealed. The information gathered allows us to better prepare culturally acceptable and relevant key messages and activities.

The inclusion of a quantitative aspect is also important to see what impact these cultural dietary restrictions can have on food intake. The MDD-W is the indicator of choice because it takes into account the increased nutrient requirements of WRA (FAO 2016). Through its analysis of dietary diversity, it reflects micronutrient adequacy using 11 key micronutrients. The HDDS and WDDS have also been recommended as measures of dietary diversity in developing countries. The HDDS does not take into account the specific, often increased needs of WRA nor the likely unbalanced intra-household distribution of food. Unlike the other two indicators mentioned, the MDD-W is a dichotomous indicator, with women consuming five or more of the ten food groups considered as having met the minimum dietary diversity score. It also includes all foods consumed, even those outside the household, allowing for a more accurate representation of dietary intake. The indicator does not include the consumption of foods in quantities less than 15g or foods considered to be fats and oils, sweets or beverages such as alcohol, in order to avoid overestimating micronutrient intake and disregard foods which may contribute to overall energy intake but offer very little nutritional value (FAO 2016). This research project will be among the first studies in the Grand'Anse and South of Haiti to look closely at dietary taboos and their influence on dietary diversity using both qualitative and quantitative methods.

3.2. Objectives

This master's thesis is part of the larger A3PN project taking place in the Sud and Grand'Anse departments of Haiti since April 2016.

3.2.1 Objective of the "Prenatal, Perinatal, Postnatal and Nutritional support in Grand'Anse and Southern Haiti (A3PN)" project: The primary objective of the A3PN project, carried out by the Fondation Paul Gérin Lajoie in collaboration with the WHO Collaborating Centre on Nutrition Changes and Development (TRANSNUT) and the Unité de santé international at the Université de Montréal with Catholic Relief Services as the implementing local partner, is to reduce rates of maternal and infant mortality in the Sud and Grand'Anse departments of Haiti. This is to be done through increased perinatal health services, improvement in dietary quality and providing local and governmental organizations with crucial information to strengthen and support interventions. Through A3PN, specific activities to attain these objectives take place including, but not limited to, the creation of community and familial gardens, seed and livestock distribution and information, education and communication activities with the population. Figure 3. below demonstrates the different activities A3PN undertakes.

Figure 3. Nutrition activities of the A3PN project. Source: (Decelles 2017)

Taken from *Recherches sur les barrières à l'allaitement, à l'hygiène et à la sécurité alimentaire en Grand'Anse et au Sud d'Haïti*, by S. Decelles & M. Batal, 2017, Montreal.

3.2.2 Objective of TRANSNUT as part of the A3PN project: The objective of TRANSNUT is to lead the research for A3PN, evaluating the impacts of the project in the targeted areas of research: breastfeeding, hygiene and access to water, nutrition, nutritional status and food security. At the time of this data collection, baseline measures were being taken. Data was also collected midway through the project and will be after the completion of A3PN in order to adequately measure any progress made.

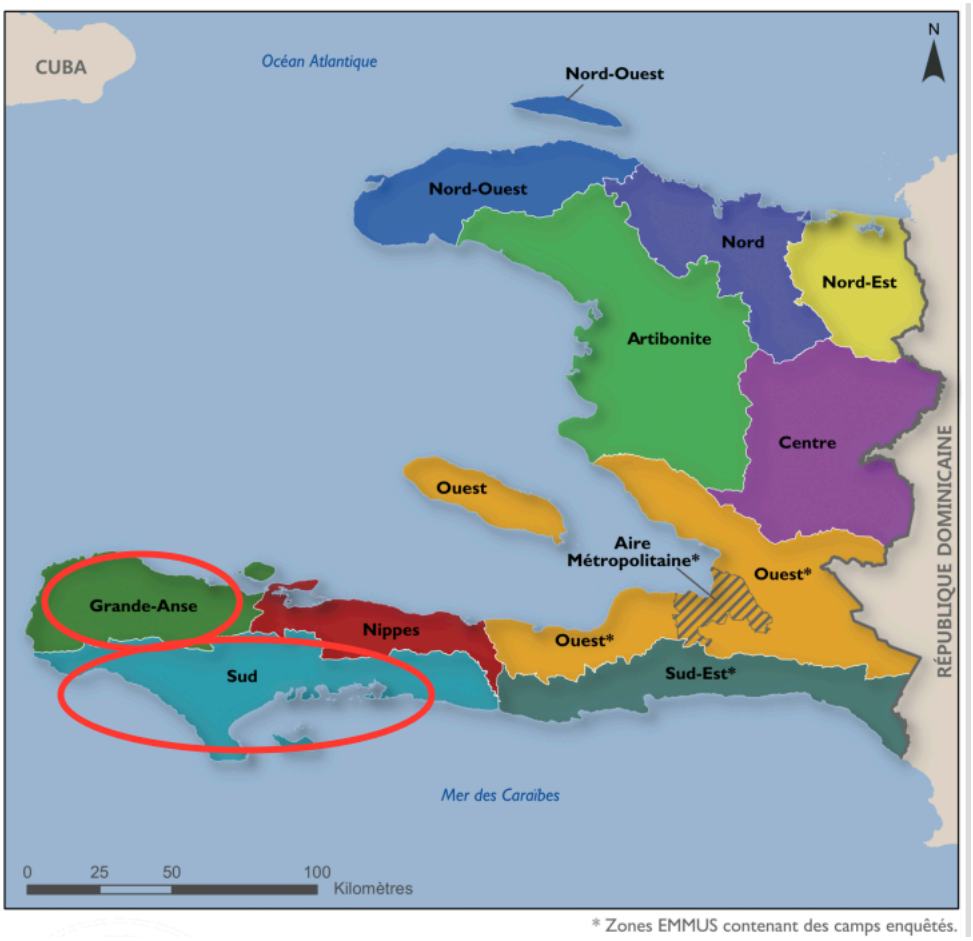
3.2.3 Objective of this thesis: The main target population of this research is WRA, aged 15-49 years old. The first objective of this study is to identify if any dietary taboos exist for pregnant and breastfeeding women and if so, why these foods and beverages are avoided. The secondary objective is to determine if there are any differences in dietary diversity between women who are pregnant or breastfeeding and those who are not, thus verifying whether food taboos have a significant impact on eating habits of the population. Finally, the results of this research are to be used in order to develop culturally appropriate messages to share with the communities through the A3PN activities in the hopes that these will break down barriers to appropriate nutritional intake and dietary diversity. This thesis will also analyze the determinants of dietary diversity in our target population.

4. Methodology

The "Prenatal, Perinatal, Postnatal and Nutritional support in Grand'Anse and Southern Haiti (A3PN)" project, providing support for mothers, newborns and children under five years of age through interventions such as health, nutrition and gardening education, child growth monitoring, and solidarity funds, has been ongoing since April 2016 and will be ending on March 31st 2020. Figure 4 shows the two departments of interest for this study. The project partners are Fondation Paul Gérin-Lajoie (FPGL), Catholic Relief Services (CRS), the WHO Collaborating Centre on Nutrition Changes and Development (TRANSNUT) at the Université de Montréal, and Unité de santé internationale (USI) at the Université de Montréal. FPGL is the leader and financial supporter of the project, CRS coordinates the staffing and is responsible for carrying out the interventions in Haiti, TRANSNUT is responsible for data collection and measuring the impact of the project on the target population and USI is responsible for the evaluation and support of 10 health centers in the study area. The main financial contributor to A3PN is Global Affairs Canada.

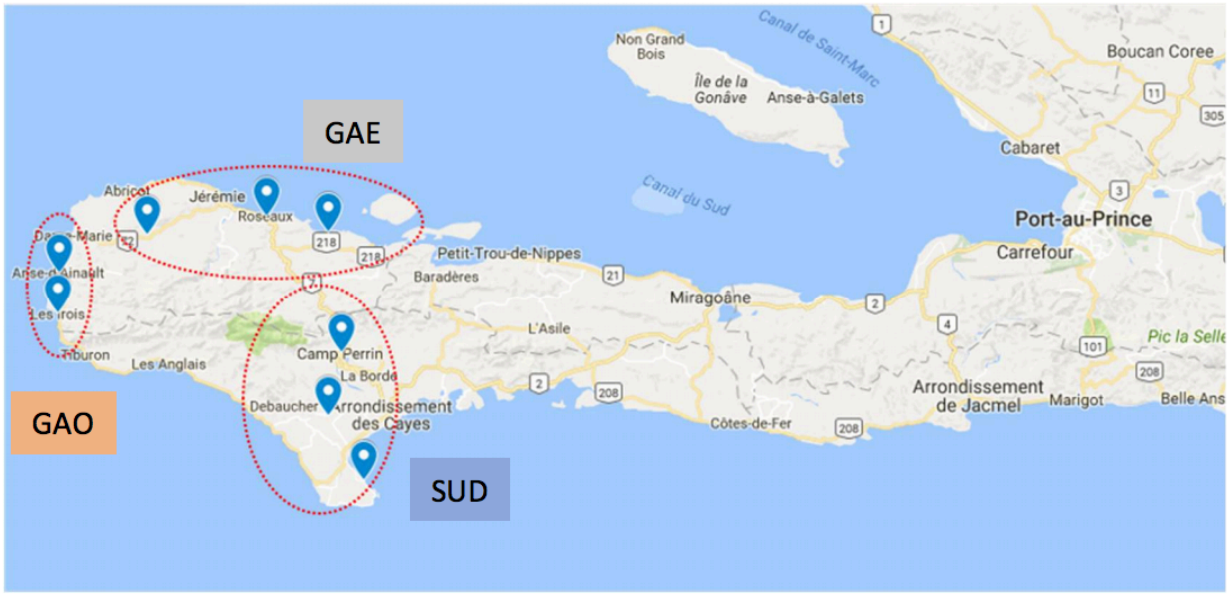
Interventions are carried out in eight communes of the South and Grand'Anse Departments of Haiti: Chantal, St-Jean-du-Sud and Camp Perrin are situated in proximity to the town of Les Cayes in the South Department; Corail, Roseaux, and Moron are close to the town of Jeremie in the Grand'Anse Department, and Anse d'Hainault and Les Irois are in the Anse d'Hainault region of the Grand'Anse Department. The three regions of study will henceforth be referred to as: Cayes, Jeremie and Anse d'Hainault. Figure 5 situates the eight communes on a map. For the purpose of this thesis, the activities discussed will include FG as part of the qualitative research as well as individual interviews and 24-hour recalls as part of the quantitative research.

Figure 4. The map of Haiti and the division among 10 departments. Source: (Cayemittes 2013)



Adapted from *Enquête Mortalité, Morbidité et Utilisation des Services* (EMMUS-V), by M. Cayemittes et al., 2013, Calverton, Maryland, USA : MSPP, IHE et ICF International.

Figure 5. The eight communes of the study area of the A3PN project. Source: (Sebai 2019)



Taken from "Sécurité alimentaire et diversité alimentaire des ménages en Haïti" by I. Sebai, 2019.

4.1 Target Population

The main target population for the A3PN project as a whole is WRA and children under five years of age. However, for changes to be sustained, all members of a population should be involved, therefore data collection and certain activities included subjects outside of these categories as well. All study participants included were from a household located in the commune of interest for the day's data collection.

A3PN organized the formation of 220 mother's clubs, groups of mothers who meet regularly to participate in educative discussions and activities. Women from these clubs who were considered particularly knowledgeable on the nutritional practices in their community participated in the FG of the qualitative data collection and were not necessarily WRA. All women participating had to be capable of providing informed consent.

Women participating in the quantitative data collection had to be of reproductive age (defined as 15-49 years old for the purposes of this project), and had to be mother or guardian of at least one child under five years of age who was living in the household. All

participants had to be able to provide informed consent in order to take part in the research project.

4.2 Development of intervention activities

4.2.1 Qualitative Data

Focus groups

Qualitative research is an indispensable tool used to collect information that cannot adequately be studied through quantitative methods, for example looking into the reasons and beliefs behind a practice or finding out more about a certain experience. FG are a common method of data collection in qualitative research. The questions posed are often open-ended, therefore participants are not limited in their answers. FG also allow for better exploration of the answers given as there is the possibility of follow up questions when deemed appropriate (Jack 2006, Gill 2008). Research has found that FG can uncover information that participants would not necessarily mention in an individual interview setting (Guest 2015). For best results, FG should not include more than 14 people (Gill 2008).

Two sets of FG were conducted with mothers' club members in 2017 to assess the barriers to breastfeeding, hygiene and food security in the Grand'Anse and South Departments of Haiti. Eight FG (one per commune) were conducted during the lean season (March to May 2017) and eight other FG were conducted during the harvest season (July to September 2017). Dietary taboos for pregnant and breastfeeding women were only discussed in the lean season. This is because though intake may change with seasons, dietary taboos, which are often based in long standing tradition, would not. It was stressed that questions asked were not in regard to the participants personal experience or practices but to what she sees in her community. All questions were translated from French to Haitian Creole and back to French in order to ensure that they were properly worded and appropriate. All questions (not including follow-up questions) are found in Appendix 1. The two questions of main concern for this study were:

"Do the women in your community tend to avoid eating certain foods or beverages at certain moments when they are pregnant? If so, which ones and why?"

"Do the women in your community tend to avoid eating certain foods or beverages at certain moments when they are breastfeeding? If so, which ones and why?"

At each data collection period, ten participants were recruited per chosen A3PN mother's club and included a moderator and at least one observer. The mother's clubs consist of 20-30 mothers that meet regularly to learn about and discuss issues relating to health in their community. The women who were recruited to participate in the FG were identified as being knowledgeable of perinatal health realities in their community. The FG were facilitated by a moderator (a nurse from the community) accompanied by three observers (two dietitians and a community health worker (CHW)). The community nurses were well informed of the dietary recommendations for WRA as well as the realities in the area concerning access to nutritious food, and barriers to their consumption, and thus had the capacity to lead the FG objectively, all the while knowing what to probe for.

FGs lasted up to 90 minutes and took place in the same locations as the usual mother's club meetings; often a classroom or church. Once the FG was over, a summary of the discussion was presented to the group, who was asked to confirm its validity. The moderator and observers then combined the notes taken during the discussion to ensure no information was ignored. The FG, including the post-meeting, was audio-recorded. For anonymity, all participants were attributed a pseudonym.

In post-analysis, the foods mentioned during the discussions were categorized by the author of this thesis into the ten food groups used in the MDD-W tool, which was developed by the Food and Agriculture Organization of the United Nations (FAO) to assess dietary quality based on a 24-hour recall, in WRA. The categorization into the ten food groups was then validated by the student's supervisor and the project coordinator at TRANSNUT before analysis could be pursued. The 10 food groups are: 1. Grains, white roots and tubers, and plantains 2. Pulses (beans, peas and lentils) 3. Nuts and seeds 4. Dairy 5. Meat, poultry and fish 6. Eggs 7. Dark green leafy vegetables 8. Other vitamin A-rich fruits and vegetables 9. Other vegetables and 10. Other fruits (FAO 2016). Those who consume food from at least five of the 10 food groups are thought to be more likely to have a diet that is adequate in micronutrients (FAO 2016).

4.2.2 Quantitative Data

Individual interviews

Household Questionnaires

Mothers of children under five years of age were surveyed during the lean season (March to May 2017) and the main harvest season (July to September 2017). Participants were asked to complete a 45-minute survey to measure baseline breastfeeding, hygiene and food practices in the project intervention areas. They were also asked questions related to socioeconomic status, household composition, hygiene and breastfeeding practices, and food security. The full list of interview questions can be found in Appendix 2. Mid-Upper Arm Circumference (MUAC) was measured to detect malnutrition in women following the Haitian guidelines: "Protocole national de prise en charge de la malnutrition aiguë globale en Haïti" (UCPNANu 2010). Survey questions were first written in French and later translated into Haitian Creole by collaborators at CRS. Translations were reviewed by TRANSNUT field researchers and were piloted twice with CRS project staff prior to data collection to ensure proper wording was utilized. Once the individual interview was over, a 24-hour recall was conducted with the mother and for any children in her care under 2 years of age.

Cluster sampling was used to select the study regions. The clusters consisted of Enumeration Sections (ES), which are sampling units, produced in the 2003 Haitian census where 200 +/- 100 households can be found (DSDS 2015). The 20 clusters chosen were stratified by commune and type of region (15% urban and 85% rural in accordance with the true population dispersion) and a larger sampling weight was granted to the clusters with the most households (sampling proportional to size), based on the most recent (2015) population estimates (DSDS 2015).

The inclusion criteria for mothers participating in the household surveys were the following:

a) Woman between the ages of 15 and 49 who is the mother or guardian of a living child under five years of age living in the household
b) Ability to give informed consent

Six Community Health Workers (CHW) per region were recruited and trained to conduct the interviews. The two-day training was performed by two field researchers who are trained dietitians (the author of this thesis being one of them), who were also responsible for supervising the CHW and reviewing their work. Data were collected on both electronic tablets and paper.

Data collected on tablets used the mobile version of Epi Info, version 1.3.4. The answers on the tablet were verified by field researchers while in the community for any missing forms, responses and incoherence between answers. Then all data were transferred to Université de Montréal for further verification using SAS base for Windows, version 9.4 for Windows. A report was generated daily and shared with field researchers to correct any and all mistakes.

Data collected on paper (household composition, anthropometric measurements, and 24-hour recall) were first entered into Epi Info version 7.2. Examples of the pages used to collect this information can be found in Appendix 3, 4 and 5, respectively. For quality control, secondary data entry was carried out in Excel by a distinct person. Both databases (Epi Info generated vs entered directly in Excel) were compared in SAS 9.4 to check and fix input mistakes.

24-hour recalls

A non-quantitative 24-hour food recall using the USDA multiple-pass method (USDA 2016) was conducted with the mother; she was asked to list all food and drinks she consumed the previous day, from the time she woke up the day before, to the time she woke up the morning of the interview. Though details on specific portions were not collected, to avoid overestimating dietary diversity for nutritious foods that are typically consumed in negligible quantities to add flavour to the dish such as kippered herring and leek, women were asked if the portion eaten was inferior to 15g (approximately one tablespoon). This was done as per the FAO Guidelines to measure MDD-W (FAO 2016). Once the recall and interview were complete, the document was returned to the field researchers who then classified each of the foods or beverages consumed into 1 of 16 predetermined categories taken from the FAO Guidelines for Measuring Household and Individual Dietary Diversity (FAO 2010).

For 24-hour recalls specifically, the food groups were first entered in Epi Info, then each food from the recall was entered separately in an Excel sheet. A program was then developed in Excel to assign whether each predetermined food group was eaten for an individual. As above, both databases were compared in SAS 9.4 to check for input and categorisation mistakes.

Mid-Upper Arm Circumference (MUAC)

There is no universally accepted cut-off point to assess underweight with MUAC. However, according to a meta-analysis exploring data from 17 studies from Africa, South Asia, Southeast Asia, North America and South America, a MUAC ≤24.0cm was determined to be the best cut-off point, in terms of specificity and sensitivity, to use to detect non-pregnant women with a BMI <18.5 (low weight for height) (Tang 2017). Cut-off points for pregnant women also vary according to studies. However, according to a systematic review, MUAC between 22 and 24cm were the most common reference points used to detect low BMI in pregnant women (Tang 2013). For the purposes of this study, women were categorized by MUAC according to two groups: ≤240mm and ≥241mm.

Minimum Dietary Diversity for Women (MDD-W)

The MDD-W is now the indicator that has been standardized for use in low-income countries worldwide to assess population-level micronutrient adequacy for 11 micronutrients in WRA (FAO 2016). The dichotomy of the indicator allows women to be characterized as having a low dietary diversity or as meeting the minimum dietary diversity (FAO 2016). The Women's Dietary Diversity Score (WDDS) lacked this dichotomy therefore studies using this indicator do not necessarily define low or adequate dietary diversity with the same number of food groups, making comparisons difficult (FAO 2016).

The open recall method used in the MDD-W allows for a more accurate estimation of intake as the respondent is not limited in her answer. The FAO also offers a guideline for foods that may cause confusion in their classification, such as avocado and coconut, so there is standardization between studies, allowing for better comparison. The simplicity of this indicator makes it ideal for large-scale use (FAO 2016).

4.2.3 Statistical analysis

For the quantitative data analyzed for the article*, The determinants of dietary diversity in women of reproductive age in the South and Grand'Anse regions of Haiti,* adjusted logistic regression were conducted in SAS 9.4 to determine which of the factors measured were associated with MDD-W. Possible determinants investigated were related to setting, socioeconomic status of the household and characteristics of the mother.

Setting, included the region, the season, and whether the household was in a rural or urban area. Questions used to measure household socioeconomic status were the number of revenue sources in the last 30 days, the number of people who lived in the household, the number of adults in the household, the number of children 0-59 months in the household, whether the household owned large livestock, access to land, household hunger based on the Household Hunger Scale (HHS), which is a standardized method for assessing hunger across populations (Ballard 2011), and diversity of crops harvested on and off the land, which was measured using an eight-point scale based on the MDD-W. To produce this scale, the food harvested was categorized into the seven MDD-W vegetable and fruit groups. An eighth food group was created by splitting the "Other vitamin A-rich fruit and vegetables" into two distinct food groups: vitamin A-rich vegetables and vitamin A-rich fruit (FAO 2016).

Survey questions looking at the mother's characteristics focused on their age, and education. Questions pertaining to mother's workload gathered data on the mother's working status in the last month.

To calculate the prevalence of women meeting the MDD-W, the 16 food groups were further categorized into the ten food groups used in the MDD-W tool. WRA who consume food from at least five of the 10 food groups are more likely to have a diet that is adequate in micronutrients (FAO 2016).

4.3 Ethics

This study was granted ethics approval by the Comité d'éthique de la recherche en sciences et en santé (CERSES) of the Université de Montréal as well as the Comité National de Bioéthique in Haiti. All participants were read an informed consent form. They were also provided with an extended version of this form containing additional

details. Both consent forms, short and long, can be found in Appendix 6 and 7, for the FG and individual interviews, respectively. Participants had the time to reflect on their desire to partake in the research activity and were given the opportunity to ask questions to research staff. Participants were not offered any compensation for partaking in the study though FG participants were offered a snack prior to starting the meeting. All data collected through surveys and FG are anonymized and will be held for seven years after the completion of the A3PN project, as per Université de Montréal regulations (UdeM 2018). Prior to beginning work in Haiti, the field researchers completed an online training course in research ethics at https://elearning.trree.org/.

4.4 Student contribution

The literature review was written by the author of this thesis who also participated in the pre-testing and adjusting of questionnaires both in Canada and in Haiti. The author of this work was one of the student researchers who travelled to Haiti on two occasions; once in September 2016, for the initial data collection which was cut short due to Hurricane Matthew, and again in February 2017 for the spring data collection. On these two occasions, she worked on the final translation and modification of questionnaires, preparation of intervention activities, training of CHW, supervised data collection activities (and the transmission of data to Montreal) and categorized the foods from the dietary recalls. The author of this thesis also acted as an observer during the FG and prepared a summary of the FG discussions following the qualitative research. The author of this thesis also wrote two articles related to this work, with the collaboration of co-authors named in each article. These articles were submitted for publication and are found in the results section below.

5. Results

This section presents first and foremost two integral articles entitled *Dietary taboos affecting pregnant and breastfeeding women in the South and Grand'Anse departments of Haiti* and *The determinants of dietary diversity in women of reproductive age in the South and Grand'Anse regions of Haiti*, submitted for publication in Public Health Nutrition and the Ecology of Food and Nutrition, respectively. The results outline the data collected from the A3PN FG in March to May 2017 and individual interviews conducted with over 1000 women in March to May and July to September 2017, the first year of the project. The consent forms for all activities mentioned, in their long and short form, both in Haitian Creole and in French will be found in the Appendix, as will all documentation guiding the FG, 24-hour recall and individual interviews.

Complementary results will be found in the second part of this section, following the integral article.

5.1 **Integral article I**

Dietary taboos affecting pregnant and breastfeeding women in the South and Grand'Anse departments of Haiti

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Abstract

Haiti is faced with severe issues of malnutrition and hunger. It is one of few countries in the world to present with rates above public health thresholds for three of the five main forms of malnutrition (anaemia in women of reproductive age, obesity in adults, and stunting in children). Though household hunger affects nearly 80% of the population, cultural beliefs may also be contributing to these high levels of malnutrition, particularly during pregnancy and lactation. The aim of this study was to identify and understand the dietary taboos that exist for pregnant and breastfeeding women, through focus groups in the Grand'Anse and South Departments of Haiti. The hundreds of dietary taboos identified in the focus groups came from nine of the ten food groups used to measure Minimum Dietary Diversity for Women of Reproductive Age (MDD-W). During pregnancy, many foods were said to be avoided because they were thought to cause gastrointestinal or cardiovascular problems in the mother, child delivery issues, or various health issues in the child once born. For breastfeeding mothers, many foods were thought to affect the mother's vaginal secretions, the child's gastrointestinal system, or the organoleptic properties of the breast milk. These beliefs, coupled with high rates of household food insecurity, likely represent a heavy burden on mothers and families, which must be addressed in future interventions.

Key words: Dietary diversity, food insecurity, taboos, maternal, Haiti

Introduction

Haiti is one of few countries in the world to present with levels above public health thresholds for three of the five main forms of malnutrition: anemia in women of reproductive age (WRA) (≥40%), adult obesity (≥20%) and child stunting (≥20%) (FAO 2018). Most (78.3%) of the population also reports moderate or severe hunger (CNSA 2011). The levels of malnutrition and hunger in this country can sensibly be tied to two underlying factors: persistent political instability and corruption with deep ties to colonial and historical abuses of power, which has led to critical underdevelopment; and climatic events, to which Haiti has high exposure risk due to weak infrastructure, rampant deforestation, and lack of coping mechanisms and long-term strategies for reducing the impact of these disasters (Dubois 2012, UNU-EHS 2017).

In countries afflicted by food insecurity, women are often among the most vulnerable to malnutrition (WHO 2018). Pregnant or breastfeeding women, particularly, are often affected by dietary taboos, despite having increased caloric and micronutrient needs (Raman, Nicholls et al. 2016). These cultural food restrictions are observed worldwide and can likely be traced back to populations' intentions to avoid using foods that may have previously caused individuals harm or illness, or even to protect natural resources from being overused (Okolocha, Chiwuzie et al. 1998, Meyer-Rochow 2009, de Sa, Bouttasing et al. 2013, Golden 2015, WHO 2016).

As early as 1941, the phenomenon has been studied and an analysis of 64 different societies found 38 and 31 types of restricted foods for pregnant and breastfeeding women, respectively. Many suggested that pregnant women should limit intakes of nutritious foods such as meat, fish and vegetables to prevent the fetus from growing excessively. Similar restrictions also applied to the breastfeeding mother, notably for fish and meat, which were thought to affect the smell of breast milk, and give the child diarrhea, respectively (Ford, Yale et al. 1945).

Some dietary taboos are based in humoral medicine, which is thought to have originated in ancient Greece. The concept of equilibrium was at the core of this system, and numerous factors, including weather, environment and life stages could cause a person to become unbalanced. Unbalance was often categorized as being too hot, cold,

wet or dry. Food and medicine were believed to restore or worsen these imbalances, depending on their own, similar, classifications (Wiese 1976, Foster 1987).

Other research has found dietary taboos related to food colouration. The avoidance of white foods during pregnancy or lactation has been recorded in countries including Ethiopia, Gambia and Sudan (Choudhry 1997, Zepro 2015, Vasilevski and Carolan-Olah 2016, Hassan Tahir HM 2018). In Ethiopia, for instance, it was thought that the consumption of white foods such as fatty meat, milk and potato during pregnancy would leave white patches on the baby's head (Vasilevski and Carolan-Olah 2016).

In Haiti, in the 1970s', some cultural restrictions seemed to be based in humoral medicine: many considered breastfeeding women to be in a "very hot" state, and foods considered "too cold" for this life stage, including avocado, mango and 25 other local foods, were avoided because they were thought to lead to issues such as pneumonia or hemorrhage (Wiese 1976). Other, more recent studies conducted in Haiti have observed taboos affecting white foods. Eggs, mushrooms, coconut and certain fish were sometimes avoided by breastfeeding women because they were thought to be detrimental to their own health, the health of their child or the quality of their breast milk (Harris 1987, Lipson 1998, Dornemann and Kelly 2013, Purnell 2013). No precision was made, however, as to what kind of negative impact these would have on the woman. Finally, many taboos unrelated to humoral medicine and food colouration exist in Haiti. During pregnancy, spicy foods and hot peppers, for instance, were thought to cause gastrointestinal distress or disturb the fetus (Dempsey and Gesse 1983, Purnell 2013). As for breastfeeding women, some foods were avoided because they were thought to increase vaginal secretion (Dempsey and Gesse 1983, Harris 1987, Lipson 1998, Purnell 2013), harm the child or decrease the quality of breast milk (Dornemann and Kelly 2013). The aim of this study was to identify and understand the dietary taboos that exist for pregnant and breastfeeding women in the Grand'Anse and South Departments of Haiti. The information collected through the focus groups (FG) was then used in formulating the key messages passed on at educative activities.

Methods

The “Appui prénatal, périnatal, postnatal et nutritionnel (A3PN)” project in the South and Grand'Anse Departments of Haiti, providing support for mothers, newborns and children under five years of age through interventions such as health, nutrition and gardening education, child growth monitoring, and solidarity funds, has been ongoing since April 2016. The project partners are Fondation Paul Gérin-Lajoie (FPGL), Catholic Relief Services (CRS), the WHO Collaborating Centre on Nutrition Changes and Development (TRANSNUT) at the University of Montreal, and Unité de santé internationale (USI) at the University of Montreal. Interventions are carried out in eight communes of the South and Grand'Anse Departments of Haiti: Chantal, St-Jean-du-Sud and Camp Perrin are situated in proximity to the town of Les Cayes in the South Department; Corail, Roseaux, and Moron are close to the town of Jeremie in the Grand’Anse Department, and Anse d'Hainault and Les Irois are in the Anse d’Hainault region of the Grand’Anse Department. The three regions of study will henceforth be referred to as: Cayes, Jeremie and Anse d’Hainault.

Focus Groups

Two sets of FG were conducted with mothers' club members in 2017 to assess the barriers to breastfeeding, hygiene and food security in the Grand'Anse and South Departments of Haiti. Eight FG (one per commune) were conducted during the lean season (March to May 2017) and eight other FG were conducted during the harvest season (July to September 2017). However, dietary taboos for pregnant and breastfeeding women were only discussed in the lean season. The two questions of main concern for this study were:

“Do the women in your community tend to avoid eating certain foods or beverages at certain moments when they are pregnant? If so, which ones and why?”

“Do the women in your community tend to avoid eating certain foods or beverages at certain moments when they are breastfeeding? If so, which ones and why?”

At each data collection period, ten participants were recruited per chosen A3PN mother's club. These clubs consist of 20-30 mothers that meet regularly to learn about and discuss issues relating to health in their community. The women who were recruited to participate in the FG were identified as being knowledgeable of perinatal health realities in their community. The FG were facilitated by a moderator (a nurse from the community) accompanied by three observers (two dietitians and a community health worker (CHW)). The community nurses were well informed of the dietary recommendations for women of reproductive age as well as the realities in the area concerning access to nutritious food, and barriers to their consumption, and thus had the capacity to lead the FG objectively, all the while knowing what to probe for.

FGs lasted up to 90 minutes and took place in the same locations as the usual mother's club meetings; often a classroom or church. Once the FG was over, a summary of the discussion was presented to the group, who was asked to confirm its validity. The moderator and observers then combined the notes taken during the discussion to ensure no information was ignored. The FG, including the post-meeting, was audio-recorded. For anonymity, all participants were attributed a pseudonym.

In post-analysis, the foods mentioned during the discussions were categorized by the first author of the article into the ten food groups used in the MDD-W tool, which was developed by the Food and Agriculture Organization of the United Nations (FAO) to assess dietary quality based on a 24-hour recall, in WRA. The categorization into the ten food groups was then validated by the co-authors before analysis could be pursued. The 10 food groups are: 1. Grains, white roots and tubers, and plantains 2. Pulses (beans, peas and lentils) 3. Nuts and seeds 4. Dairy 5. Meat, poultry and fish 6. Eggs 7. Dark green leafy vegetables 8. Other vitamin A-rich fruits and vegetables 9. Other vegetables and 10. Other fruits (FAO 2016). Those who consume food from at least five of the 10 food groups are thought to be more likely to have a diet that is adequate in micronutrients (FAO 2016).

Ethics

This study was granted ethics approval by the *Comité d'éthique de la recherche en sciences et en santé* (CERSES) of the University of Montréal, as well as the *Comité*

National de Bioéthique in Haiti. All researchers completed an online training course in research ethics (https://elearning.trree.org/), as requested by the Comité National de Bioéthique.

On the day of the FG, participants were read the informed-consent form by the FG moderator and a copy of the form was given to them for later reference. FG participants had the time to reflect on their desire to partake in the research activity and were given the opportunity to ask questions to research staff before, during and after the FG. Participants were also offered a snack prior to starting the meeting.

Results

Dietary taboos for pregnant women

Food taboos that restrict the types of food women can eat during the gestation period were motivated by the belief that certain foods could harm the mother or child during or after pregnancy. Most of these food taboos (41 out of 51), which concerned all but the 3. Nuts and Seeds MDD-W food group, were mentioned in the Jeremie region. Comparably, 10 food taboos from three MDD-W food groups were stated in the FG conducted in Les Cayes, and six food taboos from three MDD-W food groups were mentioned in Anse d'Hainault. Henceforth, the number of food taboos, MDD-W food groups, and FG in which the topic was discussed will be presented between parentheses as demonstrated below:

- Cayes (10 foods, 4 MDD-W, 3 FG)
- Jeremie (41 foods, 9 MDD-W, 3FG)
- Anse d'Hainault (6 foods, 3 MDD-W, 2 FG)

The food taboos for pregnant women are summarized in Table III. Altogether, these food taboos were primarily from four MDD-W food groups: 1. Grains, white roots, tubers, and plantains (19 foods), 5. Meat, poultry and fish (8 foods), 2. Pulses (5 foods) and 8. Other vitamin A-rich fruits and vegetables (5 foods) **(Table III)**.

Foods that can harm the pregnant woman

Much of the food taboos that were believed to cause harm to pregnant women focused on gastrointestinal issues, especially the perceived risk of vomiting or diarrhea in the mother (3 FG, 10 foods, 6 MDD-W).

"When a woman is pregnant she cannot eat meat, it makes her vomit."

- Lisa, Roseaux (Jeremie)

Some pregnant women also tended to avoid what they perceived as acidic food for fear of indigestion or heartburn (2 FG, 3 foods, 2 MDD-W).

"When a woman is pregnant she does not want to eat joumou (turban squash) because it gives her acid and heartburn." Anne, Roseaux (Jeremie)

Lastly, food taboos unrelated to gastrointestinal problems in the mother were tied to hypertension (5 foods, 3 MDD-W, 2 FG) and fatigue (1 FG, 3 foods, 3 MDD-W).

Foods that can harm the fetus or affect childbirth

The main food taboo during pregnancy that was thought to affect the fetus or childbirth was the fear that certain foods might cause the child to become too big and thus make childbirth more difficult (3 FG, 9 foods, 4 MDD-W).

"I heard that when a woman is pregnant, she does not drink too much juice or eat too much mango so that the baby will not grow too much." Madeline, Anse d'Hainault.''

The second important set of foods that were believed to harm the fetus or affect childbirth, were thought to disturb, or be disliked by the fetus (4 FG, 5 foods, 4 MDD-W).

Other food taboos concerning the fetus or childbirth were each mentioned in only 1 FG. These beliefs were tied to the risk of the child being born preterm (1 FG, 1 food, 1 MDD-W), causing hemorrhage during delivery (1 FG, 1 food, 0 MDD-W), or bringing harm to the child after birth, i.e. cause oral thrush (1 FG, 1 food, 1 MDD-W), sickle cell anemia

(1 FG, 1 food, 1 MDD-W), ruin the child or prevent him or her from learning how to walk).

> "When you are pregnant, you don't eat cong [type of fish] because if you eat cong, your child will be ruined...he will always be crying." Bianca, Les Cayes

Other food taboos during pregnancy

Some food taboos mentioned during the FG held in Jeremie were not necessarily tied to a specific issue; they were simply mentioned as not being good for the expectant mother or child (3 FG, 10 foods, 7 MDD-W).

Duration of food taboos during pregnancy

Among the 51 food taboos affecting pregnant women, the estimated duration of the food restrictions were three months for 10 food taboos, four months for 5 food taboos, seven months for 6 foods, nine months for 10 food taboos, and a mix of duration according to the region for 3 food taboos. The estimated duration was not mentioned for 18 food taboos.

Table III. Dietary Taboos Mentioned for Pregnant Women by Focus Group Participants, Typical Duration of Food Taboo, and Minimum Dietary Diversity-Women Food Groups Affected

	Region		Minimum Dietary Diversity-Women Food Groups											
	Les Cayes region (3 FGs)	Jeremie region (3 FGs)	Anse d'Hainault region (2 FGs)	Typical duration of food taboo (# months)	1. Grains, white roots and tubers, and	2. Pulses (beans, peas and lentils)	3. Nuts and seeds	4. Dairy	5. Meat, poultry and fish	6. Eggs	7. Dark green leafy vegetables	8. Other vitamin A-rich fruits and	9. Other vegetables	10. Other fruits	OTHER
Foods That Can Harm the Pregnant Woman															
Can give the mother diarrhea or vomiting	**1**	**2**													
1. Bread		X		-	X										
2. Breadfruit (*Tomtom*)		X		9	X										
3. Cornmeal	X	X		3^{CJ}	X										
4. Flour		X		-	X										
5. Rice	X	X		$3^{C}7^{J}$	X										
6. Bean sauce		X		7		X									
7. Cow's milk		X		3				X							
8. Meat		X		7					X						
9. Okra (*Tomtom*)		X		9									X		
10. Banana		X		9										X	

	Region	Minimum Dietary Diversity-Women Food Groups											
	Les Cayes region (3 FGs) Jeremie region (3 FGs) Anse d'Hainault region (2 FGs)	Typical duration of food taboo (# months)	1. Grains, white roots and tubers, and	2. Pulses (beans, peas and lentils)	3. Nuts and seeds	4. Dairy	5. Meat, poultry and fish 6. Eggs	7. Dark green leafy vegetables	8. Other vitamin A-rich fruits and	9. Other vegetables	10. Other fruits	OTHER
Too acidic: can cause indigestion / heartburn	**1 1**											
11. Black Beans	X	-		X								
12. Turban Squash	X	7							X			
13. Yellow Yam	X	3							X			
Can cause hypertension	**2**											
14. Bread	X	-	X									
15. Cassava	X	-	X									
16. Bean sauce	X	-		X								
17. Meat	X	-					X					
18. Coffee	X	7										X
Can cause fatigue	**1**											
19. Breadfruit (*Tomtom*)	X	9	X									
20. Okra (*Tomtom*)	X	9								X		
21. Banana	X	9									X	

	Region			Minimum Dietary Diversity-Women Food Groups												
	Les Cayes region (3 FGs)	Jeremie region (3 FGs)	Anse d'Hainault region (2 FGs)	Typical duration of food taboo (# months)	1. Grains, white roots and tubers, and	2. Pulses (beans, peas and lentils)	3. Nuts and seeds	4. Dairy	5. Meat, poultry and fish	6. Eggs	7. Dark green leafy vegetables	8. Other vitamin A-rich fruits and	9. Other vegetables	10. Other fruits	OTHER	
Foods That Can Affect the Fetus or Childbirth																
Fetus will get too big	**2**		**1**													
22. Bread	X			-	X											
23. Breadfruit (*Tomtom*)	X		X	7[J]4[A]	X											
24. Cassava	X		X	4[A]	X											
25. Flour			X	4[A]	X											
26. Spaghetti	X			7	X											
27. Bean sauce	X			-		X										
28. Meat	X			4					X							
29. Mango			X	4								X				
30. Okra (*Tomtom*)	X		X	7[J]4[A]									X			
Disturbs the fetus / Child does not like it	**1**	**1**	**2**													
31. Rice			X	4	X											

	Region	Minimum Dietary Diversity-Women Food Groups												
	Les Cayes region (3 FGs) Jeremie region (3 FGs) Anse d'Hainault region (2 FGs)	Typical duration of food taboo (# months)	1. Grains, white roots and tubers, and	2. Pulses (beans, peas and lentils)	3. Nuts and seeds	4. Dairy	5. Meat, poultry and fish 6. Eggs	7. Dark green leafy vegetables	8. Other vitamin A-rich fruits and	9. Other vegetables	10. Other fruits	OTHER
32. Meat	X	9					X					
33. Yellow yam	X	3							X			
34. Coconut	X	-									X	
35. Hot pepper	X X	9[J]										X
Increase the risk of baby being born preterm	**1**											
36. Lobster	X	-					X					
Hemorrhage during delivery	**1**											
37. Certain teas	X	-										X
Cause oral thrush in the child	**1**											
38. Malanga	X	-	X									
Cause sickle cell anemia	**1**											

	Region	Minimum Dietary Diversity-Women Food Groups											
	Les Cayes region (3 FGs) Jeremie region (3 FGs) Anse d'Hainault region (2 FGs)	Typical duration of food taboo (# months)	1. Grains, white roots and tubers, and	2. Pulses (beans, peas and lentils)	3. Nuts and seeds	4. Dairy	5. Meat, poultry and fish 6. Eggs	7. Dark green leafy vegetables	8. Other vitamin A-rich fruits and	9. Other vegetables	10. Other fruits	OTHER	
39. Sugarcane	X	7											X
Will ruin the child	**1**												
40. Cong Fish	X	-					X						
Child won't be able to learn how to walk	**1**												
41. Lobster	X	-					X						
Other Food Taboos During Pregnancy													
Not good for the expectant mother or child	**3**												
42. Bread (soup)	X	-	X										
43. Cornmeal	X	3	X										
44. Plantain	X	3	X										
45. Rice	X	9	X										
46. Bean sauce	X	9		X									
47. Fish	X	3					X						

	Region		Minimum Dietary Diversity-Women Food Groups												
	Les Cayes region (3 FGs)	Jeremie region (3 FGs)	Anse d'Hainault region (2 FGs)	Typical duration of food taboo (# months)	1. Grains, white roots and tubers, and	2. Pulses (beans, peas and lentils)	3. Nuts and seeds	4. Dairy	5. Meat, poultry and fish	6. Eggs	7. Dark green leafy vegetables	8. Other vitamin A-rich fruits and	9. Other vegetables	10. Other fruits	OTHER
48. Eggs		X		3						X					
49. Leafy greens		X		3							X				
50. Mango		X		-								X			
51. Cabbage		X		3									X		
Total: Les Cayes region	**10**				**3**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**1**	**2**
		4			**16**	**4**	**0**	**1**	**5**	**1**	**1**	**4**	**4**	**2**	**3**
Total: Jeremie region		**1**													
Total: Anse d'Hainault region			**6**		**4**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**
TOTAL					**19**	**5**	**0**	**1**	**8**	**1**	**1**	**5**	**5**	**3**	**4**

[C] Les Cayes region; [J] Jeremie region; [A] Anse d'Hainault region

Dietary taboos for breastfeeding women

For breastfeeding women, certain foods were thought to harm them or their child or impact the quality of their breast milk. The number of food taboos, MDD-W food groups, and FG in which the topic was discussed are presented below:

- Cayes (20 foods, 8 MDD-W, 3 FG)

- Jeremie (30 foods, 7 MDD-W, 3FG)
- Anse d'Hainault (20 foods, 9 MDD-W, 2 FG)

The taboo foods are presented in Table IV. The food groups most often mentioned were the 9. Other vegetables (13 foods), 10. Other fruits (12 foods), 1. Grains, white roots, tubers, and plantains (9 foods), 2. Pulses (7 foods) and 5. Meat, poultry and fish (5 foods) **(Table IV)**.

Foods that can harm the breastfeeding woman

Most foods thought to be detrimental to breastfeeding women were believed to alter the nature of the vagina or its secretions and odour (3 FG, 7 foods, 6 MDD-W). Another related food taboo was the belief that food can affect the health of the uterus (1 FG, 1 food, 1 MDD-W).

"The elderly say that after delivery you cannot eat okra. The woman will not dry properly [due to increased vaginal secretion]." Fabienne, Anse d'Hainault.

Women were also concerned about foods impacting their gastrointestinal health or causing diarrhea (1 FG, 5 foods, 5 MDD-W).

"They say not to have eggs or milk because these things are not good for your insides. The elderly always say this." Judith, Anse d'Hainault.

Foods that can harm the breastfed child

The vast majority of food taboos affecting breastfeeding women were in relation to the health of their breastfed infant, notably their gastrointestinal health (6 FG, 25 foods, 7 MDD-W). About half of the foods were mentioned to cause bloating, excess gas, diarrhea in the child (4 FG, 12 foods, 5 MDD-W).

"If you eat this [sweet potato and turban squash], the baby will take it through the milk and it will give him diarrhea. You should not eat this after you deliver, after six months you can eat it." Krystel, Moron (Jeremie)

As for the rest of the food taboos related to the gastrointestinal health of the child, oral thrush in the child was mentioned in 3 of the 8 FG (3 FG, 2 foods, 2 MDD-W) while other reasons were only mentioned in one FG each. These included the perception that food can burn (1 FG, 3 foods, 0 MDD-W), be too cold (1 FG, 3 foods, 3 MDD-W), or hurt the stomach of the child (1 FG, 1 food, 1 MDD-W).

"When you breastfeed, you don't eat avocado, cassava or banana. These are too cold for the baby's stomach." Antonia, Moron (Jeremie)

There was also the belief that *liann panye*, a leafy vegetable commonly eaten by children and adults in the South and Grand'Anse Departments, can turn an infant's excrement blue if consumed by his breastfeeding mother (1 FG, 1 food, 1 MDD-W), and the perceived negative effect of some foods on the baby's intestines (1 FG, 3 foods, 2 MDD-W).

"I know that some people, when breastfeeding, don't eat malanga or mazombel. They say it's not good for the baby's intestines." Vanessa, Les Irois (Anse d'Hainault)

Apart from the child's gastrointestinal health, a few food taboos were thought to cause the child to contract infectious diseases such as pneumonia (1 FG, 3 foods, 2 MDD-W), and the common cold (2 FG, 2 foods, 1 MDD-W) or chronic issues such as allergies (2 FG, 2 foods, 1 MDD-W) and anemia (1 FG, 3 foods, 2 MDD-W).

Lastly, some foods were avoided because they were perceived as being too acidic (1 FG, 3 foods, 3 MDD-W), while others were thought to simply disturb the child. No further description of possible consequences of eating these foods were mentioned during the FG (2 FG, 3 food, 3 MDD-W).

Foods that can affect the organoleptic properties of breast milk

Although few foods were thought to affect the organoleptic properties of breast milk, the majority of these food taboos were related to the smell of the breast milk (4 FG, 5 foods,

2 MDD-W). Other foods were said to alter the milk's taste (1 FG, 2 foods, 2 MDD-W), cause the milk to sour (1 FG, 1 food, 1 MDD-W) or dry it out (1 FG, 1 food, 1 MDD-W).

Duration of food taboos while breastfeeding

Among the 63 food taboos affecting breastfeeding women, the estimated duration of the food restrictions were three months for 17 food taboos, six months for 20 taboos, the entire duration of breastfeeding for 1 taboo, and a mix of duration according to the region for 3 food taboos. Twelve food taboos had no estimated duration mentioned.

Table IV. Dietary Taboos for Breastfeeding Women Mentioned by Focus Group Participants, Typical Duration of Food Taboo, and Minimum Dietary Diversity-Women Food Groups Affected

	Region			**Minimum Dietary Diversity-Women Food Groups**											
	Les Cayes region (3 FGs)	**Jeremie region (3 FGs)**	**Anse d'Hainault region (2 FGs)**	**Typical duration of food taboo**	**1. Grains, white roots and tubers,**	**2. Pulses (beans, peas and lentils)**	**3. Nuts and seeds**	**4. Dairy**	**5. Meat, poultry and fish**	**6. Eggs**	**7. Dark green leafy vegetables**	**8. Other vitamin A-rich fruits and**	**9. Other vegetables**	**10. Other fruits**	**OTHER**
Foods That Can Harm the Breastfeeding Mother															
Ruins nature of the vagina (Cayes and Jeremie) and alters vaginal secretion or changes its odour	**1**	**1**	**1**												
1. Mazombel	X			6	X										
2. Lima beans		X	X	3		X									

	Region	Minimum Dietary Diversity-Women Food Groups												
	Les Cayes region (3 FGs) Jeremie region (3 FGs) Anse d'Hainault region (2 FGs)	Typical duration of food taboo	1. Grains, white roots and tubers,	2. Pulses (beans, peas and lentils)	3. Nuts and seeds	4. Dairy	5. Meat, poultry and fish	6. Eggs	7. Dark green leafy vegetables	8. Other vitamin A-rich fruits and	9. Other vegetables	10. Other fruits	OTHER
3. Cow's milk	X X	3				X							
4. Yellow yam	X	3								X			
5. Okra	X X	3									X		
6. Tomato	X	3									X		
7. Lemon	X	3										X	
Not good for the uterus	**1**												
8. Tomato	X	3									X		
Not good for the mother's gastrointestinal health / gives mother diarrhea	**1**												
9. Lima beans	X	3		X									
10. Cow's milk	X	-				X							
11. Eggs	X	-						X					
12. Yellow yam	X	3								X			
13. Banana	X	3										X	
Foods That Can Harm the Breastfed Child													

	Region			Minimum Dietary Diversity-Women Food Groups											
	Les Cayes region (3 FGs)	Jeremie region (3 FGs)	Anse d'Hainault region (2 FGs)	Typical duration of food taboo	1. Grains, white roots and tubers,	2. Pulses (beans, peas and lentils)	3. Nuts and seeds	4. Dairy	5. Meat, poultry and fish	6. Eggs	7. Dark green leafy vegetables	8. Other vitamin A-rich fruits and	9. Other vegetables	10. Other fruits	OTHER
Causes bloating, gas and/or diarrhea	**2**	**1**	**1**												
14. Breadfruit (alone or in *Tomtom*)		X		6	X										
15. Sweet potato		X		6	X										
16. Lima beans			X	3		X									
17. Pigeon Peas	X			-		X									
18. Turban squash		X		6								X			
19. Yellow yam	X		X	3								X			
20. Cabbage	X			3									X		
21. Okra (Tomtom)		X		6									X		
22. Banana			X	3										X	
23. Coffee		X		6+											X
24. Ginger		X		6+											X
25. Pepper		X		6											X
Cause oral thrush in the child	***2***		***1***												
26. Malanga	X		X	$3^{C}6^{A}$	X										

	Region	Minimum Dietary Diversity-Women Food Groups											
	Les Cayes region (3 FGs) Jeremie region (3 FGs) Anse d'Hainault region (2 FGs)	Typical duration of food taboo	1. Grains, white roots and tubers,	2. Pulses (beans, peas and lentils)	3. Nuts and seeds	4. Dairy	5. Meat, poultry and fish	6. Eggs	7. Dark green leafy vegetables	8. Other vitamin A-rich fruits and	9. Other vegetables	10. Other fruits	OTHER
27. Mozambel leaves	X	6							X				
Burn infant's stomach	***1***												
28. Coffee	X	6+											X
29. Ginger	X	6+											X
30. Pepper	X	6+											X
Too cold for infant's stomach	***1***												
31. Cassava	X	-	X										
32. Avocado	X	-										X	
33. Banana	X	-										X	
Hurt infant's stomach	***1***												
34. Crab	X	6					X						
Not good for the baby's intestines	***1***												
35. Malanga	X	$3^{C}6^{A}$	X										
36. Mazombel	X	6	X										

	Region	Minimum Dietary Diversity-Women Food Groups											
	Les Cayes region (3 FGs) Jeremie region (3 FGs) Anse d'Hainault region (2 FGs)	Typical duration of food taboo	1. Grains, white roots and tubers,	2. Pulses (beans, peas and lentils)	3. Nuts and seeds	4. Dairy	5. Meat, poultry and fish	6. Eggs	7. Dark green leafy vegetables	8. Other vitamin A-rich fruits and	9. Other vegetables	10. Other fruits	OTHER
37. Peas	X	6		X									
Turn's infant's excrement blue	***1***												
38. Liann Panye	X	-							X				
Gives child a cold	***2***												
39. Watercress	X	-							X				
40. Icy beverages	X	-											X
Give's the infant pneumonia "Cold food"	***1***												
41. Curdled milk	X	6				X							
42. Avocado	X	-										X	
43. Coconut	X	6										X	
Can give the child allergies	***1 1***												
44. Cabbage	X	6										X	
45. Eggplant	X X	$3^{C}6^{A}$										X	

	Region	Minimum Dietary Diversity-Women Food Groups											
	Les Cayes region (3 FGs) Jeremie region (3 FGs) Anse d'Hainault region (2 FGs)	Typical duration of food taboo	1. Grains, white roots and tubers,	2. Pulses (beans, peas and lentils)	3. Nuts and seeds	4. Dairy	5. Meat, poultry and fish	6. Eggs	7. Dark green leafy vegetables	8. Other vitamin A-rich fruits and	9. Other vegetables	10. Other fruits	OTHER
Can cause anemia in the child	***1***												
46. Cassava	X	-	X										
47. Avocado	X	-										X	
48. Banana	X	-										X	
Too acidic	***1***												
49. Lima beans	X	-		X									
50. Yellow yam	X	-								X			
51. Tomato	X	3									X		
Disturbs the infant	***1 1***												
52. Sweet potato	X	-	X										
53. Turban squash	X	-								X			
54. Coconut	X X	3										X	
Food that can Affect the Organoleptic Properties of Breast Milk													
Changes the smell of milk	***2 2***												

	Region	Minimum Dietary Diversity-Women Food Groups											
	Les Cayes region (3 FGs) Jeremie region (3 FGs) Anse d'Hainault region (2 FGs)	Typical duration of food taboo	1. Grains, white roots and tubers,	2. Pulses (beans, peas and lentils)	3. Nuts and seeds	4. Dairy	5. Meat, poultry and fish	6. Eggs	7. Dark green leafy vegetables	8. Other vitamin A-rich fruits and	9. Other vegetables	10. Other fruits	OTHER
55. Crab	X	6					X						
56. Fish	X	-					X						
57. Seafood	X	All					X						
58. Cabbage	X	3									X		
59. Onion	X	3+									X		
Changes the taste of milk	***1***												
60. Fish	X	Preg					X						
61. Tomato paste	X	3									X		
Causes the milk to sour	***1***												
62. Lima beans	X	3		X									
Dries out the milk	***1***												
63. Lemon	X	6										X	
Total: Les Cayes region	***2 0***		***2***	***2***	***0***	***1***	***4***	***0***	***1***	***1***	***6***	***2***	***1***

	Region			Minimum Dietary Diversity-Women Food Groups											
	Les Cayes region (3 FGs)	Jeremie region (3 FGs)	Anse d'Hainault region (2 FGs)	Typical duration of food taboo	1. Grains, white roots and tubers,	2. Pulses (beans, peas and lentils)	3. Nuts and seeds	4. Dairy	5. Meat, poultry and fish	6. Eggs	7. Dark green leafy vegetables	8. Other vitamin A-rich fruits and	9. Other vegetables	10. Other fruits	OTHER
Total: Jeremie region		***3***													
		0			***5***	***2***	***0***	***1***	***0***	***0***	***1***	***3***	***4***	***8***	***6***
Total: Anse d'Hainault			***2***												
region			***0***		***3***	***4***	***0***	***2***	***1***	***1***	***1***	***3***	***3***	***2***	***0***
TOTAL													***1***	***1***	
					9	***7***	***0***	***3***	***5***	***1***	***3***	***6***	***3***	***2***	***7***

[C] Les Cayes region; [J] Jeremie region; [A] Anse d'Hainault region.

Discussion

Altogether, 114 food taboos were identified in this study, most of which concerned local nutritious food. Although reasons for restricting the use of foods were similar between regions, the type of food restricted often varied both within and between FG.

Official recommendations for pregnant and breastfeeding women are to restrain only a few types of food and beverages, for example stimulants and depressants such as coffee, decoctions, and alcohol (WHO 2001, Mussa, Nordeng et al. 2018). Although it is generally recognized that no other particular food needs to be avoided by pregnant and breastfeeding mothers, if a mother identifies a food as bothersome for herself or her child, recommendations are to temporarily avoid eating this food and to observe whether the problem resolves ((Quinlan 2003, Hill 2005, Vandenplas 2007, Jeong 2017).

Reasons underlying food taboos

Past research in Haiti showed a link between humoral medicine, food colouration and food taboos (Wiese 1976, Dempsey and Gesse 1983, Harris 1987, Dornemann and Kelly 2013, Purnell 2013). In the present study, only a handful of taboos seemed to stem from these concepts and these were only mentioned in one FG: coffee, ginger and pepper were believed to burn the infant's stomach; cassava, avocado, and banana were too cold for the infant's stomach; and curdled milk, avocado and coconut were thought to cause the child to contract pneumonia.

On the other hand, this study found a recurring mention of food taboos relating to specific consequences on the child and mother. The most prominent themes discussed were the effects on the mother's vagina, gastrointestinal issues in the mother and child, and concerns that specific foods will alter the breast milk's properties.

According to FG, foods were taboo because they were said to alter vaginal secretions, either in quantity or odour, or ruin the "nature" of the vagina. Similar beliefs were reported in four other studies conducted in Haiti (Dempsey and Gesse 1983, Harris 1987, Lipson 1998, Purnell 2013). However, to this day, no research has documented the reasons underlying these cultural beliefs.

As for the many taboos thought to cause gastrointestinal issues in the mother and child, food safety could be an important underlying factor to consider. As mentioned before, dietary taboos may have evolved from the avoidance of foods that were previously found to cause nausea or illness (Meyer-Rochow 2009, Placek 2017). Seeing as food safety is of great concern in Haiti, where many households use contaminated water to wash and prepare food, do not follow safe food handling practices, and do not have access to appropriate food storage areas (Gelting 2013, ICF 2018), it is possible that anecdotal associations have been mistakenly made with specific foods rather than food safety practices as a whole.

As for the concerns over the avoidance of strongly flavoured foods, past research, in Haiti and in other countries, has documented the avoidance of foods such as onion, garlic, spices, and hot foods because of their (perceived) negative effect on the taste or consistency of breast milk (Rao 1985, Lipson 1998, Ali Elneim 2014, Jeong 2017). Our study found that during pregnancy, hot peppers were said to be disliked by the fetus,

while fish, seafood, cabbage, onion and tomato paste were thought to negatively alter the taste or smell of breast milk during lactation. Indeed, these foods can modify the taste of the breast milk, however, contrary to popular belief, this tends to be appreciated by the infant because the tastes are familiar to those found in the amniotic fluid when consumed during pregnancy. It is also essential for the development of the child's affinity for these complex flavours (Beauchamp 2009, Patil 2012, Jeong 2017).

Food taboos targeting nutritious food

Most food taboos mentioned in this study (103 out of 114) concern foods that belong to the 10 MDD-W food groups, used to measure the adequacy of diet in WRA. If these beliefs are indeed being followed by community members, this could contribute substantially to the already vulnerable state of nutrient inadequacies in this population as these food taboos are incompatible with recommendations for a healthy pregnancy and a successful breastfeeding period and are likely to contribute to the many barriers to adequate dietary diversity that already exist in this vulnerable population.

Deficiencies in vitamin A and iron, for instance, are well documented in Haiti for children and mothers alike; 66% of children six to 59 months and 49% of WRA are anemic (ICF 2018). Nevertheless, many locally accessible foods rich in these micronutrients were mentioned as dietary taboos during FG, notably vitamin A-rich vegetables and fruit, meat, poultry and fish, and pulses. These were reported 15, 13 and 12 times, respectively. The same can be said for foods that are significant sources of folate, vitamin B-6, vitamin C, niacin and thiamin, which have also been found to be deficient in the diet of WRA in resource-poor countries (Arimond, Wiesmann et al. 2010). Foods belonging to the “Other fruits” and “Other vegetables” MDD-W food groups, among others, are important sources of these above-mentioned nutrients and were listed 29 times as dietary taboos.

As for energy requirements, although recommendations suggest that women increase their intakes during pregnancy (FAO 2001), participants in 3 FG discussed how some pregnant women avoided eating local nutritious foods to prevent the fetus from becoming too large and causing a difficult delivery. Though excessive gestational weight

gain can be problematic in certain circumstances, it is the consumption of added fat, sugar, and ultra-processed foods that should be limited, not that of local and nutritious food (WHO 2001, Meija 2017, Rohatgi, Tinius et al. 2017, Mussa, Nordeng et al. 2018).

Limitations

One limitation to the study is that for each taboo mentioned during the FG, we would have liked to see, by show of hands, how many participants had observed women adhering to the restriction in their community. This would have given us a better idea of the degree to which each taboo was observed. Unfortunately, this request for show of hands was often misunderstood and misinterpreted by the participants, who might have thought that raising their hand meant they themselves had abided by the taboo. This resulted in confusion and contradictory responses and, after multiple attempts, this section of the question was dropped.

Another limitation to this study is the engagement of the participants during the first FG of the project, located in the first commune in Les Cayes region. Only one woman answered per question during this FG and it was very difficult to stimulate conversation. This could have altered the number and types of dietary taboos documented in this particular area.

Conclusion

Based on our discussions with women from eight communes throughout the South and Grand'Anse Departments of Haiti, food taboos are a phenomenon that has the potential to create additional barriers to the adequate nutrition of pregnant and breastfeeding women, who are already considerably limited in the type and quantity of food that is available to them due to generalized poverty and food insecurity. What we observed, was that many reasons stated for avoiding these foods are commendable, notably for avoiding disease in the mother or child. However, in most cases, these food taboos are likely to cause more harm than good. In future research, determinants of dietary diversity in women, including association with pregnancy and lactation will be analyzed to ascertain whether factors such as food taboos which disproportionally affect

breastfeeding and pregnant women indeed translate to a decrease in diet quality in these populations.

Finally, as part of the action research in which this study is set, research team members discussed with the implementing partners in Haiti to determine a plan to reduce the burden of food taboos in the A3PN population. After reviewing the large set of monthly activities that aim to improve the nutritional health of mothers and children, project stakeholders agreed that participatory cooking workshops would be created in which mothers' club members would collectively cook local nutritious foods that were identified as being taboo for mothers or children, and share the meal among themselves and their families. During the workshop, discussions would be held about dietary diversity, food restrictions and the importance of food safety, and a tippy tap (http://www.tippytap.org/the-tippy-tap) would be on-site to encourage hand washing. Since late 2017, when this activity was implemented, over 1000 participatory cooking workshops have been held in the A3PN target populations. The inclusion of different community members, including men and older women, in the A3PN project, as well as the focus on community empowerment, can increase the acceptability and sustainability of such an activity. Having the activity be carried out by someone familiar with the community can also increase its acceptability among the participants (Rokx 2000).

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5.2 Integral Article II

The determinants of dietary diversity in women of reproductive age in the South and Grand'Anse regions of Haiti

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Abstract

Haiti suffers from high levels of micronutrient deficiencies, associated with poor diet quality. This study aimed to identify the determinants of dietary diversity in women of reproductive age in Haiti using 24-hour dietary recalls. Foods were classified into the 10 Minimum Dietary Diversity for Women (MDD-W) food groups, a standardized and validated proxy for micronutrient adequacy. Only 18% of women attained MDD-W. Demographic and socioeconomic characteristics were found to be significant determinants of MDD-W. Future interventions will be able to focus on these factors to sustainably improve dietary quality in the region.

Key words: undernutrition, micronutrient adequacy, dietary diversity, women, Haiti

Introduction

In recent decades, global efforts to reduce malnutrition, such as the introduction of the Millennium Development Goals in 2000, have had considerable impacts on maternal and child health; for instance, global rates of stunting in children under five years of age decreased from 32.6% in 2000 to 22.2% in 2017 (WorldBank 2019). However, insufficient food intake and micronutrient malnutrition (hidden hunger) remain serious public health issues in developing countries (Blössner 2005, Müller 2005, Muthayya 2013, WHO 2014).

Women of reproductive age (WRA) are disproportionately affected by these types of undernutrition (Muthayya 2013, WHO 2014, Hodge 2016, WHO 2018). Iron deficiency anemia is particularly worrisome; globally, rates have been increasing since 2011 (FAO 2018). The increased vulnerability of women in developing countries to malnutrition is multifactorial. For instance, women in the household are often the last ones to eat and intra-household food distribution may be inequitable as foods considered as most nutritious may be reserved for male members of the household (Paul 2014, FAO 2015, Weigel 2016, Harris-Fry 2018, FAO n.a.a). Furthermore, pregnant and breastfeeding women who have increased energy and nutrient requirements (FAO 2001, FAO 2015, FAO n.a.a), are frequently affected by cultural dietary taboos, many of which recommend to restrict the consumption of nutritious foods to prevent harm to themselves, their fetus, or child (Ford, Yale et al. 1945, FAO 2001, Raman, Nicholls et al. 2016).

Malnutrition in WRA can lead to fatigue and increased risk of illness, in turn decreasing productivity and potential economic contribution to the household (Elder 2003, França 2009). During pregnancy, undernutrition increases the risk of preterm birth or low birth weight which can then affect the infant's immunity and neurocognitive development (Purandare 2012, Gernand, Schulze et al. 2016). During lactation, certain micronutrients deficiencies can lead to decreased concentration in breast milk, increasing the risk of micronutrient undernutrition in the newborn (Black 2008). Additionally, research suggests that malnutrition in utero and during infancy can lead to long-lasting developmental changes that increase the risk of morbidity and mortality from disease

much later on in life (Developmental Origins of Health and Disease) (Barker 2007, Fall 2013).

MDD-W is a standardized dichotomic indicator that can be used as a proxy for assessing population-level micronutrient adequacy for 11 micronutrients in WRA (FAO 2016). Demographic Health Surveys (DHS) plan to use the MDD-W to measure micronutrient adequacy of WRA in upcoming data collection cycles (USAID 2019).

Studies investigating the determinants of dietary diversity have found that indicators of higher socioeconomic status such as income, occupation, food expenditure, number of rooms in the household, owning agricultural land, and education were associated with higher dietary diversity of WRA (Mayén 2014, Amugsi 2016, Shamim 2016, Kiboi 2017, Pal 2017, Tine 2018). Other potential determinants included households growing vegetables, gender and age of household head, household setting (urban vs rural), season, family size, monogamy and morbidity (Amugsi 2016, Stevens 2016, Kiboi 2017, Tine 2018).

As many other countries in Latin America make strides toward economic improvement and food security, Haiti lags behind (FAO 2015). Close to half the population is undernourished, stuck in a cycle of poverty that is powered by deeply rooted political instability (Dubois 2012), combined with natural disasters that regularly disrupt the country (FAO 2018) In Haiti, approximately 11% of WRA have a BMI <18.5, reflecting long-term insufficient caloric intake, and 46.2% are anemic (ICF 2018, WHO 2018). There is a lack of studies investigating dietary diversity of WRA and its determinants in Haiti. With this study, we aim to investigate the determinants of dietary diversity in WRA in the South and Grand'Anse departments of Haiti in order to understand the underlying factors affecting malnutrition in women.

Methods

The "Appui prénatal, périnatal, postnatal et nutritionnel (A3PN)" project in the South and Grand'Anse Departments of Haiti, providing support for mothers, newborns and children under five years of age through interventions such as health, nutrition and gardening education, child growth monitoring, and solidarity funds, has been ongoing since April 2016. The project partners are Fondation Paul Gérin-Lajoie (FPGL), Catholic

Relief Services (CRS), the WHO Collaborating Centre on Nutrition Changes and Development (TRANSNUT) at the University of Montreal, and Unité de santé internationale (USI) at the University of Montreal. Interventions are carried out in eight communes of the South and Grand'Anse Departments of Haiti: Chantal, St-Jean-du-Sud and Camp Perrin are situated in proximity to the town of Les Cayes in the South Department; Corail, Roseaux, and Moron are close to the town of Jeremie in the Grand'Anse Department, and Anse d'Hainault and Les Irois are in the Anse d'Hainault region of the Grand'Anse Department. The three regions of study will henceforth be referred to as: Cayes, Jeremie and Anse d'Hainault.

Household Questionnaires

Mothers of children under five years of age were surveyed during the lean (March to May 2017) and main harvest seasons (July to September 2017). Participants were asked to complete a 45-minute survey to measure baseline breastfeeding, hygiene and food practices in the project intervention areas. They were also asked questions related to socioeconomic status, household composition, agriculture, animal rearing and food security. Mid-Upper Arm Circumference (MUAC) was measured to detect malnutrition in women following the Haitian guidelines: "Protocole national de prise en charge de la malnutrition aiguë globale en Haïti" (UCPNANu 2010). There is no universally accepted cut-off point to assess underweight with MUAC in WRA, however according to a meta-analysis exploring data from 17 studies from Africa, South Asia, Southeast Asia, North America and South America, a MUAC ≤24.0cm was determined to be the best cut-off point, in terms of specificity and sensitivity, to use to detect non-pregnant women with a BMI <18.5 (low weight for height) (Tang 2017). Cut-off points for pregnant women also vary according to studies however a systematic review found that MUAC between 22 and 24 cm were the most common reference points used to detect low BMI in pregnant women (Tang 2013). For the purposes of this study, women were categorized by MUAC according to two groups: ≤24.0cm and ≥24.1cm.

A non-quantitative 24-hour food recall using the USDA multiple-pass method (USDA 2016) was conducted with the mother; she was asked to list all food and drinks she consumed the previous day, from the time she woke up the day before, to the time

she woke up the morning of the interview. Though details on specific portions were not collected, for nutritious foods that are typically consumed in negligible quantities to add flavour to the dish such as kippered herring and leek, women were asked if the portion eaten was inferior to 15g (approximately one tablespoon) to avoid overestimating dietary diversity. This was done as per the FAO Guidelines to measure MDD-W (FAO 2016). Once the recall and interview were complete, the document was returned to the field researchers who then classified each of the foods or beverages consumed into 1 of 16 predetermined categories taken from the FAO Guidelines for Measuring Household and Individual Dietary Diversity (FAO 2010).

Survey questions were first written in French and later translated into Haitian Creole by collaborators at CRS. Translations were reviewed by TRANSNUT field researchers and were piloted twice with CRS project staff at each data collection to ensure proper wording was utilized.

Cluster sampling was used to select the study regions. The clusters consisted of Enumeration Sections (ES), which are sampling units, produced in the 2003 Haitian census where 200 +/- 100 households can be found (DSDS 2015). The 20 clusters chosen were stratified by commune and type of region (15% urban and 85% rural in accordance with the true population dispersion) and a larger sampling weight was granted to the clusters with the most households (sampling proportional to size), based on the most recent (2015) population estimates (DSDS 2015).

The inclusion criteria for mothers participating in the household surveys were the following:

a) Woman between the ages of 15 and 49 who is the mother or guardian of a living child under five years of age living in the household
b) Ability to give informed consent

Six Community Health Workers (CHW) per region were recruited and trained to conduct the interviews. The two-day training was performed by two field researchers (dietitians), who were also responsible for supervising the CHW and reviewing their work. Data were collected on both electronic tablets and paper.

Data collected on tablets used the mobile version of Epi Info, version 1.3.4. The answers on the tablet were verified by field researchers while in the community for any missing forms, responses and incoherence between answers. Then all data were transferred to Montreal for further verification using SAS base for Windows, version 9.4 for Windows. A report was generated daily and shared with field researchers to correct any and all mistakes.

Data collected on paper (household composition, anthropometric measurements, and 24-hour recall) were first entered into Epi Info version 7.2. For quality control, a secondary data entry was carried out in Excel by a distinct person. Both databases (Epi Info generated vs entered directly in Excel) were compared in SAS 9.4 to check and fix input mistakes.

For 24-hour recalls specifically, the food groups were first entered in Epi Info, then each food from the recall was entered separately into an Excel sheet. A program was then developed in Excel to assign whether each predetermined food group was eaten for an individual. As above, both databases were compared in SAS 9.4 to check for input and categorisation mistakes.

Statistical analysis

Adjusted logistic regression were conducted in SAS 9.4 to determine which of the factors measured were associated with MDD-W. Possible determinants investigated were related to setting, socioeconomic status of the household and characteristics of the mother.

Setting, included the region, the season, and whether the household was in a rural or urban area. Questions used to measure household socioeconomic status were the number of revenue sources in the last 30 days, the number of people who lived in the household, the number of adults in the household (≥ 15 years), the number of children (0-59 months) in the household, whether the household owned large livestock, access to land, household hunger based on the Household Hunger Scale (HHS), which is a standard method for assessing hunger across populations (Ballard 2011), and diversity of crops harvested on and off the land, which was measured using an eight-point scale based on the MDD-W. To produce this scale, the food harvested was categorized into the seven

MDD-W vegetable and fruit groups. An eighth food group was created by splitting the "Other vitamin A-rich fruit and vegetables" into two distinct food groups: vitamin A-rich vegetables and vitamin A-rich fruit (FAO 2016).

Survey questions looking at the mother's characteristics focused on their age, and education. Questions pertaining to mother's workload gathered data on the mother's working status in the last month.

To calculate the prevalence of women meeting the MDD-W, the 16 food groups were further categorized into the ten food groups used in the MDD-W. The 10 food groups are: 1. Grains, white roots and tubers, and plantains 2. Pulses (beans, peas and lentils) 3. Nuts and seeds 4. Dairy 5. Meat, poultry and fish 6. Eggs 7. Dark green leafy vegetables 8. Other vitamin A-rich fruits and vegetables 9. Other vegetables and 10. Other fruits. WRA who consume food from at least five of the 10 food groups met the threshold for meeting MDD-W (FAO 2016).

Ethics

This study was granted ethics approval by the Comité d'éthique de la recherche en sciences et en santé (CERSES) of the University of Montréal as well as the Comité National de Bioéthique in Haiti. All participants were read an informed consent form which was signed by the CHW acknowledging that the form was read, understood and consent was given. Participants were provided with an extended version of this form containing additional details. Participants were not offered any compensation for partaking in the study. All data collected through surveys are anonymized and will be held for 7 years after the completion of the A3PN project, as per University of Montreal regulations (UdeM 2018). Prior to beginning work in Haiti, the field researchers completed an online training course in research ethics at https://elearning.trree.org/.

Results

Sample Characteristics

Setting:

Interviews and dietary recalls were conducted with 1157 women in the eight communes, 51.9% of whom participated during lean season. Slightly more than one third

of participants were in Les Cayes and Jérémie (34.2% and 35.5%, respectively), while 30.3% were from Anse d'Hainault. The vast majority of women (81.2%) were from rural areas.

Household:

Households mostly consisted of two to four people (40.8%) or five to seven people (44.4%), and nearly half of households (46.8%) had three or more adult members (≥ 15 years). Approximately two thirds (67.4%) of households had only one child under 59 months of age in their care. Most households (63.8%) depended on one source of revenue and owned or rented land (63.5%), while one fifth of households had no access to land (20.0%) or were sharecropping (16.5%). The majority owned big livestock (63.9%). Of those surveyed, almost one third (32.7%) harvested no foods belonging to the MDD-W food groups, while 23.2%, 22.1% and 22% harvested foods from one, two and three or more food groups, respectively. Half (50.2%) of the participating households suffered from moderate hunger and an additional 34.1% experienced severe hunger.

Mother:

Nearly half of the mothers participating in the study (44.9%) were between the ages of 25 and 34, followed by 29.9% who were between the ages of 15 and 24, and 25.2% who were between the ages of 35 and 49. One third (31.9%) of mothers had completed some primary school, and 52.5% obtained their primary school certificate. Over three quarters (77.5%) were unemployed. The majority, 681 women (58.9%), was breastfeeding, while 412 (35.6%) women were neither pregnant nor breastfeeding, and 64 (5.5%) were pregnant. Just under one quarter of mothers (23.9%) had an arm circumference equal or inferior to 240 mm, indicating underweight. Over one third of women (34.7%) consumed only one or two food groups of the MDD-W according to the 24-hour recall. The majority (47.3%) consumed three or four food groups and less than one fifth of participants (18.0%) achieved MDD-W, consuming at least five of the 10 food groups. All sample characteristics are presented in **Table V**.

Table V. Sample Characteristics of participants (n=1157)

	Sample Characteristics n	%
Setting		
Season		
Spring – Lean Season	600	51.9%
Summer – Harvest Season	557	48.1%
Region		
Les Cayes	396	34.2%
Jérémie	411	35.5%
Anse d'Hainault	350	30.3%
Urban/Rural		
Rural	940	81.2%
Urban	217	18.8%
Household		
# of People in the Household		
2-4 people	472	40.8%
5-7 people	514	44.4%
> 7 people	171	14.8%
# of Adults (≥ 15 years) in the Household		
1 or 2 adults	616	53.2%
3 or more adults	541	46.8%
# of children 0-59 months old per household		
1 child	780	67.4%
2 or more children	377	32.6%
# of revenue sources in the last 30 days		
1 source of revenue	738	63.8%
2 or more sources of revenue	419	36.2%
Access to Land		
No access	231	20.0%
Sharecropping	191	16.5%
Owns or Rents Land	735	63.5%
Possession of Livestock		

	Sample Characteristics	
	n	%
Owns small livestock or no livestock	418	36.1%
Owns big livestock	739	63.9%
Diversity of food harvested on and off agriculture land		
0 food groups	378	32.7%
1 food group	269	23.2%
2 food groups	256	22.1%
3 or more food groups	254	22.0%
Household Hunger Score		
A little bit or no hunger	181	15.6%
Moderate hunger	581	50.2%
Severe hunger	395	34.1%
Mother		
Age of Mother		
15-24-years old	346	29.9%
25-34-years old	520	44.9%
35-49-years old	291	25.2%
Level of Education		
Never went to school	141	12.2%
Did not complete primary school	369	31.9%
Completed primary school	607	52.5%
Completed secondary school	40	3.5%
Mother's Work Status		
No	897	77.5%
Yes	260	22.5%
Pregnant or Breastfeeding		
Pregnant	64	5.5%
Breastfeeding	681	58.9%
Not Pregnant or Breastfeeding	412	35.6%
Arm Circumference		
≤ 240 mm	277	23.9%
>240 mm	880	76.1%

Sample Characteristics	n	%
Dietary Diversity		
0-2 food groups	401	34.7%
3-4 food groups	547	47.3%
5 or more food groups	209	18.0%

Consumption of each MDD-W food group

Of the MDD-W food groups, Group 1. Grains, white roots, tubers and plantains were almost universally consumed, mentioned by 99.5% of participants in the 24-hour recall. Group 2. Pulses (beans, peas and lentils) were eaten by almost two thirds (62.3%) of women. Slightly more than one third of participants (37.3%) mentioned the consumption of meat, poultry and fish (group 5), and other food groups were consumed by 10 to 30% of women, apart from nuts and seeds (group 3) and eggs (group 6), which were only mentioned by 2.2% and 3.3% of participants, respectively. WRA who consumed 5 or more food groups were more likely to consume foods from Group 2. Pulses (OR:5.364, CI: 3.488-8.249), Group 3. Nuts and Seeds (OR: 5.174, CI: 2.326-11.510) Group 4. Dairy (OR: 5.152, CI: 3.709-7.155), Group 5. Meat, poultry and fish (OR: 6.782, CI: 4.836-9.511), Group 6. Eggs (OR: 6.118, CI: 3.167-11.818), Group 7. Dark green leafy vegetables (OR: 2.038, CI: 1.498-2.772), Group 8. Other vitamin-A rich fruits and vegetables (OR: 7.444, CI: 5.246-10.561), Group 9. Other vegetables (OR: 13.567, CI: 9.496-19.385) and Group 10. Other fruits (OR: 8.333, CI: 5.942-11.686). Table VI below illustrates the consumption of each MDD-W food group by participants.

Table VI. Consumption of each MDD-W food group by WRA according to total number of food groups consumed

MDD-W Food groups	Consumed food group (n)	(%)	OR [CI]
Grains, White Roots, Tubers, and Plantains			
<5 FG	942	99.4	1.00
≥5 FG	209	100	N/A

Pulses (Beans, Peas and Lentils)			
<5 FG	538	56.9	1.00
≥5 FG	183	87.6	5.364 [3.488-8.249]*
Nuts and Seeds			
<5 FG	12	1.3	1.00
≥5 FG	13	6.2	5.174 [2.326-11.510]*
Dairy			
<5 FG	132	13.9	1.00
≥5 FG	95	45.5	5.152 [3.709-7.155]*
Meat, poultry and fish			
<5 FG	277	29.2	1.00
≥5 FG	154	73.7	6.782 [4.836-9.511]*
Eggs			
<5 FG	17	1.8	1.00
≥5 FG	21	10.0	6.118 [3.167-11.818]*
Dark green leafy vegetables			
<5 FG	264	27.8	1.00
≥5 FG	92	44.0	2.038 [1.498-2.772]*
Other vitamin-A rich fruits and vegetables			
<5 FG	89	9.4	1.00
≥5 FG	91	43.5	7.444 [5.246-10.561]*
Other vegetables			
<5 FG	180	19.0	1.00
≥5 FG	159	76.1	13.567 [9.496-19.385]*
Other fruits			
<5 FG	106	11.2	1.00
≥5 FG	107	51.2	8.333 [5.942-11.686]*

**P value of p<0.05*

Determinants of Minimum Dietary Diversity for Women

The region in which participants lived, number of people and adults (≥ 15 years) in the household, number of sources of revenue, harvesting three or more food groups on and off agriculture land, household hunger score and maternal age and education were all determinants of dietary diversity according to the adjusted multivariate analysis.

Setting:

Women living in Anse d'Hainault were less likely to consume at least five of the 10 food groups than those in Les Cayes (OR 0.470, CI: 0.339-0.651).

Household:

Women from households with five to seven people were less likely to meet MDD-W compared to households where two to four people resided (OR 0.711, CI: 0.531-0.953). Meanwhile, those who lived in a household with at least three adults had increased MDD-W scores in comparison to those who were in households with one or two adults (OR 1.541, CI: 1.157-2.052). Participants in households with two sources of revenue were more likely to meet the MDD-W compared to those with one source of revenue (OR 1.674, CI: 1.267-2.211). Women living in households where foods from three or more food groups were harvested had increased dietary diversity (OR 1.835, CI: 1.280-2.632), while women from households categorized with severe hunger were less likely to meet the MDD-W than those with little or no hunger (OR 0.381, CI: 0.259-0.560).

Mother:

Older mothers were more likely to have increased dietary diversity; women aged 25-34 years old (OR: 1.363, CI: 1.026-1.810) and 35-49 years old (OR: 1.444, CI: 1.029-2.027) were more likely to meet the MDD-W than those aged 15-24 years of age. All women with some form of education were more likely to meet the MDD-W than those who did not have any education at all; women who went to primary school but did not complete it (OR: 1.509, CI: 1.003-2.269), completed primary school (OR 2.525, CI: 1.682-3.792) and

those who completed secondary school (OR 4.448, CI: 2.161-9.156) had increased dietary diversity compared to those who never went to school.

Significant determinants in the non-adjusted model:

Other household characteristics were found to influence dietary diversity but only in the unadjusted model. These included living in Jérémie, owning land, owning livestock, harvesting two or more food groups off the land, and moderate hunger in the household. Certain mother characteristics were also found to influence dietary diversity such as her working status and life stage (women who were breastfeeding vs women who were neither pregnant nor breastfeeding). Table VII below shows what factors were found to be determinants of dietary diversity.

Table VII: Logistic Regression of the Selected Determinants of Minimum Dietary Diversity

	Minimum Dietary Diversity (≥ 5 food groups) n	%	Odds Ratio [CI] Unadjusted	Odds Ratio [CI] Adjusted
Setting				
Season				
Spring – Lean Season	104	17%	1.00	1.00
Summer – Harvest Season	105	19%	1.229 [0.989-1.528]	1.142 [0.897-1.454]
Region				
Les Cayes	105	27%	1.00	1.00
Jeremie	69	17%	0.486 [0.373-0.634]*	0.748 [0.553-1.012]
Anse d'Hainault	35	10%	0.289 [0.218-0.383]*	0.470 [0.339-0.651]*
Urban/Rural				
Rural	174	19%	1.00	1.00
Urban	35	16%	1.116 [0.845-1.473]	1.189 [0.878-1.611]
Household Socioeconomic Status				
# of People in the Household				
2-4 people	87	18%	1.00	1.00
5-7 people	88	17%	0.751 [0.593-0.951]*	0.711 [0.531-0.953]*
> 7 people	34	20%	0.913 [0.657-1.269]	0.690 [0.440-1.081]
# of Adults (≥ 15 years) in the Household				

	Minimum Dietary Diversity (≥ 5 food groups)		Odds Ratio [CI] Unadjusted	Odds Ratio [CI] Adjusted
	n	%		
1 or 2 adults	90	15%	1.00	1.00
3 or more adults	119	22%	1.218 [0.980-1.514]	1.541 [1.157-2.052]*
# of children 0-59 months old per household				
1 child	141	18%	1.00	1.00
2 or more children	68	18%	0.837 [0.664-1.055]	1.081 [0.827-1.413]
Number of revenue sources in the last 30 days				
1 source of revenue	95	13%	1.00	1.00
2 or more sources of revenue	114	27%	2.107 [1.674-2.653]*	1.674 [1.267-2.211]*
Access to Land				
No Access	34	15%	1.00	1.00
Sharecropping	26	14%	0.999 [0.695-1.434]	0.726 [0.472-1.117]
Owns land	149	20%	1.378 [1.042-1.822]*	0.879 [0.614-1.257]
Possession of Livestock				
Owns small livestock or no livestock	57	14%	1.00	1.00
Owns big livestock	152	21%	1.445 [1.152-1.814]*	1.166 [0.899-1.512]
Diversity of food harvested on and off agriculture land				
0 food groups	52	14%	1.00	1.00
1 food group	46	17%	1.061 [0.789-1.425]	0.884 [0.630-1.243]
2 food groups	45	18%	1.442 [1.068-1.947]*	1.165 [0.822-1.650]
3 or more food groups	66	26%	1.996 [1.475-2.700]*	1.835 [1.280-2.632]*
Household Hunger Score				
A little bit or no hunger	56	31%	1.00	1.00
Moderate hunger	113	19%	0.497 [0.361-0.684]*	0.714 [0.506-1.007]
Severe hunger	40	10%	0.212 [0.150-0.300]*	0.381 [0.259-0.560]*
Mother's Characteristics				
Age of Mother				
15-24-years old	51	15%	1.00	1.00
25-34-years old	102	20%	1.421 [1.099-1.838]*	1.363 [1.026-1.810]*
35-49-years old	56	19%	1.196 [0.891-1.605]	1.444 [1.029-2.027]*

	Minimum Dietary Diversity (≥ 5 food groups)		Odds Ratio [CI] Unadjusted	Odds Ratio [CI] Adjusted
	n	%		
Level of Education				
Never went to school	7	5%	1.00	1.00
Did not complete primary school	45	12%	1.734 [1.185-2.535]*	1.509 [1.003-2.269]*
Completed primary school	141	23%	3.913 [2.718-5.635]*	2.525 [1.682-3.792]*
Completed secondary school	16	40%	7.866 [3.985-15.528]*	4.448 [2.161-9.156]*
Mother's Work Status				
No	149	17%	1.00	1.00
Yes	60	23%	1.428 [1.100-1.852]*	0.935 [0.684-1.279]
Pregnant or Breastfeeding				
Not Pregnant or Breastfeeding	94	23%	1.00	1.00
Pregnant	14	22%	1.060 [0.646-1.740]	1.237 [0.737-2.079]
Breastfeeding	101	15%	0.688 [0.546-0.867]*	0.800 [0.619-1.034]
Mother's Arm Circumference				
≤ 240 mm	44	16%	1.00	1.00
> 240 mm	165	19%	1.144 [0.887-1.476]	0.874 [0.667-1.146]

[1] OR [CI]: Odds Ratio [Confidence Interval] adjusted for all variable used to measure setting, household socioeconomic status, and mother's characteristics.

Discussion

This research revealed that women in the South and Grand'Anse regions of Haiti have poor dietary diversity; only 18.0% of participants consumed at least five of the ten MDD-W food groups and only starchy staples, pulses and meat, poultry and fish were consumed by more than one third of those interviewed. These findings were similar to those reported by one study that looked at 2005-2006 data from Demographic and Health Surveys for 1519 Haitian women who were consuming only three food groups (of nine possible categories) on average. All fruit and vegetable groups were consumed by less than 30% of participants (USAID 2012).

Furthermore, women who met the MDD-W were significantly more likely to consume almost all food groups compared to those who had only consumed 0-4 food

groups, with the exception of Group 1. Grains, roots and tubers, which were almost universally consumed.

Setting-Related Determinants of MDD-W

Women from the Anse d'Hainault region, the most western part of the Grand'Anse Department were less likely to meet MMD-W compared to those from Les Cayes. The same was almost true for the Jeremie region, of which the adjusted odds ratio confidence interval only slightly included 1 (OR: 0.748, CI: 0.553-1.012). The lower dietary diversity in Jeremie and Anse d'Hainault are likely explained by Hurricane Matthew; the category four hurricane devastated the South and Grand'Anse departments of Haiti in 2016, with the Grand'Anse region being the most affected of the two due to the greater intensity of the hurricane, and its limited built infrastructure (ACAPS 2016, Shultz 2016). After Hurricane Matthew, there was an almost total loss of agriculture and livestock in the Grand'Anse department. Food availability was immensely decreased not only in the time immediately after the hurricane, but also for the months to come. Some crops, such as coffee and citrus plants, will take years to replace (MARNDR 2016, OCHA 2016, OCHA 2017). The effects of the hurricane may also explain the lack of significant difference for dietary diversity between the lean and harvest seasons, given that seasonal foods such as fruits were not available in summer 2017.

This study did not find a statistically significant relationship between urban or rural setting and dietary diversity. Previous research has found mixed results regarding this. On the one hand, people in the urban setting may have better dietary diversity thanks to their increased physical access to markets and supermarkets, as well as better socioeconomic factors such as income or education (Arimond 2004, Zakaria 2014). On the other hand, studies have pointed to those in rural areas having a more diverse diet (Chagomoka 2016, Mukherjee 2018) thanks to greater direct or community food production. It is important to consider that, in this study, the urban centres are quite small in comparison to large urban centres such as Port-au-Prince or even Cap-Haïtien, where population counts are close to 1,000,000 and 300,000, respectively. Urban centre populations in the A3PN project, are between 700 and 10000, with an average of 3000,

and are in much greater proximity to the rural environment (DSDS 2015). Therefore, the reader is urged to keep these details in mind when interpreting this result.

Household Wealth-Related Determinants of MDD-W

Women coming from households with five to seven people were less likely to attain the MDD-W than those from households with two to four people. Meanwhile, mothers in households with at least three adults (≥15 years) or more and where more than two sources of revenue were available in the last month were more likely to have increased dietary diversity. Additionally, though the following factors were only significant in the non-adjusted model, mothers who were working were also more likely to meet the MDD-W than those who were not.

Studies have shown that the increasing number of people in a household generally tends to affect the well-being and health of its members (Cayemittes 2013, Paul 2014). However, seeing as results from our study show that women coming from households including more adults have greater likelihood of meeting the MDD-W, it is likely that the ratio between adults and children matters the most in our study population. Additional adults may offer more sources of income for the household, or may take on essential non-remunerated work such as taking care of the children, household tasks, and planting a garden. Mothers in households with more adults may also have greater chance of working outside the home, which not only increases income of the household, but may also increase her decisional power over food purchases and her own intake (Amugsi 2016, Amugsi 2016, Schrijner 2017).

On a related note, households suffering from severe hunger were less likely to consume an adequately diverse diet. Households in this category are in situations of extreme food insecurity and poverty characterized by situations where household members are going to sleep at night hungry, or spending a whole day without eating because there is not enough food. It is likely that women in this situation adhere to a diet that is heavily dependent on staple items such as starchy foods and oil, which may be inexpensive and calorically dense, however, lacking in essential nutrients.

Food Production-Related Determinants of MDD-W

Women harvesting three or more food groups on or off agricultural land were more likely to meet the MDD-W. These women have greater physical access to a diversity of food groups and therefore may be directly increasing their consumption in this way. They may also be selling these harvested food items to increase their revenue, and therefore purchasing a greater variety of foods (Herforth 2014, Jones 2017, Cook 2018, Murendo 2018).

Owning or renting land and possession of large livestock were only significant in the non-adjusted model. The lack of statistical significance in the non-adjusted model might be owing to the fact that urban and rural participants were included in this analysis, while propensity to own land or large livestock might be more prevailing in the rural setting. Those who own or rent land are likely to have a better socioeconomic status than those who have no access to land or practice sharecropping, and has previously been found to positively impact women's dietary diversity (Kiboi 2017, Ochieng 2017). Furthermore, in many developing countries such as Haiti, large livestock is considered to be a form of "bank account"; it can be used as collateral for a loan or credit or transferred into cash when necessary (Milnes 2013, Bettencourt 2015, Nyantakyi-Frimpong 2018). Livestock rearing was also shown to be a determinant of dietary diversity among WRA in South Africa (Taruvinga 2013).

Mother's Determinants of MDD-W

Women aged 25 to 34 years old or 35 to 49 years old were more likely to meet the MDD-W than those aged 15 to 24. Other research has reported similar findings for WRA, for instance in Kenya and Morocco (Landais 2014, Gitagia 2019). One reason may be that older WRA are less likely to be influenced by grandparents or elder women in the community to adhere to food taboos (Oni 2012) Younger WRA may also be less educated on adequate nutrition and their dietary needs (Bhandari 2016).

The mother's education was the most significant determinant of dietary diversity. Mothers having completed primary school were over two times more likely to meet the MDD-W compared to those never having gone to school, and those having completed secondary school were more than four times as likely. Studies have shown that educated women in low-income settings are more likely to spend money on nutrient-dense foods

though these foods may contribute less to satiety, because they are likely aware of the nutritional health benefits of a diverse diet (Rashid 2011, Taruvinga 2013, Kiboi 2017, Gitagia 2019).

Finally, though it was only significant in the non-adjusted model, breastfeeding women were less likely to consume an adequately diverse diet in comparison to women who were neither pregnant or breastfeeding. This is suspected of being linked to the many food taboos that exist for women postpartum. Cultural dietary restrictions have been documented in past research in Haiti with studies reporting the avoidance of foods considered "cold" such as avocado and mango, white-coloured foods and other nutritious items such as fish, cabbage and okra (Wiese 1976, Harris 1987, Dornemann and Kelly 2013, Arasimowicz in preparation). Through FG conducted with mothers in the study area, the qualitative component of the present study revealed the existence of dozens of food taboos during breastfeeding. These taboos often involve nutritious food items that are both locally available and economically accessible. Given the food-insecurity and widespread poverty of the area, it is probably that the restrictions of certain foods by women will decrease their overall dietary diversity.

Limitations

Hurricane Matthew, a particularly destructive storm, places a limitation on this study that is important to consider. With 90% of the agriculture destroyed in our study area, habitual dietary intakes and factors found to impact dietary diversity can be misrepresented (WorldBank 2017).

A second limit to the study, is the small sample size for certain variable categories. For instance women who completed secondary school (40) and pregnant women (64). Caution is therefore required when interpreting the study's results for these two populations.

Lastly, we were unable to include the size of the land in the analysis, due to the overwhelming number of people who were unaware of the estimated area on which they grow food. This information would have added important detail to the household's access to land.

Conclusion

Dietary diversity of women in the South and Grand'Anse regions of Haiti is very low; less than one fifth of WRA consumed five or more of the MDD-W food groups according to the 24-hour recall. Key underlying factors for low dietary diversity identified in this study include the composition of households (number of children vs number of adults), household socioeconomic status (wealth education), age of the mother, and diversified food production.

Based on these results, interventions that could contribute to increasing dietary diversity in WRA are those which focus on gender equity and education for young women, seeing as women tend to adopt a better dietary lifestyle with increasing education and wealth (Malapit 2015, EuropeanCommission 2019, Galiè 2019). A focus on family planning also is of the essence to help women attain their education goals, but also reduce financial and time burden on parents of having numerous young children (< 5 years), and minimize teenage pregnancies, given that mothers 15-24 years of age had the lowest dietary diversity, not to mention the many other problems related to teenage pregnancy (DaVanzo 1998, Molina 2010, Lathrop 2011). Community services including daycare, school meal programs, community gardens, kitchens and solidarity funds would also be of great value for families with several young children (Ruel 2013).

Finally, investments in built and natural infrastructure to make Haiti more resilient to natural disasters are critical, as these have long-standing effects on the dietary diversity of WRA, as demonstrated by the lack of significant difference in dietary diversity between lean and harvest seasons, post Hurricane Matthew(Marcelin 2017, FAO 2018).

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5.3 Complementary results

The rates of non-pregnant, non-breastfeeding women and pregnant women meeting the minimum dietary diversity score by consuming at least five MDD-W food groups were very similar, 22.8% and 21.9%, respectively. Only 14.8% of women who were breastfeeding met the minimum dietary diversity score, making them significantly less likely to consume an adequately diverse diet than non-pregnant, non-breastfeeding women. However, as seen in Table VIII below, this difference was only seen in the unadjusted model (OR: 0.688, CI: 0.546-0.867) and did not remain statistically significant when adjusting for other covariates (OR: 0.800, CI: 0.619-1.034).

Table VIII: Logistic Regression of the Selected Determinants of Minimum Dietary Diversity (Life stage)

	Minimum Dietary Diversity (≥ 5 food groups)		Odd Ratio (CI) Unadjusted	Odds Ratio (CI) Adjusted
	n	%		
Not Pregnant or Breastfeeding	94	22.8%	1.00	1.00
Pregnant	14	21.9%	1.060 [0.646-1.740]	1.237 [0.737-2.079]
Breastfeeding	101	14.8%	0.688 [0.546-0.867] *	0.800[0.619-1.034]

[1] OR [CI]: Odds Ratio [Confidence Interval] adjusted for all variable used to measure setting, household socioeconomic status, mother's characteristics. mothers' workload, and nutrition status.

Further analysis was done to compare the consumption of the 10 MDD-W food groups between women who were not pregnant or breastfeeding, those who were pregnant and those who were breastfeeding. As illustrated in Table IX, in the unadjusted model, breastfeeding women were less likely to consume foods from Group 9, Other vegetables

(OR: 0.703, CI: 0.538-0.917) and Group 10. Other fruits (OR: 0.677, CI: 0.495-0.925) than women who were not pregnant nor breastfeeding. Consumption of pulses was also marginally significantly lower in the unadjusted model (OR: 0.780, CI: 0.604-1.007) in breastfeeding women. There were no significant differences in the adjusted model.

Table IX. Logistic Regression analysis of the consumption of MDD-W food groups according to life stage

	Consumption of food group		Odd Ratio (CI) Unadjusted	Odds Ratio (CI) Adjusted
	n	%		
Grains, White Roots, Tubers, and Plantains				
Not Pregnant or Breastfeeding	411	99.8%		
Pregnant	64	100.0%	-	-
Breastfeeding	676	99.3%	0.329 [0.038-2.826]	0.456 [0.031-6.661]
Pulses (Beans, Peas and Lentils)				
Not Pregnant or Breastfeeding	273	66.3%		
Pregnant	36	56.3%	0.655 [0.384-1.117]	0.641 [0.361-1.139]
Breastfeeding	412	60.5%	0.780 [0.604-1.007]*	0.832 [0.622-1.115]
Nuts and Seeds				
Not Pregnant or Breastfeeding	8	1.9%		
Pregnant	1	1.6%	0.802 [0.099-6.519]	0.677 [0.076-6.058]
Breastfeeding	16	2.3%	1.215 [0.515-2.865]	1.737 [0.658-4.582]
Dairy				
Not Pregnant or Breastfeeding	87	21.1%		
Pregnant	18	28.1%	1.462 [0.807-2.648]	1.884 [0.988-3.594]

Breastfeeding	122	17.9%	0.815 [0.600-1.108]	0.974 [0.690-1.377]
Meat, poultry and fish				
Not Pregnant or Breastfeeding	156	37.9%		
Pregnant	27	42.2%	1.198 [0.702-2.044]	1.270 [0.718-2.247]
Breastfeeding	248	36.4%	0.940 [0.730-1.210]	0.949 [0.714-1.262]
Eggs				
Not Pregnant or Breastfeeding	19	4.6%		
Pregnant	2	3.1%	0.667 [0.152-2.935]	0.694 [0.147-3.272]
Breastfeeding	17	2.5%	0.530 [0.272-1.031]	0.686 [0.330-1.424]
Dark Green Leafy Vegetables				
Not Pregnant or Breastfeeding	129	31.3%		
Pregnant	20	31.3%	0.997 [0.565-1.760]	1.219 [0.671-2.214]
Breastfeeding	207	30.4%	0.958 [0.735-1.248]	1.001 [0.743-1.349]
Other Vitamin A-Rich Fruits and Vegetables				
Not Pregnant or Breastfeeding	69	16.7%		
Pregnant	6	9.4%	0.514 [0.213-1.239]	0.511 [0.207-1.265]
Breastfeeding	105	15.4%	0.906 [0.650-1.263]	0.931 [0.644-1.346]
Other Vegetables				
Not Pregnant or Breastfeeding	138	33.5%		
Pregnant	23	35.9%	1.114 [0.643-1.931]	1.231 [0.679-2.231]

Breastfeeding	178	26.1%	0.703 [0.538-0.917] *	0.839 [0.620-1.135]
Other Fruits				
Not Pregnant or Breastfeeding	89	21.6%		
Pregnant	17	26.6%	1.313 [0.719-2.397]	1.524 [0.801-2.896]
Breastfeeding	107	15.7%	0.677 [0.495-0.925] *	0.789 [0.557-1.117]

[1] OR [CI]: Odds Ratio [Confidence Interval] adjusted for all variable used to measure setting, household socioeconomic status, mother's characteristics. mothers' workload, and nutrition status.

6. Discussion

6.1 Decreased dietary diversity solely in breastfeeding women

Due to the findings of previous literature, it was hypothesized that women who were pregnant or breastfeeding would have a decreased dietary diversity than those who were not due to the existence and application of cultural food taboos. However, based on the present 24-hour recalls conducted, logistic regression calculations demonstrated that it was solely breastfeeding women who had decreased dietary diversity. Despite the existence of taboos during pregnancy, expectant women are more likely to be informed of nutritional requirements during this life stage; 67% of pregnant women will complete the minimum of four prenatal visits prior to delivery, however in the 41 days after delivery, over 60% of women get no check-up at all (Cayemittes 2013). In one Anse d'Hainault FG, while taboos were mentioned for both life stages, seven out of 10 women stated no dietary restrictions existed during pregnancy while only one woman stated the same during breastfeeding. The knowledge of adequate nutrition patterns during pregnancy could be changing, or these taboos may simply be less adhered to than the ones during breastfeeding; most of the food taboos from Haiti found in the literature involved the postpartum period.

According to FG, both pregnant and breastfeeding women faced dietary taboos, however many of the taboos during pregnancy were based on food tolerance. For example, rice was often avoided because it was said to cause nausea or vomiting if not tolerated by the baby. It is possible that certain dietary restrictions would only be adhered to if the expectant woman began to experience negative effects believed to be due to the food. If this is the case, not all women would avoid the same foods and dietary diversity across the sample population could remain unchanged.

6.2 Decreased consumption of "Other vegetables" and "Other fruits" by breastfeeding women

Of the 10 MDD-W food groups, Group 9, Other vegetables and Group 10, Other fruits were found to be consumed significantly less by breastfeeding women. Many of the dietary taboos that were discussed for this population include avoidances for these food groups. Foods from the Group 9 were mentioned a total of 12 times in the FG, namely

cabbage, eggplant, onion, okra and tomato (or tomato paste). Though this list may not be exhaustive, vegetables are not frequently consumed in the country. One USAID study looking at dietary diversity in Haiti found that only 1/3 of the women participating had consumed fruits or vegetables according to their dietary recall (USAID 2012). One study found that less than 25% of the mothers interviewed consumed any vegetable at all more than three days per week, however okra and tomatoes were among the few vegetables more frequently consumed (Dessalines 2008, USAID 2012). The present study reports similar findings; vegetables from any food group were not consumed by more than one third of women, even those who were not pregnant or breastfeeding. These taboos further limit the consumption of vegetables in a population already reported to have very low intake of this food group. These foods can be good sources of micronutrients such as vitamin C and thiamin, found to be deficient in many women in developing countries (Arimond, Wiesmann et al. 2010).

The consumption of fruits in Haiti is also estimated to be low, though when in season, the consumption of avocados, citrus fruits and mango may increase the dietary diversity in the population (Dessalines 2008, Parent 2014). Foods from Group 10. Other Fruits were mentioned 15 times during the FG, mainly for breastfeeding women (12 times). The taboo foods from this group included avocado, banana, coconut and lemon. The dietary recalls found the consumption of Group 10, Other Fruits, to be quite low, consumed by less than one quarter of non-pregnant, non-breastfeeding women, though this number increased for pregnant women and dropped for breastfeeding women. Foods from this category are not only a good source of calories for women, but they can also represent important sources of micronutrients such as vitamin C, folate, and niacin. Vitamin C aids in the absorption of iron from plant-based sources such as legumes, a frequently consumed food in the Haitian diet (Hallberg 1989, Dessalines 2008). Food taboos restricting intake in a food insecure population that may not have access to a wide variety of items while having increased energy and nutrient requirements is particularly worrisome.

6.3 Marginal decrease in consumption of pulses

Though the decrease in consumption of Group 2, Pulses, is not statistically significant, it is a clinically worrisome finding that should be further explored. The consumption of meat and other animal proteins in Haiti is low; research has classified the country among the bottom quartile in meat and fish consumption and a food frequency questionnaire given to mothers and their children in rural areas of South Haiti found that no meat or animal protein was consumed more than three times per week by more than half of participants, pork was consumed three times or more per week by 25-50% of women, while less than 25% of women consumed other meats, fish, and sea food three or more times per week (Speedy 2003, Dessalines 2008). Legumes therefore play a critical role in the diet of women in Haiti as they are a financially accessible and important source of energy, protein and iron for the majority of women. Beans are considered one of the staple foods for the population and these were consumed more than three days per week by the majority of women according to the food frequency questionnaire in the South of Haiti (Dessalines 2008, FEWSNET 2018). If breastfeeding women are told to avoid these foods and as a result restrict their consumption, they are at a greater risk of iron deficiency and undernutrition. Though mild or moderate maternal anemia does not impact the iron content of breastmilk, one study found that breast milk from mothers with severe anemia did have significantly lower iron content, putting their infant at greater risk of iron deficiency (Kumar 2008). Two studies found that hemoglobin levels were significantly lower in infants of mothers with anemia; iron deficiency in infants and children negatively impacts both cognitive and immunity development (Kumar 2008, Teixeira 2010, Shukla 2019).

Maternal anemia and undernutrition, caused in part by low consumption of iron and protein rich foods such as legumes, can also impact breastfeeding practices and duration. Research has found significant links between postpartum maternal anemia and increased depression, stress, emotional instability and impaired cognitive function (Beard 2005, Milman 2011). These feelings will likely have further consequences on the mother and child relationship, affecting breastfeeding practices (Beard 2005). In Haiti, there exists a notion of “bad blood”; if a breastfeeding mother has strong negative feelings, it may contaminate the milk, making it unsuitable for the child (Dornemann and Kelly

2013). Depression and feelings of sadness may cause mothers to halt breastfeeding and resort to formula or inappropriate complementary foods if she feels her breastmilk is now dangerous for her child. Additionally, iron deficiency often results in increased fatigue. Mothers experiencing fatigue or feelings of depression or stress may feel they do not have the energy or strength, mental or physical, to exclusively breastfeed her child. Research looking at the factors that influence a mother's confidence in her capacity to breastfeed found that feelings of fatigue, stress or anxiety all decreased breastfeeding self-efficacy in mothers (Dennis 2010, McCarter-Spaulding 2010). If a mother does not have confidence in her breast milk or her breastfeeding abilities, it is likely that breastfeeding frequency, duration and rates of exclusive breast-feeding will be reduced, then potentially increasing morbidity and mortality in children (Black, Morris et al. 2003, WHO 2019).

6.4 Lack of significant difference in dietary diversity between life stages

Once all variables were considered, there was no statistically significant difference in the dietary diversity of pregnant and breastfeeding women, compared to those who are not pregnant or breastfeeding. This can be explained by several factors.

6.4.1 The destruction caused by Hurricane Matthew

One explanation may be the passage of Hurricane Matthew that occurred just months prior to data collection and had a long-lasting impact on the research area. The vast destruction of the agricultural sector largely impacted the food available, in terms of quantity and quality, to the population of the South and Grand'Anse regions. It is therefore likely that even with the existence of dietary taboos, if women were faced with the decision of eating a food that would normally be restricted or eating nothing at all, she would likely ignore the taboo.

6.4.2 Low dietary diversity among all WRA

Even prior to the passage of Hurricane Matthew, research demonstrated that WRA in Haiti likely had low dietary diversity (Dessalines 2008, USAID 2012, Parent 2014). This was supported by the results of our research; less than one quarter of non-

pregnant, non-breastfeeding women and pregnant women met the minimum dietary diversity score, and less than one sixth of breastfeeding women did so as well. Over one third of all participants (34.7%) only consumed foods from two MDD-W food groups or less, while approximately half (47.3%) only consumed foods from three or four food groups. It is more difficult to notice a pattern of decreased intake when most women, pregnant, breastfeeding or not, are not regularly consuming many foods.

6.4.3 Methods of adaptation when faced with restrictive dietary taboos

Past research has also found that in the face of restrictive dietary taboos, women will adopt habits to adapt to these proscriptions. Huybregts briefly discussed the adherence to food taboos by pregnant women in Burkina Faso facing these dietary restrictions; while it was said that some women would implement the dietary restrictions, others did not know of them, or if they did, would consume the restricted foods in secret. In research, it is possible that these foods consumed would be reported if the woman was not accompanied by other family members when reporting her intake. This potentially explains why dietary diversity was not decreased in his study population, despite the existence of cultural food taboos (Huybregts 2009).

Similarly, Bentley and coauthors published research in 1999 looking at the practices of Lese women of the Ituri Forest in DRC during the hunger season. Women are particularly vulnerable during this period of lower food consumption as they often eat last, have smaller portions and are subject to more dietary taboos, especially when pregnant or breastfeeding. Meat is often a dietary restriction for women. The women of this population adopted a variety of adaptive practices in an attempt to alleviate this burden of insufficient caloric intake. Some women would ignore the taboos entirely or consume specific plants prior to the taboo food as these are supposed to mitigate the harmful effects believed to come from the food. Because they are often the ones preparing and portioning the meals, usually in a separate room, they may also put themselves larger portions than during the harvest season. Some women would also increase their consumption of food between meals or consume foods that they had kept hidden. This demonstrates that though taboos may be in existence, they are not always followed in their entirety and this can explain why studies may fail to find a significant

difference between diets of women who are pregnant or breastfeeding and those who are not (Bentley 1999). In Haiti, women are often the ones preparing the food and may be adapting to the taboos they face with similar habits; having snacks between meals, having bites of food before serving other or portioning themselves larger plates when possible.

Another possibility that may explain the lack of significant difference in dietary diversity is that women who are adhering to dietary taboos are replacing the proscribed food with another similar item. For example, women who are avoiding lyann panye may replace this leafy green with another such as spinach. Women who are avoiding rice may replace it with pasta. Though this may not seem problematic at first glance, as mentioned earlier many of the restricted foods are often common, inexpensive local products. If mothers feel the need to avoid these, they may replace it with foods that may be similar nutritionally, however will cost them much more money. When poverty and food insecurity is rampant, spending more than necessary on food can reduce the quantity of calories consumed as well as lead to less money left over to spend on education, housing, clothes and other necessities.

A final possibility is that there was simply no difference in the intake between the women who are pregnant or breastfeeding and those who are not. It may be that despite the existence of some taboos in certain areas, most women do not adhere to them for reasons such as increased education and changing traditions.

6.5 The MDD-W as a tool to assess dietary diversity

The dietary diversity of the women in this research is based on one 24-hour recall and calculated using the MDD-W. A limitation of this indicator is that because it only uses a one-time recall, it cannot be used to reflect the dietary quality of an individual person since a woman's intake in one day can vary immensely from one day to the next. Instead, this tool should be used to assess population dietary diversity and micronutrient adequacy at national or subnational levels. Though we cannot assess each woman's individual intake, we can compare the average intake and differences between groups. The MDD-W is considered to be acceptable as an indicator of micronutrient adequacy based on 11 micronutrients among WRA. The dichotomy of the indicator also fills a need that was missing with previous indicators such as the WDDS (FAO 2016).

List-based tools, such as food frequency questionnaires, are shown to be less intuitive for responders and participants who are not familiar with food groups may not classify what they ate in the correct group. These may also take longer than open-recall methods. Because time was limited and we did not want to burden the participants with very long and tedious questionnaires, the 24-hour recall remains the preferred tool (FAO 2016).

7. Limitations and future research

7.1 *Limitations*

The present study demonstrated many strengths including adequate training for the CHW before they set out to accomplish the required work as well as supervision and verification of the data collection process by two student researchers throughout the data collection period.

One major limitation to the research was the passing of Hurricane Matthew during what was meant to be the first data collection period. Student researchers had left for Haiti in September 2016 however less than two months later had to be repatriated. The natural disaster, which hit Haiti October 4th 2016, impeded the continuation of the project and data collection was postponed. More importantly, though the research project began months later, the effect of the hurricane on agriculture and food availability was still felt. At least 90% of the agriculture in the study area had been destroyed, with many crops taking months, if not years, to replace (WorldBank 2017). During interviews, some participants mentioned no longer having access to certain foods or crops since Hurricane Matthew. Without a doubt, this event impacted the dietary intake of the study population, as well as their income and other factors that could influence dietary diversity.

A second limitation to this research was the small sample size, particularly for pregnant women and women who completed secondary school. The sample size for the study population was determined by the number of children required for another aspect of the A3PN project, therefore the number of mothers interviewed and their classification of life stage, education and other variables was not controlled for. As a result, only 64 women were pregnant at the time of the interviews, and only 40 had completed secondary school. Caution is therefore required when interpreting this study's results for these two populations.

Another limitation to this project is the lack of access to certain geographical areas in Haiti. Due to the very limited infrastructure of the country, particularly in the Grand'Anse department, certain sections of the region were simply inaccessible, particularly for a day trip, and attempting to access these locations could have posed a danger to the data collection team. As a result, the most remote areas were excluded from the areas of data collection, though they may have belonged to the communes targeted by

the study. It is possible that women in these areas, with less access to health care and education, may be the most likely to follow cultural dietary taboos, therefore results may not be representative of the more isolated locations in the study area.

One limitation to the qualitative aspect of the study is that during the FG, for each taboo mentioned, we would have liked to see by show of hands, how many participants had observed women adhering to the restriction in their community. This would have given us a better idea of the degree to which each taboo was observed. Unfortunately, this request for show of hands was often misunderstood and misinterpreted by the participants; despite multiple explanations, the women often thought that raising their hand meant they themselves had abided by the taboo. This resulted in confusion and contradictory responses and this section of the question was eventually dropped.

A final limitation is that during the individual interviews with mothers, the land size to which the household had access was not quantified. This was due to the overwhelming number of participants who could not estimate the area on which they grew food. This information would have added important detail to the household's access to land.

7.2 Future directions

Once the data collection is complete and results are analyzed, the key messages passed on at activities conducted by the A3PN project will be based on these findings. These activities include cooking demonstrations for WRA that will prepare recipes using foods that have been mentioned as dietary taboos. This can break down the barriers to adequate nutritional intake by addressing the misinformation that may exist regarding appropriate foods for WRA at all stages. Educating women on their nutrient requirements and the nutritional value of local foods is essential and messages regarding how to optimize nutrient intake (such as always pairing plant-based sources of iron, like legumes and dark, leafy greens, with a source of vitamin C, to enhance iron absorption) can be passed on. These demonstrations can also emphasize the importance of hygiene during food preparation and food safety, to decrease risk of foodborne illness and negative gastrointestinal effects on the consumer. Because very few of the dietary taboos were

consistent between FG and even within the same group, women may discuss with each other their own beliefs and experiences and realize that others had positive experiences despite consuming foods they believed were taboo. Having the cooking activities be led by CHW who know the area and including influential members of the population such as traditional birth attendants and health care professionals can also increase the acceptability of such a project (Rokx 2000).

Other activities of A3PN will be the distribution of livestock and setting up community gardens. The mother's clubs will also help participants initiate activities that can generate more income and create solidarity funds. This can lead to feelings of community empowerment which is considered to be a factor leading to successful nutrition interventions (Rokx 2000). Increasing access to food, owning livestock, increasing mother's nutritional knowledge and increasing income can all contribute to increasing dietary diversity.

The A3PN project involves a multitude of activities and interventions, implicating WRA but also other members of the community such as men and older women. This increases the acceptability and sustainability of this intervention since other community members who can influence their habits will also be educated on the importance of adequate nutrition and including foods which may have been previously considered taboo (Rokx 2000). A senegalese study found that grandmothers were very willing to encourage better dietary practices in WRA following educative activities (Aubel, Toure et al. 2004).

Mothers club meetings as well as informative discussions with the CHW take place regularly with good participation, particularly when they involve other activities such as vaccine administration for children. Cooking demonstrations are already underway, therefore these activities are feasible.

Future studies focusing on dietary diversity can have a minimum sample size for pregnant and breastfeeding women, as well as WRA who are neither pregnant or breastfeeding, therefore the study can be more representative of every life stage.

When future research focuses on WRA, interventions should involve all members of the population. Adolescence and pregnancy have been found to be ideal times for nutritional interventions, and while improved nutritional status is critical at these times in

order to decrease risk of malnutrition in the fetus and future children, information, education and communication strategies should also include subsets of the population such as men and grandparents for changes to be permanent. In Haiti, men are often seen as the main providers of income and therefore likely have greater decision-making power over household food purchases. If they do not see the importance of dietary diversity and female nutrition, women will likely have a harder time accessing these foods. Even if a food is physically accessible, WRA are not necessarily the sole decision maker over their dietary intake; a woman's mother, grandmother, or other elder women in the household or surrounding community will often influence intake during pregnancy or breastfeeding. Older women may encourage what they think is proper nutrition during the life stage, however if they are not educated on the subject, this may result in the spreading of misinformation and propagation of dietary taboos, which can result in more harm than good for WRA (Riang'a, Broerse et al. 2017). One study found that if women had to choose between following traditional practices or recommendations from medical professionals, they would likely opt to follow cultural tradition (Santos-Torres and Vasquez-Garibay 2003).

If only pregnant or breastfeeding women are targeted for research projects and activities, it is likely that only a temporary change in habit will result, and once a woman is no longer at such a life stage, her dietary habits will return to how they were previously, resembling those of the rest of the household, or worse. Mothers dietary diversity is often an indicator of child dietary diversity, and the cycle of malnutrition, which is often passed down through generations, can take multiple generations to break. Ensuring that progress continues is essential if we want to see population-wide improvements in malnutrition, morbidity and mortality that last.

TRANSNUT will continue its research and after the final data collection, the efficacy of A3PN in improving the knowledge and practices related to breastfeeding, hygiene, nutrition, nutritional status and food security, will be evaluated. If the project proves to have a significant impact on the community, it will open a door to the possibility of other similar interventions that can be reproduced throughout the nation. If the changes encouraged by this project, such as increased dietary diversity and increased

rates of exclusive breastfeeding, are sustained, Haiti may see improvements in infant and maternal morbidity and mortality rates.

8. Conclusion

In conclusion, the FG conducted revealed that dietary taboos still existed for pregnant and breastfeeding women in each commune chosen as part of the A3PN project. Though the literature review presents many of the cultural food restrictions found in Haiti previously, the current research found many taboos that had not previously been mentioned or discussed. The avoided foods mentioned came from nine of the 10 MDD-W food groups and therefore could represent important sources of nutrients for WRA in the area. During pregnancy, the majority of dietary taboos found came from the area of Jérémie, however cultural food restrictions for lactating women were distributed quite evenly throughout all three departments.

Those passing on the taboos are likely well-intentioned; the reasons for the food avoidances were often to protect the mother, the fetus, the child or the mother's breastmilk. However, in a food-insecure country such as Haiti, where poverty is rampant and access to food is limited, even the restriction of a few local, nutritious foods can have a negative impact on a woman's dietary quality, increasing risk of malnutrition in her and her family. WRA are among the most vulnerable in Haiti; addressing the dietary taboos that impact them can lead to better nutrition for them and their children; women who are better nourished are more likely to exclusively breastfeed until six months of age, decreasing risk of illness in the infant. This can also allow for money that would have been spent on inappropriate complementary foods to be spent on food for the mother. Health and development during the first 1000 days of life, from conception to 24 months of age, are critical to optimize wellbeing for the rest of the lifespan (Black 2013). In order to break the cycle of poverty and malnutrition, the nutrition of WRA is essential.

Quantitative data suggests that determinants of dietary diversity in the study area include region, the number of people in the household, the number of adults in the household, having two or more sources of revenue, harvesting food on and off agriculture land, household hunger score, maternal age and level of education. While many of these factors can be influenced by income, there are areas where local

interventions can assist and promote increased dietary diversity; community gardens and small livestock distribution can help generate small, additional sources of income and IEC activities can contribute to increased maternal knowledge regarding appropriate dietary practices. This can better dietary diversity of participants and therefore increase the micronutrient adequacy of diets of WRA in the study area.

Poverty is a deeply rooted and complex issue in Haiti, largely impeding the economic and human development of the country; it is unlikely that this matter will be solved without extreme intervention: large scale attempts to minimize government corruption, the introduction of an adequate nationwide social safety net to address and minimize the inequalities found in the population and infrastructure improvement to limit the damage of any future natural disasters. Nevertheless, the FG, interviews and dietary recalls of the present research allow the A3PN project to better assess the situation and needs of the population to fuel the research activities put in place. The impact of the A3PN project in five areas will be measured; if the project proves fruitful, improving breastfeeding, hygiene and access to clean water, nutrition, nutritional status and food security, which can directly and indirectly impact morbidity and mortality of women and children, such interventions can be reproduced to alleviate the burden of malnutrition on the country.

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Appendix

Appendix 1. Focus group questions in French and Haitian Creole

Groupes de discussions dans les clubs de mères / Entretiens auprès des infirmières (Grossesse, allaitement et aliments de complément)	
Français	**Kreyòl**
Module B. Alimentation durant la grossesse	**Modil B. alimantasyon pandan gwosès**
B.1. Est-ce que les femmes dans votre communauté ont tendance à éviter de manger certains aliments **à certains moments**[A1] lorsqu'elles sont enceintes ?	B.1. Eske fanm nan kominote'w la konn evite manje kèk manje kèk lè, lè yo ansent ?
B.2. a) Aliment	B.2. a) Manje
B.2. b) À quel moment ?	B.2. b) Ki moman ?
B.2. c) Pourquoi ?	B.2. c) Poukisa ?
Module C. Alimentation durant l'allaitement	**Modil C. Alimantasyon pandan alètman**
C.1. Est-ce que les femmes dans votre communauté ont tendance à éviter de manger certains aliments lorsqu'elles allaitent ?	C.1. Eske fanm nan kominote'w lan gen tandans evite manje sèten manje pandan y ap bay tete?
C.1. a) Lesquels ?	C.1. a) Kilès ladan yo?
C.2. b) À quel moment ?	C.2. b) Ki moman?
C.2. c) Pourquoi ?	C.2. c) Poukisa?

Module D. Allaitement et aliments de complément	**Modil D. Bay tete ak lòt manje konplemantè**
Module D.1. Allaitement dans l'heure qui suit la naissance	**Modil D.1. Bay tete nan premye lè nesans lan ou timoun nan fèk fin fèt**
D.1.1. Pendant l'heure qui suit l'accouchement, il est recommandé de mettre l'enfant au sein dès que possible. Est-ce que les membres de votre communauté ont tendance à faire cela ?	D.1.1. Pandan premye lè ki swiv akouchman, li rekòmande pou mete timoun nan, nan tete pi vit ke posib. Eske manm nan kominote w la gen tandans fè sa?
D.1.1. a) Pourquoi ?	D.1.1. a) Poukisa?
D.1.1. b) Sinon, environ combien de temps après l'accouchement les mères ont-elles tendance à mettre l'enfant au sein ?	D.1.1. b) Si non, anviwon konbyen tan aprè akouchman manman yo gen tandans mete timoun yo nan tete?
Module D.2. Le colostrum	**Modil D.2. kolostrom**
D.2.1 Est-ce que les membres de votre communauté ont tendance à donner le colostrum (lait jaunâtre) à leur bébé ?	D.2.1 Èske manm nan kominote'w la gen tandans bay ti bebe yo kolostròm (jòn lèt)?
D.2.1. a) Sinon, pourquoi ?	D.2.1. a) Si non, poukisa?
Module D.3. Aliments ou boissons dans les premiers jours	**Modil C.3. Manje oswa bwason nan premye jou yo**
D.3.1. Est-ce que les membres de votre commune ont tendance à donner des aliments ou des boissons	D.3.1. Eske manm nan kominote'w la gen tandans bay

aux enfants dans les premiers trois jours suivant leur naissance ?	timoun yo manje oswa bwason nan premye twa jou timoun yo fèk fèt yo?
D.3.1. a) Pourriez-vous spécifier le genre d'aliments et de boissons ?	D.3.1. a) Èske ou ta kapab presize ki kalite manje ak bwason sa yo?
D.3.1. b) Pourquoi leur offre-t-on ces aliments ?	D.3.1. b) Poukisa nou ba yo manje sa yo?
Module D.4. Âge d'introduction des aliments	**Modil D.4. Laj nou ka bay timoun yo manje**
D.4.1. Vers quel âge commence-t-on normalement à offrir aux enfants des aliments autres que le lait maternel, de manière régulière ?	D.4.1. Nan ki laj nou ka kòmanse bay timoun yo lòt manje anplis lèt manman sou you baz regilye?
D.4.2. Avant cela, y a-t-il des moments où on leur offre, de temps en temps, des aliments ou des boissons autres que le lait maternel ?	D.4.2. Anvan sa, eske gen kèk fwa yo konn ofri yo manje oswa bwason de tanzantan anplis lèt manman?
D.4.3. Si oui, vers quelle âge ?	D.4.3. Si wi, a ki laj?
Module D.5. Aliments ou boissons de temps en temps	**D.5 Modil. Manje oswa bwe de tanzantan**
D.5.1. Pourriez-vous spécifier les genres d'aliments ou de boissons sont normalement offerts aux enfants AVANT l'âge où ils	D.5.1. Èske ou ta kapab presize ki kalite manje oubyen bwason ke yo bay timoun piti yo

commencent à manger régulièrement des aliments et des boissons autres que le lait maternel ? SVP, ne pas tenir compte des pratiques d'alimentation lors des premiers trois jours après la naissance.	nòmalman AVAN laj yo ta dwe kòmanse manje ak bwè lòt bwason plis lèt manman? Tanpri pratik bay timoun manje nan premye jou yo fèk fèt lan pa ladan'l .
D.5.1. a) Pourquoi leur offre-t-on ces aliments ?	D.5.1. a) Poukisa yo ba yo manje sa yo?
Module D.6. Aliments ou boissons de manière régulière	**D.6 Modil. Manje oswa bwè regilyèman**
D.6.1. Lorsque l'enfant commence à manger régulièrement des aliments et des boissons autres que le lait maternel, quels types d'aliments leur offre-t-on d'abord ?	D.6.1. Lè timoun nan kòmanse manje nòmalman lòt manje ak bwason an plis lèt maman , ki kalite manje yo konn ba yo an premye ?
D.6.1. a) Pourquoi leur offre-t-on ces aliments ?	D.6.1. a) Poukisa yo ba yo manje sa yo?
Module D.7. Allaitement continue	**Modil D.7. Alèteman esklizif**
D.7.1. Jusqu'à quel âge les enfants ont-ils tendance à être allaités après l'introduction d'aliments et de boissons autres que le lait maternel ?	D.7.1. Jiska ki laj yo gen tandans bay timoun yo tete aprè yo fin ba yo lòt manje ak lòt bwason ?
D.7.1. a) Si moins que 2 ans, pourquoi ?	D.7.1. a) Si se mwens pase 2 lane, poukisa?

Module D.8. Allaitement tabous	**Modil D.8. Pe bay timoun yo tete**
D.8.1. Est-ce qu'il y a des circonstances où les gens sentent qu'il n'est pas bon de donner le lait maternel à l'enfant ?	D.8.1. Èske gen de sikonstans yo konn pè bay timoun yo lèt manman?
D.8.1. a) Si oui, lesquelles ?	D.8.1. a) Si wi, ki sikonstans sa yo?
D.8.1. b) Que font-ils alors pour nourrir leur enfant ?	D.8.1. b) Nan Ka sa, Ki sa yo fè pou yo nouri timoun nan?
D.8.2. Y a-t-il d'autres raisons pour lesquelles les mères choisissent de ne pas allaiter leur enfant ?	D.8.2. Èske gen lòt rezon ki fè manman chwazi pa bay timoun nan tete?
D.8.2. a) Si oui, pourquoi ?	D.8.2. a) Si se wi, poukisa?
Module D.9. Alimentation enfant tabous	**Modil D9. Pe bay timoun yo nenpot manje**
D.9.1. Dans votre communauté, est-ce qu'il y a une croyance selon laquelle les enfants de 6-24 mois devraient éviter de manger certains aliments ?	D.9.1. Nan kominote'w la, èske ke gen yon kwayans ki di ke timoun 6-24 mwa ta dwe evite manje sèten manje?
D.9.1. a) Quels aliments ont tendance à être évités ?	D.9.1. a) Ki manje yo gen tandans evite bay kategori timoun sa yo?

D.9.1. b) Pourquoi ?	D.9.1. b) Poukisa?
D.9.1. c) À quels moments?	D.9.1. c) Ki moman?
Résumé avec les participantes	
Module E. Question finale	**Modil E. Dènye Kesyon**
E.1. Tout compte fait, quels sont, selon vous, les deux facteurs les plus importants sur lesquels l'A3PN devrait se pencher pour éduquer les mères sur l'allaitement et l'alimentation des mères et des enfants ?	E.1. Apre tout sa nou sot pale la yo, di nou 2 bagay ki pi enpòtan ke pwojè A3PN nan ta dwe pote plis atansyon sou li le yap fè edikasyon manman sou alèteman ak alimantasyon manman ak timoun yo?
E.1. a) Comment feriez-vous cela ?	E.1. a) Kòman ou tap fè sa si se te ou?

Appendix 2. Questions and possible answers for individual interviews using Lenovo tablets (French and Haitian Creole)

Form A for Mother'S Eligibility	
Français	**Kreyòl**
A. Eligibilité de la mère ou tutrice	**A. Chwa ke nou fe de manman oswa granmoun ki responsab timoun**
NUMÉRO DE MÉNAGE	NIMEWO KAY
NUMÉRO DE PARTICIPANTE	NIMEWO PATISIPAN
DATE D'AUJOURD'HUI	DAT JODI A
VEUILLEZ COCHER CETTE CASE POUR REMPLIR LES CASES « LA DATE D'AUJOURD'HUI » ET « L'HEURE ACTUELLE »	TANPRI TCHEKE TI KARE SA KAP PEMET OU RANPLI BWAT YO KI KONSÈNE "DAT JODI A" AK "LÈ LI YE-A"
HEURE ACTUELLE	LÈ LI YE-A
A.1. Quelle est votre date de naissance ?	**A.1.** Ki dat ou fèt?
NSP le jour de naissance. SVP, INDIQUEZ "15".	PA KONNEN jou li fèt. TANPRI CHWAZI "15".
NSP le mois de naissance. SVP, INDIQUEZ "juin".	PA KONNEN mwa li fèt . TANPRI CHWAZI "mwa Jen."
A.2. Âge de la participante (EN NOMBRE D'ANNÉES)	**A.2.** Laj patisipan-an (AN LANE)

Form A for Mother'S Eligibility	
Français	**Kreyòl**
A.3. REGARDEZ LA FEUILLE DU MÉNAGE. CETTE MÈRE A COMBIEN D'ENFANTS À CHARGE DE 0 à 59 MOIS ?	**A.3.** GADE FEY KAY LA. KONBYEN TIMOUN KI GEN DEPI 0 MWA POU RIVE 59 MWA KI SOU KONT MANMAN SA?
A.4. REGARDEZ LA FEUILLE DU MÉNAGE. COMBIEN D'ENFANTS À CHARGE DE CETTE MÈRE NE SONT PAS ÉLIGIBLE EN RAISON DU QUOTA ?	**A.4.** GADE FEY KAY LA. KOMBYEN TIMOUN KI SOU KONT MANMAN SA KI PA KALIFYE A KOZ DE KOTA-A?
A.5. Êtes-vous enceinte actuellement ?	**A.5.** Èske ou ansent kounye a?
Non	Non
Oui	Wi
NSP	PA KONNEN
R	PA REPONN
A.6. Allaitez-vous actuellement ?	**A.6.** Èske w ap bay tete?
Ceci marque la fin du questionnaire pour déterminer l'éligibilité de la mère. VEUILLEZ PROCÉDER au Formulaire B_Enfant_0_59_mois. APPUYEZ SUR LE BOUTON CI-DESSOUS.	**Se la kesyonè ki pèmèt nou fè chwa de manman yo pran fen. TANPRI KONTINYE ak Fòmilè B_Enfant_0_59_mois. PEZE BOUTON (LIY) KI ANBA-A.**
Lorsque vous avez rempli un formulaire pour CHAQUE enfant éligible à charge pour cette mère	**Lè nou fin ranpli yon fòmilè pou chak timoun nou chwazi pou etid la ki sou kont manman sa se pou nou PEZE**

Form A for Mother'S Eligibility	
Français	**Kreyòl**
APPUYEZ SUR LE BOUTON CI-DESSOUS pour accéder au formulaire : CMere.	**BOUTON (LIY) KI ANBA-A pou nou ka rive jwenn fòmilè ki rele: CMere**
Lorsque vous avez terminé de remplir: **- 1 formulaire AEligibiliteMere ;** **- 1 formulaire BEnfant0a59mois pour chaque enfant à charge ; et** **- 1 formulaire CMere ;** **PASSEZ AU FORMULAIRE DMenage.** **NE REMPLISSEZ QU'UN formulaire DMenage PAR MÉNAGE!!!**	**Lè nou fin ranpli :** **-yon fòmilè AEligibiliteMere ;** **-yon fòmilè BEnfant0a59mois pou chak timoun ki sou kont manman-an ;** **-yon fòmilè CMere ;** **TRAVESE NAN FOMILE DMenage la.** **SE POU NOU RANPLI YON SEL FOMILE DMenage POU CHAK KAY**

Form B for Children from 0 to 59 months of age	
Français	**Kreyòl**
B. Enfants de 0 à 59 mois. **Les prochaines questions vont porter sur vos pratiques d'allaitement et d'aliments de compléments avec (NOM).**	**B. Timoun ki gen depi 0 mwa pou rive 59 mwa.** **Kesyon nou pral poze la yo gen pou wè ak mannyè ou konn bay (NON TI MOUN NAN) tete ak manje.**
Module B1. Eligibilité enfant de 0 à 59 mois	**Modil B1. Chwa ke nou fè de timoun ki gen depi 0 mwa pou rive 59 mwa**
B.1.1. NUMÉRO de l'ENFANT	**B.1.1.** NIMEWO TIMOUN-NAN
B.1.2. Quelle est la date de naissance de (NOM) ?	**B.1.2.** Ki dat (NON TIMOUN NAN) fèt?
Date de naissance tirée du carnet de vaccination OU Acte de naissance OU autre document formel ?	Dat le fèt la ke nou dekouvri nan kat vaksinasyon li OUBYEN ak de nesans li (batistè li) OUBYEN nenpòt lot dokiman ki valab
B.1.3. Âge de (NOM) (EN NOMBRE DE MOIS)	**B.1.3.** Laj (NON TI MOUN NAN) (AN KANTITE MWA)
B.1.4. Quel est le sexe de (NOM) ?	**B.1.4.** Ki sèks (NON TI MOUN NAN)?
M-Mâle	Gason
F-Femelle	Fi
B.1.5. Quelle est votre relation avec (NOM) ? Êtes-vous sa mère ou sa tutrice ?	**B.1.5.** Kisa ou ye pou (NON TI MOUN NAN)? Èske ou se manman li oswa granmoun responsab li?

Form B for Children from 0 to 59 months of age	
Français	**Kreyòl**
Mère	Manman
Tutrice	Gadyen
B.1.5. a) Si vous êtes la tutrice de (NOM), qui êtes-vous par rapport à lui ?	**B.1.5. a)** Si ou se granmoun ki responsab (NON TI MOUN NAN), ki sa ou ye pou li?
Grand-mère	Grann
Tante	Matant
Soeur	Sè
Cousine	Kouzin
Amie de la famille	Zanmi fanmi an
Parent adoptif	Paran ki adopte
Autre	LÒT
NSP	PA KONNEN
R	PA REPONN
Module B2. Micronutriments et diarrhée	**Modil B2. Mikwonitriman ak dyare**
B.2.1. Au cours des SIX (6) derniers MOIS, a-t-on donné à (NOM) une dose de vitamine A ?	**B.2.1.** Nan SIS (6) dènye MWA yo ki sot pase la, èske yo te bay (NON TI MOUN NAN) yon dòz vitamin A?
B.2.2. Au cours des SIX (6) derniers MOIS, a-t-on donné à (NOM) des médicaments contre les vers intestinaux ?	**B.2.2.** Nan SIS (6) dènye MWA yo ki sot pase la, èske yo te bay (NON TI MOUN NAN) medikaman pou vè ?
B.2.3. Au cours des SEPT derniers JOURS, a-t-on donné à (NOM) des	

Form B for Children from 0 to 59 months of age	
Français	**Kreyòl**
comprimés de fer, des granules avec du fer ou du sirop contenant du fer ?	**B.2.3.** Nan SÈT JOU ki sot pase yo, èske yo te bay (NON TI MOUN NAN) grenn ki gen fè oswa siwo ki gen fè?
B.2.4. HIER, durant le jour ou la nuit, est-ce que (NOM) a consommé des aliments auxquels vous avez ajouté une poudre de micronutriments ?	**B.2.4.** Yè, pandan jounen an oubyen lannwit lan, èske (NON TI MOUN NAN) te manje yon manje ke ou te mete poud mikwonitriman (vitamin) ladann?
B.2.5. Dans les deux (2) dernières semaines, est-ce que (NOM) a eu la diarrhée ? LA DIARRHÉE EST DÉFINIE COMME TROIS SELLES MOLLES OU LIQUIDES PAR JOUR, OU UNE FRÉQUENCE ET UNE QUANTITÉ DE SELLES MOLLES OU LIQUIDES ANORMALE POUR (NOM).	**B.2.5.** Nan de (2) dènye semèn ki sot pase la yo, eske (NON TI MOUN NAN) te gen dyare? SA NOU RELE DYARE-A SE LÈ (NON TIMOUN NAN) FÈ POU PI PITI 3 POUPOU KI MOU OUBYEN KI DLOLOLO, OU BYEN TOU (NON TIMOUN NAN) FÈ YON VALÈ POUPOU KI MOU OUBYEN DLOLOLO KE LI PA ABITYE FÈ (KI PA NÒMAL).
Module B3. Alimentation du nourrisson (0-5 mois) et du jeune enfant (6-23 mois) PRATIQUES	**Modil B3. Manje tibebe (0-5 mwa) ak jèn timoun (6-23 mwa) PRATIK**
B.3.1. Avez-vous déjà allaité (NOM) ?	**B.3.1.** Èske w te janm bay (NON TI MOUN NAN) tete?
B.3.1. a) Avez-vous allaité (NOM) hier durant le jour ou la nuit ?	

Form B for Children from 0 to 59 months of age	
Français	**Kreyòl**
	B.3.1. a) Èske w te bay (NON TI MOUN NAN) tete yè pandan jounen an oubyen lannwit lan?
B.3.1. b) Parfois, on offre aux enfants le lait maternel à la cuillère, à la tasse ou au biberon. Hier, est-ce que (NOM) a consommé le lait maternel de cette manière ?	**B.3.1. b)** Pafwa, yo bay timoun yo lèt manman nan kiyè , nan tas oubyen nan bibon. Yè, èske (NON TI MOUN NAN) te bwè lèt manman youn nan fason sa yo?
B.3.2. Combien de temps après la naissance (NOM) a-t-il été mis au sein ?	**B.3.2.** Konbyen tan aprè (NON TI MOUN NAN) te fèt yo te mete li nan tete?
Immédiatement	Menm kote li te fèt la
1 heure	1 èdtan aprè
Plus qu'une heure	Plis pase yon èdtan
1 jour	1 jou
Plus qu'un jour	Plis pase yon jou
NSP	PA KONNEN
R	PA REPONN
B.3.2. a) SVP, spécifiez le nombre d'HEURES	**B.3.2. a)** TANPRI presize ki kantite lè
B.3.2. b) SVP, spécifiez le nombre de JOURS	**B.3.2. b)** TANPRI presize ki kantite jou
B.3.3. Avez-vous donné à (NOM) le lait jaune et épais produit après l'accouchement (colostrum) ?	**B.3.3.** Èske w te bay (NON TI MOUN NAN) lèt jòn epè-a ki te parèt le ou te fèk fin akouche-a (kolostrom)?
B.3.3. a) Sinon, pourquoi ?	**B.3.3. a)** Si ou pat ba li-l, poukisa?
Pression sociale: Conseillé de jeter le colostrum / C'est la tradition	Sa moun toujou ap di: Fòk manman-an jete kolostrom la / Li nan tradisyon-an

Form B for Children from 0 to 59 months of age	
Français	**Kreyòl**
Enfant refuse le sein / n'arrive pas à téter	Timoun nan refize tete a / Timoun nan pa ka tete
Le colostrum c'est sale	Kolostrom se yon bagay ki sal
Le colostrum peut rendre le bébé malade	Kolostrom ka fè tibebe-a malad
Il faut attendre le 3e jour avant d'allaiter	Fòk manman tann twa jou anvan li bay tete
AUTRE	LÒT
NSP	PA KONNEN
R	PA REPONN
B.3.4. Est-ce que (NOM) a reçu un aliment ou une boisson autre que le lait maternel durant les trois premiers jours suivant sa naissance ?	**B.3.4.** Èske (NON TI MOUN NAN) te resevwa yon manje oswa yon bagay pou-l bwè an plis de lèt manman-an pandan twa premye jou aprè li te fèt la?
Non, seulement le lait maternel	Non, tete sèlman
Oui	WI
NSP	Pa Konnen
R	PA REPONN
B.3.4. a) Quel était cet aliment ou boisson ? SVP, NE PAS LIRE LES CHOIX DE RÉPONSES.	**B.3.4. a)** Manje sa oswa bagay sa li te bwè-a kisa li te ye? TANPRI PA LI CHWA REPONS YO.
Eau tiède ou froide	Dlo tyèd oswa frèt
Eau chaude	Dlo cho
Eau minérale	Dlo mineral
Eau sucrée	Dlo sikre
Décoction ou Infusion ou Tisane	Te
Formule de lait conçue pour les bébé	Lèt ki fèt pou ti bebe
Lait de vache ou d'un autre animal	Lèt bèf oswa lòt bèt

Form B for Children from 0 to 59 months of age	
Français	**Kreyòl**
Autre	LÒT
NSP	PA KONNEN
R	PA REPONN
B.3.4. b) Pour quelle raison avez-vous donné cet aliment ou boisson à (NOM) ? SVP, NE PAS LIRE LES CHOIX DE RÉPONSES.	**B.3.4. b)** Poukisa ou te bay (NON TI MOUN NAN) manje-a oswa bagay pou`l bwè-a? TANPRI PA LI CHWA REPONS YO.
Hydrater l'enfant	Pou mete dlo nan kò timoun nan
Purger / Nettoyer l'estomac	Netwaye vant/lestomak
Rafraichir l'enfant	Rafrechi timoun nan
Difficulté à allaiter l'enfant	Difikilte pou bay tete
Enfant malade	Timoun malad
Autre	LÒT
NSP	PA KONNEN
R	PA REPONN
B.3.5. a) Quel âge avait (NOM) lorsqu'il a reçu, pour la PREMIÈRE FOIS, des aliments ou des boissons autres que le lait maternel ?	**B.3.5. a)** Ki laj (NON TI MOUN NAN) te genyen lè yo te ba li pou PREMYE FWA, manje oswa bagay pou bwè anplis de lèt manman?
(NOM) n'a pas encore reçu d'aliments ou de boissons autre que le lait maternel	(NON TI MOUN NAN) poko resevwa ni manje oswa bagay pou bwè ki pa lèt manman
< 1 mois	Pi piti ke 1 mwa
1 mois	1 mwa
…	…
18 mois	18 mwa

Form B for Children from 0 to 59 months of age	
Français	**Kreyòl**
NSP	PA KONNEN
R	PA REPONN
B.3.5. b) Quel âge avait (NOM) lorsqu'il a commencé à consommer RÉGULIÈREMENT des aliments ou des boissons autres que le lait maternel ?	**B.3.5. b)** Ki laj (NON TI MOUN NAN) te genyen lè li te kòmanse nan manje manje tout tan oswa bwè lòt bagay ki pa lèt manman?
(NOM) ne consomme pas RÉGULIÈREMENT des aliments ou des boissons autres que le lait maternel	(NON TI MOUN NAN) pako nan manje manje tout tan ou byen bwè lot bagay kip a lèt manman
< 1 mois	Pi piti ke 1 mwa
1 mois	1 mwa
…	…
18 mois	18 mwa
NSP	PA KONNEN
R	PA REPONN
B.3.6. Quand vous n'êtes pas à la maison ou que vous ne pouvez pas nourrir (NOM), qui a le plus tendance à s'en occuper ?	**B.3.6.** Lè ou pa nan kay la oswa ou pa ka bay (NON TI MOUN NAN) manje, ki lès ki gen plis chans okipe li?
Je n'ai jamais laissé (NOM) seul avec quelqu'un d'autre	Mwen pa janm kite (NON TI MOUN NAN) pou kont li avèk lòt moun
Son père	Papa li
Sa grand-mère	Grann li
Son grand-père	Granpapa li
Son frère	Frè li
Sa soeur	Sè li
Son oncle	Tonton li

Form B for Children from 0 to 59 months of age	
Français	**Kreyòl**
Sa tante	Matant li
Une amie de la famille	Yon zanmi fi fanmi an
Un ami de la famille	Yon zanmi gason fanmi an
AUTRE	LÒT
NSP	PA KONNEN
R	PA REPONN
B.3.6. a) Quand vous n'êtes pas présente pour nourrir (NOM), quel genre de nourriture lui est-il donné ? SVP, NE PAS LIRE LES CHOIX DE RÉPONSES.	**B.3.6. a)** Lè ou pa la pou bay (NON TI MOUN NAN) manje, ki kalite manje yo ba li? TANPRI PA LI CHWA REPONS YO.
Lait maternel à la cuillère, tasse ou biberon	Lèt manmam ak kiyè, tas oswa bibon
Formule de lait à la cuillère, tasse ou biberon	Lèt nan bwat pou bebe ak kiyè, tas oswa bibon
Autres liquides (PAS BESOIN D'ÉCRIRE SUR LE CALEPIN)	Lòt likid (PA BEZWEN EKRI SOU KAYE NOT LA)
Autres aliments (PAS BESOIN D'ÉCRIRE SUR LE CALEPIN)	Lòt manje (PA BEZWEN EKRI SOU KAYE NOT LA)
Aucun aliment donné à l'enfant en mon absence	OKENN manje lè mwen pa la
NSP	PA KONNEN
R	PA REPONN
Ceci marque la fin du questionnaire pour les enfants de 0 à 59 mois. Veuillez SAUVEGARDER et continuer avec le formulaire pour les AUTRES ENFANTS ou retourner au formulaire	**Kounyeya nou fini ak kesyonè pou timoun ki gen laj 0 rive 59 mwa-a. TANPRI KONSÈVE yo epi kontinye ak fòmilè pou lòt timoun yo oswa retounen**

Form B for Children from 0 to 59 months of age	
Français	**Kreyòl**
A_Eligibilite_Mere pour accéder au formulaire C_Mere.	**nan fòmilè A_Eligibilite_Mere kote nap ka jwenn fòmilè C_Mere la.**

Form C for Mothers	
Français	**Kréyol**
C. Mères **Maintenant, je vais vous poser des questions pour savoir vos points de vus sur l'alimentation et l'hygiène de la mère et son enfant.**	**C. Manman** **Kounyeya, mwen pral poze ou kesyon sou sa ou panse konsènan manje ak lijyèn manman ak timoun.**
Module C1. Nutrition durant la grossesse et l'allaitement CONNAISSANCES, ATTITUDES ET PRATIQUES.	**Modil C1. Nitrisyon pandan gwosès ak bay tete KONESANS, ATITID ak PRATIK.**
C.1.1. Est-ce qu'une femme ENCEINTE devrait manger plus, moins ou autant qu'une femme qui n'est pas enceinte ?	**C.1.1.** Èske yon fanm ANSENT ta dwe manje pi plis, pi piti oswa menm jan ak yon fanm ki pa ansent?
Manger plus	Manje plis
Manger autant	Manje mem kantite
Manger moins	Manje mwens
NSP	PA KONNEN
R	PA REPONN
C.1.2. Est-ce qu'une femme ALLAITANTE devrait manger plus, moins ou autant qu'une femme qui n'allaite pas ?	**C.1.2.** Èske yon fanm ki ap BAY TETE ta dwe manje pi plis, pi piti oswa menm jan ak yon fanm ki pa bay tete?
Module C2. Alimentation du nourrisson (0-5 mois) et du jeune enfant (6-24 mois) CONNAISSANCES ET ATTITUDES	**Modil C2. Manje tibebe (0-5 mwa) ak jèn timoun (6-24 mwa) KONESANS AK ATITID**

Form C for Mothers	
Français	**Kréyol**
C.2.1. À partir de quel âge le bébé devrait-il commencer à manger des aliments, et boire des jus, eau ou autre liquides, en plus du lait maternel ?	**C.2.1.** A ki laj yo ta dwe kòmanse bay tibebe lòt manje, ji, dlo oswa bwason an plis de lèt manman?
Moins que 1 mois	Avan yon mwa
1 mois	1 mwa
…	…
8 mois	12 mwa
NSP	PA KONNEN
R	PA REPONN
C.2.2. Jusqu'à quel âge un enfant devrait-il continuer à être allaité ?	**C.2.2**. Jiska ki laj yon timoun ta dwe kontinye ap pran tete?
NE DEVRAIT PAS CONTINUER À ALLAITER	PA TA DWE KONTINYE BAY TETE
Moins de 6 mois	Pi piti pase 6 mwa
6 à 9 mois	6 a 9 mwa
10 à 12 mois	10 a 12 mwa
12 à 15 mois	12 a 15 mwa
16 à 18 mois	16 a 18 mwa
19 à 21 mois	19 a 21 mwa
22 à 23 mois	22 a 23 mwa
24 mois et plus	24 mwa oswa plis
NSP	PA KONNEN
R	PA REPONN
C.2.3. Selon vous, quelle quantité de LIQUIDE devrait être donnée à un enfant lorsqu'il a la diarrhée (y compris le lait	**C.2.3**. Daprè ou, ki kantite LIKID yo ta dwe bay yon timoun lè li gen dyare (an

Form C for Mothers	
Français	**Kréyol**
maternel) ? Lui donne-t-on à boire moins que d'habitude, environ la même quantité, ou plus que d'habitude ?	plis lèt manman)? Èske nou dwe ba li bwè plis ke dabitid, menm kantite ke nou konn ba li, oswa pi plis ke dabitid?
Plus	Plis
Environ la même quantité	Menm kantite a
Un peu moins	Yon ti kras mwens
Beaucoup moins	Anpil mwens
Rien à boire	Pa bwè ditou
NSP	PA KONNEN
R	PA REPONN
C.2.4. Selon vous, quelle quantité de NOURRITURE devrait être donnée à un enfant lorsqu'il a la diarrhée ? Lui donne-t-on à manger moins que d'habitude, environ la même quantité, ou plus que d'habitude ?	**C.2.4.** Daprè ou, ki kantite MANJE yo ta dwe bay yon timoun lè li gen dyare ? Èske nou dwe ba li manje mwens kantite ke dabitid, menm kantite ke nou konn ba li, oswa plis ke dabitid?
Plus	Plis
Environ la même quantité	Menm kantite a
Un peu moins	Yon ti kras mwens
Beaucoup moins	Anpil mwens
Rien à manger	Pa bay manje ditou
NSP	PA KONNEN
R	PA REPONN
Module C3. Hygiène et salubrité CONNAISSANCES ET ATTITUDES	**Modil C3. Ijyèn ak lapwòpte KONESANS AK ATITID**
C.3.1. a) Quelles solutions ou médicaments pouvez-vous donner à un	**C.3.1 a)** Ki bagay oubyen medikaman ou ka bay you timoun si ou vle trete dyare li

Form C for Mothers	
Français	**Kréyol**
enfant si vous voulez traiter sa diarrhée ? SVP, NE PAS LIRE LES CHOIX DE RÉPONSES.	genyen an? TANPRI PA LI CHWA REPONS YO.
Sel de réhydratation orale (SRO) ou Sel Lavi ou Sérum oral	Sewòm oral (ORS) nan sachè
Solution sucrée salée faite maison	Sewòm lakay (Sewòm oral lakay)
Antimotilité	Siwo oswa grenn pou kanpe dyare a
Injection	Piki
Autre médicament sous forme de comprimé ou sirop (PAS BESOIN D'ÉCRIRE SUR LE CALEPIN)	Lòt grenn oswa siwo (PA BEZWEN EKRI SOU KAYE NOT LA)
Zinc	Zen komprime
Décoction, Infusion ou Tisane	Te fèy
AUTRE	LÒT
AUCUN	PA GEN
NSP	PA KONNEN
R	PA REPONN
C.3.1. b) La dernière fois que votre enfant a eu la diarrhée, lui avez-vous donné ces mêmes médicaments ou solutions ? VEUILLEZ COCHER LES MÉTHODES UTILISÉES LA DERNIÈRE FOIS.	**C.3.1 b)** Dènye fwa pitit ou a te gen dyare, èske ou te bali youn nan medikaman sa yo oswa yon bagay pou-l bwè nan sa ou sot site la yo? TANPRI MAKE SA LI DI YO MENM JAN OU SOT FE POU SA LI TE DI AVAN-AN.
Sel de réhydratation orale (SRO) ou Sel Lavi ou Sérum oral	Sewòm oral (ORS) nan sachè
Solution sucrée salée faite maison	Sewòm lakay (Sewòm oral lakay)
Antimotilité	Siwo oswa grenn pou kanpe dyare a

Form C for Mothers	
Français	**Kréyol**
Injection	Piki
Autre médicament sous forme de comprimé ou sirop (PAS BESOIN D'ÉCRIRE SUR LE CALEPIN)	Lòt grenn oswa siwo (PA BEZWEN EKRI SOU KAYE NOT LA)
Zinc	Zen komprime
Décoction, Infusion ou Tisane	Te fèy
AUTRE	LÒT
AUCUN	PA GEN
NSP	PA KONNEN
R	PA REPONN
Pas applicable(NOM) n'a jamais eu la diarrhée.	PA gen plas li la (NON TIMOUN NAN) pa janm gen dyare
La dernière fois que (NOM) a eu la diarrhée, lui avez-vous donné le SRO?	Dènye fwa (NON TIMOUN NAN) te gen dyare, èske yo te ba li sewòm oral ?
La dernière fois que (NOM) a eu la diarrhée, lui avez-vous donné un comprimé de zinc ?	Dènye fwa (NON TIMOUN NAN) te gen dyare, èske yo te ba li komprime zen ?
C.3.2. a) À quel point est-ce difficile pour vous de vous laver les mains durant la journée ? Est-ce facile, plus ou moins facile, ou difficile ?	**C.3.2. a)** Koman ou ka evalye fasilite ou genyen pou lave men ou pandan jounen an? Èske li fasil oswa plizoumwen fasil oswa difisil?
Facile	Fasil
Plus ou moins	Plizoumwen fasil
Difficile	Difisil
NSP	PA KONNEN

Form C for Mothers	
Français	**Kréyol**
R	PA REPONN
C.3.2. b) Quels sont les moments durant la journée où vous vous lavez les mains ? SVP, NE PAS LIRE LES CHOIX DE RÉPONSES.	**C.3.2. b)** Nan Ki moman pandan jounen an ou lave men ou? TANPRI PA LI CHWA REPONS YO.
Avant de cuisine	Avan ou kwit manje
Après manipulation de viande crue	Apre ou fin manyen vyann kri
Avant de manger ou donner à manger à l'enfant	Avan ou manje oswa avan ou bay timoun manje
Après être allée aux toilettes	Apre ou soti nan twalèt
Après avoir changé une couche	Apre w fin chanje kouchèt sou ti bebe
AUTRE	LÒT
AUCUN	PA GEN
NSP	PA KONNEN
R	PA REPONN
Module C4. Statut Socioéconomique	**Modil C4. Sitiyasyon Sosyoekonomik**
C.4.1. Quelle est votre religion ?	**C.4.1.** Ki relijyon ou?
Adventiste	Advantis
Baptiste	Batis
Catholique	Katolik
Méthodiste	Metodis
Pantcotiste	Pantkotis
Protestant	Pwotestan
Témoin de Jéhova	Temwen Jewova
Vandoussant	Vodouyizan

Form C for Mothers	
Français	**Kréyol**
Pas de religion	Pa gen relijyon
AUTRE	LÒT
NSP	PA KONNEN
R	PA REPONN
C.4.2. Quel est votre état matrimonial actuel ?	**C.4.2.** Ki eta sivil ou kounyeya?
Mariée/ place	Marye / plase
Divorcée/ séparée	Divòse / Separe
Veuve	Vèv
Jamais mariée ni placée	Selibatè
R	PA REPONN
C.4.3. a) Quel est VOTRE plus haut niveau d'études atteint ?	**C.4.3. a)** Ki pi gwo klas ou rive nan lekòl?
Aucun	Pa janm a lekòl
Primaire incomplete	Primè ki pa rive nan sètifika
Primaire	Sètifika
Secondaire incomplet	Nan inteval Siziem rive nan filo ki pa reyisi
Secondaire	Filo reyisi
Professionnel incomplet	Pwofesyonèl ki pa rive gen diplom oswa sertifika
Professionnel	Pwofesyonèl diplome
Université incomplet	Inivèsite ki pa diplome
Université	Inivèsite ki diplome
R	PA REPONN
C.4.4. Combien de membres de votre ménage ont obtenu un revenu dans les 30	

Form C for Mothers	
Français	**Kréyol**
derniers jours ? LE REVENU PEUT AVOIR ETE ACQUIS SOUS FORME D'ARGENT, D'ECHANGE DE SERVICES, OU DE TROC.	**C.4.4.** Konbyen moun nan kay la ki te genyen yon revni nan 30 dènye jou ki sot pase yo? (REVNI-AN KAPAB LAJAN OSWA LOT KALITE BYEN)
C.4.5. Quelle était votre principale source de revenu dans les 30 derniers jours ?	**C.4.5.** Ki pi gwo bagay ki te pèmèt ou rantre lajan nan kay la nan 30 dènye jou ki sot pase yo?
Occupation d'un membre du ménage	Aktivite yon moun nan kay la
Transferts de parenté ou autre de l'intérieur d'Haïti	Yo lot moun ki nan peyi ya voye lajan pou fanmi an
Transferts de parenté ou autre de l'extérieur d'Haïti	Moun ki nan peyi etranje voye lajan pou fanmi an
Aucune source de revenu	Lajan pa rentre nan kay la
NSP	PA KONNEN
R	PA REPONN
C.4.5. a) Quel est son occupation ?	**C.4.5. a)** Moun ki ap rantre lajan nan kay la, ki sa lap fe kom aktivite?
Agriculture	Travay tè
Pêche	Lapèch
Élevage	Elvaj
Main d'œuvre ponctuelle pour agriculture ou pêche ou élevage	Jounalye nan agrikilti, elvaj, pèch
Maçonnerie	Mason
Charpenterie	Chapant
Menuiserie	Ebenis

Form C for Mothers	
Français	**Kréyol**
Main d'œuvre ponctuelle pour maçonnerie, charpenterie, ou menuiserie.	Jounalye nan mason, chapant oswa ebenis
Commerce ou vente	Komès oswa ti machann
Artisanat	Atizana
Couture	Kouti
Employé de maison	Menaje nan kay
Production de charbon	Fè chabon
Conducteur de tap tap	Chofè kamyonèt
Enseignement	Profesè
Salarié (profesionnel ou Gouvernement ou ONG)	Salarye (pwofesyonèl oswa Gouvènman oswa ONG)
AUTRE	LÒT
NSP	PA KONNEN
R	PA REPONN
C.4.5. b) Cette personne travaille-t-elle toute l'année, de manière saisonnière, ou seulement de temps en temps ?	**C.4.5. b)** Moun sa, li travay tout ane-a, pa sezon, oswa sèlman lè li jwenn?
Annuel	Tout ane a
Saisonnier	Pa sezon
De temps en temps	Le li jwenn
NSP	PA KONNEN
R	PA REPONN
C.4.5. c) Qui est cette personne en relation avec vous ?	**C.4.5. c)** Ki lyen parante moun sa genyen ak ou?

Form C for Mothers	
Français	**Kréyol**
Moi-même	Mwen menm
Grand-mère	Grann
Grand-père	Gran papa
Mère	Manman
Père	Papa
Conjoint	Mari
Mère du conjoint	Bèlmè
Père du conjoint	Bopè
Belle-sœur	Bèlsè
Beau-frère	Bofrè
Fille	Pitit fi
Fils	Pitit gason
Amie	Zanmi fi
Ami	Zanmi gason
AUTRE	LÒT
NSP	PA KONNEN
R	PA REPONN
C.4.6. Quelle était votre source secondaire de revenu dans les 30 derniers jours ?	**C.4.6.** Ki dezyèm bagay ki permet lajan rentre nan kay la nan 30 dènye jou ki sot pase yo?
Occupation d'un membre du ménage	Aktivite yon moun nan kay la
Transferts de parenté ou autre	Yo lot moun ki nan peyi ya voye lajan pou fanmi an
Aucune source de revenu secondaire	Pa gen lòt moyen ankò pour rantre lajan
NSP	PA KONNEN
R	PA REPONN

Form C for Mothers	
Français	**Kréyol**
Ceci marque la fin du questionnaire pour l'alimentation de la mère, ses connaissances et ses attitudes. Veuillez SAUVEGARDER et continuer avec le formulaire D_Menage.	**Kounyeya nou fini ak kesyonè sou lijyen ak fason manman manjeé. Tanpri KONSÈVE yo epi kontinye ak fom nan D_Menage.**

Form D for Households	
Français	**Kréyol**
D. Menage **Ceci est le dernier formulaire. Je vais vous poser une série de questions portant vos biens appartenus, vos conditions d'hygiène et votre sécurité alimentaire.**	**D. Menage** **Sa a se dènye fòmilè. Mwen pral poze w kèk kesyon byen ou posede, ijyèn ou ak sekirite alimantè ou.**
Module D1. Biens appartenus	**Modil D1. pwopriyete fè pati**
D.1.1. Avez-vous un réfrigérateur?	**D.1.1.** Èske ou gen yon frijidè?
D.1.1. a) Si oui, lequel?	**D.1.1. a)** Si se wi, kiyès?
Réfrigérateur	Frijidè
Cave	Kav
AUTRE	LÒT
NSP	PA KONNEN
R	PA REPONN
D.1.2. Est-ce qu'un membre de votre ménage a accès à des terres?	**D.1.2.** Èske gen yon moun nan kay la ki gen tè pou travay?
D.1.2. a) Votre ménage possède-t-il ces terres, sont-elles louées ou sont-elles travaillées en métayage ?	**D.1.2. a)** Èske tè a se pou fanmi an, oswa nou afème pou yon tan oswa nou travay tè a sosye?
Propriétaire	Propriyetè
Location	Fèm
Métayage	Sosye
D.1.2. b) Combien de centièmes de carreaux de terres font-elles au total ?	**D.1.2. b)** Ki kantite santiyème oubyen sezyèm kawo tè ou genyen antou?
1 centièmes de carreaux et moins	1/100 kawo ak mwens
2 ou 3 centièmes de carreaux	2 ak 3/100 kawo

Form D for Households	
Français	**Kréyol**
4 ou 5 centièmes de carreaux	4 ak 5/100 kawo
6 à 10 centièmes de carreaux	6 ak 10/100 kawo oswa 1/16 kawo
11 à 15 centièmes de carreaux	11 ak 15/100 kawo oswa 2/16 kawo
16 à 20 centièmes de carreaux	16 ak 20/100 kawo oswa 3/16 kawo
¼ carreau	1/4 kawo oswa 4/16 kawo
½ carreau	1/2 kawo oswa 8/16 kawo
¾ carreau	3/4 kawo oswa 12/16 kawo
1 carreau	1 kawo
1,5 carreau	1.5 kawo
2 carreaux	2 kawo
3 carreaux	3 kawo
4 carreaux et plus	4 kawo ak plis
NSP	PA KONNEN
R	PA REPONN
D.1.2. c) Sinon, prévoyez-vous faire la collecte d'aliments dans la nature tels que l'arbre à pain ou la mangue ?	**D.1.2. c)** Si ou pa travay tè, eske ou keyi fwi, legim ak lòt mange nan la nati?
D.1.3. Quels aliments prévoyez-vous récolter de vos terres ou cueillir dans la nature pour vente ou pour consommation par votre famille d'ici la fin de l'été 2017 ? Veuillez commencer par énumérer les types de céréales.	**D.1.3.** Ki mange fwi ak legim ou prevwa rekòlte nan jaden ou oswa lòt kote nan la nati pou fanmi ou manje oubyen pou vann nan ane 2017 la? Tanpri kòmanse site grenn yo.
CÉRÉALE: Blé	GRENN: Ble
CÉRÉALE: Riz	GRENN: Diri
CÉRÉALE: Maïs	GRENN: Mayi
CÉRÉALE: Pimiti	GRENN: Pitimi
FÉCULENT: Banane plantain	VIV: Bannann

Form D for Households	
Français	**Kréyol**
FÉCULENT: Arbre à pain	VIV: Labapen
FÉCULENT: Malanga	VIV: Malanga
FÉCULENT: Manioc	VIV: Manyòk
FÉCULENT: Patate douce à chair orangée	VIV: Patat
FÉCULENT: Pomme de terre	VIV: Pòmdetè
FÉCULENT: Arbre véritable	VIV: Veritab
FÉCULENT: Patate douce à chair blanche	VIV: Yanm
HARICOT: Toutes sortes de haricots	PWA: Tout kalite pwa
FRUIT: Ananas	FWI: Anana
FRUIT: Pamplemousse	FWI: Chadèk
FRUIT: Banane	FWI: Fig
FRUIT:	FWI: Genadin
FRUIT:	FWI: Kayimit
FRUIT:	FWI: Kowòssol
FRUIT: Mangue	FWI: Mango
FRUIT: Papaye	FWI: Papay
FRUIT: Pêche	FWI: Pèch
FRUIT: Cerises	FWI: Seriz
FRUIT: Lime	FWI: Sitwon
FRUIT: Abricots	FWI: Zabriko
FRUIT: Oranges	FWI: Zoranj
LÉGUME: Aubergine	LEGIM: Berejèn
LÉGUME: Betterave	LEGIM: Betwouj
LÉGUME: Chou	LEGIM: Chou
LÉGUME: Citrouille	LEGIM: Joumou
LÉGUME: Carottes	LEGIM: Kawòt
LÉGUME: Concombre	LEGIM: Konkonm
LÉGUME: Laitue	LEGIM: Leti

Form D for Households	
Français	**Kréyol**
LÉGUME:	LEGIM: Militon
LÉGUME: Poivrons	LEGIM: Piman dous
LÉGUME: Tomate	LEGIM: Tomat
LÉGUME: Épinards	LEGIM: Zepina
NOIX: Noix d'acajou	GRENN BWA SECHE: Nwa
NOIX: Arachides	GRENN BWA SECHE: Pistach
NOIX: Amandes	GRENN BWA SECHE: Zanmann
GRAS: Cacao	GRÈS: Chokola
GRAS: Noix de coco	GRÈS: Kokoye
GRAS: Avocat	GRÈS: Zaboka
CULTURE DE RENTE: Café	AGRIKILTI POU FÈ LAJAN : kafe
CULTURE DE RENTE: Canne à sucre	AGRIKILTI POU FÈ LAJAN : Kann
Autre	LÒT
AUCUN	PA GEN
NSP	PA KONNEN
R	PA REPONN
D.1.4. Est-ce que votre ménage possède du bétail, des troupeaux d'autres animaux de ferme ou de la volaille ? Si oui, veuillez spécifier lesquels, et combien. SVP, NE PAS LIRE LES CHOIX DE RÉPONSES.	**D.1.4.** Èske nou gade bèt moun konn manje ki pou nou ouswa ki pou lòt moun? Si wi, ki bèt yo ye epi ki kantite ou genyen nan chak TANPRI PA li REPONS YO.
BOVINS	BÈF
CHÈVRES	KABRIT
MOUTONS	MOUTON
POULES	POUL
CANARDS OU AUTRES VOLAILLES	KANA OSWA LÒT VOLAY
CHEVAUX	CHWAL

Form D for Households	
Français	**Kréyol**
ÂNES	BOURIK
LAPINS	LAPEN
AUCUN	PAS GEN
NSP	PA KONNEN
R	PA REPONN
D.1.4. a) Combien de BOVINS ?	**D.1.4. a)** Kombyen BÈF?
D.1.4. b) Combien de CHÈVRES ?	**D.1.4. b)** Kombyen KABRIT?
D.1.4. c) Combien de MOUTONS ?	**D.1.4. c)** Kombyen MOUTON?
D.1.4. d) Combien de POULES ?	**D.1.4. d)** Kombyen POUL?
D.1.4. e) Combien de CANARDS OU AUTRES VOLAILLES ?	**D.1.4. e)** Kombyen KANA OSWA LÒT VOLAY?
D.1.4. f) Combien de CHEVAUX ?	**D.1.4. f)** Kombyen CHWAL?
D.1.4. g) Combien d'ÂNES ?	**D.1.4. g)** Kombyen BOURIK?
D.1.4. h) Combien de LAPINS ?	**D.1.4. h)** Kombyen LAPEN?
1 ou 2	1 oswa 2
2 à 5	2 a 5
6 à 9	6 a 9
10 et plus	10 ak plis
NSP	PA KONNEN
R	PA REPONN
D.1.5. Combien de temps faut-il aux membres de votre ménage pour se rendre au marché public ? S'IL Y A PLUS D'UN MARCHÉ PUBLIC, VEUILLEZ SPÉCIFIER LE MARCHÉ PUBLIC LE PLUS FRÉQUENTÉ.	**D.1.5.** Konbyen tan moun nan kay la pran pou rive nan mache piblik nou ale plis souvan an?

Form D for Households	
Français	**Kréyol**
Nombre d'heures	Kombyen èd tan
0 heures	0 èd tan
1 heure	1 èd tan
...	...
9 heures	9 èd tan
NSP	PA KONNEN
R	PA REPONN
Nombre de minutes	Kombyen minit
0 min	0 minit
< 15 min	Pi piti ke 15 minit
15 min	15 minit
30 min	30 minit
45 min	45 minit
NSP	PA KONNEN
R	PA REPONN
Module D2. Eau et Hygiène	**Modil D2. Dlo ak lijyèn**
D.2.1. D'où provient principalement l'eau de boisson pour les membres de votre ménage ? SI LA SOURCE DIFFÈRE SELON LA SAISON, PRENEZ EN NOTE LA SOURCE D'EAU ACTUELLE.	**D.2.1.** Ki kotè fanmi an pran dlo pou bwè nan moman an ?
Robinet dans logement	Tiyo an dedan kay
Robinet dans cour	Tiyo nan lakou kay la
Robinet du voisin	Tiyo ka vwazen an
Robinet public	Tiyo piblik
Puit protégé dans cour	Pi ki kouvri nan lakou

Form D for Households	
Français	**Kréyol**
Puit ouvert dans cour	Pi ki pa kouvri nan lakou
Puit protégé du voisin	Pi ki kouvri ka vwazen
Puit ouvert du voisin	Pi ki pa kouvri ka vwazen
Puit protégé public	Pi piblik ki kouvri
Puit ouvert public	Pi piblik ki pa kouvri
Eau de source protégé	Sous kapte
Eau de source non protégée	Sous ki pa kapte
Eau de surface	Dlo rivyè
Camion-citerne	Kamyon dlo
Eau de pluie	Dlo lapli
Eau en bouteille	Dlo nan boutèy
AUCUN	PAS GEN
NSP	PA KONNEN
R	PA REPONN
D.2.1. a) D'où provient principalement l'eau qui est utilisée par les membres de votre ménage pour cuisiner ? SI LA SOURCE DIFFÈRE SELON LA SAISON, PRENEZ EN NOTE LA SOURCE D'EAU ACTUELLE.	**D.2.1. a)** Nan moman an ki kote nou pran dlo pou fè manje?
D.2.2. a) Combien de fois par jour, les membres de votre ménage, doivent-ils chercher l'eau de boisson ou de cuisine ?	**D.2.2. a)** Konbyen fwa nan yon jounen, moun la kay ou yo, dwe al chèche dlo pou bwè oswa pou fè manje?
NOUS NE DEVONS PAS CHERCHER L'EAU	NOU PA ALE CHÈCHE DLO
Moins qu'une fois par jour	Pi piti pase yon fwa nan yon jounen
1 fois par jour	1 fwa pa jou
…	…

Form D for Households	
Français	**Kréyol**
5 fois par jour et plus	5 fwa nan yon jounen ak plis ankò
NSP	PA KONNEN
R	PA REPONN
D.2.2. b) Combien de temps faut-il aux membres de votre ménage pour se rendre au point d'eau ? S'IL EXISTE DEUX ENDROITS OÙ CHERCHER L'EAU, VEUILLEZ RÉPONDRE POUR L'ENDROIT OÙ VOUS ALLEZ PLUS SOUVENT CHERCHER L'EAU.	**D.2.2. b)** Konbyen tan moun nan kay la pran pou rive kote yo al pran dlo pi souvan an? SI NOU PRAN DLO PLIS PASE DE KOTE, REPONN POU KOTE NOU ALE PI SOUVAN.
Nombre d'heures	Kombyen èd tan
Nombre de minutes	Kombyen minit
D.2.3. Traitez-vous l'eau pour la rendre sécuritaire à boire ?	**D.2.3**. Èske nou trete dlo a avan nou bwè li?
D.2.3. a) Sinon, pourquoi ? SVP, NE PAS LIRE LES CHOIX DE RÉPONSES.	**D.2.3. a)** Si ou pa trete dlo a, poukisa? TANPRI PA LI CHWA REPONS YO.
L'eau est propre / Nous sommes habitués / Ignore l'utilité	Dlo sa se dlo pwòp / Nous sommes habitués / Pa konen si sa impòtan
Manque de temps	Manke tan
Manque de bois	Manke bwa
Manque d'argent	Manke lajan
Manque d'accès aux produits nécessaires	Pa ka jwenn pwodwi ki nesesè pou sa
Ne sait pas comment la traiter	Pa konnen ki jan pou trete li
AUTRE	LÒT
AUCUN	PAS GEN
NSP	PA KONNEN
R	PA REPONN

Form D for Households	
Français	**Kréyol**
D.2.3. b) Que faites-vous habituellement pour traiter l'eau et la rendre plus sécuritaire à boire ? SVP, NE PAS LIRE LES CHOIX DE RÉPONSES.	**D.2.3. b)** Ki sa nou fe pou nou trete dlo? TANPRI PA LI CHWA REPONS YO.
Ébullition	Bouyi
Comprimés (Aquatabs)	Grenn Aquatabs
Chlore ou giff	Klò oswa jif
Achat d'eau déjà traitée	Achte dlo ki deja trete
Passer l'eau dans un linge	Koule dlo a nan yon twal
Utilisation d'un filtre	Sèvi ak yon filtè
Désinfection solaire	Chofe dlo a nan solèy
Laisser reposer l'eau	Kite dlo a poze
AUTRE	LÒT
NSP	PA KONNEN
R	PA REPONN
D.2.3. c) Durant les sept (7) derniers jours, les membres de votre ménage, ont-ils pu traiter l'eau ainsi ? VEUILLEZ COCHER LES MÉTHODES UTILISÉES DURANT LA DERNIÈRE SEMAINE.	**D.2.3. c)** Pandan sèt (7) dènye jou ki sot pase yo, èske moun yo ki nan kay la te trete dlo yo konsa? TANPRI KWOCHE MWAYEN YO TE ITILIZE POU TRETE DLO YO SEMENN DÈNYE-A
Non	Non
Oui pour tous	Wi yo tout te fè sa
Oui mais pas pour tous	Wi men se pa yo tout ki te fè sa
NSP	PA KONNEN
R	PA REPONN
D.2.3. d) Qu'avez-vous employé pour traiter l'eau durant les sept (7) derniers jours ?	**D.2.3. d)** Kisa nou itilize pou n trete dlo pandan 7 jou ki sot pase la yo ?

Form D for Households	
Français	**Kréyol**
D.2.4. Quel type de toilettes les membres de votre ménage utilisent-ils habituellement ?	**D.2.4.** Ki kalite twalèt moun nan kay la abitye itilize?
Chasse d'eau	Twalèt ijyenik
Fosse d'aisance auto-aérée	Latrin ki gen tiyo pou degaje lè (vapè, sant)
Fosse d'aisance avec dalle	Latrin ki pa gen tiyo pou degaje lè (vapè, sant)
Fosse d'aisance sans dalle (trou)	Latrin ki se selman yon trou san li pa gen dal
Toilette ou latrines suspendues	Twou latrin ki pandye yon kote (lanmè, ravin)
Seau	Bokit
Pas de toilettes ou besoins en nature	Pa gen twalèt oswa yo poupou nan lari, raje
AUTRE	LÒT
NSP	PA KONNEN
R	PA REPONN
D.2.4. a) Partagez-vous ces toilettes avec d'autres ménages ?	**D.2.4. a)** Èske ou pataje twalèt sa a ak lòt kay?
D.2.4. b) Combien de ménages, incluant le vôtre, utilisent ces toilettes ?	**D.2.4. b)** Konbyen lòt kay, an plis de kay paw la, ki sèvi nan twalèt sa a?
D.2.5. Pourriez-vous SVP me montrer où les gens de votre ménage se lavent le plus souvent les mains ?	**D.2.5.** Tanpri èske ou kapab montre m kote moun lakay la lave men yo pi souvan?
Non	Non
Oui	Wi

Form D for Households	
Français	**Kréyol**
Aucun endroit spécifique où se laver les mains	Pa gen kote dirèk pou lave men
NSP	PA KONNEN
R	PA REPONN
D.2.5. a) OBESERVEZ : OÙ SE TROUVE CET ENDROIT ?	**D.2.5. a)** GADE: KI KOTE PLAS SA A YE?
À l'intérieur à moins de 10 pas de la toilette	Andedan kay la, nan mwens pase 10 pa soti nan twalèt la
À l'intérieur à moins de 10 pas de la cuisine	Andedan kay la, nan mwens pase 10 pa soti nan kwizin lan
Ailleurs à l'intérieur de la maison	Andedan kay la, men nan yon distans ki plis pase 10 pa soti nan twalèt la epi kwizin lan
Dans la cour à moins de 10 pas de la toilette	Nan lakou a nan mwens pase 10 pa soti nan twalèt la
Dans la cour à moins de 10 pas de la cuisine	Nan lakou a nan mwens pase 10 pa soti nan kwizin lan
Ailleurs dans la cour	Yon lòt kote nan lakou a men nan yon distans ki plis pase 10 pa soti nan twalèt la epi kwizin lan
NSP	PA KONNEN
D.2.5. b) OBSERVEZ : COCHEZ TOUT CE QUE VOUS VOYEZ PRÈS DU POINT DE LAVAGE DES MAINS.	**D.2.5. b)** GADE: TCHEKE TOUT SA OU WE KI TOU PRE PLAS KOTE YO LAVE MEN YO.
Robinet	Tiyo
Contenant pour l'eau	Veso pou pran dlo
Eau dans le contenant	Dlo nan veso a
Pain de savon	Yon bout savon

Form D for Households	
Français	**Kréyol**
Savon liquid	Savon likid
Détergent (FAB)	Savon (FAB)
Terre ou sable	Tè oswa sab
Feuilles	Fèy
Cendres	Sann dife
AUTRE	LÒT
AUCUN	PAS GEN
NSP	PA KONNEN
D.2.6. Pourriez-vous SVP me montrer où vous conservez l'eau POTABLE pour votre maison ?	D.2.6. Tanpri, èske ou kapab montre m kote ou konsève dlo pou moun nan kay la bwè ?
Non	Non
Oui	Wi
Aucun contenant pour conserver l'eau	Pa gen veso pou konsève dlo
NSP	PA KONNEN
R	PA REPONN
D.2.6. a) OBESERVEZ : SALUBRITÉ DU CONTENANT DANS LEQUEL L'EAU EST ENTREPOSÉE	**D.2.6. a)** GADE: EVALYE PWOPRETE VESO KI GEN DLO A.
Contenant et eau propre	Ni veso a ni dlo a pwòp
Contenant et eau sale	Ni veso a ni dlo a pa pwòp
IMPOSSIBLE À ÉVALUER	PA KAPAB EVALYE
D.2.6. b) OBSERVEZ : COUVERCLE POUR LE CONTENANT DANS LEQUEL L'EAU EST ENTREPOSÉE	**D.2.6. b)** GADE: SI VESO KI CONSEVE DLO A GEN KOUVÈTI.
Contenant avec convercle	Veso a gen kouvèti
Contenant sans couvercle	Veso a pa gen kouvèti

Form D for Households	
Français	**Kréyol**
IMPOSSIBLE À ÉVALUER	PA KAPAB EVALYE
Module D3. Indice domestique de la faim	Modil D3. Grangou nan kay la
Enfin, je voudrais vous poser trois questions sur votre accès aux aliments DANS LES QUATRE (4) DERNIÈRES SEMAINES.	**Pou fini, mwen ta vle poze ou twa kesyon sou koman nou te fè pou nou te jwenn manje NAN KAT (4) SEMEN KI SOT PASE LA YO.**
Ce questionnaire porte sur des sujets qui sont très sensibles pour les familles **Je tiens donc à vous remémorer que vos informations seront gardées confidentielles. D'autant plus, les services qui vous sont offerts par l'A3PN ne vont pas changer en fonction de vos réponses à ce questionnaire.** **Toutefois, l'honnêteté dans vos réponses est grandement appréciée, car elles serviront à améliorer le projet A3PN.**	**Kesyonè sa pale de sijè ki trè pèsonel pou fanmi yo.** **Mwen ap fè ou sonje ke enfòmasyon ou ap bay yo ap rete konfidansyèl. Repons ou yo pap chanje anyen nan sèvis A3PN ap bay yo.** **Men map kontan anpil ke ou sensè ak mwen paske repons ou yo pral sèvi pou ede ameliore sevis pwojè A3PN ap bay.**
D.3.1. Au cours des QUATRE (4) DERNIÈRES SEMAINES, y a-t-il eu un moment où votre foyer N'AVAIT PLUS DE NOURRITURE parce qu'il n'y avait pas assez d'argent ou d'autres ressources ?	**D.3.1.** Pandan KAT (4) SEMÈN KI SOT PASE YO, èske gen you jou MANJE NAN KAY LA TE FINI paske pat gen ase lajan oubyen lòt mwayen?

Form D for Households	
Français	**Kréyol**
D.3.1. a) Est-ce arrivé rarement (1 à 2 fois), parfois (3 à 10 fois) ou souvent (plus que 10 fois) durant les QUATRE (4) DERNIÈRES SEMAINES?	**D.3.1. a)** Pandan KAT (4) SEMÈN KI SOT PASE YO, èske sa te rive raman (1 a 2 fwa), pafwa (3 a 10 fwa) oswa souvan (plis pase 10 fwa)?
Rarement (1 à 2 fois)	Raman (1 a 2 fwa)
Parfois (3 à 10 fois)	Pafwa (3 a 10 fwa)
Souvent (plus de 10 fois)	Souvan (plis pase 10 fwa)
NSP	PA KONNEN
R	PA REPONN
D.3.2. Au cours des QUATRE (4) DERNIÈRES SEMAINES, y a-t-il eu un moment où vous ou les autres membres de votre ménage AVEZ EU FAIM, mais vous n'avez pas mangé parce qu'il n'y avait pas assez d'argent ou d'autres ressources pour vous procurer à manger ?	**D.3.2**. Pandan KAT (4) SEMÈN KI SOT PASE YO,eske gen yon jou moun nan kay la te GRANGOU men nou pa te maje paske pa te gen lajan oswa lòt resous pou achte manje?
D.3.2. a) Est-ce arrivé rarement (1 à 2 fois), parfois (3 à 10 fois) ou souvent (plus que 10 fois) durant les QUATRE (4) DERNIÈRES SEMAINES ?	**D.3.2. a)** Pandan KAT (4) SEMÈN KI SOT PASE YO, èske sa te rive raman (1 a 2 fwa), pafwa (3 a 10 fwa) oswa souvan (plis pase 10 fwa)?
D.3.3. Au cours des QUATRE (4) DERNIÈRES SEMAINES, y a-t-il eu des moments lors desquels vous ou les autres membres de votre ménage avez PASSÉ TOUTE UNE JOURNÉE SANS MANGER par manque d'argent ou d'autres ressources ?	**D.3.3.** Pandan KAT (4) SEMÈN KI SOT PASE YO Èske gen yon lè moun nan kay la te PASE YON JOUNEN SAN MANJE paske pa te gen ase lajan oubyen lòt resous?

Form D for Households	
Français	**Kréyol**
D.3.3. a) Est-ce arrivé rarement (1 à 2 fois), parfois (3 à 10 fois) ou souvent (plus que 10 fois) durant les QUATRE (4) DERNIÈRES SEMAINES ?	**D.3.3. a)** Pandan KAT (4) SEMÈN KI SOT PASE YO, èske sa te rive raman (1 a 2 fwa), pafwa (3 a 10 fwa) oswa souvan (plis pase 10 fwa)?
Ceci marque la fin du questionnaire pour le ménage. Veuillez SAUVEGARDER et remercier la répondante pour son précieux temps. **Vérifiez votre FEUILLE D'ANTHROPOMÉTRIE pour voir si les mères ou les enfants souffrent de malnutrition aiguë.** **RÉFÉRER AU CENTRE DE SANTÉ si :** **- Le périmètre brachial de la mère est inférieur à 210 mm ;** **- Le périmètre brachial de l'enfant de 6-59 mois est inférieur à 125 mm ;** **- L'enfant a l'oedème aux deux pieds, aux deux jambes ou au deux mains.**	**Kounyeya nou fini ak kesyonè pou kay la. Tanpri KONSÈVE yo epi di moun ki ta repon kesyon yo mèsi pou tan li te akòde nou.** **Vérifiez votre FEUILLE D'ANTHROPOMÉTRIE pour voir si les mères ou les enfants souffrent de malnutrition aiguë.** **RÉFÉRER AU CENTRE DE SANTÉ si :** **- Le périmètre brachial de la mère est inférieur à 210 mm ;** **- Le périmètre brachial de l'enfant de 6-59 mois est inférieur à 125 mm ;** **- L'enfant a l'oedème aux deux pieds, aux deux jambes ou au deux mains.**

Form E to assess food security	
Français	**Kréyol**
Module E1. Module d'enquête sur l'expérience de l'insécurité alimentaire	**Modil E1. Modil Sondaj eksperyans ensekirite pou manje**
A présent, je voudrais vous poser quelques questions sur votre consommation alimentaire.	Kounye a mwen ta renmen poze ou kèk kesyon sou sa nou te manje.
Ce questionnaire porte sur des sujets qui sont très sensibles pour les familles. Les huit (8) questions de ce module concernent l'expérience de l'insécurité alimentaire. Je tiens donc à vous remémorer que vos informations seront gardées confidentielles. D'autant plus, les services qui vous sont offerts par l'A3PN ne vont pas changer en fonction de vos réponses à ce questionnaire. Toutefois, l'honnêteté dans vos réponses est grandement appréciée, car elles serviront à améliorer le projet A3PN.	Kesyonè sa pale de sijè ki trè pèsonel pou fanmi yo. Tout uit (8) kesyon ki nan modil sa a konsène eksperyans nan ensekirite manje. Se pousa, mwen vle fè ou sonje ke enfòmasyon ouyo ap rete konfidansyèl. Dotan plis, sèvis ke yo ofri ou nan A3PN pa pral chanje poutèt repons ou nan kesyonè sa. Sepandan, nou apresye anpil onètete ou nan repons ou yo, paske yo pral sèvi pou amelyore pwojè A3PN.
Au cours des QUATRE (4) DERNIÈRES SEMAINES, y a-t-il eu un moment où…..?	Pandan 4 SEMÈN KI SOT PASE YO, èske te gen yon lè_____?

Form E to assess food security	
Français	**Kréyol**
E.1.1. Vous ou les autres membres de votre ménage avez été INQUIETS de ne pas avoir suffisamment de nourriture par manque d'argent ou d'autres ressources ?	Èske ou menm oswa lòt moun lakay ou te ENKYETE poutèt nou pat pa gen ase manje pou nou manje paske ou pat gen lajan ni lot mwayen ?
E.1.2. Toujours en pensant aux QUATRE (4) DERNIÈRES SEMAINES, y a-t-il eu des moments lors desquels vous ou les autres membres de votre ménage n'avez pas pu manger une nourriture SAINE ET NUTRITIVE par manque d'argent ou d'autres ressources ?	Lè ou ap panse ak 4 SEMÈN KI SOT PASE YO, èske te gen yon lè ou menm oswa lòt moun laky ou pat kapab manje you manje ki pat fè nou malad epi ki gen BYEN BALANSE (EKILIBRE) paske nou te manke lajan oubyen lòt mwayen?
E.1.3. Vous ou les autres membres de votre ménage avez mangé une nourriture PEU VARIÉE par manque d'argent ou d'autres ressources ?	Èske ou menm oswa lòt moun lakay ou te manje you manje ki PAT TRÒ BON (VARYE) paske nou pat gen ase lajan oubyen lòt mwayen?
E.1.4. Vous ou les autres membres de votre ménage avez dû SAUTER UN REPAS parce que vous n'aviez pas assez d'argent ou d'autres ressources pour vous procurer à manger ?	Èske gen you lè ou menm oswa lòt moun nan kay la te oblije sote yon repa paske nou te manke lajan oubyen lòt mwayen pou fè sa ?
E.1.5. Toujours en pensant aux QUATRE (4) DERNIÈRES SEMAINES, y a't'il eu des moments lors desquels vous ou les autres membres de votre ménage avez MANGÉ MOINS QUE CE QUE VOUS PENSIEZ QUE VOUS AURIEZ DÛ manger à cause d'un manque d'argent ou d'autres ressources ?	Lè ou ap panse ak 4 SEMÈN KI SOT PASE YO, èske te gen de lè ou men oswa lòt moun nan kay la te OBLIJE MANJE PI PITI KE SA OU TE ABITYE MANJE pou vant ou plen paske ou te manke lajan oubyen lòt mwayen?

Form E to assess food security	
Français	**Kréyol**
E.1.6. Votre foyer N'AVAIT PLUS DE NOURRITURE parce qu'il n'y avait pas assez d'argent ou d'autres ressources ?	Èske gen you lè lakay ou te vin rete SAN MANJE paske pat gen ase lajan oubyen lòt mwayen?
E.1.6. a) Au cours des 4 dernières semaines, est-ce arrivé rarement (1 à 2 fois), parfois (3 à 10 fois) ou souvent (plus que 10 fois) ?	Pandan 4 SEMÈN KI SOT PASE YO, èske sa rive raman (yon a de fwa), pafwa (twa a dis fwa) oswa souvan (plis ke dis fwa)
E.1.7. Vous ou les autres membres de votre ménage AVEZ EU FAIM, mais vous n'avez pas mangé parce qu'il n'y avait pas assez d'argent ou d'autres ressources pour vous procurer à manger ?	Èske ou menm oswa lòt moun nan kay la te GRANGOU, men nou pat manje paske nou pat gen ase lajan oubyen lot mwayen pou manje ?
E.1.7. a) Au cours des 4 dernières semaines, est-ce arrivé rarement (1 à 2 fois), parfois (3 à 10 fois) ou souvent (plus que 10 fois) ?	Pandan 4 SEMÈN KI SOT PASE YO, èske sa rive raman (yon a de fwa), pafwa (twa a dis fwa) oswa souvan (plis ke dis fwa)
E.1.8. Durant les QUATRE (4) DERNIÈRES SEMAINES, y a-t-il eu des moments lors desquels vous ou les autres membres de votre ménage avez PASSÉ TOUTE UNE JOURNÉE SANS MANGER par manque d'argent ou d'autres ressources ?	Pandan 4 SEMÈN KI SOT PASE YO, èske te gen de lè ou menm oswa lòt moun nan kay la TE PASE TOUT YOU JOUNEN SAN MANJE paske nou pat gen ase lajan oubyen lòt mwayen?
E.1.8. a) Au cours des 4 dernières semaines, est-ce arrivé rarement (1 à 2 fois), parfois (3 à 10 fois) ou souvent (plus que 10 fois) ?	Pandan 4 SEMÈN KI SOT PASE YO, èske sa rive raman (yon a 2 fwa), pafwa (twa a dis fwa) oswa souvan (plis ke dis fwa)

Form E to assess food security	
Français	**Kréyol**
Module E2. Stratégies d'adaptation à l'insécurité alimentaire	**Modil E2. Estrateji adaptasyon nan ensekirite pou manje**
E.2.1. Dans les quatre (4) dernières semaines, avez-vous, ou un membre de votre ménage, eu besoin de :	E.2.1. Nan kat (4) semèn ki sot pase yo, èske ou menm oswa yon moun nan kay la te bezwen:
Acheter de la nourriture à crédit	Achte manje kredi
Compter sur l'aide des voisins ou parents pour donner à manger à la famille	Konte sou èd vwazen oswa fanmi pou kapab bay fanmi an manje
Emprunter de la nourriture ou de l'argent	Prete manje oswa lajan
Mendier	Mande
Consommer des semences prévues pour la prochaine saison	Konsome grenn semans ou te prevwa pou sezon pwochen
Consommer des récoltes immatures	Konsome rekòt ki pako pare
Restreindre la consommation des adultes pour en trouver de quoi donner aux enfants	Retire sou manje pa granmoun yo pou timoun yo ka jwenn yon bagay
Retirer un ou plusieurs des enfants du ménage de l'école	Retire youn oswa plizyè timoun nan kay la lekòl
Vendre un bien productif tel qu'un outil ou une machine	Vann yon biyen ki kònn rapòtew kòm yon zouti oswa machin
Vendre du bétail	Vann bèt ou
Vendre une partie de vos terres	Vann kèk nan tè ou
Vendre votre maison	Vann kay ou
Migrer vers la ville	Migre lavil

Appendix 3. Form for data collection regarding household composition

3.1 Form for data collection regarding household composition (French version)

UNE FEUILLE PAR MÉNAGE

Epi Info Record

Membres du ménage

Numéro du ménage | Numéro ASCP E | Numéro ASCP M

			3.1 Âges ENFANTS					3.2 Âges ADULTES			4. FEMMES ELIGIBILES	5. ENFANTS ELIGIBLES ?
			Moins de 5 ans			Plus de 5 ans						
	1. Prénom	2. Sexe (M ou F)	0-5 mois	6-23 mois	24-59 mois	5-9 ans	10-14 ans	15-49 ans	50-64 ans	65 ans et plus	MÈRE ou TUTRICE d'un enfant éligible ?	Vérifiez vos quotas :
01			☐	☐	☐	☐	☐	☐	☐	☐	Oui / Non / NA	Oui / Non / Quota atteint / NA
02			☐	☐	☐	☐	☐	☐	☐	☐	Oui / Non / NA	Oui / Non / Quota atteint / NA
03			☐	☐	☐	☐	☐	☐	☐	☐	Oui / Non / NA	Oui / Non / Quota atteint / NA
04			☐	☐	☐	☐	☐	☐	☐	☐	Oui / Non / NA	Oui / Non / Quota atteint / NA
05			☐	☐	☐	☐	☐	☐	☐	☐	Oui / Non / NA	Oui / Non / Quota atteint / NA
06			☐	☐	☐	☐	☐	☐	☐	☐	Oui / Non / NA	Oui / Non / Quota atteint / NA
07			☐	☐	☐	☐	☐	☐	☐	☐	Oui / Non / NA	Oui / Non / Quota atteint / NA
08			☐	☐	☐	☐	☐	☐	☐	☐	Oui / Non / NA	Oui / Non / Quota atteint / NA
09			☐	☐	☐	☐	☐	☐	☐	☐	Oui / Non / NA	Oui / Non / Quota atteint / NA
10			☐	☐	☐	☐	☐	☐	☐	☐	Oui / Non / NA	Oui / Non / Quota atteint / NA
11			☐	☐	☐	☐	☐	☐	☐	☐	Oui / Non / NA	Oui / Non / Quota atteint / NA
12			☐	☐	☐	☐	☐	☐	☐	☐	Oui / Non / NA	Oui / Non / Quota atteint / NA
13			☐	☐	☐	☐	☐	☐	☐	☐	Oui / Non / NA	Oui / Non / Quota atteint / NA
14			☐	☐	☐	☐	☐	☐	☐	☐	Oui / Non / NA	Oui / Non / Quota atteint / NA
15			☐	☐	☐	☐	☐	☐	☐	☐	Oui / Non / NA	Oui / Non / Quota atteint / NA
TOTAL											Nombre de « Oui » :	Nombre de « Oui » :

Nombre de formulaires à remplir pour ce ménage :	A_Eligibilite_Mere et C_Mere	B_Enfant_0_59_mois	D_Menage et E_Securite_Alimentaire
			1 par ménage

3.2 Form for data collection regarding household composition (Haitian Creole version)

YOU FÈY POU CHAK KAY (MENAJ)

Epi Info Record

Moun ki nan kay la

Nimewo Kay | Nimewo ASCP E | Nimewo ASCP M

			3.1 Laj TIMOUN					3.2 Laj GRANMOUN			4. MANMAN KI KALIFYE	5. TIMOUN KI KALIFYE
			Moins de 5 ans			Plus de 5 ans						
	1. Non	2. Seks (M ou F)	0-5 mwa	6-23 mwa	24-59 mwa	5-9 ane	10-14 ane	15-49 ane	50-64 ane	65 ane oswa plis	Paran (manman) oubyen gadyen timoun ki kalifye ya ?	Tcheke kota'w yo :
01			□	□	□	□	□	□	□	□	Wi / Non /pa aplikab	Wi / Non / Kantite Kota atenn /pa aplikab
02			□	□	□	□	□	□	□	□	Wi / Non /pa aplikab	Wi / Non / Kantite Kota atenn /pa aplikab
03			□	□	□	□	□	□	□	□	Wi / Non /pa aplikab	Wi / Non / Kantite Kota atenn /pa aplikab
04			□	□	□	□	□	□	□	□	Wi / Non /pa aplikab	Wi / Non / Kantite Kota atenn /pa aplikab
05			□	□	□	□	□	□	□	□	Wi / Non /pa aplikab	Wi / Non / Kantite Kota atenn /pa aplikab
06			□	□	□	□	□	□	□	□	Wi / Non /pa aplikab	Wi / Non / Kantite Kota atenn /pa aplikab
07			□	□	□	□	□	□	□	□	Wi / Non /pa aplikab	Wi / Non / Kantite Kota atenn /pa aplikab
08			□	□	□	□	□	□	□	□	Wi / Non /pa aplikab	Wi / Non / Kantite Kota atenn /pa aplikab
09			□	□	□	□	□	□	□	□	Wi / Non /pa aplikab	Wi / Non / Kantite Kota atenn /pa aplikab
10			□	□	□	□	□	□	□	□	Wi / Non /pa aplikab	Wi / Non / Kantite Kota atenn /pa aplikab
11			□	□	□	□	□	□	□	□	Wi / Non /pa aplikab	Wi / Non / Kantite Kota atenn /pa aplikab
12			□	□	□	□	□	□	□	□	Wi / Non /pa aplikab	Wi / Non / Kantite Kota atenn /pa aplikab
13			□	□	□	□	□	□	□	□	Wi / Non /pa aplikab	Wi / Non / Kantite Kota atenn /pa aplikab
14			□	□	□	□	□	□	□	□	Wi / Non /pa aplikab	Wi / Non / Kantite Kota atenn /pa aplikab
15			□	□	□	□	□	□	□	□	Wi / Non /pa aplikab	Wi / Non / Kantite Kota atenn /pa aplikab
TOTAL											Nombre de « Oui » :	Nombre de « Oui » :

Kantite fòmilè ki zipoze fèt pa kay (menaj) :	A_Eligibilite_Mere et C_Mere	B_Enfant_0_59_mois	D_Menage et E_Securite_Alimentaire
			1 par ménage

DÉFINITIONS

1. Les **MEMBRES DU MÉNAGES** mange et dorment normalement dans ce ménage. Ne pas inclure les gens qui sont en visite, mais inclure ceux qui doivent se déplacer une partie de la semaine pour travailler.
3. Veuillez consulter les **CALENDRIERS D'ÉVÉNEMENTS ANNUELS** et la **LIGNE DE TEMPS** pour estimer **L'ÂGE DES MEMBRES DU MÉNAGE** s'ils ne le connaissent pas, et n'ont pas de pièce d'identification tel qu'un carnet de vaccination.
4. Une **FEMME EST ÉLIGIBLE** si elle est entre 15 et 49 ans **ET** si elle a un enfant de moins de 0 à 59 mois à charge.
5. Un **ENFANT** est considéré « **À CHARGE** » si une femme de 15 à 49 ans, membre de ce ménage, est sa mère ou sa tutrice.

Appendix 4. Forms for data collection of anthropometric measures

4.1 Forms for data collection of anthropometric measures (French Version)

UNE FEUILLE PAR MÉNAGE

Anthropométrie

Numéro du ménage [ ][ ][ ][ ] Numéro ASCP E [ ][ ][ ] Numéro ASCP M [ ][ ][ ]

MÈRES OU TUTRICES ÉLIGIBLES

Numéro de ppt de la MÈRE	Prénom de la mère	1. Poids	2. Taille	3. Périmètre brachial	Epi Info Record
_____		__ __ __ . __ KG	__ __ __ . __ cm	__ __ __ mm	
_____		__ __ __ . __ KG	__ __ __ . __ cm	__ __ __ mm	
_____		__ __ __ . __ KG	__ __ __ . __ cm	__ __ __ mm	

ENFANTS À CHARGE de 0 à 59 mois

Numéro de ppt de la MÈRE	Numéro de ppt de l'ENFANT	Prénom de l'enfant	1. Poids	2. Taille	3. Périmètre brachial *ENFANT 6-59 mois ou > 65 cm SEULEMENT*	4. Œdème	Epi Info Record
_____	_____		__ __ . __ KG	__ __ __ . __ cm	__ __ __ mm / < 6 mois ou < 65 cm	0 /+ / ++ / +++	
_____	_____		__ __ . __ KG	__ __ __ . __ cm	__ __ __ mm / < 6 mois ou < 65 cm	0 /+ / ++ / +++	
_____	_____		__ __ . __ KG	__ __ __ . __ cm	__ __ __ mm / < 6 mois ou < 65 cm	0 /+ / ++ / +++	
_____	_____		__ __ . __ KG	__ __ __ . __ cm	__ __ __ mm / < 6 mois ou < 65 cm	0 /+ / ++ / +++	
_____	_____		__ __ . __ KG	__ __ __ . __ cm	__ __ __ mm / < 6 mois ou < 65 cm	0 /+ / ++ / +++	
_____	_____		__ __ . __ KG	__ __ __ . __ cm	__ __ __ mm / < 6 mois ou < 65 cm	0 /+ / ++ / +++	
_____	_____		__ __ . __ KG	__ __ __ . __ cm	__ __ __ mm / < 6 mois ou < 65 cm	0 /+ / ++ / +++	
_____	_____		__ __ . __ KG	__ __ __ . __ cm	__ __ __ mm / < 6 mois ou < 65 cm	0 /+ / ++ / +++	

DÉFINITION

1. POIDS : mesurer avec balance Salter si poids approximatif est inférieur à 25 KG. Autrement, employer la balance électronique SECA.
2. TAILLE : mesurer COUCHÉ si moins de 87 cm; mesurer DEBOUT 87cm et plus.
3. PÉRIMÈTRE BRACHIAL : Malnutrition aiguë globale : Femmes enceinte ou allaitante : PB < 210 mm ; Enfants de 6-59 mois de plus de 65 cm : PB < 125 mm.
4. ŒDÈME : 0 = aucun œdème; + œdèmes sur les 2 pieds; ++ œdèmes sur les 2 pieds et les 2 jambes; +++ œdèmes sur les 2 pieds, les 2 jambes et les 2 mains ou la face
5. HÉMOGLOBINE : Anémie légère : Hémoglobine < 11.0 g/dl (<12.0 g/dl pour les femmes non-enceintes) ; Modérée : Hémoglobine < 10.0 g/dl ; Sévère : Hémoglobine < 7.0 g/dl.

4.2 Forms for data collection of anthropometric measures (Haitian Creole Version)

YOU FÈY POU CHAK KAY (MENAJ)

Mezi antropometrik

Nimewo Kay ☐☐☐☐ Nimewo ASCP E ☐☐☐ Nimewo ASCP M ☐☐☐

MANMAN OUBYEN GADYEN TIMOUN KI KALIFYE

Nimewo patisipe MANMAN	Non manman	1. Pwa	2. Tay	3. Kontou bwa	Epi Info Record
_____		__ __ __ . __ KG	__ __ __ . __ cm	__ __ __ mm	
_____		__ __ __ . __ KG	__ __ __ . __ cm	__ __ __ mm	
_____		__ __ __ . __ KG	__ __ __ . __ cm	__ __ __ mm	

TIMOUN 0 à 59 mwa

Nimewo patisipe MANMAN	Nimewo patisipe TIMOUN	Non timoun	1. Pwa	2. Tay	3. Kontou bwa *TIMOUN 6-59 mwa oubyen > 65 cm SÈLMAN*	4. EDÈM	Epi Info Record
_____	_____		__ __ . __ KG	__ __ __ . __ cm	__ __ __ mm / < 6 mois ou < 65 cm	0 /+ / ++ / +++	
_____	_____		__ __ . __ KG	__ __ __ . __ cm	__ __ __ mm / < 6 mois ou < 65 cm	0 /+ / ++ / +++	
_____	_____		__ __ . __ KG	__ __ __ . __ cm	__ __ __ mm / < 6 mois ou < 65 cm	0 /+ / ++ / +++	
_____	_____		__ __ . __ KG	__ __ __ . __ cm	__ __ __ mm / < 6 mois ou < 65 cm	0 /+ / ++ / +++	
_____	_____		__ __ . __ KG	__ __ __ . __ cm	__ __ __ mm / < 6 mois ou < 65 cm	0 /+ / ++ / +++	
_____	_____		__ __ . __ KG	__ __ __ . __ cm	__ __ __ mm / < 6 mois ou < 65 cm	0 /+ / ++ / +++	
_____	_____		__ __ . __ KG	__ __ __ . __ cm	__ __ __ mm / < 6 mois ou < 65 cm	0 /+ / ++ / +++	
_____	_____		__ __ . __ KG	__ __ __ . __ cm	__ __ __ mm / < 6 mois ou < 65 cm	0 /+ / ++ / +++	

DÉFINITION

1. **PWA :** Mezire avèk balans fòm Amak modèl Salter si pwa mwen ke 2.5KG. Sinon, sèvi ak balans elektwonik **SECA.**
2. **TAY :** Mezire timoun nan **KOUCHE** si tay li pi piti pase 87 cm; mezire'l **KANPE** si tay li plis pase 87 cm.
3. **KONTOU BWA :** Malnitrisyon egi global (Sevè ak modere): **Fanm:** BP <210 mm; **Timoun 6-59 mwa plis pase 65 cm:** BP <125 mm.
4. **EDÈM :** 0 = pa gen okenn èdèm; **+** Èdèm sou de pye; **++ Èdèm sou de pye ak de janm; +++ Èdèm sou de pye, de janm ak de men osinon figi'l**
5. **EMOGLOBIN : Ti Anemi:** emoglobin <11.0 g / dL (<12.0 g / dl pou fanm ki pa ansent); **Modere:** emoglobin <10.0 g / dL; **Grav:** emoglobin <7.0 g / dl.

Appendix 5. Forms used to conduct 24-hour recall with participating mothers

5.1 Forms used to conduct 24-hour recall with participating mothers (French version)

UNE FEUILLE PAR MÈRE

Numéro du ménage ☐☐☐☐ Numéro de ligne de la participante ☐☐ Numéro de l'ASCP ☐☐☐

Score de diversité alimentaire – Mère

Veuillez indiquer ce que vous avez mangé et bu hier (repas et collations), que ce soit pendant la journée ou la nuit, à votre domicile ou à l'extérieur. Spécifier si les aliments ont été préparés à la maison ou s'ils ont été achetés déjà préparés. Commencez par le premier aliment ou la première boisson consommé(e) le matin.

VEUILLEZ NOTER TOUS LES ALIMENTS ET BOISSONS CITÉS. S'IL EST FAIT MENTION D'UN PLAT CUISINE, DEMANDER LA LISTE DES INGREDIENTS. LORSQUE LA PERSONNE A TERMINÉE, VERIFIER AVEC CELLE-CI QU'ELLE N'A PAS OMIS DE REPAS NI DE COLLATION.

Relevé alimentaire de 24h		Réservé à l'ÉTUDIANT CHERCHEUR			
Heure	Aliment	< 15 g	# Groupe alimentaire	#	Groupe alimentaire
				1	Céréales
				2	Légumes et tubercules riches en vitamine A
				3	Tubercules et racines blanches
				4	Légumes feuilles vert foncé
				5	Autres légumes
				6	Fruits riches en vitamine A
				7	Autres fruits
				8	Abats
				9	Viandes (muscles)
				10	Œufs
				11	Poissons
				12.1	Légumineuses
				12.2	Noix et graines
				13	Lait et produits laitiers
				14.1	Huiles et graisses
				14.2	Huile de palme rouge
				15	Sucreries
				16	Épices, condiments, boissons

5.2 Forms used to conduct 24-hour recall with participating mothers (Haitian Creole version)

Nòt pou chak kalite manje – Manman

Nimewo Kay ☐☐☐☐ Nimewo Manman ☐☐ Nimewo ASCP ☐☐☐

Tanpri, site sa'w te manje ak sa ou te bwè yè (manje ak ti goute), kèlkeswa se pandan jounen yè a oubyen lannwit yè a, nan kay la oswa deyò. Presize si manje sa yo te prepare nan kay la oswa yo te achte yo tou prepare. Kòmanse ak premye manje ou te manje a oubyen bwason ou te bwè nan maten an. **TANPRI NOTE (EKRI) TOUT MANJE AK BWASON KI SITE YO. SI YO MANSYONE MANJE KWIT, MANDE AK KI ENGREDYAN LI FET. LÈ MOUN NAN FIN SITE YO, VERIFYE AVE LI SI LI PA BLIYE SITE YOU'N NAN MANJE AK TI GOUTE LI TE PRAN YO.**

Sa li manje nan 24 èdtan ki sot pase la			Réservé à l'ÉTUDIANT CHERCHEUR		
Ki lè	Ki manje	< 15 g	# Groupe alimentaire (1-16)	#	Groupe alimentaire
				1	Céréales
				2	Tubercules et racines blanches
				3	Légumes et tubercules riches en vitamine A
				4	Légumes feuilles vert foncé
				5	Autres légumes
				6	Fruits riches en vitamine A
				7	Autres fruits
				8	Abats
				9	Viandes (muscles)
				10	Œufs
				11	Poissons
				12.1	Légumineuses
				12.2	Noix et graines
				13	Lait et produits laitiers
				14.1	Huiles et graisses
				14.2	Huile de palme rouge
				15	Sucreries
				16	Épices, condiments, boissons

Appendix 6 – Consent forms for focus group participants (short and long version) in French and in Creole

Appendix 6.1 Short version of consent form for participants of FG (French Version)

Formulaire d'information et de consentement

Groupes de discussion

Version française

RÉSUMÉ : Projet de recherche sur les barrières à l'allaitement, à l'hygiène et à la sécurité alimentaire

Nous effectuons un projet de recherche en Grand'Anse et au Sud d'Haïti sur la **nutrition, l'allaitement et l'hygiène**. Ce groupe de discussion vise à évaluer les bénéfices d'une initiative nommée A3PN. Votre club de mère a été sélectionné au hasard pour ce groupe de discussion. Nous vous invitons à participer à ce groupe de discussion qui prend habituellement environ 90 minutes. Nous vous demanderons de nous donner votre opinion par rapport aux thèmes de l'allaitement, la nutrition, la sécurité alimentaire, l'accès à l'eau et l'hygiène.

Nous vous avisons que la session sera enregistrée sous format audio afin de permettre aux chercheurs de transcrire la discussion et d'analyser les informations échangées. Il vous sera demandé de toujours lever votre main avant de commencer vos conversations. Ainsi, le modérateur pourra vous nommer par votre prénom afin que nous soyons en mesure de déterminer qui est l'oratrice au moment de la transcription des enregistrements. Afin de protéger votre confidentialité, votre prénom sera effacé des transcriptions et sera remplacé par un pseudonyme.

Les risques et inconvénients anticipés pour vous sont minimes. Le temps que vous devrez consacrer au groupe de discussion peut être considéré comme un inconvénient. Un risque de bris de confidentialité reste possible, mais toutes les mesures seront prises afin d'éviter qu'une telle situation ne se produise. Il est à noter que la confidentialité des échanges

ayant lieu pendant les sessions de groupes de discussion dépend de votre engagement à ne pas divulguer l'identité des autres participants et la nature des échanges à des personnes n'ayant pas participé aux rencontres.

Vous êtes libre d'accepter ou de refuser de participer à ce projet de recherche et vous pouvez vous retirer de l'étude à n'importe quel moment, sans avoir à donner de raison. Vous avez simplement à aviser l'ASCP, et ce, par simple avis verbal. Toutes les informations que vous avez partagées seront alors supprimées de la transcription. Le formulaire de consentement et les autres documents remplis vous seront remis, ou seront détruits selon votre préférence. Mais, nous espérons que vous accepterez d'y participer, car votre participation est très importante pour la réussite de l'étude. Il est à noter qu'aucune compensation n'est prévue pour votre participation. Cependant, elle est grandement valorisée et sera utilisée pour votre bien et celle de votre communauté. Avant de commencer le groupe de discussion, un repas vous sera offert.

Sentez-vous à l'aise de m'interrompre à n'importe quel moment, et dites-le-moi si vous ne désirez pas répondre à une question.

Engagement de la personne ayant procédé à l'obtention du consentement
J'ai expliqué les conditions de participation au projet de recherche au participant. J'ai répondu au meilleur de ma connaissance aux questions posées et me suis assuré de la compréhension des participantes. Je m'engage, avec l'équipe de recherche, à respecter ce qui a été convenu au présent formulaire d'information et de consentement.

_____	_____
Prénom et nom de la personne ayant procédé à l'obtention du consentement **(lettres moulées)**	Signature de la personne ayant procédé à l'obtention du consentement

_____	_____
___	___
Prénom et nom du témoin **(lettres moulées)**	Signature du témoin
_____	**# Groupe de discussion _____**
___	
Prénom et nom de la participante : **(lettres moulées)**	_____ Date

Appendix 6.2 Long version of consent form for participants of FG (French Version)

Formulaire d'information et de consentement

Groupes de discussion

Version française

Projet de recherche sur les barrières à l'allaitement, à l'hygiène et à la sécurité alimentaire

Ce projet est en partenariat avec des entités canadiennes

Ce projet est financé par:
Affaires Mondiales Canada (AMC) et Fondation Paul Gérin-Lajoie (PGL)
Autres partenaires impliqués dans le projet:
Catholic Relief Services (CRS),
L'Unité de santé internationale (USI) de l'Université de Montréal,
TRANSNUT du département de nutrition à l'Université de Montréal.

En tant que membre d'un club de mères, vous êtes invitée à participer à ce projet de recherche. Avant d'accepter d'y participer, veuillez prendre le temps de lire ce document présentant les conditions de participation au projet. N'hésitez pas à poser toutes les questions que vous jugerez utiles à la personne qui vous présente ce document.

Description de l'A3PN

Le projet **Appui prénatal, périnatal, postnatal et nutritionnel (A3PN) en Grand'Anse et le Sud d'Haïti** vise à réduire le taux de mortalité maternelle et infantile ainsi qu'à améliorer leur état nutritionnel et de santé dans les communes de Camp-Perrin, Saint Jean du Sud, Chantal, Corail, Roseau, Irois, Anse d'Hainault et Moron. La durée du projet sera d'avril 2016 à mars 2020. Durant ce temps, dix centres de santé seront améliorés et 75

Agents de santé communautaire polyvalents (ASCP) vont être formés et embauchés pour travailler dans ces centres de santé pour offrir des soins de santé périnatals, distribuer des micronutriments aux enfants de 6 à 59 mois (5 ans) et offrir du support aux mères pour l'enregistrement des nouveau-nés. Au cours du projet, il y aura création de 100 Mutuelles de solidarité (MUSO) et 220 clubs de mères. En outre, 55 jardins communautaires, 2500 jardins familiaux et 55 petits élevages communautaires seront mis en place dans le respect de l'environnement. Il y aura également distribution de semences et d'animaux aux résidents, ainsi que 75 activités d'éducation en santé par mois.

Recherches sur les barrières à l'allaitement, à l'hygiène et à la sécurité alimentaire
L'équipe de TRANSNUT, de l'Université de Montréal, aimerait évaluer l'efficacité des activités de l'A3PN sur la santé des mères et des enfants. Pour ce faire, l'équipe collectera des informations sur la nutrition à l'aide d'entretiens auprès des mères d'enfants de moins de 5 ans, des groupes de discussion, et des entretiens avec des informateurs clés. Ce travail de collecte d'informations sera fait grâce à l'aide des ASCP.

Votre participation à la recherche va nous permettre de connaître votre réalité concernant l'allaitement, l'hygiène et la sécurité alimentaire et nous aidera aussi à suggérer des activités d'intervention qui auront le plus d'impact sur l'état de santé des mères et leurs enfants. Votre honnêteté dans le partage des informations est d'une grande importance aux fins de l'étude. Les résultats de la recherche seront partagés avec les membres de votre section communale et les leaders locaux à l'intérieur de 6 mois après chaque collecte de données. Pour ce faire, un membre de l'équipe des ASCPs offrira une présentation dans chaque section communale participante.

Participation aux groupes de discussion
Nous vous invitons à participer à un groupe de discussion qui portera sur les thèmes de l'allaitement, la nutrition, la sécurité alimentaire, l'accès à l'eau et l'hygiène. Pendant le groupe de discussion, vous allez être réunie avec d'autres membres de votre club de mère, soit 6 à 12 personnes. Cette rencontre aura lieu là où vous avez l'habitude de vous rencontrer. La session durera entre 60 et 90 minutes pendant lesquels nous vous

demanderons de nous donner votre opinion par rapport aux thèmes abordés. Nous allons aussi vous demander de nous donner votre opinion sur les méthodes que vous trouveriez les plus efficaces pour améliorer l'allaitement, la nutrition, la sécurité alimentaire, l'accès à l'eau et l'hygiène dans votre commune.

Les membres de votre club de mères seront sollicités pour participer au groupe de discussion, au maximum, une fois par période de collecte de données. Les collectes de données auront lieu à quatre reprises, soit 2 fois en 2017 et 2 fois en 2019. Les clubs de mères sont tirés au hasard, donc il se peut que vous soyez sollicitée pour participer une fois, comme c'est possible que nous vous demandions de participer deux, trois ou quatre fois. Lors des groupes de discussion subséquents, les thèmes demeureront les mêmes, mais les questions pourront changer. Veuillez noter que si vous participez une fois, cela ne vous engage pas à devoir participer à nouveau dans le futur. Ce formulaire de consentement vous sera présenté à chaque fois que votre participation sera sollicitée.

La session sera enregistrée sous format audio afin de permettre aux chercheurs de transcrire la discussion et d'analyser les informations échangées. Il vous sera demandé de toujours lever votre main avant de commencer vos conversations. Ainsi, le modérateur pourra vous nommer par votre prénom afin que nous soyons en mesure de déterminer qui est l'oratrice au moment de la transcription des enregistrements. Afin de protéger votre confidentialité, votre prénom sera effacé des transcriptions et sera remplacé par un pseudonyme.

Risques et inconvénients

Les risques et inconvénients anticipés pour vous sont minimes. Le temps que vous devrez consacrer au groupe de discussion peut être considéré comme un inconvénient. Un risque de bris de confidentialité reste possible, mais toutes les mesures seront prises afin d'éviter qu'une telle situation ne se produise.

Confidentialité

Vos renseignements personnels seront traités de manière confidentielle, car vos renseignements identificatoires seront effacés des documents de transcriptions et le formulaire de consentement ne sera pas joint aux données cueillies. Les informations que vous partagerez seront sauvegardées sous forme informatique et seront traduites en français. Ces informations seront téléchargées sur un serveur privé qui sera gardé verrouillé à clé dans le bureau du coordonnateur de recherche à TRANSNUT. Toute copie papier sera aussi conservée dans un classeur verrouillé dans le local du coordonnateur de recherche et cela pendant une période minimale de 7 ans et sera détruite à la suite de cette période. Les informations que vous partagez seront utilisées seulement aux fins de l'étude. Certains étudiants de l'Université de Montréal pourraient éventuellement utiliser les informations de cette étude pour leurs travaux de recherche.

Il est à noter que la confidentialité des échanges ayant lieu pendant les sessions de groupes de discussion dépend de votre engagement à ne pas divulguer l'identité des autres participants et la nature des échanges à des personnes n'ayant pas participé aux rencontres.

Compensation

Avant de commencer le groupe de discussion, un repas vous sera offert. Il est à noter qu'aucune compensation n'est prévue pour votre participation. Cependant, elle est grandement valorisée et sera utilisée pour votre bien et celle de votre communauté.

Participation volontaire et droit de retrait

Vous êtes libre d'accepter ou de refuser de participer à ce projet de recherche. Vous pouvez vous retirer de cette étude à n'importe quel moment, sans avoir à donner de raison. Vous avez simplement à aviser le modérateur du groupe de discussion, et ce, par simple avis verbal. Toutes les informations que vous avez partagées seront alors effacées des documents de transcription. Le formulaire de consentement et les autres documents remplis vous seront remis, ou seront détruits selon votre préférence.

Responsabilité de l'équipe de recherche

En acceptant de participer à cette étude, vous ne renoncez à aucun de vos droits ni ne libérez les chercheurs, les commanditaires ou l'établissement de leurs responsabilités civiles et professionnelles en cas de préjudice.

Personnes-ressources

Si vous avez des questions sur l'aspect scientifique du projet de recherche ou des préoccupations sur vos droits ou sur les responsabilités des chercheurs concernant votre participation à ce projet, vous pouvez contacter : William Junior Similien, chargé de suivi et d'évaluation de l'A3PN.

William Junior Similien	**Chargé de suivi et d'évaluation de l'A3PN** Catholic Relief Services (CRS) Téléphone : +509.38730617 Courriel : wiliam.similien@crs.org

Engagement du chercheur

Je soussigné, Malek Batal, chercheur principal pour le projet 16-108-CERES-P « Recherche sur les barrières à l'allaitement, à l'hygiène et à la sécurité alimentaire » m'engage à suivre les principes éthiques entourant la recherche avec les êtres humains dans le cadre de ce projet de recherche. Je ferai également de mon possible pour m'assurer du respect des principes de la confidentialité, de la bienfaisance et de la non-malfaisance tout au long du projet de recherche, par les membres du projet de recherche, notamment le coordonnateur de recherche à TRANSNUT, les étudiants chercheurs, et les Agents de santé communautaire polyvalents. Je m'engage aussi à veiller sur le retour rapide des résultats à la population cible de manière efficace et culturellement appropriée.

Sincèrement,

Malek batal

Signé à Montréal, le 2 août 2016

Appendix 6.3 Long version of consent form for participants of FG (Haitian Creole Version)

Fòmilè Enfòmasyon ak Konsantman

Group diskisyon

Vèsyon kreyòl

Pwojè Rechèch sou baryè yo nan kesyon bay timoun tete, lijyèn ak kesyon sou bon jan kondisyon pou moun manje (Sekirite alimantè).

Pwojè sa fèt an kolaborasyon avèk plizyè patnè Kanadyen

Pwojè sa finanse pa :
Afè Mondyal Kanada (AMC) ak Fondasyon Paul Gérin-Lajoie (PGL)
Lòt patnè kap patisipe nan pwojè sa:
Catholic Relief Services (CRS)
Inite Entènasyonal Sante (USI) nan Inivèsite Monreyal,

An tan ke manm Klèb manman, nou envite ou patisipe nan ankèt sa a. Anvan ou dakò patisipe, tanpri pran tan ou li dokiman sa a ki montre ki kondisyon pou patisipe nan ankèt sa. Pa pè poze *nenpòt kesyon ke ou panse ki itil a moun kap prezante dokiman sa.*

Prezantasyon Projè A3PN nan.

Pwojè sa **Appui prénatal, périnatal, postnatal et nutritionnel (A3PN) en Grand'Anse et le Sud d'Haïti** gen lòt objektif tankou diminye kantite manman ak ti bebe kap mouri nan kesyon akouchman, lap pèmèt yo tou, amelyore sitiyasyon nitrisyonèl ak sante yo nan komin Koray, Rozo, Mowon, Ansdeno, Iwa, Kamperen, Chantal, Senjan. Pwojè sa komanse an avril 2016 lap pran fen an mas 2020. Pandan tan sa a, pwojè a ap travay pou amelyore kalite swen nan 10 sant sante epi fè fomasyon pou 75 ajan sante kominotè, yap amplwaye yo pou yo bay sipò nan akonpaye manman yo nan anregistreman timoun ki fèk fèt nan kominote a, yo pral bay timoun ki gen 6 pou rive 59 mwa vitamin. Pandan menm

peryòd sa projè a ap kreye 100 mityèl solidarite (MISO) ak 220 Klèb manman. Yon lòt bò yap mete sou pye 55 jaden kominotè, 2500 jaden fanmi ak 55 ti elvaj (gadò) kominotè nan respè anviwonman. Ap genyen tou distribisyon semans ak bèt bay benefisyè yo, ak 75 pòs pou pi piti pa mwa kote yap trete sijè sou la sante eksetera.

Rechèch sou baryè ki anpeche manman yo bay pitit yo tete, lijyèn ak bon jan kondisyon pou moun manje

Ekip TRANSNUT, nan Inivèsite Monreyal la, ta renmen konnen eske aktivite A3PN yo te pèmèt sante manman ak timoun yo amelyore. Pou fè sa, ekip la ap kolekte enfòmasyon sou nitrisyon nan yon ti koze ak manman timoun ki poko gen 5 lane yo, reyinyon an gwoup, entèvyou ak enfòmatè kle yo. Travay sa ap fèt avèk èd ASCP yo.

Patisipasyon w nan rechèch pral pèmèt nou konnen reyalite sou kesyon bay tete, lijyèn bon jan kondisyon pou moun manje, epi tou, sa ap ede nou konseye kèk aktivite ki pral pèmèt gen amelyorasyon sou eta sante manman ak timoun yo. La verite nan enfòmasyon wap ban nou yo ap enpòtan anpil pou itilite ankèt la. Nou pral pataje rezilta ankèt la avèk manm nan kominote'w la, lidè lokal yo nan yon peryòd 6 mwa aprè chak ankèt. Pou sa fèt ASCP yo ap fè presantasyon sa nan chak Sekyson kominal ki te patisipe nan ankèt sa.

Patisipasyon nan gwoup diskisyon yo.

Nou envite'w patisipe nan yon gwoup diskisyon kap chita sou tèm sa yo: bay tete, nitrisyon, sekirite alimantè, aksè a dlo ak lijyèn. Pandan gwoup diskisyon sa, ou pwal gwoupe ou ak lòt manm nan klèb ou an, ant 6 a 12 moun. Rankont sa ap fèt kote nou abitye reyalize klèb manman. Diskisyon sa ap dire 60 a 90 minit, pandan rankont sa nap mande'w pou ban nou lide'w ou opinyon'w sou sijè nou pwal abòde yo. Nou pwal mandew tou pou ban nou opinyonw sou metòd ke ou trouve ki pi bon pou amelyore kesyon bay timoun tete, nitrisyon, sekirite alimantè, aksè pou moun jwenn dlo ak bon jan kondisyon lijyèn nan komitote'w la.

Nou pwal mande pou manm klèb manman ou yo patisipe aktivman nan diskisyon yo, men li pap plis ke yon fwa a chak fwa ke yap vini kolekte done yo. Done sa yo ap kolekte pandan 4 fwa, 2 fwa an demil diset (2017) epi 2 fwa an demil diznef (2019). Klèb manman sa yo chwazi pa chans, kidonk nou ka mande'w pou patisipe 1 fwa, menm jan nou ka mande'w pou patisipe 2 fwa, 3 fois oubyen 4 fwa. Si ta gen yon lòt diskisyon ankò nan klèb sa sijè yo ap toujou menm, men gen kèk kesyon ki ka chanje. Nou ta renmen fèw konnen menm lè ou ta patispipe 1 fwa, sa pa vle di ou oblije patisipe yon lòt fwa ankò. Nap toujou prezante'w Fòmilè konsantman sa chak fwa ke nou ta rive mandew pou patisipe avek nou nan ankèt sa.

Nou pwal enregistre diskisyon an sou yon aparèy menm jan nou tap anrejistrel sou yon kasèt sa ap pèmet chèchè yo remete enfòmasyon sa yo sou yon lòt fòm, sa ap pèmèt yo trete oubyen analize enfòmasyon ki tap echanje nan gwoup la. Yo pral mande'w pou leve men'w anvan ou bay opinyon'w sou kesyon an. Konsa moun kap dirije (moderatè) gwoup la, ap site non'w yon fason pou nou kapab wè ki moun ki reponn kesyon an pandan nap fè anregistreman an. Yon fason pou gade sekrè moun ki tap reponn kesyon an nap efase oubyen ranplase non'w pa yon ti non jwèt lè nap remete enfòmasyon an sou lòt fòm nan ankèt sa.

Risk ak dezavantaj

Risk ak dezavantaj nou prevwa ki ka genyen yo fèb. Kantite tan wap pran pou patisipe na gwoup diskisyon an ka konsidere tankou yon dezavantaj. Lòt risk pou enfòmasyon sa yo pa rete an sekrè, men nap pran tout mezi pou sa pa rive.

Sekrè/konfidansyalite

Enfòmasyon pèsonèl ou yo ap trete ak konfidansyalite, nou pap pran okenn non oubyen enfòmasyon sou idante'w paske nou pral efase yo le nap transmit yo. An plis, nou pap cheche fè fòmilè konsantman sa koresponn ak enfòmasyon nou pral mandew yo.

Enfòmasyon wap pataje avèk nou yo ap konsève sou yon sipò enfòmatik epi nap tradwi yo an fransè an plis nap mete enfòmasyon sa yo anba kle nan biwo kòdonatè rechèch TRANSNUT lan. Enfòmasyon ki sou papye yo nap konsève yo anba kle nan menm biwo sa pandan 7 lane pou piti, aprè sa nap detwi enfòmasyon sa yo. Enfòmasyon sa yo nou pwal itilze yo sèlman pou etid la. Kèk etidyan nan Inivèviste Monreyal kapab itlize enfòmasyon sa yo pou lòt travay rechèch nan kad etid yo.

Nou ta renmen fèw konnen ke, kesyon sou konfidansyalite nou te pale pandan gwoup diskisyon an depann de ou memn tou. Nou ta swete ou pa di lòt moun ki pat patisipe nan rankont sa enfòmasyon sou idantite lòt moun ki tap patisipe yo ni sa nou ta diskite nan rankont la.

Sa wap jwenn an retou

Anvan nou kòmanse gwoup diskisyon an nou pral ba ou yon ti goute. Anvan ou kòmanse reponn kesyon yo nou ta renmen enfome'w ke pa gen anyen wap jwenn an retou. Sepandan nou bay anpil enpotans a patisipasyon'w nan ankèt sa e nou rete kwè se pou byen'w ak byen kominote'w la.

Patisipasyon volontè ak dwa ou genyen pou pa patisipe

Ou lib pou reponn oubyen refize patisipe nan ankèt sa. Ou ka sispann reponn kesyon nan ankèt sa san ou pa oblije bay pouki rezon. Ou ka deside di Ajan kominotè a vèbalman ou pap kontinye. Yap retire tout enfomasyon ou te bay yo sou aparèy la. Fòmilè sou konsantman ou te siyen an yap remèt ou'l oubyen yap dechire'l pou ou, sa depann de saw deside.

Responsablite ekip rechèch la

Le fè ke ou dakò patisipe nan etid sa pa vle di ke ou pedi nan dwa ke ou genyen, ni sa pa vle di ke moun yo kap fe rechech la ansanm avek responsab yo pap pote chay pou yo pote antan ke sitwayen ak profesyonel sizoka yo ta few yon bagay ki mal.

Kontak

Si ou gen kesyon sou aspè syantifik ankèt sa, oswa enkyetid sou dwa ou ak responsablite chèchè yo konsènan patisipasyon ou nan pwojè sa, tanpri kontakte: William Junior Similien, responsab swivi ak evalyasyon nan projè A3PN nan.

William Junior Similien

Responsab swivi ak evalyasyon A3PN

Catholic Relief Services (CRS)

Telefòn: +509.38730617

Imèl: wiliam.similien@crs.org

Angajman chèchè a

Mwen angaje'm, Malek Batal, Chèchè prensipal pou pwojè 16-108-CERES-P " Rechèch sou baryè nan kesyon bay tete, lijyèn ak sekirite alimantè" pou'm respekte tout sa ki an rapò avèk kesyon etik nan rechèch sou moun nan pwojè rechèch sa. Mwen pwal fè tout posib mwen poum fè respekte tout prensip konfidansyalite yo, respè mityèl, charite ak byenseyans pandan tout rechèch la pa manm pwojè sa, tankou kòdonatè rechèch TRANSNUT lan, etidyan chèhè yo, ajan kominotè polvalan yo. Mwen angajem tou pou rezilta anket la tounen pi vit ke posib al jwenn popilasyon ki konsene-a selon jan sa te pase-a ak selon jan yap viv la.

Sensèman,

Malek batal

[redacted]

Siyen Nan Monreyal dat ki 2 out 2016 lan.

Appendix 6.4 Short version of consent form for participants of FG (Haitian Creole Version)

Fòmilè Enfòmasyon ak Konsantman

Gwoup diskisyon

Vèsyon kreyòl

REZIME : Pwojè Rechèch sou baryè ki anpeche bay tete, Lijyèn ak sekirite manje

Nap reyalize yon rechèch nan Grandans ak Sid Dayiti sou **nitrisyon, bay tete, ak lijyèn**. Gwoup diskisyon sa gen pou objektif evalye benefis ki genyen nan pwojè A3PN nan. Klèb manman'w lan te chwazi pa aza pou patisipe nan ankèt sa. Nou envitew patisipe nan rankont sa kap dire anviwon 90 minit. Nou pral mande'w pou bay opinyon'w sou sijè sa yo, alètman (bay timoun tete), nitrisyon, sekirite alimantè, aksè ak dlo ak bon jan kondisyon lijyèn.

Nou vle avize'w ke nou pwal enregistre vwa ou pandan rankont sa, yon fason pou nou ka pèmèt ekip chèchè yo remete diskisyon yo sou yon lòt fòma pou yo analize enfòmasyon ki te bay yo. Yo pral mande'w pou toujou leve men'w anvan ou bay opinyon'w sou kesyon yo. Konsa moun kap dirije (modere) gwoup la, ap site non'w yon fason pou nou kapab wè ki moun ki te reponn kesyon an pandan nap fè anregistreman an. Yon fason pou gade sekrè sou idantite moun ki tap reponn kesyon yo, nap efase epi ranplase non'w pa yon ti non jwèt lè nap remete enfòmasyon yo sou lòt fòm.

Risk ak dezavantaj nou prevwa ki ka genyen yo fèb. Kantite tan wap pran pou patisipe na gwoup diskisyon an ka konsidere tankou yon dezavantaj. Lòt risk pou enfòmasyon sa yo pa rete an sekrè, men nap pran tout mezi pou sa pa rive. Nou ta renmen fèw konnen ke, kesyon sou konfidansyalite nou te pale pandan gwoup diskisyon an depann de ou memn tou. Nou ta swete ou pa di lòt moun ki pat patisipe nan rankont sa enfòmasyon sou idantite lòt moun ki tap patisipe yo ni sa nou ta diskite nan rankont la.

Ou lib pou asepte oswa refize patisipe nan ankèt sa, ou kapab deside pa kontinye avèk nou nan etid sa nenpòt kilè, san ou pa bezwen di nou pouki rezon. Wap sèlman di etiyan chèchè yo sa vèbalman. Yap retire tout enfomasyon ou te bay yo sou aparèy la. Yap remèt Fòmilè sou konsantman ou te siyen ak lòt dokiman ou te ranpli yo, oubyen yap dechire'yo, sa depann de saw deside. Men nou ta renmen ou patisipe, paske patisipasyon'w enpòtan anpil pou siksè etid la. Nou ta renmen enfome'w yon lòt fwa ou pap jwenn anyen an retou. Sepandan nou bay anpil enpotans a patisipasyon'w nan ankèt sa e nou rete kwè se pou byen'w ak byen kominote'w la repons ou yo nan ankèt sa. Anvan nou kòmanse gwoup diskisyon an nou pral ba ou yon ti goute.

Mete ou alèz ou ka kanpe nou pandan diskisyon an, pou di nou si'w pa vle reponn kesyon sa men wap fè sa nan lòd.

Angajman moun ki te fè konsantman an

Mwen eksplike kondisyon patisipasyon nan pwojè a rechèch sa ak patisipan-an. Mwen reponn daprè tout sa mwen konnen de kesyon ki poze yo, epi mwen asire patispan yo konprann kesyon mwen poze yo. Mwen dakò ak ekip rechèch la, ke map respekte sa ki te ekri nan fòmilè konsantman an.

_____	_____
___	___
Non ak Siyati ASCP **(Ekri an lèt detache)**	Paraf ASCP
_____	_____
___	___
Non ak Siyati etidyan **(Ekri an lèt detache)**	Paraf etidyan

_____ **# Group diskisyon _____**

___

Non ak Siyati Moun patisipan

(Ekri an lèt detache) _____

Dat

Appendix 7.

7.1 Long version of consent form for participants of individual interviews including 24-hour recalls during the Spring data collection (French Version)

Formulaire d'information et de consentement

Enquête auprès des mères d'enfants de moins de 5 ans

Version française

Projet de recherche sur les barrières à l'allaitement, à l'hygiène et à la sécurité alimentaire

Ce projet est en partenariat avec des entités canadiennes

Ce projet est financé par :
Affaires Mondiales Canada (AMC) et Fondation Paul Gérin-Lajoie (PGL)
Autres partenaires impliqués dans le projet :
Catholic Relief Services (CRS),
L'Unité de santé internationale (USI) de l'Université de Montréal,
TRANSNUT du département de nutrition à l'Université de Montréal.

En tant que mère/tutrice d'un enfant de moins de 5 ans et âgée entre 15 et 49 ans, vous êtes invitée à participer à ce projet de recherche. Avant d'accepter d'y participer, veuillez prendre le temps de lire ce document présentant les conditions de participation au projet. N'hésitez pas à poser toutes les questions que vous jugerez utiles à la personne qui vous présente ce document.

Description de l'A3PN

Le projet **Appui prénatal, périnatal, postnatal et nutritionnel (A3PN) en Grand'Anse et le Sud d'Haïti** vise à réduire le taux de mortalité maternelle et infantile ainsi qu'à améliorer leur état nutritionnel et de santé dans les communes de Camp-Perrin, Saint Jean du Sud, Chantal, Corail, Roseau, Irois, Anse d'Hainault et Moron. La durée du projet sera d'avril 2016 à mars 2020. Durant ce temps, dix centres de santé seront améliorés et 75 Agents de santé communautaire polyvalents (ASCP) vont être formés et embauchés pour travailler dans ces centres de santé pour offrir des soins de santé périnatals, distribuer des micronutriments aux enfants de 6 à 59 mois (5 ans) et offrir du support aux mères pour l'enregistrement des nouveau-nés. Au cours du projet, il y aura création de 100 Mutuelles de solidarité (MUSO) et 220 clubs de mères. En outre, 55 jardins communautaires, 2500 jardins familiaux et 55 petits élevages communautaires seront mis en place dans le respect de l'environnement. Il y aura également distribution de semences et d'animaux aux résidents, ainsi que 75 activités d'éducation en santé par mois.

Recherches sur les barrières à l'allaitement, à l'hygiène et à la sécurité alimentaire

L'équipe de TRANSNUT, de l'Université de Montréal, aimerait évaluer l'efficacité des activités de l'A3PN sur la santé des mères et des enfants. Pour ce faire, l'équipe collectera des informations sur la nutrition à l'aide d'entretiens auprès des mères d'enfants de moins de 5 ans, des groupes de discussion, et des entretiens avec des informateurs clés. Ce travail de collecte d'informations sera fait grâce à l'aide des ASCP.

Votre participation à la recherche va nous permettre de connaître votre réalité concernant l'allaitement, l'hygiène et la sécurité alimentaire et nous aidera aussi à suggérer des activités d'intervention qui auront le plus d'impact sur l'état de santé des mères et leurs enfants. Votre honnêteté dans le partage des informations est d'une grande importance aux fins de l'étude. Les résultats de la recherche seront partagés avec les membres de votre section communale et les leaders locaux à l'intérieur de 6

mois après chaque collecte de données. Pour ce faire, un membre de l'équipe des ASCP offrira une présentation dans chaque section communale participante.

Participation à l'enquête auprès des mères d'enfants de moins de 5 ans
Nous vous invitons à répondre à des questions qui porteront sur les thèmes de l'allaitement, la nutrition, la sécurité alimentaire, l'accès à l'eau et l'hygiène. Pendant l'entrevue, l'ASCP vous demandera aussi s'il peut mesurer votre périmètre brachial et celui de votre enfant de moins de 5 ans. Nous allons aussi vérifier si votre enfant a de l'œdème aux pieds. Une rencontre typique dure normalement environ 45 minutes. Dans le cas où vous ou votre enfant présenteriez des signes de malnutrition modérée ou sévère, l'ASCP vous recommandera de vous rendre au centre de santé le plus rapproché pour recevoir les soins nécessaires.

Les membres de votre ménage seront sollicités pour participer à l'enquête, au maximum, une fois par période de collecte de données. Les collectes de données auront lieu à quatre reprises, soit 2 fois en 2017 et 2 fois en 2019. Les ménages sont tirés au hasard, donc il se peut que nous ne vous demandions de participer qu'une seule fois, comme c'est possible que nous vous demandions de participer deux, trois ou quatre fois. Veuillez noter que si vous participez une fois, cela ne vous engage pas à devoir participer à nouveau dans le futur. Ce formulaire de consentement vous sera présenté chaque fois que votre participation sera sollicitée.

Risques et inconvénients
Les risques et inconvénients anticipés pour vous sont minimes. Ils se résument aux temps que vous devrez passer à répondre aux questions. Un risque de bris de confidentialité reste possible, mais toutes les mesures seront prises afin d'éviter qu'une telle situation ne se produise.

Confidentialité
Vos renseignements personnels seront traités de manière confidentielle, car aucun nom ou renseignement identificatoire ne sera collecté et le formulaire de

consentement ne sera pas joint aux données cueillies. Les informations que vous partagerez seront sauvegardées sous forme informatique et seront traduites en français. Ces informations seront téléchargées sur un serveur privé qui sera gardé verrouillé à clé dans le bureau du coordonnateur de recherche à TRANSNUT. Toute copie papier sera aussi conservée dans un classeur verrouillé dans le local du coordonnateur de recherche et cela pendant une période minimale de 7 ans et sera détruite à la suite de cette période. Les informations que vous partagez seront utilisées seulement aux fins de l'étude. Certains étudiants de l'Université de Montréal pourraient éventuellement utiliser les informations de cette étude pour leurs travaux de recherche.

Compensation

Il est à noter qu'aucune compensation n'est prévue pour votre participation. Cependant, elle est grandement valorisée et sera utilisée pour votre bien et celle de votre communauté.

Participation volontaire et droit de retrait

Vous avez été choisie de façon aléatoire, parmi les mères ou tutrices des enfants de moins de 5 ans de votre commune, pour participer à cette enquête. Vous êtes libre d'accepter ou de refuser de participer à ce projet de recherche. Vous pouvez vous retirer de cette étude à n'importe quel moment, sans avoir à donner de raison. Vous avez simplement à aviser l'ASCP, et ce, par simple avis verbal. Toutes les informations que vous avez partagées seront alors supprimées de la tablette électronique utilisée pour récolter les données. Le formulaire de consentement et les autres documents remplis vous seront remis, ou seront détruits selon votre préférence.

Responsabilité de l'équipe de recherche

En acceptant de participer à cette étude, vous ne renoncez à aucun de vos droits ni ne libérez les chercheurs, les commanditaires ou l'établissement de leurs responsabilités civiles et professionnelles en cas de préjudice.

Personnes-ressources

Si vous avez des questions sur l'aspect scientifique du projet de recherche ou des préoccupations sur vos droits ou sur les responsabilités des chercheurs concernant votre participation à ce projet, vous pouvez contacter : William Junior Similien, chargé de suivi et d'évaluation de l'A3PN.

William Junior Similien — **Chargé de suivi et d'évaluation de l'A3PN**

Catholic Relief Services (CRS)

Téléphone : +509.38730617

Courriel : wiliam.similien@crs.org

Engagement du chercheur

Je soussigné, Malek Batal, chercheur principal pour le projet 16-108-CERES-P « Recherche sur les barrières à l'allaitement, à l'hygiène et à la sécurité alimentaire » m'engage à suivre les principes éthiques entourant la recherche avec les êtres humains dans le cadre de ce projet de recherche. Je ferai également de mon possible pour m'assurer du respect des principes de la confidentialité, de la bienfaisance et de la non-malfaisance tout au long du projet de recherche, par les membres du projet de recherche, notamment le coordonnateur de recherche à TRANSNUT, les étudiants chercheurs, et les Agents de santé communautaire polyvalents. Je m'engage aussi à veiller sur le retour rapide des résultats à la population cible de manière efficace et culturellement appropriée.

Sincèrement,

Malek batal

Signé à Montréal, le 2 août 2016

7.2 Short version of consent form for participants of individual interviews including 24-hour recalls during the Spring data collection (French Version)

Formulaire d'information et de consentement

Enquête auprès des mères d'enfants de moins de 5 ans

Version française

RÉSUMÉ : Projet de recherche sur les barrières à l'allaitement, à l'hygiène et à la sécurité alimentaire

Nous effectuons une enquête en Grand'Anse et au Sud d'Haïti sur la **nutrition, l'allaitement et l'hygiène**. Cette enquête vise à évaluer les bénéfices d'une initiative nommée A3PN. Votre ménage a été sélectionné au hasard pour cette enquête. Nous vous invitons à participer à cet entretien qui prend habituellement 45 minutes. Pendant l'entretien, nous allons vous demander de répondre à des questions, et nous allons aussi mesurer votre périmètre brachial, et celui de vos enfants de moins de 5 ans. Nous allons aussi vérifier si votre enfant a de l'œdème aux pieds.

Les risques et inconvénients anticipés pour vous sont minimes. Ils se résument au temps que vous devrez passer à répondre aux questions. Un risque de bris de confidentialité reste possible, mais toutes les mesures seront prises afin d'éviter qu'une telle situation ne se produise.

Vous êtes libre d'accepter ou de refuser de participer à ce projet de recherche et vous pouvez vous retirer de l'étude à n'importe quel moment, sans avoir à donner de raison. Vous avez simplement à aviser l'ASCP, et ce, par simple avis verbal. Toutes les informations que vous aurez partagées seront alors supprimées de la tablette et les autres documents vous seront remis, ou seront détruits selon votre préférence. Cependant, nous espérons que vous accepterez d'y participer, car votre participation est très importante pour la réussite de l'étude. Il est à noter qu'aucune compensation n'est prévue pour votre participation. Cependant, elle est grandement valorisée et sera utilisée pour votre bien et celle de votre communauté.

Sentez-vous à l'aise de m'interrompre à n'importe quel moment, et dites-le-moi si vous ne désirez pas répondre à une question.

Nous allons commencer par remplir un formulaire avec le prénom, le sexe, et l'âge des membres de votre ménage. Est-ce que vous pourriez demander aux autres membres du ménage s'ils se sentent à l'aise que vous répondiez à ces questions en leur nom ?

Engagement de la personne ayant procédé à l'obtention du consentement
J'ai expliqué les conditions de participation au projet de recherche au participant. J'ai répondu au meilleur de ma connaissance aux questions posées et me suis assuré de la compréhension du participant. Je m'engage, avec l'équipe de recherche, à respecter ce qui a été convenu au présent formulaire d'information et de consentement.

Prénom et nom de la personne ayant procédé à l'obtention du consentement **(lettres moulées)**	Signature de la personne ayant procédé à l'obtention du consentement

 # ménage

_____ _____

Prénom et nom de la participante : Date

(lettres moulées)

Partie réservée à l'étudiant chercheur
☐☐ **# *ppt***

7.3 Long version of consent form for participants of individual interviews including 24-hour recalls during the Spring data collection (Haitian Creole Version)

Fòmilè Enfòmasyon ak Konsantman

Sondaj bò kote manman ki gen timoun mwens ke 5 lane

Vèsyon kreyòl

Pwojè Rechèch sou baryè yo nan kesyon bay timoun tete, lijyèn ak kesyon sou bon jan kondisyon pou moun manje (Sekirite alimantè).

Pwojè sa fèt an kolaborasyon avèk plizyè patnè Kanadyen

Pwojè sa finanse pa :
Afè Mondayal Kanada (AMC) ak Fondasyon Paul Gérin-Lajoie (PGL)
Lòt patnè kap patisipe nan pwojè sa:
Catholic Relief Services (CRS)
Inite Entènasyonal Sante (USI) nan Inivèsite Monreyal,

An tan ke manman/ gadyen timoun ki gen mwens ke 5 lane e ki gen laj soti 15 rive 49 lane, nou envite ou patisipe nan ankèt sa a. Anvan ou dakò patisipe, tanpri pran tan ou li dokiman sa a ki montre ki kondisyon pou patisipe nan ankèt sa. Pa pè poze *nenpòt kesyon ke ou panse ki itil a moun kap prezante dokiman sa.*

Prezantasyon Projè A3PN nan.

Pwojè sa **Appui prénatal, périnatal, postnatal et nutritionnel (A3PN) en Grand'Anse et le Sud d'Haïti** gen lòt objektif tankou diminye kantite manman ak ti bebe kap mouri nan kesyon akouchman, lap pèmèt yo tou, amelyore sitiyasyon nitrisyonèl ak sante yo nan komin Koray, Rozo, Mowon, Ansdeno, Iwa, Kamperen, Chantal, Senjan. Pwojè sa komanse an avril 2016 lap pran fen an mas 2020. Pandan tan sa a, pwojè a ap travay pou amelyore kalite swen nan 10 sant sante epi fè fomasyon pou 75 ajan sante kominotè, yap

amplwaye yo pou yo bay sipò nan akonpaye manman yo nan anregistreman timoun ki fèk fèt nan kominote a, yo pral bay timoun ki gen 6 pou rive 59 mwa vitamin. Pandan menm peryòd sa projè a ap kreye 100 mityèl solidarite (MISO) ak 220 Klèb manman. Yon lòt bò yap mete sou pye 55 jaden kominotè, 2500 jaden fanmi ak 55 ti elvaj (gadò) kominotè nan respè anviwonman. Ap genyen tou distribisyon semans ak bèt bay benefisyè yo, ak 75 pòs pou pi piti pa mwa kote yap trete sijè sou la sante eksetera.

Rechèch sou baryè ki anpeche manman yo bay pitit yo tete, lijyèn ak bon jan kondisyon pou moun manje

Ekip TRANSNUT, nan Inivèsite Monreyal la, ta renmen konnen eske aktivite A3PN yo te pèmèt sante manman ak timoun yo amelyore. Pou fè sa, ekip la ap kolekte enfòmasyon sou nitrisyon nan yon ti koze ak manman timoun ki poko gen 5 lane yo, reyinyon an gwoup, entèvyou ak enfòmatè kle yo. Travay sa ap fèt avèk èd ASCP yo.

Patisipasyon w nan rechèch pral pèmèt nou konnen reyalite sou kesyon bay tete, lijyèn bon jan kondisyon pou moun manje, epi tou, sa ap ede nou konseye kèk aktivite ki pral pèmèt gen amelyorasyon sou eta sante manman ak timoun yo. La verite nan enfòmasyon wap ban nou yo ap enpòtan anpil pou itilite ankèt la. Nou pral pataje rezilta ankèt la avèk manm nan kominote'w la, lidè lokal yo nan yon peryòd 6 mwa aprè chak ankèt. Pou sa fèt ASCP yo ap fè prezantasyon sa nan chak Sekyson kominal ki te patisipe nan ankèt sa.

Patisipasyon nan entèvyou avèk kay (manaj) yo

Nou envite'w reponn kèk kesyon sou bagay sa yo : bay timoun tete, nitrisyon, bon jan kondisyon pou moun manje (sekirite alimantè), dlo ak lijyèn. Pandan ankèt sa ASCP yo ap mandew si yo kapab pran kontou bwa'w, ak timoun ou an ki gen pi piti ke 5 lane a. Yap tou gade pou yo we si timoun ou nan gen pye anfle. Rankont sa ka dire anviwon 45 minit. Si ou menm oubyen timoun ou an prezante youn nan siy malnitrisyon yo, ASCP a ap mandew pou al nan sant de sante ou dispansè ki pi prew la, pou yo ka bal swen li merite.

Sa ka rive yo mande pou moun ki lakay ou yo patisipe nan ankèt sa, men li pap pi plis ke yon fwa a chak fwa ke yap vini kolekte done yo. Done sa yo ap kolekte pandan 4 fwa, 2 fwa an demil diset (2017) epi 2 fwa an demil diznef (2019). Nou gen pou nou chwazi kay yo pa aza (konsa konsa), sa ka rive nou mande'w pou patisipe 1 fwa, menm jan nou ka mande'w pou patisipe 2 fwa, 3 fwa oubyen 4 fwa nan ankèt la. Nou ta renmen fèw konnen menm lè ou ta patispipe 1 fwa, sa pa vle di ou oblije patisipe yon lòt fwa ankò. Nap toujou prezante'w Fòmilè konsantman sa chak fwa ke nou ta rive mandew pou patisipe avek nou nan ankèt sa.

Risk ak dezavantaj

Risk ak dezavantaj nou prevwa ki ka genyen yo fèb. Kantite tan wap pran pou reponn kesyon yo ka konsidere tankou yon dezavantaj. Lòt risk pou enfòmasyon sa yo pa rete an sekrè, men nap pran tout mezi pou sa pa rive.

Sekrè/konfidansyalite

Enfòmasyon pèsonèl ou yo ap trete ak konfidansyalite, nou pap pran okenn non oubyen enfòmasyon sou idante'w. An plis, nou pap cheche fè fòmilè konsantman sa koresponn ak enfòmasyon nou pral mandew yo. Enfòmasyon wap pataje avèk nou yo ap konsève sou yon sipò enfòmatik epi nap tradwi yo an fransè an plis nap mete enfòmasyon sa yo anba kle nan biwo kòdonatè rechèch TRANSNUT lan. Enfòmasyon ki sou papye yo nap konsève yo anba kle nan menm biwo sa pandan 7 lane pou piti, aprè sa nap detwi enfòmasyon sa yo. Enfòmasyon sa yo nou pwal itilze yo sèlman pou etid la. Kèk etidyan nan Inivèviste Monreyal kapab itlize enfòmasyon sa yo pou lòt travay nan kad etid yo.

Sa wap jwenn an retou

Anvan ou kòmanse reponn kesyon yo nou ta renmen enfome'w ke pa gen anyen wap jwenn an retou. Sepandan nou bay anpil enpotans a patisipasyon'w nan ankèt sa e nou rete kwè se pou byen paw ak byen kominote'w la.

Patisipasyon volontè ak dwa ou genyen pou pa patisipe

Ou te chwazi pa chans pou patisipe nan ankèt sa pami tout lòt manman timoun ki gen mwens ke 5 lane nan zòn (komin) ou an. Ou lib pou reponn oubyen refize patisipe nan ankèt sa. Ou ka sispann reponn kesyon nan ankèt sa san ou pa oblije bay pouki rezon. Ou ka deside di Ajan kominotè a vèbalman ou pap kontinye. Yap retire tout enfomasyon ou te bay yo sou aparèy (Tablèt) la. Fòmilè sou konsantman ou te siyen an yap remèt ou'l oubyen yap dechire'l pou ou, sa depann de saw deside.

Responsablite ekip rechèch la

Le fè ke ou dakò patisipe nan etid sa pa vle di ke ou pedi nan dwa ke ou genyen, ni sa pa vle di ke moun yo kap fe rechech la ansanm avek responsab yo pap pote chay pou yo pote antan ke sitwayen ak profesyonel sizoka yo ta few yon bagay ki mal.

Kontak

Si ou gen kesyon sou aspè syantifik ankèt sa, enkyetid sou dwa ou ak responsablite chèchè yo konsènan patisipasyon ou nan pwojè sa, tanpri kontakte: William Junior Similien, responsab swivi ak evalyasyon nan projè A3PN nan.

William Junior Similien
Responsab swivi ak evalyasyon A3PN
Catholic Relief Services (CRS)
Telefòn: +509.38730617
Imèl: wiliam.similien@crs.org

Angajman chèchè a

Mwen angaje'm, Malek Batal, Chèchè prensipal pou pwojè 16-108-CERES-P " Rechèch sou baryè nan kesyon bay tete, lijyèn ak sekirite alimantè" pou'm respekte tout sa ki an rapò avèk kesyon etik nan rechèch sou moun nan pwojè rechèch sa. Mwen pwal fè tout posib mwen poum fè respekte tout prensip konfidansyalite yo, respè mityèl, charite ak byenseyans pandan tout rechèch la pa manm pwojè sa, tankou kòdonatè rechèch TRANSNUT lan, etidyan chèhè yo, ajan kominotè polvalan yo. Mwen angajem tou pou rezilta anket la tounen pi vit ke posib al jwenn popilasyon ki konsene-a selon jan sa te pase-a ak selon jan yap viv la.

Sensèman,

Malek batal

[redacted]

Siyen Nan Monreyal dat ki 2 out 2016 lan.

7.4 Short version of consent form for participants of individual interviews including 24-hour recalls during the Spring data collection (Haitian Creole Version)

Fòmilè Enfòmasyon ak Konsantman

Sondaj bò kote manman ki gen timoun mwens ke 5 lane

Vèsyon kreyòl

REZIME : Pwojè Rechèch sou baryè ki anpeche bay tete, Lijyèn ak sekirite manje:

Nap reyalize yon rechèch nan Grandans ak Sid Dayiti sou **nitrisyon, bay tete, ak lijyèn**. Entèvyou sa gen pou objektif evalye benefis ki genyen nan pwojè A3PN nan. Kay ou te chwazi pa aza pou patisipe nan ankèt sa. Nou envitew reponn avèk nou kèk kesyon ki ka pran anviwon 45 minit. Nou pral mande'w pou reponn avèk kesyon sa yo, anplis de sa nap pran kontou bwa'w, ak timoun ou an ki gen pi piti ke 5 lane. Yap tou gade pou yo we si timoun ou nan gen pye anfle.

Risk ak dezavantaj nou prevwa ki ka genyen yo fèb. Kantite tan wap pran pou reponn kesyon yo ka konsidere tankou yon dezavantaj. Lòt risk pou enfòmasyon sa yo pa rete an sekrè, men nap pran tout mezi pou sa pa rive.

Ou lib pou asepte oswa refize patisipe nan ankèt sa, ou kapab deside pa kontinye avèk nou nan etid sa nenpòt kilè, san ou pa bezwen di nou pouki rezon. Wap sèlman di etiyan chèchè yo sa vèbalman. Yap retire tout enfomasyon ou te bay yo sou aparèy la. Yap remèt Fòmilè sou konsantman ou te siyen ak lòt dokiman ou te ranpli yo, oubyen yap dechire'yo, sa depann de saw deside. Men nou ta renmen ou patisipe, paske patisipasyon'w enpòtan anpil pou siksè etid la. Nou ta renmen enfome'w yon lòt fwa ou pap jwenn anyen an retou. Sepandan nou bay anpil enpotans a patisipasyon'w nan ankèt sa e nou rete kwè se pou byen'w ak byen kominote'w la repons ou yo nan ankèt sa.

Mete ou alèz si ou ta vle poze nenpòt kesyon, ou kapab di nou si ou pa ka reponn a kesyon sa.

Nou pral kòmanse rampli yon fòmilè ki genyen non, siyati, sèks, laj moun ki andan kay la. Èske ou ka mande lòt moun ki nan kay si yo pa gen pwoblèm pou'w reponn kesyon sa yo nan non yo.

Angajman moun ki te fè konsantman an

Mwen eksplike kondisyon patisipasyon nan pwojè a rechèch sa ak patisipan-an. Mwen reponn daprè tout sa mwen konnen de kesyon ki poze yo, epi mwen asire patisipan yo konprann kesyon mwen poze yo. Mwen dakò ak ekip rechèch la, ke map respekte sa ki te ekri nan fòmilè konsantman an.

_____ _____

____ ___

Non ak Siyati ASCP Paraf ASCP

(Ekri an lèt detache)

_____ | | | | |

____ ***# Kay(menaj)***

Non ak Siyati Moun patisipan

(Ekri an lèt detache)

_____

Dat

Partie réservée à l'étudiant chercheur

 # ppt

7.5 Long version of consent form for participants of individual interviews including 24-hour recalls during the summer data collection (French Version)

Formulaire d'information et de consentement

Enquête auprès des mères d'enfants de moins de 5 ans

Version française

Projet de recherche sur les barrières à l'allaitement, à l'hygiène et à la sécurité alimentaire

Ce projet est en partenariat avec des entités canadiennes

Ce projet est financé par :
Affaires Mondiales Canada (AMC) et Fondation Paul Gérin-Lajoie (PGL)
Autres partenaires impliqués dans le projet :
Catholic Relief Services (CRS),
L'Unité de santé internationale (USI) de l'Université de Montréal,
TRANSNUT du département de nutrition à l'Université de Montréal.

En tant que mère/tutrice d'un enfant de moins de 5 ans et âgée entre 15 et 49 ans, vous êtes invitée à participer à ce projet de recherche. Avant d'accepter d'y participer, veuillez prendre le temps de lire ce document présentant les conditions de participation au projet. N'hésitez pas à poser toutes les questions que vous jugerez utiles à la personne qui vous présente ce document.

Description de l'A3PN

Le projet **Appui prénatal, périnatal, postnatal et nutritionnel (A3PN) en Grand'Anse et le Sud d'Haïti** vise à réduire le taux de mortalité maternelle et infantile ainsi qu'à améliorer leur état nutritionnel et de santé dans les communes de Camp-Perrin, Saint Jean du Sud, Chantal, Corail, Roseau, Irois, Anse d'Hainault et Moron. La durée du projet sera d'avril 2016 à mars 2020. Durant ce temps, dix centres de santé seront améliorés et 75 Agents de santé communautaire polyvalents (ASCP) vont être formés et embauchés pour travailler dans ces centres de santé pour offrir des soins de santé périnatals, distribuer des micronutriments aux enfants de 6 à 59 mois (5 ans) et offrir du support aux mères pour l'enregistrement des nouveau-nés. Au cours du projet, il y aura création de 100 Mutuelles de solidarité (MUSO) et 220 clubs de mères. En outre, 55 jardins communautaires, 2500 jardins familiaux et 55 petits élevages communautaires seront mis en place dans le respect de l'environnement. Il y aura également distribution de semences et d'animaux aux résidents, ainsi que 75 activités d'éducation en santé par mois.

Recherches sur les barrières à l'allaitement, à l'hygiène et à la sécurité alimentaire
L'équipe de TRANSNUT, de l'Université de Montréal, aimerait évaluer l'efficacité des activités de l'A3PN sur la santé des mères et des enfants. Pour ce faire, l'équipe collectera des informations sur la nutrition à l'aide d'entretiens auprès des mères d'enfants de moins de 5 ans, des groupes de discussion, et des entretiens avec des informateurs clés. Ce travail de collecte d'informations sera fait grâce à l'aide des ASCP.

Votre participation à la recherche va nous permettre de connaître votre réalité concernant l'allaitement, l'hygiène et la sécurité alimentaire et nous aidera aussi à suggérer des activités d'intervention qui auront le plus d'impact sur l'état de santé des mères et leurs enfants. Votre honnêteté dans le partage des informations est d'une grande importance aux fins de l'étude. Les résultats de la recherche seront partagés avec les membres de votre section communale et les leaders locaux à l'intérieur de 6 mois après chaque collecte de données. Pour ce faire, un membre de l'équipe des ASCP offrira une présentation dans chaque section communale participante.

Participation à l'enquête auprès des ménages

Nous vous invitons à répondre à des questions qui porteront sur les thèmes de l'allaitement, la nutrition, la sécurité alimentaire, l'accès à l'eau et l'hygiène. Pendant l'entrevue, l'ASCP vous demandera aussi s'il peut mesurer votre poids et votre taille et ceux de votre enfant de moins de 5 ans. Une rencontre typique dure normalement environ 45 minutes. Dans le cas où vous ou votre enfant présenteriez des signes d'anémie, ou votre enfant présenterait des signes de malnutrition modérée ou sévère, l'ASCP vous recommandera de vous rendre au centre de santé le plus rapproché pour recevoir les soins nécessaires.

Les membres de votre ménage seront sollicités pour participer à l'enquête, au maximum, une fois par période de collecte de données. Les collectes de données auront lieu à quatre reprises, soit 2 fois en 2017 et 2 fois en 2019. Les ménages sont tirés au hasard, donc il se peut que nous ne vous demandions de participer qu'une seule fois, comme c'est possible que nous vous demandions de participer deux, trois ou quatre fois. Veuillez noter que si vous participez une fois, cela ne vous engage pas à devoir participer à nouveau dans le futur. Ce formulaire de consentement vous sera présenté à chaque fois que votre participation sera sollicitée.

Risques et inconvénients

Les risques et inconvénients anticipés pour vous sont minimes. Ils se résument au temps que vous devrez passer à répondre aux questions. Un risque de bris de confidentialité reste possible, mais toutes les mesures seront prises afin d'éviter qu'une telle situation ne se produise.

Confidentialité

Vos renseignements personnels seront traités de manière confidentielle, car aucun nom ou renseignement identificatoire ne sera collecté et le formulaire de consentement ne sera pas joint aux données cueillies. Les informations que vous partagerez seront sauvegardées sous forme informatique et seront traduites en français. Ces informations seront téléchargées sur un serveur privé qui sera gardé verrouillé à clé dans le bureau du coordonnateur de recherche à TRANSNUT. Toute copie papier sera aussi conservée dans

un classeur verrouillé dans le local du coordonnateur de recherche et cela pendant une période minimale de 7 ans et sera détruite à la suite de cette période. Les informations que vous partagez seront utilisées seulement aux fins de l'étude. Certains étudiants de l'Université de Montréal pourraient éventuellement utiliser les informations de cette étude pour leurs travaux de recherche.

Compensation

Il est à noter qu'aucune compensation n'est prévue pour votre participation. Cependant, elle est grandement valorisée et sera utilisée pour votre bien et celle de votre communauté.

Participation volontaire et droit de retrait

Vous avez été choisie de façon aléatoire, parmi les mères ou tutrices des enfants de moins de 5 ans de votre commune, pour participer à cette enquête. Vous êtes libre d'accepter ou de refuser de participer à ce projet de recherche. Vous pouvez vous retirer de cette étude à n'importe quel moment, sans avoir à donner de raison. Vous avez simplement à aviser l'ASCP, et ce, par simple avis verbal. Toutes les informations que vous avez partagées seront alors supprimées de la tablette électronique utilisée pour récolter les données. Le formulaire de consentement et les autres documents remplis vous seront remis, ou seront détruits selon votre préférence.

Responsabilité de l'équipe de recherche

En acceptant de participer à cette étude, vous ne renoncez à aucun de vos droits ni ne libérez les chercheurs, les commanditaires ou l'établissement de leurs responsabilités civiles et professionnelles en cas de préjudice.

Personnes-ressources

Si vous avez des questions sur l'aspect scientifique du projet de recherche ou des préoccupations sur vos droits ou sur les responsabilités des chercheurs concernant votre participation à ce projet, vous pouvez contacter : William Junior Similien, chargé de suivi et d'évaluation de l'A3PN.

William Junior Similien

Chargé de suivi et d'évaluation de l'A3PN

Catholic Relief Services (CRS)

Téléphone : +509.38730617

Courriel : wiliam.similien@crs.org

Engagement du chercheur

Je soussigné, Malek Batal, chercheur principal pour le projet 16-108-CERES-P « Recherche sur les barrières à l'allaitement, à l'hygiène et à la sécurité alimentaire » m'engage à suivre les principes éthiques entourant la recherche avec les êtres humains dans le cadre de ce projet de recherche. Je ferai également de mon possible pour m'assurer du respect des principes de la confidentialité, de la bienfaisance et de la non-malfaisance tout au long du projet de recherche, par les membres du projet de recherche, notamment le coordonnateur de recherche à TRANSNUT, les étudiants chercheurs, et les Agents de santé communautaire polyvalents. Je m'engage aussi à veiller sur le retour rapide des résultats à la population cible de manière efficace et culturellement appropriée.

Sincèrement,

Malek batal

Signé à Montréal, le 2 août 2016

7.6 Short version of consent form for participants of individual interviews including 24-hour recalls during the summer data collection (French Version)

Formulaire d'information et de consentement

Enquête auprès des mères d'enfants de moins de 5 ans

Version française

RÉSUMÉ : Projet de recherche sur les barrières à l'allaitement, à l'hygiène et à la sécurité alimentaire

Nous effectuons une enquête en Grand'Anse et au Sud d'Haïti sur la **nutrition, l'allaitement et l'hygiène**. Cette enquête vise à évaluer les bénéfices d'une initiative nommée A3PN. Votre ménage a été sélectionné au hasard pour cette enquête. Nous vous invitons à participer à cet entretien qui prend habituellement 45 minutes. Pendant l'entretien, nous allons vous demander de répondre à des questions, et nous allons aussi mesurer votre poids votre taille et périmètre brachial, et ceux de vos enfants de moins de 5 ans. Nous allons aussi vérifier si votre enfant a de l'œdème aux pieds.

Les risques et inconvénients anticipés pour vous sont minimes. Ils se résument au temps que vous devrez passer à répondre aux questions. Un risque de bris de confidentialité reste possible, mais toutes les mesures seront prises afin d'éviter qu'une telle situation ne se produise.

Vous êtes libre d'accepter ou de refuser de participer à ce projet de recherche et vous pouvez vous retirer de l'étude à n'importe quel moment, sans avoir à donner de raison. Vous avez simplement à aviser l'ASCP, et ce, par simple avis verbal. Toutes les informations que vous aurez partagées seront alors supprimées de la tablette et les autres documents vous seront remis, ou seront détruits selon votre préférence. Cependant, nous espérons que vous accepterez d'y participer, car votre participation est très importante pour la réussite de l'étude. Il est à noter qu'aucune compensation n'est prévue pour votre participation. Cependant, elle est grandement valorisée et sera utilisée pour votre bien et celle de votre communauté.

Sentez-vous à l'aise de m'interrompre à n'importe quel moment, et dites-le-moi si vous ne désirez pas répondre à une question.

Nous allons commencer par remplir un formulaire avec le prénom, le sexe, l'âge des membres de votre ménage. Est-ce que vous pourriez demander aux autres membres du ménage s'ils se sentent à l'aise que vous répondiez à ces questions en leur nom ?

Engagement de la personne ayant procédé à l'obtention du consentement
J'ai expliqué les conditions de participation au projet de recherche au participant. J'ai répondu au meilleur de ma connaissance aux questions posées et me suis assuré de la compréhension du participant. Je m'engage, avec l'équipe de recherche, à respecter ce qui a été convenu au présent formulaire d'information et de consentement.

_____	_____
____	___
Prénom et nom de la personne ayant procédé à l'obtention du consentement **(lettres moulées)**	Signature de la personne ayant procédé à l'obtention du consentement

_____

____

Prénom et nom de la participante :
(lettres moulées)

☐☐☐☐	☐☐
# ménage	***# ppt***

_____

Date

7.7 Long version of consent form for participants of individual interviews including 24-hour recalls during the summer data collection (Haitian Creole Version)

Fòmilè Enfòmasyon ak Konsantman

Sondaj bò kote manman ki gen timoun mwens ke 5 lane

Vèsyon kreyòl

Pwojè Rechèch sou baryè yo nan kesyon bay timoun tete, lijyèn ak kesyon sou bon jan kondisyon pou moun manje (Sekirite alimantè).

Pwojè sa fèt an kolaborasyon avèk plizyè patnè Kanadyen

Pwojè sa finanse pa :
Afè Mondayal Kanada (AMC) ak Fondasyon Paul Gérin-Lajoie (PGL)
Lòt patnè kap patisipe nan pwojè sa:
Catholic Relief Services (CRS)
Inite Entènasyonal Sante (USI) nan Inivèsite Monreyal,

An tan ke manman/ gadyen timoun ki gen mwens ke 5 lane e ki gen laj soti 15 rive 49 lane, ou envite pou patisipe nan ankèt sa a. Anvan ou dakò patisipe, tanpri pran tan ou li dokiman sa a ki montre ki kondisyon pou patisipe nan ankèt sa. Pa pè poze *nenpòt kesyon ke ou panse ki itil a moun kap prezante dokiman sa.*

Prezantasyon Projè A3PN nan.

Pwojè sa **Appui prénatal, périnatal, postnatal et nutritionnel (A3PN) en Grand'Anse et le Sud d'Haïti** gen lòt objektif tankou diminye kantite manman ak ti bebe kap mouri nan kesyon akouchman, lap pèmèt yo tou, amelyore sitiyasyon nitrisyonèl ak sante yo nan komin Koray, Rozo, Mowon, Ansdeno, Iwa, Kamperen, Chantal, Senjan. Pwojè sa komanse an avril 2016 lap pran fen an mas 2020. Pandan tan sa a, pwojè a ap travay pou amelyore kalite swen nan 10 sant sante epi fè fomasyon pou 75 ajan sante kominotè, yap

amplwaye yo pou yo bay sipò nan akonpaye manman yo nan anregistreman timoun ki fèk fèt nan kominote a, yo pral bay timoun ki gen 6 pou rive 59 mwa vitamin. Pandan menm peryòd sa projè a ap kreye 100 mityèl solidarite (MISO) ak 220 Klèb manman. Yon lòt bò yap mete sou pye 55 jaden kominotè, 2500 jaden fanmi ak 55 ti elvaj (gadò) kominotè nan respè anviwonman. Ap genyen tou distribisyon semans ak bèt bay benefisyè yo, ak 75 pòs pou pi piti pa mwa kote yap trete sijè sou la sante eksetera.

Rechèch sou baryè ki anpeche manman yo bay pitit yo tete, lijyèn ak bon jan kondisyon pou moun manje

Ekip TRANSNUT, nan Inivèsite Monreyal la, ta renmen konnen eske aktivite A3PN yo te pèmèt sante manman ak timoun yo amelyore. Pou fè sa, ekip la ap kolekte enfòmasyon sou nitrisyon nan yon ti koze ak manman timoun ki poko gen 5 lane yo, reyinyon an gwoup, entèvyou ak enfòmatè kle yo. Travay sa ap fèt avèk èd ASCP yo.

Patisipasyon w nan rechèch pral pèmèt nou konnen reyalite sou kesyon bay tete, lijyèn bon jan kondisyon pou moun manje, epi tou, sa ap ede nou konseye kèk aktivite ki pral pèmèt gen amelyorasyon sou eta sante manman ak timoun yo. La verite nan enfomasyon wap ban nou yo ap enpòtan anpil pou itilite ankèt la. Nou pral pataje rezilta ankèt la avèk manm nan kominote'w la, lidè lokal yo nan yon peryòd 6 mwa aprè chak ankèt. Pou sa fèt ASCP yo ap fè prezantasyon sa nan chak Sekyson kominal ki te patisipe nan ankèt sa.

Patisipasyon nan entèvyou avèk kay (manaj) yo

Nou envite'w reponn kèk kesyon sou bagay sa yo : bay timoun tete, nitrisyon, bon jan kondisyon pou moun manje (sekirite alimantè), dlo ak lijyèn. Pandan ankèt sa ASCP yo ap mandew si yo kapab pran pwa'w, wotè'w, kontou bwa'w, ak timoun ou an ki gen pi piti ke 5 lane a. Yap tou gade pou yo we si timoun ou nan gen pye anfle. Rankont sa ka dire anviwon 45 minit. Si ou menm oubyen timoun ou an prezante youn nan siy malnitrisyon yo, ASCP a ap mandew pou al nan sant de sante ou dispansè ki pi prew la, pou yo ka bal swen li merite.

Sa ka rive yo mande pou moun ki lakay ou yo patisipe nan ankèt sa, men li pap pi plis ke yon fwa a chak fwa ke yap vini kolekte done yo. Done sa yo ap kolekte pandan 4 fwa, 2 fwa an demil diset (2017) epi 2 fwa an demil diznef (2019). Nou gen pou nou chwazi kay yo pa aza (konsa konsa), sa ka rive nou mande'w pou patisipe 1 fwa, menm jan nou ka mande'w pou patisipe 2 fwa, 3 fwa oubyen 4 fwa nan ankèt la. Nou ta renmen fèw konnen menm lè ou ta patispipe 1 fwa, sa pa vle di ou oblije patisipe yon lòt fwa ankò. Nap toujou prezante'w Fòmilè konsantman sa chak fwa ke nou ta rive mandew pou patisipe avek nou nan ankèt sa.

Risk ak dezavantaj

Risk ak dezavantaj nou prevwa ki ka genyen yo fèb. Li kapab lye tou ak kantite tan wap pran pou reponn kesyon yo. Lòt risk pou enfòmasyon sa yo pa rete an sekrè, men nap pran tout mezi pou sa pa rive.

Sekrè/konfidansyalite

Enfòmasyon pèsonèl ou yo ap trete ak konfidansyalite, nou pap pran okenn non oubyen enfòmasyon sou idante'w. An plis, nou pap cheche fè fòmilè konsantman sa koresponn ak enfòmasyon nou pral mandew yo. Enfòmasyon wap pataje avèk nou yo ap konsève sou yon sipò enfòmatik epi nap tradwi yo an fransè an plis nap mete enfòmasyon sa yo anba kle nan biwo kòdonatè rechèch TRANSNUT lan. Enfòmasyon ki sou papye yo nap konsève yo anba kle nan menm biwo sa pandan 7 lane pou piti, aprè sa nap detwi enfòmasyon sa yo. Enfòmasyon sa yo nou pwal itilze yo sèlman pou etid la. Kèk etidyan nan Inivèviste Monreyal kapab itlize enfòmasyon sa yo pou lòt travay nan kad etid yo.

Sa wap jwenn an retou

Anvan ou kòmanse reponn kesyon yo nou ta renmen enfome'w ke pa gen anyen wap jwenn an retou. Sepandan nou bay anpil enpotans a patisipasyon'w nan ankèt sa e nou rete kwè se pou byen paw ak byen kominote'w la

Patisipasyon volontè ak dwa ou genyen pou pa patisipe

Ou te chwazi pa chans pou patisipe nan ankèt sa pami tout lòt manman timoun ki gen mwens ke 5 lane nan zòn (komin) ou an. Ou lib pou reponn oubyen refize patisipe nan ankèt sa. Ou ka sispann reponn kesyon nan ankèt sa san ou pa oblije bay pouki rezon. Ou ka deside di Ajan kominotè a vèbalman ou pap kontinye. Yap retire tout enfomasyon ou te bay yo sou aparèy (Tablèt) la. Fòmilè sou konsantman ou te siyen an yap remèt ou'l oubyen yap dechire'l pou ou, sa depann de saw deside.

Responsablite ekip rechèch la

Le fè ke ou dakò patisipe nan etid sa pa vle di ke ou pedi nan dwa ke ou genyen, ni sa pa vle di ke moun yo kap fe rechech la ansanm avek responsab yo pap pote chay pou yo pote antan ke sitwayen ak profesyonel sizoka yo ta few yon bagay ki mal.

Kontak

Si ou gen kesyon sou aspè syantifik ankèt sa, enkyetid sou dwa ou ak responsablite chèchè yo konsènan patisipasyon ou nan pwojè sa, tanpri kontakte: William Junior Similien, responsab swivi ak evalyasyon nan projè A3PN nan.

William Junior Similien
Responsab swivi ak evalyasyon A3PN
Catholic Relief Services (CRS)
Telefòn: +509.38730617
Imèl: wiliam.similien@crs.org

Angajman chèchè a

Mwen angaje'm, Malek Batal, Chèchè prensipal pou pwojè 16-108-CERES-P " Rechèch sou baryè nan kesyon bay tete, lijyèn ak sekirite alimantè" pou'm respekte tout sa ki an rapò avèk kesyon etik nan rechèch sou moun nan pwojè rechèch sa. Mwen pwal fè tout posib mwen poum fè respekte tout prensip konfidansyalite yo, respè mityèl, charite ak byenseyans pandan tout rechèch la pa manm pwojè sa, tankou kòdonatè rechèch TRANSNUT lan, etidyan chèhè yo, ajan kominotè polvalan yo. Mwen angajem tou pou rezilta anket la tounen pi vit ke posib al jwenn popilasyon ki konsene-a selon jan sa te pase-a ak selon jan yap viv la.
Sensèman,
Malek batal

[redacted]

Siyen Nan Monreyal dat ki 2 out 2016 lan.

7.8 Short version of consent form for participants of individual interviews including 24-hour recalls during the summer data collection (Haitian Creole Version)

Fòmilè Enfòmasyon ak Konsantman

Sondaj bò kote manman ki gen timoun mwens ke 5 lane

Vèsyon kreyòl

REZIME : Pwojè Rechèch sou baryè ki anpeche bay tete, Lijyèn ak sekirite manje:

Nap reyalize yon rechèch nan Grandans ak Sid Dayiti sou **nitrisyon, bay tete, ak lijyèn**. Entèvyou sa gen pou objektif evalye benefis ki genyen nan pwojè A3PN nan. Kay ou te chwazi pa aza pou patisipe nan ankèt sa. Nou envitew reponn avèk nou kèk kesyon ki ka pran anviwon 45 minit. Nou pral mande'w pou reponn avèk kesyon sa yo, anplis de sa nap pran pwa, longè avèk kontou bwa ou ak pa timoun ou genyen yo ki gen pi piti pase 5 lane. Yap tou gade pou yo we si ti moun ou nan gen pye anfle.

Risk ak dezavantaj nou prevwa ki ka genyen yo fèb. Li kapab lye tou ak kantite tan wap pran pou reponn kesyon yo. Lòt risk pou enfòmasyon sa yo pa rete an sekrè, men nap pran tout mezi pou sa pa rive.

Ou lib pou asepte oswa refize patisipe nan ankèt sa, ou kapab deside pa kontinye avèk nou nan etid sa nenpòt kilè, san ou pa bezwen di nou pouki rezon. Wap sèlman di etiyan chèchè yo sa vèbalman. Yap retire tout enfomasyon ou te bay yo sou aparèy la. Yap remèt Fòmilè sou konsantman ou te siyen ak lòt dokiman ou te ranpli yo, oubyen yap dechire'yo, sa depann de saw deside. Men nou ta renmen ou patisipe, paske patisipasyon'w enpòtan anpil pou siksè etid la. Nou ta renmen enfome'w yon lòt fwa ou pap jwenn anyen an retou. Sepandan nou bay anpil enpotans patisipasyon'w nan ankèt sa e nou rete kwè se pou byen'w ak byen kominote'w la repons ou yo nan ankèt sa.

Mete ou alèz si ou ta vle poze nenpòt kesyon, ou kapab di nou si ou pa ka reponn a kesyon sa.

Nou pral kòmanse rampli yon fòmilè ki genyen non, siyati, sèks, laj moun ki andan kay la. Èske ou ka mande lòt moun ki nan kay si yo pa gen pwoblèm pou'w reponn kesyon sa yo nan non yo.

Angajman moun ki te fè konsantman an

Mwen eksplike kondisyon patisipasyon nan pwojè a rechèch sa ak patisipan-an. Mwen reponn daprè tout sa mwen konnen de kesyon ki poze yo, epi mwen asire patisipan yo konprann kesyon mwen poze yo. Mwen dakò ak ekip rechèch la, ke map respekte sa ki te ekri nan fòmilè konsantman an.

_____ _____

____ ___

Non ak Siyati ASCP Paraf ASCP

(Ekri an lèt detache)

_____ | | | | |

____ ***# Kay(menaj)***

Non ak Siyati Moun patisipan

(Ekri an lèt detache)

_____

Dat

Partie réservée à l'étudiant chercheur

 # ppt