

Women's Awareness of Danger Signs of Obstetrics Complications

Wafaa A. Rashad *, Rasha M. Essa **

* Assistant Professor of Obstetric and Gynecologic Nursing, Faculty of Nursing, University of Alexandria, Alexandria, Egypt

** Lecturer of Obstetric and Gynecologic Nursing, Faculty of Nursing, University of Alexandria, Damnhour Branch, Alexandria, Egypt

wafaa.rashad@alex-nursing.edu.eg; wafaara@yahoo.com; rashaessa111@yahoo.com

Abstract: An exploratory descriptive study was conducted at two Maternal and Child Health Centers (MCH) selected randomly in Albeheira Governorate to assess women's awareness of danger signs of obstetric complications. The study subjects consisted of 200 pregnant women attending the previously mentioned setting for tetanus toxoid immunization during pregnancy was enrolled in the study. (100 from each) A structured interview schedule was developed by the researcher after reviewing of the relevant literature and used to collect the necessary data. It comprised the following parts: Part I: Socio-demographic data such as age, level of education, occupation and number of family members...etc Part II: Obstetric characteristics such as gravidity, parity, abortions, antenatal follow up and presence of any complications. etc. Part III: questions related to knowledge about signs of obstetric complications, complaining of any obstetric complication, what to do if the woman has any of these signs. The study revealed that slightly more than one quarter of the study subjects (26.5 %) were unaware of obstetric danger signs compared to almost the same proportion (26.0 %) that had good awareness about such signs, while 47.5 % of the study subjects exhibited fair awareness. Lack of awareness about obstetric danger signs was related younger age, low level of education, gravidity and parity, previous experiences with any obstetric complications and lack of antenatal care. This study reflects the need for strategic plane to increase the awareness to shape health seeking behavior of the public related to signs of obstetric complications.

[Wafaa A. Rashad, Rasha M. Essa, Women's Awareness of Danger Signs of Obstetrics Complications. Journal of American Science 2010;6(11):802-]. (ISSN: 1545-1003).

Keywords: obstetric danger signs, awareness, signs of obstetric complications

Introduction

Pregnancy is a normal process that results in a series of both physiological and psychological changes in expectant mothers. However, normal pregnancy may be accompanied by some problems and complications which are potentially life threatening to the mother and / or the fetus. (Fraser et al, 2003).

Globally, every minute, at least one woman dies from complications related to pregnancy or childbirth – that means 529 000 women a year. In addition, for every woman who dies in childbirth, around 20 more suffer injury, infection or disease – approximately 10 million women each year. (WHO, 2005).

In Egypt, maternal mortality ratio has declined dramatically from 174 / 100 000 live births in 1992-1993 to 67.6 / 100 000 live births in 2005, a further decline to 44.6 / 100 000 was also reported by 2009. (GHC, 2010; WHO, 2010)

Five direct complications account for more than 70% of maternal deaths: hemorrhage (25%), infection (15%), unsafe abortion (13%), eclampsia (very high blood pressure leading to seizures – 12%), and obstructed labor (8%). A total of 99 % of all maternal deaths occur in developing countries, where 85 % of population lives. While these are the main causes of maternal death, unavailable, inaccessible, unaffordable, or poor quality care is fundamentally responsible. (WHO, 2010).

Most maternal deaths are avoidable as the health care solutions to prevent or manage the complications are well known. This includes well functioning health system that provides accessible and high quality care from household to hospital level. Egyptian health officials have long been concerned about the country's preventable maternal deaths, with good reason. According to Egypt Demography and health Survey, slightly more than one quarter of Egyptian pregnant women do not receive antenatal care. However, among those who receive antenatal care only one third of them received advised about signs of obstetric complications and

where and when to seek medical assistance. (El-Zanaty et al, 2008).

Obstetric danger signs include persistent vomiting, severe persistent abdominal pain, vaginal bleeding during pregnancy and delivery, severe vaginal bleeding after delivery, swelling of face, fingers and feet, blurring of vision, fits of pregnancy, severe recurrent frontal headache, high grade fever, marked change in fetal movement, awareness of heart beats, high blood pressure, sudden escape of fluid from the vagina, dysuria, oliguria or anuria, prolonged labor, loss of consciousness and retained placenta. Awareness about the significance of symptoms and signs of obstetrics complications may lead to timely access to appropriate emergency obstetric care. (WHO, 2010) Obstetric nurse/midwife plays a crucial role in promoting an awareness of the public health issues for the pregnant woman and her family, as well as helping the pregnant woman to recognize complications of pregnancy and where to seek medical assistance.

Significance of the study

Women need not to die in childbirth. Women die from a wide range of complications in pregnancy, childbirth or the postpartum period. These life threatening complications are treatable, and thus most of these deaths are avoidable if women with the complications are able to identify and seek appropriate emergency obstetric care which makes a difference between life and death. ⁽³⁾ Lack of awareness of the significance of symptoms of obstetric complications is one of the reasons of failure of women to identify and seek appropriate emergency care. Accordingly, assessment of women's awareness of obstetric danger signs and associated factors contributes to their awareness.

Aim of the study

The aim of this study was to assess women's awareness of danger signs of obstetric complications.

Research question

Are women aware of danger signs of obstetric complications?

Material and Methods

Research design

This is an exploratory descriptive study.

Setting

The study was conducted at two Maternal and Child Health Centers (MCH) selected randomly in Albeheira Governorate namely Mahmodya and Abu-Matameer.

Subjects

A convenient sample of 200 pregnant women attending the previously mentioned setting for tetanus toxoid immunization during pregnancy was enrolled in the study. (100 from each)

Tool of data collection

A structured interview schedule was developed by the researcher after reviewing of the relevant literature to collect the necessary data. It comprised the following parts: Part I: Socio-demographic data such as age, level of education, occupation and number of family members.....etc Part II: Obstetric characteristics such as gravidity, parity, abortions, antenatal follow up and presence of any complications . etc. Part III: questions related to knowledge about signs of obstetric complications, complaining of any obstetric complication, what to do if the woman has any of these signs.

Methods

1. An official permission was obtained from the administration of the previously mentioned settings.
2. The tool was developed after reviewing of relevant literature and content validity was tested by a jury from 3 experts in the field.
3. A pilot study was carried out to ascertain the clarity and applicability of the tool.
4. The researcher met the participants and explained the purpose of the study, and then an individual interview was carried out with the participants who accepted to participate in the study to collect the necessary data.
5. A list of medically recognized life threatening obstetric signs was obtained from the women's responses.
6. After data collection, responses were categorized, coded and analyzed by computer.

Ethical considerations

An individual interview was carried out with the participants who voluntarily accepted to participate in the study to ascertain privacy and confidentiality.

Statistical analysis:

The collected data was categorized, coded computerized, tabulated and analyzed using SPSS/version 17. Chi square test was used to

demonstrate the difference between study subjects' characteristics and level of awareness about obstetric danger signs. The level of significant selected for this study was p equal to or less than 0.05.

Good awareness about obstetric danger signs is defined as the ability to mention >75.0% recognized danger signs, fair awareness is the ability to mention 50-75% and the ability to mention up to 50% of obstetric danger signs was considered poor awareness.

Results

Table I shows the general characteristics of the study subjects. It is observed that, 23.5% of the subjects were aged 20 to less than 25 years old, 34.5% aged 25 to less than 30 years old and 30.5% aged 30 to less than 35 years old, while only 11.5% were aged 35 years old and more.

Regarding level of education, only 13.5% of the study subjects had university education, 33.0% finished secondary school, 19.5% finished primary or preparatory school, 14.5% were just able to read and write and 19.5% were illiterate.

As to their occupation, it is observed that, the majority of the study subjects (83.5%) were housewives and 16.5% were workers.

As regards number of family member, it is found that, only 8.5% of the study subjects live within large family size and less than one half live within family consists of 4 to five members.

Table II shows that, 38.0% and 34.5% of the study subjects were pregnant two and three times respectively, 45.0% and 29.5% delivered two and three times respectively, 64.5% of them delivered by cesarean section, only 4.0% had normal spontaneous vaginal delivery and the majority (81.0%) had no abortion. Places of delivery were home (5.5%), governmental hospital (23.0%), private hospital/clinic (38.0%) and health/ maternal and child health centers (32.5%).

Regarding their babies' health, it is found that only 9.0% of the study subjects having babies with health problems. These problems are congenital malformations (5.0%), small for date babies (1.5%) macrosomic babies (1.0%) and mental retardation (1.0%).

Table III: shows the distribution of the study subjects according to attendance of antenatal care. It is observed that the majority of the study subjects (90.0%) attended antenatal clinics, 49.4% seek antenatal care at private hospital / doctor, 45.0% at health / maternal and child health centers and only 5.0% attended governmental hospital for antenatal care. Only 20.6% of the study subjects had more than four antenatal visits, followed by 9.4% had only

four visits, and 36.7% had three visits and 22.2% had only two visits.

Table IV presents the distribution of the study subjects according to presence of complications with last pregnancy. It is observed that, about half of the study subjects (46.5%) had complications with the last pregnancy. During pregnancy 17.2% had threatened abortion or preeclampsia, and 15.1% had placenta previa. During labor, 6.5% had difficult labor and intrapartum bleeding, while during postpartum period 4.3% had breast problems.

Table V presents the distribution of the study subjects according to their awareness of obstetric danger signs. It is found that, slightly more than one quarter of the study subjects (26.5%) were unaware of obstetric danger signs compared to almost the same proportion (26.0%) that had good awareness about the obstetric danger signs, while 47.5% of the study subjects exhibited fair awareness.

Table VI shows the relation between level of awareness of the study subjects and their general characteristics. It is observed that 68.1% of the study subjects aged 20 to less than 24 years old had good awareness about obstetric danger signs, compared to 21.7% of those aged 25 to less than 30 years old. It is also observed that 29.5% of the study subjects aged 30 to less than 35 and 78.3% aged 35 or more years old exhibit poor awareness regarding such signs. A statistical significant difference was observed between level of awareness and study subjects' age. ($p = 0.001$)

The table also shows that the level of education played a positive role in relation to awareness of obstetric danger signs. Therefore, only 11.1% of the university graduate unaware of obstetric danger signs compared to more than two thirds (69.2%) of illiterate and the difference was statistically significant between level of awareness and level of education. ($p = 0.001$)

Regarding occupation, it is observed that, about one third of housewives (31.7%) exhibited poor awareness about obstetric danger signs, and the majority (90.9%) of working women exhibited good awareness and the difference was statistically significant regarding level of awareness about obstetric danger signs and occupation. ($p = 0.0031$)

As regards number of family member it is observed that the 8.3% and 5.9% of those who had 6 and 8 or more family members respectively exhibited lack of awareness about obstetric danger signs, compared to 45.8% and 35.3% of the same group who exhibit good awareness regarding such signs. A statistically significant difference was observed between awareness of women about obstetric danger signs and number of family members. ($p = 0.015$).

Table VII presents the relation between level of awareness of the study subjects and their clinical characteristics. It is observed that 61.5 % of those who were pregnant for the first time and 40.6 % those who were pregnant for three times exhibited good awareness about obstetric danger signs and 78.9 % of those who was pregnant for the second time had fair awareness about such signs. A statistically significant difference was found between awareness of obstetric danger signs and number of pregnancies. ($p = 0.014$)

Regarding parity it is observed that, 41.7 % of those who had no deliveries had either good or poor awareness about obstetric danger signs, the majority (66.7 %) of those who delivered once exhibited fair awareness about such signs. Almost the same proportions (42.4 % and 40.7 %) of those who delivered twice had either fair or poor awareness about such signs, and 57.1 % and 50.0 % of those who delivered for three and more times exhibited good awareness. The difference was statistically significant between awareness about obstetric danger signs and number of deliveries. ($p = 0.028$)

As regards to place of previous delivery, it is observed that, near one half (43.5 %) who delivered at governmental hospital had poor awareness about obstetric danger signs compared to one half of those who delivered at private hospital/private clinics and 61.5 % of those who delivered at Health centers/MCH centers. The difference was statistically significant between awareness of women about obstetric danger signs and place of delivery. ($p = 0.001$).

Presence of complications during the last pregnancy did not influence the awareness of women about obstetric danger signs as 50.5 % of those who had complications exhibited poor awareness compared to 5.6 % of those who had no complications, while 32.3 % of those with complications had fair knowledge compared to 60.7 % of those who had no complications. The difference was statistically significant between occurrence of complications and the awareness about obstetric danger signs. ($p = 0.0031$)

Attendance of antenatal care positively affected the awareness of women about obstetric danger signs. The majority of those who attended the antenatal care had more awareness than those who did not. And the difference was statistically significant between the level of the study subjects about obstetric danger signs and attendance of antenatal care. ($p = 0.001$).

Table I: General characteristics of study subjects

General characteristics	n=200	%
Age (years)		
20-	47	23.5
25-	69	34.5
30-	61	30.5
35-	23	11.5
Level of education		
Illiterate	39	19.5
Read & write	29	14.5
Primary/preparatory	39	19.5
Secondary	66	33.0
University or more	27	13.5
Occupation		
Housewife	167	83.5
Working	33	16.5
Number of family members		
< 3	72	36.0
4-	87	43.5
6-	24	12.0
8+	17	8.5

Table II: Obstetric characteristics of study subjects

Clinical characteristics	n=200	%
Gravidity		
Once	13	6.5
Twice	76	38.0
3 times	69	34.5
More than three times	42	21.0
Parity		
None	12	6.0
Once	90	45.0
Twice	59	29.5
3 times	21	10.5
More than three times	18	9.0
Types of delivery		
Normal	8	4.0
Cesarean section	129	64.5
Instrumental	58	29.0
Others (induction)	5	2.5
Place of delivery		
Home	11	5.5
Governmental hospital	46	23.0
Private hospital / Private doctor's clinic	76	38.0
Health centers / Maternal and child health care center	65	32.5
No of abortions		
None	162	81.0
Once	27	13.5
Twice	9	4.5
3 times	1	0.5
More than three times	1	0.5
Having babies with problems		

Yes	18	9.0
No	182	91.0
Types of problems		
Congenital malformations	10	5.0
Small for date	3	1.5
Macrosomic baby	2	1.0
Mentally retarded	2	1.0
Others	1	0.5

Table III: Distribution of the study subjects according to attendance of antenatal care:

Ante natal care	n=200	%
Attendance of antenatal care		
Yes	180	90.0
No	20	10.0
Place of ante natal visits		
Governmental hospital	9	5.0
Private hospital / doctor	89	49.4
Health center / Maternal and child health care center	81	45.0
Other	1	0.6
Number of ante natal visits		
Once	20	11.1
Twice	40	22.2
Tree times	66	36.7
Four times	17	9.4
More than four	37	20.6

Table IV: Distribution of the study subjects according to presence of complications with last pregnancy

Complications	n=200	%
Presence of complications		
Yes	93	46.5
No	107	53.5
Types of complication		
During pregnancy		
Threatened abortion	16	17.2
Vesicular mole	6	6.5
Ectopic pregnancy	7	7.5
Placenta previa	14	15.1
Preeclampsia	16	17.2
Intrauterine fetal death	6	6.5
Others	7	7.5
During labor		
Difficult labor	6	6.5
Precipitous labor	2	2.2
Bleeding	6	6.5
Perineal tears	4	4.3
Premature labor	4	4.3
Postpartum		
Bleeding	2	2.2
Puerperal infections	2	2.2
Breast problems	4	4.3

Table V: Distribution of study subjects according to their awareness of obstetric danger signs

Awareness of danger signs	No =200	%
Good	52	26.0
Fair	95	47.5
Poor	53	26.5

Table VI: Relation between study subjects' level of awareness and their general characteristics.

General characteristics	Good		Faire		Poor		p
	No.	%	No.	%	No.	%	
Age (years)							0.001*
20-	32	68.1	10	21.3	5	10.6	
25-	15	21.7	42	60.9	12	17.4	
30-	3	4.9	40	65.6	18	29.5	
35-	2	8.7	3	13.0	18	78.3	
Level of education							0.001*
Illiterate	0	0.0	12	30.8	27	69.2	
Read & write	3	10.3	16	55.2	10	34.5	
Primary/preparatory education	19	48.7	18	46.2	2	5.1	
secondary education	22	33.3	33	50.0	11	16.7	
University or more	8	29.6	16	59.3	3	11.1	
Occupation							0.0031*
Housewife	22	13.2	92	55.1	53	31.7	
Working	30	90.9	3	9.1	0	0.0	
Number of family members							0.015*
< 3	25	34.7	22	30.6	25	34.7	
4-	10	11.5	52	59.8	25	28.7	
6-	11	45.8	11	45.8	2	8.3	
8+	6	35.3	10	58.8	1	5.9	

Table VII: Relation between study subjects' level of awareness and their clinical characteristics.

Clinical characteristics	Good		Faire		Poor		p
	No.	%	No	%	No	%	
Gravidity							0.014*
Once	8	61.5	2	15.4	3	23.1	
Twice	5	6.6	60	78.9	11	14.5	
3 times	28	40.6	21	30.4	20	29.0	
More than three times	11	26.2	12	28.6	19	45.2	
Parity							0.028*
None	5	41.7	2	16.7	5	41.7	
Once	16	17.8	60	66.7	14	15.6	
Twice	10	16.9	25	42.4	24	40.7	
3 times	12	57.1	4	19.0	5	23.8	
More than three times	9	50.0	4	22.2	5	27.8	
Place of previous delivery							0.001*
Home	1	9.1	3	27.3	7	63.6	
Governmental hospital	12	26.1	14	30.4	20	43.5	
Private hospital / Private doctor's clinic	18	23.7	38	50.0	20	26.3	
Health centers / Maternal and child health care center	20	30.8	40	61.5	5	7.7	
Presence of complications							0.0031*
Yes	16	17.2	30	32.3	47	50.5	
No	36	33.6	65	60.7	6	5.6	
Attendance of antenatal care							0.001*
Yes	49	27.2	92	51.1	39	21.7	
No	3	15.0	3	15.0	14	70.0	

Discussion

The current challenge worldwide is to decrease maternal mortality rate. Reproductive health is closely related to maternal mortality. McCarthy & Main (1992) mentioned that health status and reproduction status of women belong to intermediate variables determine maternal mortality. Health status of women concerning nutritional status; history of pregnancy morbidity such as infectious or chronic diseases; it is clear that women's health status plays a significant role in their reproductive function. Reproductive status consists of maternal age, parity and marital status which is directly related to maternal mortality.

The vast majority of maternal deaths could be prevented if women know when and where to seek medical care because if the pregnant women do not have appropriate information about pregnancy and childbirth they would be unable to make a choice that will contribute to their own well-being, the question is are women aware of the warning signs of obstetric complications?

The present study aimed to answer the research question whether women in a certain rural area in Egypt are aware of obstetric danger signs? This is important because in rural areas in Egypt it is generally believed that pregnancy is a natural phenomenon and a part of women's reproductive functions, and problems or complications during pregnancy are being viewed by some women as natural to pregnancy. Such beliefs contribute to lack of utilization of medical services which in turn leads to undetected and untreated complications consequently increased maternal mortality rate.

In the current study only about one-quarter of the study subjects exhibited good awareness about obstetric danger signs. This awareness indicates the existence of knowledge which can be in turn transferred into action. The importance of knowledge to shape health seeking behaviors which contribute to save women's live from preventable causes of maternal deaths is stressed by many authors (Myer &

Harisson 2003; Smith et al 2004; Stekelenburg et al 2004; Sugiarto 2007)

Unfortunately, almost the same proportion of the study subjects was unaware of obstetric danger signs which reflect lack of knowledge regarding such signs even though such knowledge is very important. This could be explained by poor counseling of pregnancy danger signs among those who attended antenatal clinics as the majority of the study subjects attended antenatal clinics, among them about two-thirds had three visits. This emphasizes the needs to ensure that nurse/midwives inform all antenatal clients about obstetric danger signs

Women's awareness of potential obstetric danger signs is expected to influence their decisions regarding when to decide to seek medical care. Accordingly, awareness of obstetric danger signs is expected to help women to early recognize signs when the complications occur and limit the time to make a faster decision to seek medical care which makes a difference between life and death if all such signs are well known. . This makes it very important to women to be aware of all obstetric danger signs. However, the results of the present study revealed that nearly one half of the study subjects had fair awareness of obstetric danger signs; it means they were able to identify 50-75% of such signs. This could be explained by the fact that 26.4 % of Egyptian women does not receive antenatal care, among them 34.1 % told about signs obstetric complications and 31.4 % told where to go if had any of complications (EDHS 2008). Therefore, this study reflects the needs for strategic plan to increase the awareness to shape health seeking behaviors of the public related to obstetric complications.

The present study revealed that age, education, occupation, gravidity, parity, presence of complication and attendance of antenatal care are associated with awareness of women about obstetric complications. Increased awareness among older and multigravida and multiparous women may be related to their own experiences of pregnancy and delivery which is an important source of their information specially those who had complications associated with their pregnancy. This is in line with Pembe et al (2009) who stated that young women in their first pregnancy may need more consideration when providing counseling and health education.

In the current study education seems to play a positive role in increasing the awareness of women about signs of complications. This is in agreement with Anya et al (2008) who stated that, educated women have better pregnancy outcome compared with uneducated women; this may be partly because they are better informed and make better choices. Moreover, occupation seems to influence the level of

women awareness about signs of obstetric complications. This could be explained by the fact that, working women have better opportunity to share experiences with others than housewives. Furthermore, in rural areas sources of information are limited unlike urban areas in addition to the prevalence of illiteracy which may contribute to this result.

The findings of the present study revealed that attendance of antenatal had positive effects on increasing the awareness of women about the signs of obstetric danger signs. This is online with Anya (2008) who stated that high antenatal coverage and relatively high frequency of visits provides an excellent opportunity for information, education and communication. However, this finding is incongruent with Pembe et al (2010) who reported deficiencies in the counseling of pregnancy danger signs in his study and a significant proportion of the clients were not informed about pregnancy danger signs. Similar results are documented by NBS (2004/5), Nikiema et al (2009), von Both et al (2006) and Boller et al (2003)

Limitation of the study:

Women were not asked about the source of their information and to whom they should report if they experience any complication in addition to the immediate intervention they should receive.

Conclusion

Based on the findings of the present study, it can be concluded that lack of awareness about obstetric danger signs was related younger age, low level of education, gravidity and parity, previous experiences with any obstetric complications and lack of antenatal care. These factors stressed the need for a plan to increase the awareness of the public about such signs. This information will help the services providers for improving the quality of antenatal care services.

From this study the need for strategic plan to increase the awareness of women about signs of obstetric complications is highly recommended.

References

1. Fraser M, Cooper A. (2003): Myles Textbook for Midwives. 14th ed., Churchill Livingstone, Edinburgh.
2. The World Health Report 2005- make every mother and child count. Geneva, World Health Organization, 2005
3. Global Health Council report: Available at <http://www.globalhealth.org/reports/report.php3> last accessed on August 5, 2010

4. EMRO country profile page: <http://www.emro.who.int/emrinform/index.asp?Country=egy> last accessed on August 5, 2010
5. Maternal mortality in 2005: estimates developed by WHO, UNICEF, UNFPA, and the World Bank. Geneva, World Health Organization, 2007
6. El-Zanaty F, Way A. Egypt Health Demography Health Survey 2008. Cairo, Egypt, Ministry of Health. Available at: <http://www.measuredhs.com>
7. McCarthy J, Main D: 1992. A framework of analyzing the determinant of maternal mortality. *Studies in family planning*. Vol. 23(1)pp23-31
8. Myer L, Harrison A (2003): Why do women seek antenatal care late? Prepective from rural South Africa. *Journal of Midwifery and Women's Health*. Vol. 48(4)pp 268-72
9. Smith K, Dmytraczenko T, Mensah B, Sidibe O (2004): Knowledge, attitude and practices related to maternal health in Bla, Mali: result of baseline survey. *Partners for Health Reform plus: Maryland*
10. Stekelenburg J, Kyanamina S, Mukelabai M, Wolffers I, Van Rosmalen L (2004): Waiting too long: low use of maternal health services in Kalabo, Zambia. *Tropical Medical and International Health*. Vol. 9(3)pp 390-98
11. Sugiarto T (2007): Knowledge and practice of maternal health care in Indonesia. *Jurnal of Kependudukan Indonesia*. Vol. II(2)pp 1-16
12. Al-Zanaty F, Way A. (2009): Egypt Demographic and Health Survey 2008. Cairo, Egypt.
13. Pembe A, Urassa D, Carlstedt A, Lindmark G, Nyström L, Darj E (2009): Rural Tanzanian Women's awareness of danger signs of obstetric complications. *BMC Pregnancy & Childbirth*. Available from: <http://www.biomedcentral.com/1471-2393/9/12>
14. Anya S, Hydar A, Jaiteh L (2008): Antenatal care in Gambia: Missed opportunity for information, education and communication. *BMC Pregnancy & Childbirth*. Available from: <http://www.biomedcentral.com/1471-2393/8/9>
15. Pembe A, Carlstedt A, Urassa D, Lindmark G, Nyström L, Darj E (2010): Quality of antenatal care in rural Tanzania: counseling on pregnancy danger signs. *BMC pregnancy & Childbirth*. Available at: <http://www.biomedcentral.com/1471-2392/10/35>
16. NBS: Tanzania Demographic an Health Survey (2004/5): Dar es Salaam, Tanzania: National Bureau of Statistics (NBS) and ORC Macro
17. Nikiema B, Beninguise G, Haggerty JL (2009): Providing information on pregnancy complications during antenatal visits: unmet educational needs in Sub-Saharan Africa. *Health Policy Plan*, 24:367-76
18. von Both C, Flessa S, Makuwani A, Mpembeni R, Jahn A (2006): How much time do health services spend on antenatal care? Implications for the introduction of the focused antenatal care model in Tanzania. *BMC Pregnancy & Childbirth* 6:22
19. Boller C, Wyss K, Mtasiwa D, Tanner M (2003): Quality and comparison of antenatal care in public and private providers in the United Republic of Tanzania. *Bull World Health Org*, 81:116-22.

9/28/2010