



ORIGINAL RESEARCH

An Open Conversation with Traditional Birth Attendants in Rural Uganda: The Potential for Collaborative Care

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Abstract

Background: Imaging the World-Africa (ITWA) is a registered non-governmental organization aimed at distributing low-cost ultrasound services at health centers in rural Uganda. Yet, studies demonstrate that the majority of mothers continue to deliver with unregulated traditional birth attendants (TBAs) in their local villages. It has been suggested that the unregulated practices of TBAs has contributed to the high rate of maternal and fetal mortality. A greater understanding of the roles of TBAs in the management of pregnancy and delivery is needed.

Purpose: The purpose of this report is to provide the international community with a greater understanding of TBA practices as well as an assessment of their willingness for future collaboration.

Methods: Three TBAs from different nearby villages attended a meeting with ITWA in Kamuli District, Uganda. The meeting included an interview and an educational session. A test on the management principles of common obstetric complications was administered at the beginning and end of the meeting to assess baseline knowledge and the effect of the interaction.

Results: The meeting with the TBAs provided valuable qualitative information about TBA clinical experience, the value of TBAs to the community and TBA understanding of ultrasound. On the pre-educational test, the TBAs had a limited understanding of pregnancy complications and conditions in which it would be safer for a mother to deliver at a hospital. After the educational session, the TBAs performed statistically significantly better on the post-test ($p=0.03$).

Conclusion: The open conversation with the TBAs provided valuable information on the current role of TBAs in rural Uganda. Our experience with the TBAs demonstrates that TBAs are willing to engage with trained healthcare providers. Collaboration between TBAs and health centers in Uganda has the potential to bring to light previously unknown barriers and create solutions to better maternal and fetal care.

Background

TRADITIONAL birth attendants (TBAs) have long been used by women in East Africa to aid in childbirth (1-5). TBAs typically have no formal education and often engage in unregulated use of medicinal plants as well as other ritualistic but culturally acceptable practices. Most TBAs do not have access to sterile devices, are ill equipped to handle complicated deliveries and yet do not regularly refer patients to health care facilities. For many rural Ugandan women, TBAs are the only recourse for local care during pregnancy and delivery due to their limited financial means and inability to access transportation to distant health centers. It has been estimated that up to 60% of women in rural Uganda deliver outside of the formal healthcare system (1, 6-7). The Ugandan government's engagement with TBAs has changed over time. The government initially utilized TBAs to deliver maternal health services but since

1997, in response to the WHO Safe Motherhood initiative, it has mandated deliveries with skilled birth attendants (i.e. nurses or assistants who have some form of government-recognized medical training in obstetrics) (8). Still, TBAs continue to practice in the rural communities where institutional care is not easily accessible to the majority. As a result, it has been suggested that lack of regulation since 1997 has contributed to late delivery referrals and poor medical management (9). Lack of collaboration between TBAs and government-recognized health centers has obscured our understanding of TBA practices and beliefs. As there is worldwide attention on the improvement of maternal services at health centers, a greater understanding of the integrated roles of TBAs and skilled workers in the management of pregnancy and delivery is needed (10).

While a mainstay of care in high-income countries, incorporation of ultrasound scanning into routine antenatal care (ANC) is uncommon in low-resource countries like Uganda. The World Health Organization (WHO) has urged developing countries to establish a four-visit ANC model whereby women are able to access rapid and easy-to-perform diagnostic testing so that those whom may need referral to higher levels of care can be identified (11). Imaging the World Africa (ITWA) is a registered NGO aimed at distributing low-cost ultrasound services in rural Uganda. Since its creation in 2010, ITWA has been successful in establishing sustainable ultrasound services by training local nurses to perform scans at rural health centers in several districts in Uganda, demonstrating that the prevalence of high risk conditions (e.g. twins, breech or transverse position, placenta previa) is at least as high in this population as is published in the United States (12). Although many women come to the health center for at least one ANC visit and often return for more ANC visits after a positive first experience, not all women return to the health center for delivery (12). In fact, more than half still choose to deliver with TBAs. Therefore, engaging in an open dialogue with TBAs is critical to informing the appropriate course of care for mothers with ultrasound diagnoses that could predict a complicated delivery.

Hypothesis(es): We hypothesized that 30 minutes of education on common obstetric complications and conditions that require referral with the use of pictorial drawings would improve TBAs' understanding of obstetric complications as measured by a written test.

Methods

A medical team consisting of medical students, radiology residents and attending physician faculty from the United States visited Uganda in July 2016, representing the non-profit parent organization, Imaging the World (ITW). The ITWA team operating from Naalya, Uganda, coordinated the meeting between TBAs and the ITW team. TBAs were invited to a private Health Centre III in Kamuli District, Uganda to learn about the utilization of ultrasound imaging in pregnant women and discuss maternal care best practices.

In Uganda, "Health Centre III" denotes a facility operated by a clinical officer with inpatient facilities (both maternity and general wards) as well as laboratory and microscopy capabilities (7). Private Health Centres are independently owned and operated but are recognized by the government as safe and responsible institutions. Three TBAs from different nearby villages were in attendance. An ITWA team member, fluent in the local Lusoga language, provided translation between the TBAs and the ITW team.

The meeting with the TBAs lasted 90 minutes. A pre-test on management principles of common obstetric complications was administered to the TBAs individually at the outset of the meeting. An ITWA member provided translation of questions into the TBAs' native language. The TBAs were each given approximately five minutes to complete the 3-question pre-test. The next 30 minutes was spent interviewing the TBAs about their clinical obstetric experience, length of practice, education methods, their antenatal care practices and delivery services. This was followed by the 30-minute educational session. The information shared during the educational session included the ability of ultrasound to detect obstetric complications. The TBAs were shown pictorial drawings of different obstetric complications as the conditions were being described. Topics included placenta previa, low-lying placenta, multiple gestations with combination fetal presentations (e.g. cephalic-cephalic, cephalic-breech, etc.), and breech and transverse fetal lie. A 5-question post-test was administered at the conclusion of the interaction. The first three questions were identical to the pre-test. Two questions, one on the content of the pictorial drawings and one qualitative question on the TBA perception of the interaction, were added. The qualitative question was not included in the scoring of the test. Each TBA was given approximately five minutes to complete the post-test.

To test our hypothesis, statistical analyses of test scores were performed using Student's t-test (two-tailed, paired) using Microsoft Excel. Data are reported as mean \pm SEM. A P-value <0.05 was considered significant.

Results

TBA clinical experience

The three TBAs had obstetric experience ranging from 2 to 10 years. The TBAs learned about birthing practices from village elders who were TBAs, as well as through training sessions offered at a nearby Health Centre III (HC III). These TBAs provide both antenatal care and delivery services to pregnant women. The TBAs practice in the villages, which on average are 2-5 kilometers from the nearest HC III. At village-held ANC visits, the TBAs' primary goal is to determine gestational age by palpation.

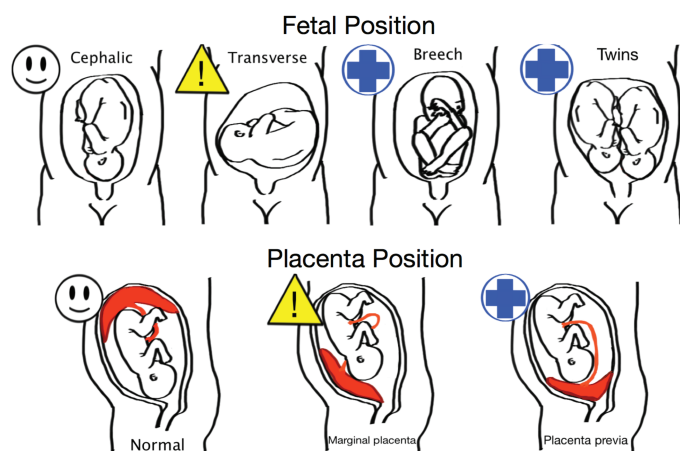


Figure 1: Sample Pictorial Drawings Used in the Teaching of TBAs about Obstetric Complications.

To communicate proper subsequent management, there is a symbol in the upper left corner of each individual diagram. The 😊 indicates a normal pregnancy and continuation of standard delivery practice. The ⚠ indicates potential complication and recommended follow-up at the health center before delivery. The + indicates an obstetric complication and referral to health center or hospital for delivery.

All three TBAs stated they encourage the mothers to go to the health center for at least one ANC visit to obtain further testing, such as malaria, HIV, anemia and hypertension. The TBAs all denied giving pregnant women local herbs at the village-held ANC visits, stating that they had been instructed not to do so at previous HC III training sessions. The TBAs stated that most births occur at night and, when it is busy, they can have 3-4 births per night. Their stated indications for referring mothers to a health center for delivery included identification of breech presentation prior to delivery, nuchal cord, multiple gestations, and multiple pregnancies (5+). If mothers presented to TBAs in active labor with the fetus in breech presentation, the TBAs stated they would attempt the delivery. One of the TBAs stated that she has had two successful breech deliveries in the past. Similarly, if a mother presents in active labor with multiple gestations, delivery would be attempted. Two of the three TBAs stated they have completed successful twin deliveries (both fetuses were in cephalic presentation). When asked about maternal and fetal mortality, all three TBAs denied ever having a mother or fetus die during a delivery.

Value of TBAs to the community

The TBAs shared insight as to why mothers in the community choose to deliver with TBAs over trained medical personnel at the health centers. The TBAs stated that most mothers deliver at night, when it is more difficult to find transportation to the health center. The average distance women must travel in order to deliver at the health centers is 2-5 kilometers. Women who live closer to the health centers (i.e. <3 kilometers) will typically walk to the center, even when they are laboring. Women who live farther from a health center (i.e. >3 kilometers)

will ride a bicycle, if the family owns one, but most must rely on other means, such as boda bodas (motorcycle taxis). However, boda bodas are unlikely to be running during the night due to safety concerns. Boda boda drivers fear being stopped and robbed of their motorcycles and possessions. Without boda bodas available, many women find it necessary to seek care with local village TBAs.

Secondly, the TBAs identified cost as a barrier to care. They pointed out that village families prefer to deliver with them because they charge less than the health center (10,000 – 20,000 Ugandan shillings [approximately 5 USD] vs. 20,000 Ugandan shillings at the HC III) and accept payment in installments. By the time a woman reaches delivery, she may have already spent a good portion of money on ANC visits or other pregnancy-associated costs, such as treatment for diseases identified during an ANC visit, and bottles, clothing and other items for the newborn. As Ugandan culture is deeply patriarchal, the man of the household controls the finances. The TBAs revealed that husbands are often unengaged in the pregnancy and delivery and prefer to spend money on alcohol or food rather than the mother's ANC and birthing fees. With knowledge of mothers' lack of income and/or their "begrudging" husbands (per the TBAs reports), TBAs will often accept partial payment at time of delivery. Because they reside locally in the village, the TBAs are able to hold the families accountable for the remaining cost when they have more money. The TBAs stated that, despite this system, sometimes they never receive the full payment. Although mothers may try to give non-monetary goods, the TBAs said they prefer payment in cash.

TBAs' understanding of ultrasound

The TBAs stated that they knew that ultrasound scans were being done at ANC visits at the health center. However, none of the three had ever seen an ultrasound scan being performed. Their patients were bringing the results of the ultrasound scans to the delivery but the TBAs acknowledged they were unable to interpret the results of the scan and therefore could not use the information to help the mother during delivery. For at least one TBA, the primary barrier was literacy. The other two TBAs were able to read English, but they had difficulty understanding the terminology of the report.

Assessment of TBA understanding of obstetric complication management

A pre-test on management principles of common obstetric complications demonstrated that two of the three TBAs were knowledgeable about the common causes of bleeding before and after pregnancy (answers: placenta previa and retained placenta, respectively). However, none of the three TBAs could correctly identify conditions in which it would be safer for the mother to deliver at a hospital (answers: abnormal placenta positioning, multiple gestations such as twins and breech or transverse fetal position). After an educational session about the basic principles of ultrasound and the ability of ultrasound

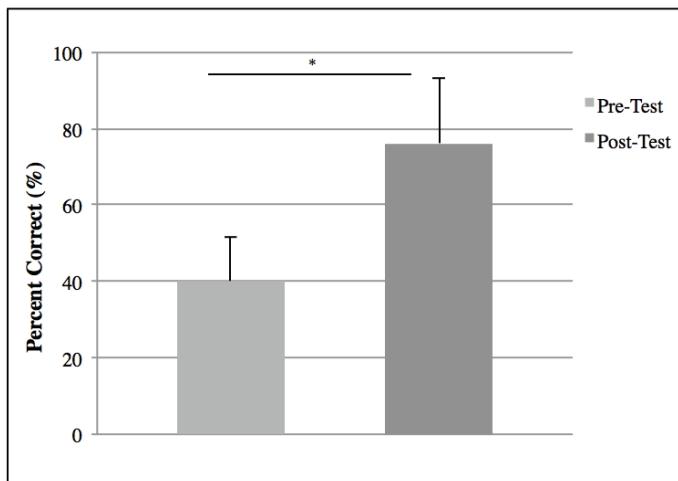


Figure 2: Assessment of TBA Understanding of Obstetric Complication Management. Average pre-test and post-test scores with standard error are shown, $n = 3$, $*P < 0.05$ by paired Student's T-test. The pre-test survey was given prior to education session, and the post-test survey was given after. TBAs were tested individually, with an ITWA member providing translation of questions into their native language.

to detect common obstetric complications, the TBAs performed statistically significantly better on their post-test. (Figure 1; $p=0.03$) Most of the TBAs were able to correctly answer the questions they answered incorrectly on the pre-test. Additionally, the TBAs correctly identified causes for a woman to return to the clinic for a follow-up ultrasound scan (answers: abnormal placental position, twins and breech or transverse fetal positioning). Of note, all three TBAs stated that seeing the pictorial drawings during the educational session was very helpful and that they would utilize these drawings to decide if they could deliver a woman safely if included in the Maternal Passport with other ANC documentation. The Maternal Passport is a Ministry of Health pamphlet that includes all health records for a woman throughout her pregnancy. It is given to the pregnant woman so that she has the necessary information available no matter where she chooses to receive care. The TBAs stated that mothers often bring their Maternal Passports with them at time of delivery, and that TBAs do review the records before administering care to the mother.

Discussion

The open conversation with the TBAs provided valuable information on the current role of TBAs in rural Uganda. It is clear that TBAs play a meaningful and steadfast role in maternal care, and that the transitions of care from TBA to HC III and vice versa could be better elucidated. Perhaps the new initiative by the government to acknowledge complementary medicine will help to bridge the gap. Certainly, an effort to improve the medical literacy of the TBAs could only benefit outcomes. For example, our investigation showed that the TBAs lacked understanding about ultrasound scan results that have the potential to save lives. A solution to TBA illiteracy and their lack of understanding of ultrasound terminology is the

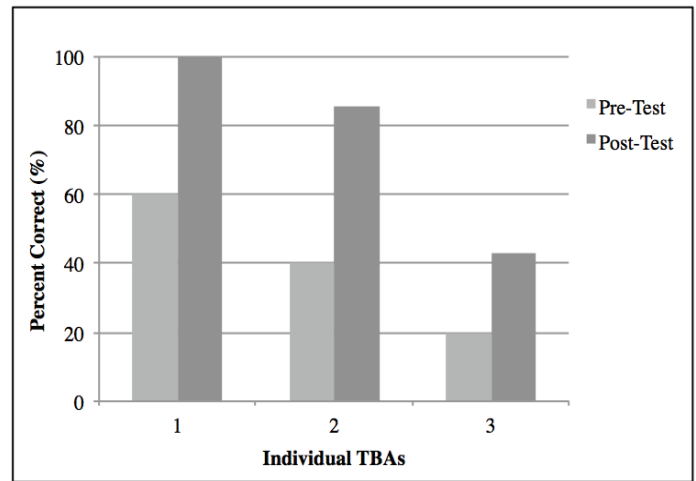


Figure 3: Individual TBA Performance on Pre- and Post-tests Regarding Obstetric Complication Management. The pre-test survey was given prior to education session, and the post-test survey was given after. TBAs were tested individually, with an ITWA member providing translation of questions into their native language.

use of pictorial drawings in communication of the ultrasound results. The TBAs were shown pictorial drawings of abnormal placental positioning, multiple gestations, and breech and transverse fetal positioning. By our survey results, the pictorial drawings of the ultrasound findings could both improve the TBAs understanding of complicated pregnancies and guide them to better decision making for next steps. In the future, pictorial drawings embedded in the Maternal Passport, in addition to the written report, may be the best way to communicate results and establish a referral system by which TBAs can send high-risk patients to the health center for follow-up. The fact that TBAs report having reviewed Maternal Passports prior to delivery indicates that this mode of communication is viable.

Our experience with the TBAs validates the experience of other investigators that TBAs are willing to engage in discussion and are eager to improve their practices for the benefit of their patients (1,3-4). Of note, the TBAs we interviewed denied any involvement in deliveries that resulted in maternal or fetal deaths. This experience does not reflect prior studies regarding high rates of maternal and fetal mortality in rural Uganda (13-15). This discordance may be a reflection of small sample size or more likely, an indication that more trust needs to be established before the TBAs are willing to divulge more sensitive information. This discussion serves as a starting point for more open dialogue between health centers and TBAs.

The conversation also provided important insight as to why women in the villages choose to deliver with TBAs over medical personnel at health centers. The TBAs cited transportation and cost as two other major barriers for women to deliver at health centers.

Regarding transportation, it is important to understand why women tend to deliver at night. If norms could be changed so that women who are laboring seek attention during the day, boda boda transportation would be available and women may be more likely to go to the health center. In speaking to local people, we identified several potential reasons for why women tend to deliver at night. First, locals stated simply that labor pains typically progress more rapidly at night and increased pain prompts women to seek care. Upon literature review, it was found that nocturnal predominance in natural human birth has long been documented (16). Although medicalization of labor has altered birthing patterns in developed countries, it is important to remember that the natural occurrence of nocturnal births presents a challenge to providing obstetric care in developing countries (17). Second, they stated that women do not want to leave their children unattended during the day to travel to a health center to deliver. In the rural villages, families tend to live far from one another and childcare is not easily accessible. Women prefer to deliver during the night and leave their children under the supervision of family members, usually in a nearby house. The women believe they will be able to return home more quickly if they deliver with a TBA. Third, the locals explained that most rural Ugandans are subsistence farmers and they prefer not to leave their gardens unattended. Ugandans devote much of their day to cultivating their gardens, and their land provides both their sustenance as well as their livelihood. The mother and husband may favor TBAs because the woman will deliver close to the home and the husband may continue working in the garden as she recuperates. Transportation to health centers has been a longstanding problem for rural Ugandans. Several interventions have been attempted to solve this problem, including development of motorcycle ambulances in Mbale and maternal waiting homes in Kanungu and Bwindi (18). More work needs to be done to determine best practices so that similar interventions can be implemented throughout rural Uganda.

Regarding cost, village outreach education should be implemented to eliminate the misperception that delivery at the clinic is more expensive than with a TBA. One benefit of delivering with TBAs for locals was the ability to pay the TBA in smaller increments over time as opposed to having the entire payment due at the time of delivery at the HC. As the majority of rural Ugandans do not have a steady income or savings, the one-time payment can be quite burdensome. In other regions of Uganda, insurance programs have been established by rural health centers to reduce the cost per delivery. For example, the Bwindi Community Hospital Insurance Program offsets the cost so all mothers, regardless if they have insurance, pay only 2,000 Ugandan Shillings (approximately 1 USD) to deliver at the facility. A similar insurance model would likely be beneficial to other rural health centers to reduce the burden of cost at time of delivery. The TBAs did not describe secondary costs such as transportation and food as significant barriers for locals.

Our conversation with the TBAs has opened the door for more communication in the future, including the use of pictorial drawings. TBAs play an important role in maternal and fetal healthcare in Uganda. In 2013, the Ugandan State Minister for Primary Health Care announced that a bill to regulate the use of indigenous and complimentary medicines is in the process of being approved (9). As the Ugandan health care system looks toward incorporating traditional medicine, healthcare workers should be open to hearing about TBA practices and experiences, as they provide important insight into establishing better obstetric services for Ugandan women. With the use of pictorial drawings, a prospective study to look at the effectiveness of these drawings in aiding communication with TBAs would be of great value. We recognize that our study is limited by a small sample size of only three TBA participants. We attribute the small sample size to confusion among TBAs between an initial informational session to gauge interest for participation and the intervention itself (i.e. the open conversation and educational session). Due to high attendance at the informational session, no formal recruiting of TBAs was performed for the intervention. Despite this limitation, the initial intervention has already yielded promising results, as one of the TBAs, who was pregnant herself, returned to the HCIII for an ultrasound scan the week after our visit. Future formal studies with larger numbers of TBAs are needed to foster collaborative relationships. As has been demonstrated in other East African countries, collaboration between TBAs and health centers in Uganda has the potential to bring to light previously unknown barriers and create solutions to better maternal and fetal care (3-4).

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