

WORLD HEALTH

Examining Antenatal Health Literacy in Ghana

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Key words

Antenatal care, health literacy, Ghana, focused antenatal care, Africa

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Accepted: May 7, 2014

doi: 10.1111/jnu.12094

Abstract

Purpose: To explore Ghanaian pregnant women's understanding and recognition of danger signs in pregnancy, birth preparedness and complication readiness, and their understanding of newborn care.

Design: An exploratory, qualitative study design was used.

Methods: Data were gathered through six focus group discussions with 68 pregnant women attending antenatal care at a busy urban hospital in Ghana. Qualitative and descriptive data were analyzed using SPSS version 21. Health literacy was used as the guiding framework to analyze the qualitative data. Data were analyzed in the content domains of (a) understanding and recognition of danger signs in pregnancy, (b) preparedness for childbirth, (c) understanding and recognition of danger signs in the newborn, and (d) appropriate and timely referral.

Findings: Women in this study identified danger signs of pregnancy and in the newborn, but had difficulty interpreting and operationalizing information they received during antenatal care visits, indicating that health education did not translate to appropriate health behaviors. Cultural beliefs in alternative medicine, lack of understanding, and prior negative encounters with health-care professionals may have led to underutilization of professional midwives for delivery and health services.

Conclusions: Women in this study exhibited low health literacy by incorrectly interpreting and operationalizing health education received during antenatal care. With limited health literacy, pregnant women cannot fully comprehend the scope of services that a health system can provide for them and their families.

Clinical Relevance: Achieving the greatest impact with limited time in antenatal care is a challenge. Since antenatal care is widely available to pregnant women in Ghana, it is vital to reexamine the way antenatal education is delivered. Pregnant women must receive health information that is accurate and easy to understand in order to make informed health choices that will improve maternal and child health.

During 2005–2012, approximately 55% of pregnant women in the developing world attended the World Health Organization (WHO)-recommended four antenatal care (ANC) visits. This figure is up from 37% attending at least four visits in 1990 (WHO, 2013). While this

is laudable, there are very few indications that the quality of ANC has likewise improved. ANC has the potential to play a central role in ensuring positive pregnancy outcomes. Interaction with a skilled attendant provides the opportunity to identify and treat numerous problems

as well as a setting to improve women's health literacy on how to prevent and recognize problems in themselves and their soon-to-be-born baby.

The WHO Standards for Maternal and Neonatal Care (2006) section 1.9 requires healthcare providers to include information during ANC on the signs of labor, danger signs during pregnancy, and emergency transfer for newborn infants with complications. It also encourages development of a birth and emergency preparedness plan with pregnant women. The process and outcome indicators for these standards include that pregnant women are knowledgeable of danger signs in pregnancy and have developed a birth and emergency preparedness plan.

However, the technical aspects of ANC (i.e., tetanus toxoid vaccination, malaria prophylaxis, and identification and treatment of anemia) often take precedence in busy clinics over counseling on pregnancy danger signs and birth preparedness. In a study of pregnant women in Tanzania, the median interaction time for pregnant women with their healthcare provider was 10 min; 42% of clients were not informed of any pregnancy danger sign (Pembe et al., 2010). Over 70% of women receiving ANC in the Gambia spent 3 min or less with their healthcare provider, and of the 45 women with a history of cesarean section, stillbirth, or convulsions in a previous pregnancy, only 28.9% were advised to give birth in a health facility (Anya, Hydera, & Jaiteh, 2008). Furthermore, in a study to assess the practice and factors associated with birth preparedness and complication readiness among pregnant women in Ethiopia, mothers who followed two of the five indicators (identified a skilled birth attendant for delivery, identified a facility for emergency care, arranged transport for delivery, saved money, and identified a blood donor) were considered well prepared. Based on these criteria, only 17% of pregnant women were considered well prepared (Hailu, Gebremariam, Alemseged and Keribe, 2011). Clearly, additional studies are needed to examine how antenatal education is delivered, processed, and acted upon by women when health information is received.

Antenatal Care in Ghana

Shortly following the WHO ANC randomized trial (Villar et al., 2001), Ghana adopted the focused antenatal care (FANC) model to improve access, quality, and continuity of ANC services to clients (Nyarko et al., 2006). This model supports a minimum of four ANC visits during a woman's pregnancy. Each visit should include care for the woman that is appropriate to her overall condition and gestational age. It is recommended that the following categories be covered during each visit: (a) identification of preexisting health conditions, (b) early

detection of complications arising during pregnancy, (c) health promotion and disease prevention counseling and teaching, and (d) birth preparedness and complication planning (United States Agency for International Development, 2008).

Undeniably, there have been improvements in ANC coverage in Ghana over the past 20 years. In 2008, to ensure universal access to maternal health care, the Government of Ghana introduced a policy to exempt all pregnant women from fees associated with obstetric care through the National Health Insurance Scheme (Witter, Garshong, & Ridde, 2013).

While there is high utilization of ANC, estimated as high as 96.4% for women attending at least one ANC visit, many women in Ghana still give birth alone or with a nonskilled attendant (UNICEF, 2013). For instance, current estimates place skilled attendance for birth at 68.4% during the years 2008–2012, up from 57% in 2008 (Ghana Statistical Service [GSS], Ghana Health Service [GHS], & ICF Macro, 2009; UNICEF, 2013). However, only 62.8% of registrants attended the minimum standard of four prenatal visits in 2007 (UNICEF, 2012). This figure now stands at 86.6% for years 2008–2012 (UNICEF, 2013). But maternal mortality remains unacceptably high at 450 per 100,000 live births, with no significant change since institution of the new policy (UNICEF, 2013).

If Ghana is to achieve Millennium Development Goal #5, to reduce by 75% the maternal mortality ratio before 2015, utilization and quality of key health services directly affecting maternal health must be improved. In both urban and rural areas, high rates of maternal morbidity and mortality remain major concerns. The quality of care in many of the county's health facilities is severely inadequate, with just over 68% of women reporting they were informed of the signs of pregnancy complications during ANC (GSS, GHS, & ICF Macro, 2009).

The purpose of this study was to explore pregnant women's understanding and recognition of danger signs in pregnancy, birth preparedness and complication readiness, and their understanding of newborn care to assess gaps in knowledge. The results were then used to inform the development of a set of FANC modules corresponding to the WHO guidelines for FANC. The construction and testing of these modules are part of a larger National Institutes of Health-funded study aimed at improving the quality of ANC delivery in Ghana.

Guiding Framework

Historically, health education has been an essential component of health promotion and prevention of disease (Nutbeam, 2000). Healthcare professionals often

assume that health teaching and explanations are readily understood by clients (Cornett, 2009). Information is often dispersed to a wide variety of clients in the same way with no recognition of variations in an individual's ability to assimilate information. While there is a link between education and health literacy, even populations with good literacy skills may face challenges in understanding instructions from providers (Cornett, 2009).

Individual health literacy has been described as "the degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate health decisions" (Institute of Medicine, 2004, p. 4). The scope of individual health literacy is the overall ability of clients to receive the health information needed, understand the information, and then use the information to make good decisions about health (Agency for Healthcare Research and Quality, 2014).

Health literacy in the ANC environment requires a complex group of skills and the ability to apply these skills to often complicated situations. It is affected by the cultural context in which learning takes place, including, but not limited to, belief systems, traditions, understanding, and communication styles (Almader-Douglas, 2013).

Methods

Using the WHO Standards for Maternal and Neonatal Care (WHO, 2006), antenatal health literacy was examined within the specific content domains of (a) understanding and recognition of danger signs in pregnancy, (b) preparedness for childbirth, (c) understanding and recognition of danger signs in the newborn, and (d) appropriate and timely referral. An exploratory, qualitative study design using focus groups was used to gather data in the four content domains. Institutional review board approval for the study was obtained from the University of Ghana Noguchi Memorial Institute for Medical Research; the Kwame Nkrumah University of Science and Technology Committee on Human Research, Publications and Ethics; and the University of Michigan.

Sample and Setting

A facility-driven convenience sample of 68 pregnant Ghanaian women over the age of 18 years, who could speak English or Twi, and were receiving ANC at a busy urban district hospital in the Ashanti Region of Ghana were recruited to participate in the study. Women being seen for their first antenatal visit during this pregnancy and women under 18 years of age were excluded from the sample.

In the first quarter of 2012 (January–April), five midwives in the antenatal clinic conducted 2,101 new obstetric visits and 9,342 return obstetric visits, for a total of 11,443 ANC visits. In this busy clinic, women begin arriving at approximately 7:00 a.m. During the first 2 hr at the clinic each woman is weighed, her blood pressure is evaluated, and a urine sample is checked for protein. The pregnant woman then sits back down in a large open area in the order of her arrival at the clinic. Next, 1 hr of antenatal education is provided to all pregnant women in the waiting area of the clinic by one of the certified midwives. The antenatal education is presented in lecture format covering nutrition, self-care, danger signs, and newborn care—hence each woman receives the identical information regardless of her gestational age. Finally, the women are seen individually by the midwife to assess the physical status of the woman and fetus (i.e., fundal height, fetal heart tones, confirmation of due date).

Data Collection

A trained Ghanaian research assistant (RA) approached pregnant women in the waiting room of the antenatal clinic to assess eligibility to participate in the study. For those women who expressed an interest in participation, the RA explained the purpose of the study and answered any questions. Prior to beginning the focus groups, verbal informed consent was obtained and a demographic questionnaire completed with each participant. Six 90-min focus groups were conducted until data saturation was achieved. Focus groups were held near the antenatal clinic in a private space. Group size varied from 10 to 12 persons in each group. Focus groups were led by the Ghanaian RA. A semi-structured interview guide was used that included open-ended questions in each of the content domains. Translations were done from Twi to English by the RA. Field notes were recorded by the principal investigator (PI) to capture the context of the research setting and provide insight into interactions between individuals.

Data Analysis

Qualitative and descriptive statistical analyses were performed. Descriptive statistics were analyzed using IBM SPSS Statistics for Windows, version 21.0 (IBM, Armonk, NY, USA). Qualitative data were analyzed using content analysis and guided by the following research questions: (a) How well are women prepared during ANC for childbirth? (b) What do women learn during ANC about recognizing problems during pregnancy in themselves and in

their newborn babies? (c) What steps would the women take when a problem is identified to get help?

Focus group data were transcribed verbatim by the RA and transferred into NVivo10 software (NVivo, QSR International Pty Ltd., version 10). Peer debriefing and member checking contributed to the trustworthiness of our data. Peer debriefing involved discussion and exploration of specific aspects of the inquiry with the RA, PI, and a midwife working in the antenatal clinic following each interview session. This is recommended to ensure honesty and identify biases, and to provide an opportunity to develop next steps in the emerging design of a project (Lincoln & Guba, 1985). Emerging insights and themes were confirmed through member checking throughout the research process. This was accomplished through validation of the research findings by participants.

Data were analyzed by the PI, RA, and a third researcher with in-depth knowledge of patient-provider communication in ANC. Each of the team members reviewed all the transcriptions individually for general impressions and then came together to debrief and record observations. Data were coded and grouped into conceptual categories to facilitate abstraction and analysis by two of the authors. Consensus was then achieved by all authors. An audit trail, through meticulous note taking, was established to allow others to follow the decisions made by the research team (Sandelowski & Barroso, 2003). Detailed memos and notes during data analysis allowed for verification among the authors (Denzin & Lincoln, 2005).

Findings

The average age of participants was 27 years ($SD = 5.76$). Twenty-nine women (43%) were experiencing their first pregnancy. Eight women (12%) had previously experienced a stillbirth or neonatal death. Over 50% ($n = 37$) of the women completed primary education (Grades 1–6), while 16% ($n = 11$) had no formal education. Women had on average of five ANC visits at the time of the focus groups ($SD = 5.13$), which exceeded the recommended four FANC visits during pregnancy in Ghana. Although 76% of the women ($n = 53$) reported traveling by taxi or private car, it still took the women on average 31 min ($SD = 19.12$) to get to the nearest health facility for their ANC visits. Out of the 15 women who walked to the clinic, the median length of time to reach the health facility was 15 min (range 5–60 min). (See **Tables 1** and **2** for a full description of demographic and descriptive statistics.)

Table 1. Women's Demographic Characteristics ($N = 68$)

Characteristic	<i>n</i>	%
Gravida		
Primigravida	29	42.6
Multigravida	37	54.4
Missing data	2	2.9
Education		
None	11	15.7
Primary (Grades 1–6)	37	52.9
Secondary (Grades 7–9)	11	15.7
Tertiary (Grades 10–12)	9	12.9
Missing data	2	2.9
Number of living children		
None	32	45.7
One	17	24.3
Two	6	8.6
Three	6	8.6
Four or more	7	10
Missing data	2	2.9
Mode of transport to health facility		
Walking	15	21.4
Vehicle (taxi or private car)	53	75.7
Missing data	2	2.9
Location of last delivery		
Home	2	2.9
Hospital/health clinic	37	52.9
Not applicable due to first pregnancy	29	41.4
Missing data	2	2.9
Plan of delivery for current pregnancy		
District local hospital	66	94.3
Another facility	2	2.9
Missing data	2	2.9

Table 2. Descriptive Statistics of Continuous Measures for Women

Variable	<i>n</i>	Observed	
		range	Mean (SD)
Age (in years)	67	18–40	27.12 (5.76)
Total number of antenatal care visits	68	1–11	5.13 (5.00)
Length of time to reach health facility by any mode of transport (in minutes)	68	5–90	30.66 (19.12)
Length of time to walk to health facility (in minutes)	15	5–60	21.33 (15.64) ^a

^aReported as median due to one outlier of 60 min.

Understanding and Recognition of Danger Signs in Pregnancy

Focus group analysis revealed knowledge in identifying major complications or danger signs of pregnancy. Women were able to recite multiple danger signs in

pregnancy, including pain, bleeding, fits, headache, excessive vomiting, and anemia. For example, one woman stated, "In the case of bleeding, the women have to be taken to the hospital. We know bleeding is a bad sign so we have to go to the hospital."

When asked about danger signs, the women also included several of the normal discomforts of pregnancy, such as sleeplessness, lack of appetite, urinary frequency, swelling of the lower extremities, and wrist pain. However, many were not able to differentiate between pregnancy discomforts and danger signs. This misunderstanding led to frustration when they reported to the hospital for what they believed to be a problem only to be told to return home. "I have been in that situation before. I was supposed to go to the hospital in two weeks but because I wasn't well I reported there and they told me it's normal."

Participants were often unclear about when to seek care for complications. There appeared to be a gap in knowledge of recognizing true danger signs versus the normal discomforts associated with pregnancy. Several women had questions such as, "If I have edema after long sitting do I have to report? It usually resolves by itself but I am afraid to tell the midwives because they will not pay attention as we are so many at the clinic." Another woman asked, "I experience a burning sensation when urinating. Do I need to report?"

Preparedness for Birth

For the women, preparing for birth was connected with physical acts of preparation such as cleaning the body and purchasing essential items for the labor and baby. Being clean prior to delivery was emphasized by many women through shaving, taking a bath, cleaning their breasts, and applying a menstrual pad after passing the mucus plug. "You have to prepare the body especially the breast should be neat so that the baby does not fall sick." Another woman said, "The body should be neat especially the under so that the midwife would not complain when conducting the delivery."

In addition to a clean body, the women purchased items for the delivery and the baby and painted the room in preparation for birth: "Prepare the house by buying new bed sheets, paint the room." Another woman shared, "You have to buy the things needed for delivery, for example parazone [cleaning supplies], cups for making beverages, and other things."

Many women expressed confusion around when they needed to go to the hospital. As one woman explained,

We have been told lower abdominal pains are normal with pregnancy but when the pains become severe

we have to come to the hospital. We cannot describe severe pain because there was a time I came here with that and was turned away. There was a time I came in labor and was told it wasn't so.

Unfortunately, when misunderstandings occurred, some women did not feel empowered to ask questions, as shared by this participant: "Some [midwives] have the patience to explain everything. Some also insult us especially those nurses in blue uniforms. They do not have the patience for us. At times we are not able to ask questions."

Understanding and Recognition of Danger Signs in the Newborn

Over half of the participants in our sample had at least one child at home, yet understanding danger signs in the newborn and knowing what to do for a newborn exhibiting these danger signs was often unclear. As a result, women frequently looked to older family members to guide them in their actions when a baby was sick, albeit erroneously: "My child had a problem and was crying excessively. My mother in law didn't allow me to send the child to the hospital. Eventually he died."

The misunderstanding of taking appropriate actions in response to a problem was further confounded by the influence of culture and traditions on the women's decision making to seek medical care for newborn problems. One woman elucidated, "Some think it may be spiritual so they are taken to the herbalist for treatment." Another woman spoke of pressures within the family: "At times our family members impose their values on us by saying such illnesses should be treated traditionally."

There seemed to be confusion among the women related to treatment of tetanus in the newborn. Several women talked about herbal or traditional treatments for signs of tetanus. One young mother noted, "Some seek herbal treatment and so not all of them go to the hospital. Some go in for traditional medicines. They protect the children against 'asram' [tetanus]." Another woman explained, "We have seen and heard many times of babies with such problems [referring to asram (tetanus) and fever]. When that happens some send their babies for herbal medicines. Some also go to the hospital."

A lack of understanding was apparent, as one woman stated:

In case of operations should the baby be fed artificial or what? My last delivery at a hospital was by caesarean section. The child was not given artificial feeds; meanwhile the breast milk was not fully established. Later the child died. I believe my child was starved.

Appropriate and Timely Referral

Most women in the focus groups understood when to seek a referral to a midwife for themselves or their newborn. Yet several expressed frustration with the reception they encountered when they did seek care: “We know we have to go to the hospital [for problems]. At times you will have severe headaches but when you report, the midwife [tells] you to go home.” Another woman noted, “Sometimes I get palpitations but when I complain nobody cares.” And yet another woman stated, “We are told if the pains are not very severe it might not be true labor so we should not come. How would you know this is true labor because people just get pains and deliver outright?”

Women also reported going to herbalists for treatment or using home remedies before seeking care from the formal healthcare system: “When a pregnant woman bleeds she can take malt for it to stop. Some also take milk for the bleeding to stop. If it continues the person has to go to the hospital.”

Most women in our study were able to go to the hospital without the approval or permission of other family members. One participant noted:

These days because of the health insurance it is easier to go to the hospital. We will not wait for our husbands to come home before we go. You are the one suffering so if you have to go—even if your husband doesn’t have money.

Discussion

Ghanaian pregnant women in the focus groups had a basic understanding of how to recognize danger signs of pregnancy and danger signs requiring referral to a healthcare facility for their newborn. However, many had incomplete information for differentiating between common discomforts of pregnancy and emergent signs, when to go to the hospital for delivery, the purpose of birth preparedness, and taking appropriate interventions with a sick newborn. Although the pregnant women were the principal decision makers in seeking medical care, the lack of understanding and prior negative encounters with health professionals may have also contributed to underutilization of professional midwives for delivery and health services.

Women in our study exhibited low health literacy for interpreting and operationalizing ANC education even though more than half of the women completed primary education. Our qualitative findings support a recent quantitative study that examined the relationship

among maternal education, health knowledge, and use of health services in Ghana (Greenaway, Leon, & Baker, 2012). Greenaway et al. (2012) showed that more years of maternal education increased women’s understanding of health, and this comprehension of health led to increased use of maternal and child health services. This suggests that health knowledge, and comprehension of that knowledge, play a critical role in influencing health behavior among Ghanaian women.

Although health education on danger signs and birth preparedness was imparted to women during each ANC visit at the study site, participants were not able to operationalize what they learned into actions. The ability to interpret the information and translate it into a workable plan was missing. One way this was exhibited was by the use of traditional and cultural remedies before seeking care from the formal health system, potentially delaying lifesaving treatment. This confirms others qualitative studies that explored the role of traditional practices by Ghanaian childbearing women (Okyerere et al., 2010; Wilkinson & Callister, 2010). Culture gives significance to health information and influences perceptions thereby impacting care processes (Institute of Medicine, 2004). Our findings contribute to a growing body of knowledge supporting the need to identify new strategies to increase ANC health literacy and evaluate the retention of health information received by pregnant women (Greenaway et al., 2012; Hailu et al., 2011; Kabakyenga, Ostergren, Turyakira, & Pettersson, 2011). Knowledge acquisition is not enough. Hence, greater understanding is needed about how the intricacies of culture influence health knowledge and behaviors for women.

Transmitting educational information in a clinical setting often fails to take into account the social and economic circumstances of patients, therefore not achieving the expected impact on health behaviors (Nutbeam, 2000). The Ghanaian women in our study on average had five ANC visits. Despite exceeding the WHO recommended number of four visits, the women displayed limited health literacy. This highlights the need to examine how ANC health information is delivered by health professionals and how this information is processed by the women. If pregnant women are not able to comprehend the information received from health professionals, they cannot effectively maximize the benefits of the health system.

One potential method to aid health professionals in delivering appropriate and tailored health information to women is to have reliable and validated assessment tools to measure health literacy in a clinical setting. Unlike the United States, where there are several assessment tools for health literacy, such as the Rapid Estimate

of Adult Literacy in Medicine (REALM), Test of Functional Health Literacy in Adults, Newest Vital Sign, and one-item screening measures, the authors were not able to find a reliable and validated health literacy assessment tool that could be used by providers in a clinical setting to assess clients' health literacy in Ghana. Two articles have attempted to use the REALM assessment (Dowse, Lecoko, & Ehlers, 2010; Wasserman, Wright, & Maja, 2010), but both were conducted in South Africa, and one study found the REALM unsuitable to be used in its current format to assess for health literacy (Dowse et al., 2010). We did find one reliable and validated international public health literacy knowledge scale consisting of 16 true and false statements. However, assessing for public health literacy is different from assessing health literacy at the individual level, similar to that of a clinical encounter, and the authors urged for the development of a more comprehensive approach to health literacy assessment (Pleasant & Kuruvilla, 2008). Future research should examine how health literacy can be assessed efficiently and accurately in the context of patient-provider interaction using reliable and validated assessment tools designed or revised for Ghanaian women.

Achieving the greatest impact with the limited time available during a woman's ANC visit is a challenge. Our findings contribute to a growing body of knowledge supporting the need to identify new strategies to increase ANC health literacy and evaluate the retention of health information received by pregnant women (Greenaway et al., 2012; Hailu et al., 2011; Kabakyenga et al., 2011).

Given the demonstrated need to improve the way health education is delivered, and ultimately improving the quality of ANC care in Ghana, the results of this study were used to develop a set of culturally appropriate ANC modules that will use a participatory approach with women for health education. This approach has the potential to significantly improve the quality of ANC by actively engaging women in their care regardless of their health literacy level and increasing women's exposure to knowledge while developing a partnership between the woman and her care provider. The modules will be tested for feasibility and further modified in the next phase of research.

Limitations

There are several limitations to this study. First, a convenience sample of pregnant women accessing ANC at one public hospital in Ghana was recruited for this study; therefore, results cannot be generalized. Although not generalizable, our findings reflect those of others in

the literature in alternative settings such as Uganda and Kenya (Kabakyenga et al., 2011; Mutiso, Qureshi, & Kinuthia, 2008). Other future researchers need to be aware that each country, or even different regions of the same country, has different cultural influences and perceptions of health care. It also appeared anecdotally that Ghanaian women tended to give responses in short sentences, which they did not expand on without probing, when asked open-ended questions. This, too, could be related to levels of health literacy, statements lost in translation, or culture. When assessing the efficacy of health education in an international setting, one must look beyond the transfer of information alone and examine the impact of culture, educational background, and other variables that may not be considered in a more familiar context. Additionally, focus groups were led by a health-care provider, albeit not a midwife from the antenatal clinic, which could potentially bias the responses from participants. Despite these limitations, our findings highlight the urgent need to develop innovative methods to deliver health information that would be applicable for women attending ANC across all levels of health literacy.

Conclusions

It has been over a decade since FANC was introduced as the standard of care to ensure healthy outcomes for women and newborns. Yet progress has been slow in increasing women's awareness of danger signs, birth preparedness, and complication readiness. Low health literacy is a universal problem. How clients obtain and use health information to make decisions is not completely understood. Women continue to be unsure of when to seek care for problems they recognize in themselves or their newborn infants, often delaying care or resulting in poorer health outcomes. Health literacy goes beyond health knowledge (Ratzan, 2001). Pregnant women must receive information in a manner they can understand and process to make healthy decisions for themselves and their soon-to-be-born babies.

Acknowledgments

The development of this article was supported in part by research grant 1 K01 TW008763-01A1 from Fogarty International, National Institutes of Health (Dr. Jody R. Lori, PI). The content is solely the responsibility of the authors and does not necessarily represent the official views of Fogarty International or the National Institutes of Health.

Clinical Resources

- Africa Initiative, Reproductive Health Issues and Women in Ghana: <http://www.africaportal.org/articles/2012/07/19/reproductive-health-issues-and-women-ghana-has-global-attention-made-difference>
- Global Health Learning Center, Antenatal Care: <http://www.globalhealthlearning.org/course/antenatal-care>
- Medline Plus, Health Literacy: <http://www.nlm.nih.gov/medlineplus/healthliteracy.html>
- National Network of Libraries of Medicine, Health Literacy: <http://nmlm.gov/outreach/consumer/hlthlit.html>
- WHO African Region, Ghana: <http://www.who.int/countries/gha/en/>

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