Healthy Mothers and Babies Program in Myanmar

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Abstract

Living conditions and level of medical care can play a role in Burmese maternal and infant health care. The present work sought to better understand such conditions, in conjunction with an evaluation and expansion of a maternal and infant care program administered by Global Community Service Foundation, (GCSF). This program is located in the Inle lake area of Myanmar (formerly called Burma). Statistics Without Borders (SwB) members worked closely with the organization to develop two studies designed to assess the living and medical conditions. The results and conclusions follow.

Key Words: maternal and infant care, Myanmar, and survey methods

1. Introduction

In 2011, the military junta that had ruled Myanmar (and who changed the name from Burma to Myanmar), for over two decades, undertook vast reforms. The 2008 military-drafted Constitution remained, and the new president, Thein Sein, was a high-ranking general. But the new government formally became civilian and the opposition leader Aung San Suu Kyi now holds a seat in Parliament, as of 2012. In the process of democratization, Thein Sein, has signed peace-treaties with various ethnic minority rebels. As a result, more government services such as power lines and hospitals can be found in these formerly ethnic controlled areas.

Meanwhile, Global Community Service Foundation, (GCSF) located in Virginia, has run a small charity in the Inle lake area of Myanmar. [1] In 1995, GCSF started building homes in the area and in 2010 launched a maternal and infant care program. Here retired government midwives (dubbed GCSF midwives) regularly travel to a prescribed set of villages and distribute pre-natal vitamins, as well as, advise the women to obtain tetanus shots and worm pills from their local government midwife. (Pregnant women, who have worms, run the risk of becoming anemic.) Records were not kept.

Now that the government is in the process of democratization, GCSF would like to expand its maternal and infant care program to more areas including the Second lake.

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The Second lake area, originally controlled by PaO ethnic rebels, recently opened up after a peace agreement government. A government hospital was installed.

The medical care situation on the lake is such that the government midwives who receive one to two years of formal midwifery training, are the "go to" medical professionals on the lake for mothers, children and husbands. Government midwives distribute vaccines, vitamins and worm pills. Pregnant women visit the midwives' clinic for check-ups free of charge (albeit a bribe). These midwives are in charge of over 700 people within a tract and are the only ones who have access to vaccines and prescribed medication. (There are about 99,723 people who live on or near the lake.) Additional medical care (and often more accessible) is provided by auxiliary midwives who have 6-months of formal-medical training and village women who have no formal training. There are four public hospitals on the lake (and one private). The most popular and largest public hospital has 50 patient beds and two part-time doctors, with 17 nurses on staff. In addition to the hospitals, two private independent clinics, run by a doctor and staffed by nurse-aides, are located near or on the lake.

To better understand the living and medical conditions, SwB members collaborated on two studies (Study 1 & Study 2). Study 1 focused on GCSF service providers (nurses and midwives) knowledge and opinions. Study 2 focused on (1) the general health of those females of child bearing age (2) whether GCSF matters (3) identification of critical knowledge gaps in maternal and infant health care. The first goal of Study 2 is dicussed in detail here, the remaining goals are only briefly mentioned.

2. Study 1

The crux of Study 1 was simply to find out about the medical care situation on the lake. More specifically, to find out more about the GCSF staff training and schedules, along with obstacles faced by the staff.

2.1 Methodology of Study 1

Fourteen GCSF sponsored medical staff located at three clinics were given a self-administered questionnaire in a group setting. The questionnaire contained 51 questions ranging from closed- ended nationality questions to open-ended opinion questions about the current health care. All questions were written in Burmese. Care was taken to translate the questionnaire from English to Burmese and back to English by two different translators. Any translation inconsistencies were rectified and the questionnaire was translated to Burmese again. A proctor was always available to answer questions. Medical staff were able to answer each question without a time limit. Time taken to complete the form was between 30-110 minutes with an average of 64 minutes per questionnaire. Some questions were left unanswered.

2.2 Results of Study 1

Medical Staff Training and Years of Experience. Doctors reported receiving their medical degree in either Yangon or Mandalay after six to seven and half years of training,

in addition to a college education. Doctors ranged in experience from 10 to 40 years depending upon their age and reported working at least 12 hours a day. All nurse, midwives, auxiliary-midwives and nurse aides reported receiving their nursing training in Taunggyi (the capital of the Shan state where Inle lake is located), only two nurses reported receiving specialized training in drug abuse and birth spacing. Nurse and nurse aides ranged in experience from 2 to 41 years depending upon their age. Nurse and nurse aides were college educated with additional nursing training ranged from 6 months for nurse aides to two to five years for nurses.

Diseases. Of the six diseases asked, the staff indicated that malnutrition and malaria as somewhat more frequently occurring than the other diseases, as Table 1.

Table 1: Frequency Ratings of Five Prescribed Diseases for Women

Diseases	**Never**	**Sometimes**	**Often**	**Always**	**Blank**
Malaria	1/14	11/14	1/14	0	1/14
Malnutrition	1/14	10/14	3/14	0	0
Worm	5/14	6/14	2/14	0	1/14
STDs	6/14	4/14	2/14	0	1/14
Skin Rashes/Itching	6/14	4/14	1/14	1/14	1/14
Diarrhea	8/14	4/14	1/14	1/14	1/14

When asked about other diseases, the medical staff reported five additional diseases/symptoms: (1) hyper- and hypo-tension (2) vomiting (3) uterus and breast cancer, (4) dizziness, and (5) fever. When asked about possible treatments, the medical staff referred their patients to a nearby hospital for a follow-up treatment. Table 2 provides a listing of treatments for the five prescribed diseases, as can be seen below.

Table 2: Treatments for the Five Prescribed Diseases

Diseases	**Treatment**
Malaria	Refer to hospital; blood test to confirm; give medicine
Malnutrition	Provide vitamins, Calcium powder, Ovaltine and nutrition education
Worm	Provide anti worm medicine; refer hospital
STDs	Refer hospital
Skin Rashes/Itching	Provide ointment; check for allergic reaction; refer to hospital
Diarrhea	Provide oral rehydration salt

Obstacles. As for obstacles, three practitioners reported a lack of funding and patient compliance. For example, patients do not follow the doctor's advice to go to the hospital for treatment. Only four practitioners reported running out of supplies. (Medical staff reportedly obtained supplies from a nearby pharmacy or an in-country GCSF staff person.)

Improvement Suggestions. Of the fourteen service providers, four providers reported "no improvement" suggestions. The remaining ten providers reported difficulties combating traditional beliefs, e.g., pregnant women avoid certain nutritional foods. Other providers recommended a need for improved hygiene practices for rural medical staff. Some providers recommended more dental care, healthcare facilities, and professional training.

3. Focus Group

A focus group was conducted to gain more insights about (1) health care (2) from mothers about their financial decisions, (3) obstacles in obtaining health care and (4) women's health education. Topic results were later incorporated in the questionnaire of Study 2.

3.1 Methodology of Focus Group

Four mothers from a GCSF sponsored village were asked in a group format about their health care and decisions. Health care workers were not included in the group. The meditator, an in-country GCSF staff person, asked 14 questions in Burmese and recorded all relevant information. Translations from Burmese to English were made afterwards. A second focus group was scheduled, but did not come to fruition.

3.2 Results of Focus Group

Government midwives, who have 1-2 years of midwifery training, are the go-to health care staff on the lake. Focus group topic results also indicate that mothers are offered breast feeding classes by their local government midwives, as well as, prenatal checks and vaccinations.

Focus group topics also indicate that women and other family members typically travel to the government midwife (by foot or boat) for general problems (including vaccinations). People often go when they feel dizzy, weakness, back pains, cold, or have diaherra. The hospital is too costly for routine care (including child birth). For example, cesareans can cost up to $150 dollars with additional incidental service charges for sheet changing and bed washing, along with supply charges for drugs.

Focus group topic results indicate that even if the pregnant mom did want to make the trip to the government midwife and incur the costs, her husband (and mother-in-law) may forbid her. (When a man and woman marry, they move into his parents' home.) Pre-natal care can be a financial burden. For example, pregnant women must pay boat rental and jetty fees to travel to their prescribed midwife, along with a "hand washing" or gratuity fee. Many of the women and their families live on about one to two dollars a day. Their husbands typically work as farmers, fisherman, and daily workers. The women contribute to the family income by making and selling traditional snacks, as well as, weaving and sewing cloth.

4. Study 2

Study 2 had three goals. The first goal was to find out the living and health care conditions of the women. The second and third goal was to find out whether GCSF matters and identify critical maternal and infant knowledge gaps in women and health care workers. The methodology for all three goals is identical. Only the results of the first goal, living conditions and medical care on the lake, will be discussed in detail here. The results for the remaining goals will be briefly discussed, but a more detailed discussion can be found in two other papers [3,4] .

Three pilot studies were conducted before the full study was implemented. Two interesting findings arose from these pilots. First, birth dates were reported under the Burmese calendar rather than the solar calendar utilized by Americans. Under the Burmese calendar, there are eight days in a week. Here wednesday is divided into two days. Likewise the years differ. Under the Burmese calendar, October, 2015 (solor) is October 1377 (Burmese). As a result, birth dates could be off by as much as two years. This is because the Burmese calendar does not recognize leap year and the first day of the New Year in April (Water Festival) is not fixed. Second, the women do not understand the pneumonia danger sign text in the UNICEF home-based records. We used some of the UNICEF language in our pilot studies and later changed it because the mothers did not understand.

4.1 Methodology of Study 2

For all women, we collected the birth histories, prenatal care reports, dietary habits and so forth. We also collected information from skilled (nurses and midwives) and non-skilled (auxiliary midwives, village women and community health care workers) about services rendered, supplies, records and obstacles.

Our plan was to compare health care on the main part of Inle lake, serviced by GCSF, to the lower part not serviced by GCSF. We hoped to hear more prenatal care reports from the upper lake GCSF sponsored villages than the lower lake non-GCSF sponsored villages. To date and the best of our knowledge, we are the first to present results about maternal and baby care in the Inle lake area Myanmar.

Using the two-stage cluster-sampling scheme, we selected 20 villages - ten GCSF served and 10 not GCSF served. (Census records or comprehensive maps of the villages were unavailable.) All 10 villages served by GCSF were included in the sample. For those large villages (or village grouping) only the village serviced by GCSF was selected. Only 10 villages not served by GCSF were included. For those large villages, we choose every 3rd village. Within each tract, we chose every 3rd village. Any strictly PaO speaking villages were omitted from the sample, as the interviewers did not speak the Pa O dialect. Those wealthy villages were omitted from the sample, as GCSF did not plan service them. Homes were selected using the Random Walk method. The team fanned out from the village head's home to adjacent houses by foot or boat. Homes were either close together or spread out. For this reason, we did not utilize the every "X" home rule [e.g., every third home], as it could not be consistently applied across villages.

4.2 Results of Study 2

The results discussed in this section pertain to the people, diseases, fertility problems, infant feeding, homes and sanitation and health care workers.

People. There are about 99,723 people who live on or near the lake. Population counts, in the sample, were collected from the village heads and are the most up-to-date. The population counts per village range from 80 to 2170 people. The number of households per a village ranged from 16 to 280. Population counts of those villages, not in the sample, were collected but out dated. These counts originated from the last village head election held in 2010.

Of the 322 women interviewed, 84%(269/322) were of Innthar nationality. The remaining women were either Shan 13% (42/322), PaO 2% (7/322), or Burmese 1.2 % (4/322). Although we interviewed people in the PaO controlled terrority, we were unable to obtain as many interviews from the PaO women as hoped. This is because we had difficulty finding a female translator. Most the translators were men and we felt that this would become an obstacle in a female reproductive survey.

Most of the women (62% (201/322)) were semi-literate with 2-4 years of education. Few (only seven) were illiterate. 26 women are high school graduates with 10 years of education. (Here, people who graduate from the 10^{th} grade receive a high school diploma.) The husband's educational level information was not collected.

Many of the women and their families live on about one to two dollars a day, according to our pilot results. We eventually pulled the income question, as it made the women uncomfortable. Their husbands typically work as farmers (34%), fisherman (15%), and daily workers (12%). The women contribute to the family income by making and selling traditional snacks, as well as, farming, weaving and sewing cloth.

Women and Children Diseases. Of the diseases reported within the last six months, 31.5% women reported high blood pressure. Other less frequent ailments (under 10%) reported by women, included asthma, heart and back problems, diarrhea, and typhoid. These counts may be under-represented as women may not have been able to label their symptoms.

Malaria is a common disease the Inle lake area and in many other parts of Myanmar. UNICEF provides bed nets and malaria prevention information. Our survey collected data on ownership and use of mosquito nets by women. 99% (319/322) of the women reported using nets; the interviewers reported only seeing 73%(235/322) hanging bed nets; the remaining 27% (87/322) ones were out of sight (e.g., either folded up or located upstairs).

Young children (under the age of five) typically suffered from fever (33.6%) and cough (37%). Interestingly, there were no reports of pneumonia. It is quite possible that the mothers did not recognize the danger signs (e.g., lifeless, bluish lips and finger nails.) According to UNICEF, pneumonia is one of the leading childhood diseases of children under the age five.

Maternal and infant care gaps were identified in mothers and non-skilled health care workers. The results are described in more detail in two additional articles [3,4].

Fertility. The results indicated that the GCSF program does matter, as GSCF sponsored moms reported more prenatal care than non-GCSF sponsored moms. There is no clear evidence of fertility problems. The women reported first menstruation average age of 14.70 years old. 88% (282/322) of the women menstruated every 30 days. Of the 322 women interviewed, only 14 women were pregnant (reportedly 1-5 months). Family spacing questions were not asked. However, some moms reported using "Depo" an injection for birth spacing or an oral drug that sounds a lot like the Pill.

A total of 624 children were born where 321 were girls and 303 were boys. This count does not include 49 miscarriages reported. There does not appear to a gender selection bias. Forty-six children died within the first five years.

Infant Feeding. Infant feeding is an important determinant to health and development of children. Our survey assesses the breastfeeding status of infants. Our findings indicate that almost all babies (98%; 583/594) are breast fed for up to 21 months. This finding is in keeping with UNICEF's recommendation of at least six months of breast feeding before weaning the child.

Of the few problems reported, some mother did not produce enough milk or developed a breast infection. If the baby was fed something other than breast milk, it was typically baby formula, sugar water or watered-down condensed milk. Unfortunately, such dietary habits can cause a vitamin B1 deficiency.

Homes and Sanitation. Of the 322 women's homes, 48% (156/322) built on the water, and 34% (111/322) on land, with the remaining homes 17% (54/322) built on a combination of land and water. The homes were accessible by boat or foot. The houses were either close together or spread out. Of the women, 42% (134/322) owned a boat. Wood was the primary building material 63% (202/322) along with bamboo 35% (113/322). One story homes 60% (191/322) were more prevalent than two story homes 39% (124/322). Gardens, tin roofs, satellite dishes, and boats were a sign of wealth.

Safe water is an important step in preventing diarrhea and other water-borne illnesses. UNICEF has earmarked diarrhea as one of the leading killers of children under five that can be easily treated. Our survey collected data on the type of water used for drinking, cooking and bathing. Our findings indicate that the water is drawn from the lake, deep well, or tank either located outside of the home or monastery. Toilets typically drain into the lake. Lake water was reserved for baths and laundry while the remaining water was used for cooking. The counts and corresponding percentages were simply too detailed to provide a summary statistic.

Open toilets can be a breeding ground for flies and other insects that carry harmful diseases. For this reason, the type of toilet used can be a predictor in health. Our survey collected information on the type of toilets used by the women (and households). Of the households, 52.2 %(169/322) of the women reported a fly-proof flushable toilet. Of the remaining households, 40.1% (129/322) of the women reported a traditional toilet (non-fly proof), and 7.5% (24/322) reported no toilet. While many of the toilets are fly-proof they drain into the lake, where people bathe and collect household water.

The type of fuel utilized by a household can also be a sanitation issue. Our survey collected information on fuel usage. Women reported using either firewood only or both electricity and firewood: (1) Firewood 56% (213/382); (2) Electricity 32% (124/382); (3) Coal 12% (46/382). Coal is more expensive than wood. Electricity is under-reported here, as the Second lake area does not have power lines. However, interviewers noted the usage of solar panels, generators and water wheels to produce power, in the Second lake.

Health Care Workers. As the team moved down the lake, they interviewed medical care workers about their supplies, services and records. Both skilled and non-skilled medical care workers reported needing more medical staffing, drugs, and supplies (e.g., gloves and thermometer). Non-skilled medical workers expressed an interest in more education.

For the birthing process, UNICEF provides Clean Delivery Kits to government midwives. These kits contain items needed for the birthing process such as gloves, razor blades, apron, plastic cloth and so forth. Shortages were not reported. Government midwives typically use the kits themselves while delivering a baby. Sometimes, the midwives give a kit to pregnant mothers who will not have a skilled attendant at birth. The moms were usually fairly advanced in their pregnancy.

On the lake, government midwives are in charge of record keeping for the population. (Auxiliary midwives are not required to keep records.) The records kept pertain to vaccinations, as well as, mortalities, and morbidity rates. Other records pertain to the number of (1) people in a tract, (2) children under the age of five, (3) pregnant mothers, (4) miscarriages and (5) infant deaths (including still borns).

Likewise, birth certificates are issued by a government midwife. If a baby is delivered by a non-skilled medical attendant, the parents must go to the government midwife and register the baby. Subsequently, the number of births may be under reported. We learned that 29% (139/481) of the babies were delivered by unskilled birth attendants.

5. Conclusions

The most striking aspect of this GCSF-SwB survey experience is that it does not take much to effect a change. The doctors and nurse aides after each interview felt obliged to intervene and clarify misconceptions. For example, mothers were instructed not bathe their newborns until after the umbilical cord falls off. Likewise, mothers were encouraged to continue to nurse their babies and go to their government midwives for any infections. Moms were told to refrain from providing supplement foods for a while. As for long-term planning, GCSF staff is considering ways to improve patient compliance and boost health education.

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References

[1] Global Community Service Foundation. http://globalcommunityservice.org/ *accessed September, 2015*.

[2] Statistics Without Borders http://community.amstat.org/statisticswithoutborders/home *accessed September, 2015*.

[3] D. Chu, M. Dashen, M. Selva and M. Suchowski (2015) "Case Study: Burmese Healthy Mothers and Babies." *Manuscript under review.*

[4] D. Chu, M. Dashen, M. Selva and M. Suchowski (2015) "Survey Methodology for Humanitarian Intervention." *Manuscript under review.*