DEMOGRAPHIC VARIABLES OF PREGNANT WOMEN AND PRACTICES OF ANTENATAL CARE

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ABSTRACT

Antenatal delivery and postnatal services are among the recommended interventions aimed at preventing maternal and newborn deaths worldwide. Antenatal care services help pregnant women by identifying complications associated with the pregnancy or diseases that might adversely affect the pregnancy. Through antenatal visits, women benefit from various interventions, including counseling about healthy lifestyle, the provision of iron/folic acid supplements, and tetanus toxic vaccination, reported to protect newborns against neonatal death. Sad to say that most pregnant mothers do not see the need to go for antenatal and postnatal checkup and as such, they lack the knowledge concerning the kind of meal they should eat during this period. The study concluded that utilization of antenatal care can help to identify those women who are at risk of complications during pregnancy and delivery, thus ensuring that they obtain special attention in suitably equipped facilities. Though older mothers have a healthy pregnancy and birth, they do have an increased risk of ongoing health conditions. These conditions can have an impact on how well the pregnancy and birth go, as well as their overall health. Also, it is observed that assessment of the educational status of women is crucial in determining the outcome of other variables. It was recommended in the study that pregnant women should not despise the privilege to assure the best possible health of they themselves and their fetus.

KEYWORDS: Antenatal care, Health status, and Pregnant Women

INTRODUCTION

Maternal mortality is the most important indicator of maternal health and well-being in any country. W.H.O defined maternal mortality as "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes". Worldwide, an estimated half a million women die each year from complications of pregnancy and childbirth. Of these, 55, 000 maternal deaths occur in Nigeria alone. Akinsola (2006) opined that every society, whether developed or developing, recognizes the importance of the health needs and problems of women and their children from birth to adolescence, and for this reason, both pregnant women and lactating mothers and their children are often given a special status in society. This does not mean that the health of the father is not important, but that the mother and the child constitute a special group known as "the at-risk" or vulnerable group.

Maternal health, according to Olubunmi (2010), is the state of physical, social, and mental well-being of women during pregnancy, labour, and postpartum. Maternal health enables mothers and mothers-to-be to keep fit during pregnancy and ensure adequate personal hygiene and proper nutrition for themselves and their entire family during the period of pregnancy. The source emphasizes that the health of the mother is very important in determining the health of the children and the rest of her family. The author enumerates other things that determine the status and complete well-being of women, including: her educational status in the community, her state of nutrition, how much energy she dissipates at her work, how many children she has, how closely the children are born, and the way she was fed as a child.

In Africa, especially the sub-Saharan region, pregnancy-related health risks caused about a quarter of the burden of disease in 1990 for women in the age group of 15–45 years. Despite a steady decline over the past decade, maternal mortality is still high in Africa, with an estimated life time risk of 1 to 16 and a maternal mortality ratio of about 1000 deaths per 100,000 live births. Nigeria ranks quite high with a maternal mortality ratio of 585 per 100,000 (W.H.O. 2005). However, Alakija (2006) indicates that the situation has improved in the past decade. A decade ago, it was 11 in every 1000 live births. Yet, even with such a level, it is still high as compared to other African countries like Ghana, with 3 to 5 deaths per 1000 live births as at 2002. Akinsola (2006) noted that in most African countries, when a woman is pregnant, she is often excused from carrying out heavy duties, such as carrying heavy loads or farming activities. She is also given a special diet, which is more nutritious than that of the rest of the family. The same thing applies to newly delivered and lactating mothers. Children are also treated like "eggs", which can break if handled carelessly. They are often protected from any harm, however slight, and are fed with breast milk, which is the most balanced food ever known to man.

The above scenario confirms that the concept of maternal and child health within the context of African tradition and Akwa Ibom in particular is not new. It is only the approach that appears different. Hence, there is a need to meet these needs by providing promotive, preventive, and curative services. Thus, the researcher's interest in assessing the health status of mothers attending antenatal and postnatal clinics using specific surveillance indicators.

CONCEPTUAL REVIEW

CONCEPT OF HEALTH STATUS

The World Health Organization (WHO) over half a century ago defined health as a complete state of physical, mental, and social well-being and not merely the absence of disease or infirmity. Bircher (2005) defines health as "a dynamic state of well-being characterized by a physical and mental potential that satisfies the demands of life commensurate with age, culture, and personal responsibility," while Saracchi (2002) defines health as "a condition of wellbeing, free of disease or infirmity, and a basic and universal human right." On the other hand, health status is the level of health of the individual, group, or population as subjectively assessed by the individual or by more objective measures. According to WHO (2010), maternal health is the health of women during pregnancy, childbirth, and the postpartum period. It encompasses the health care dimensions of family planning, preconception, prenatal, and postnatal care in order to reduce maternal morbidity and mortality. The United Nations Population Fund (UNFPA)

estimated that 289,000 women died of pregnancy or childbirth-related causes in 2013. These causes range from severe bleeding to obstructed labor, all of which have highly effective interventions.

McIntyre and James (2005) opine that the health status of pregnant mothers is determined when they attend antenatal clinics; blood pressure can be checked and weight can be monitored. Also, any factor that could influence the baby's development, such as nutritional deficiencies (including excessive vomiting), infections, and potentially hazardous drug therapy, can be detected. At the hospital under review, University of Uyo Teaching Hospital, investigations are done during the first antenatal visit for pregnant mothers to ensure that everything is proceeding normally. The following blood tests which are of vital importance during pregnancy are checked, such as hemoglobin estimation, blood grouping, rhesus factor and antibodies, rubella and other viral illnesses, hepatitis, HIV (AIDS virus), and other blood tests including blood sugar test and V.D.R.L. test.

CONCEPT OF ANTENATAL

Antenatal care (ANC) is a careful, systematic assessment and follow-up of pregnant women that includes education, counseling, screening, and treatment to assure the best possible health of the mother and her fetus. Matthews and Mahendra (2001) opine that antenatal care (ANC) usually refers to pregnancy-related care provided by a health provider either in a medical facility or at home. The ANC program was designed in Europe in the first decades of the 20th century and was first directed at women in socially difficult living conditions, with the objective of improving maternal and prenatal outcomes. Gradually, ANC was expanded to include more specific screening procedures to detect specific medical problems for all pregnant women. Vanneste, Ronsmans, and Chakraborty (2000) assert that, like most maternal health issues, proper care during pregnancy and childbirth is important to the health of both the mother and child. Antenatal care is recognized as a major component of comprehensive maternal health care. It is the care that pregnant women should have during their pregnancy for the protection of themselves and a safe delivery. ANC is reachable through health service interventions. Antenatal care is essential for the detection and treatment of problems during pregnancy and can improve the timely and appropriate use of delivery care services. A pregnant woman needs to visit health facilities or providers at certain intervals for an antenatal care checkup. Evidence suggests that adequate antenatal care use has an association with improved pregnancy outcomes.

According to research by SMA Nutrition (2009), over half of pregnant women may be consuming more than the recommended number of calories during pregnancy. Pregnant women tend to eat more than they normally would because they think pregnancy gives them permission to "eat for two." Attending antenatal clinics helps mothers keep their weight in check and they are educated on their nutritional diet. According to Gerein, Mayhew and Lubben (2003), antenatal care provides an important opportunity for discussion between a pregnant woman and a health care provider about health behavior during pregnancy and about recognizing complications that may arise during pregnancy. The principles of ANC for women with uncomplicated pregnancies are to provide advice, education, reassurance, and support; to address and treat minor pregnancy problems; and to provide effective screening during pregnancy. The necessity of ANC services is explained to mothers in antenatal clinics, the numerous advantages

of which may include monitoring the health of the mother and baby during pregnancy, anticipating difficulties in pregnancy and labor with early treatment to reduce the risks for mother and child, facilitating the better use of emergency obstetric care services, disseminating health education and information, and so on (World Health Organization, 2003). These facilities imply that antenatal visits may confer benefits to both mother and baby, not only because women with serious conditions such as hypertensive diseases in pregnancy can be diagnosed and kept under observation, but also because a dialogue can be initiated, which may facilitate the use of skilled care when the need arises.

CONCEPT OF POSTNATAL

The postnatal period, also known as the postpartum period, is the period beginning immediately after the birth of a child and extending for about six weeks. It is regarded as occurring immediately or soon after childbirth, relating to an infant immediately after birth. The World Health Organization (2009) describes the postnatal period as the most critical and yet the most neglected phase in the lives of mothers and babies; most deaths occur during the postnatal period. Afework (2010) opines that postnatal care is also about empowering the mother to care for her baby and herself in order to promote their longer-term physiological and emotional well-being. For most women and babies, the postnatal period is uncomplicated. However, postnatal care is also about recognizing any deviation from a woman's or baby's expected recovery following birth, or of adverse changes in health and wellbeing, and investigating and intervening appropriately. When additional care to address such issues is required, recommendations are identified by the appropriate "action level."

According to Starrs (2006), the health of mothers is mostly regarded as an indicator of the health of society. Globally, more than half a million women die each year from complications of pregnancy and childbirth. A large proportion of maternal and neonatal deaths occur during the first 48 hours after delivery. Thus, postnatal care (PNC) is important for both the mother and the child to treat complications arising from the delivery as well as to provide the mother with important information. Regassa (2011) asserts that postnatal care provision crosses acute and primary healthcare sectors, with the majority of care taking place in the woman's home. Care is likely to include routine clinical examination and observation of the woman and her baby, routine infant screening to detect potential disorders, support for infant feeding, and ongoing provision of information and support. Postnatal care is usually concluded by a 6–8 week postnatal examination, which marks the end of the woman's maternity care. Women who attend antenatal clinics are educated on postnatal care provisions, which helps to prevent any complications that may arise after childbirth.

MATERNAL AGE AND HEALTH STATUS

Hutaserani, Jitsuchon, and Barker (2002) opined that the mother's age at birth and the child's birth order can be related to the use of antenatal care. According to Utting and Bewley (2011), though older mothers have a healthy pregnancy and birth, they do have an increased risk of ongoing health conditions, and some may only be discovered when pregnant. During antenatal sessions, older mothers are checked for conditions such as diabetes and high blood pressure.

These conditions can have an impact on how well the pregnancy and birth go, as well as the child's overall health. Sadly, both miscarriage and ectopic pregnancy are more common in older women. The rate of miscarriage increases steadily, so that by the age of 45, they have about a one-in-two chance of miscarrying if they conceived naturally with their own eggs rather than donor eggs. The age of a mother is assessed in antenatal clinics so as to monitor the development of the foetus in order to prevent any pregnancy complications, especially in adolescents and older mothers.

A UNICEF Report (2000) reveals that the national teen pregnancy rate has declined almost continuously over the last two decades. The teen pregnancy rate includes pregnancies that end in a live birth, as well as those that end in abortion or miscarriage (fetal loss). Between 1990 and 2010 (the most recent year for which data is available), teen pregnancy rates fell by 51%, from 116.9 to 57.4 pregnancies per 1,000 teenage girls. According to recent National Data (2010), this decline is due to the combination of an increased percentage of adolescents who are not waiting to have sexual intercourse and the increased use of contraceptives by teens. Pregnancy and childbirth have a huge impact on the physical, mental, emotional, and socioeconomic health of women and their families.

Ronsmans & Graham (2006) asserted that pregnancy-related health outcomes are influenced by a woman's health and other factors like race, ethnicity, age, and income. The CDC's Division of Reproductive Health conducts research and supports programs to improve women's health before, during, and after pregnancy to reduce both short-and long-term problems. The CDC collaborates with partners to reduce the higher rates of poor outcomes experienced by some racial and ethnic groups and to improve the pregnancy and delivery experiences of all women. UNICEF (2013) reported that there were 26.5 births per 1,000 adolescent females aged 15–19. Nearly eighty-nine percent of these births occurred outside of marriage. The 2013 teen birth rate represents a 10% decrease from 2012, when the birth rate was 29.4 per 1,000. The teen birth rate has declined almost continuously over the past 20 years. In 1991, the U.S. teen birth rate was 61.8 births for every 1,000 adolescent females, compared with 26.5 births for every 1,000 adolescent females in 2013. Still, the U.S. teen birth rate is higher than that of many other developed countries, including Canada and the United Kingdom. The majority of adolescent mothers are 18 or older; in 2013, 73 percent of all teen births were to 18- to 19-year-olds. Birth rates are also higher among Hispanic and black adolescents than among their white counterparts. In 2013, Hispanic adolescent females ages 15-19 had the highest birth rate (41.7 births per 1,000 adolescent females), followed by black adolescent females (39.0 births per 1,000 adolescent females) and white adolescent females (18.6 births per 1,000 adolescent females). Estimates from 2013 data show that 11 percent of adolescent females in the United States will give birth by their 20th birthday, with substantial differences by race and ethnicity: 8 percent of white adolescent females, 16 percent of black adolescent females, and 17 percent of Hispanic adolescent females (UNICEF, 2000).

Due to wide socioeconomic differences, the quality of reproductive health varies considerably between countries. The major risk factor for maternal and neonatal deaths is lack of access to skilled care at birth. Progress in this regard has been uneven, and one pervasive consequence is high neonatal mortality and poor child survival within families where maternal deaths occur. The other important determinants of maternal and neonatal survival are access to emergency obstetric

care and family planning. The positive outcome of birth spacing on the reproductive health of mothers and the overall health and well-being of children is well known.

MATERNAL EDUCATIONAL QUALIFICATION AND HEALTH STATUS

According to Fotso and Ezeh (2009), women with higher education are much more likely to have received care from health personnel than those with no education, while the proportion of women who have no antenatal care declines steadily as education increases. Addai (2000) asserted that a comparative assessment of the educational status of women is crucial in determining the outcome of other variables. This is because education is a change agent, and a higher educational qualification brings about change in the health-seeking behaviour of women. According to Coria-Soto (2000), educational qualification plays a very dominant role in the uptake of antenatal services. Though the uptake of maternal health services is generally poor, those who are educated take up health services better. Those with secondary and higher education get access to better antenatal services like a doctor, midwife, and trained nurse, far and above the other levels of education. Those with secondary and higher education had over 30 percent of maternal health with doctors, while others had less than 20 percent. Increasing the percentage of births delivered in health facilities is an important factor in reducing deaths arising from the complications of pregnancy. The expectation is that if a complication arises during delivery, a trained health worker can manage the complications or refer the matter to the next level of care (Dhakal, 2007).

According to Salam (2006), education is one of the most important resources that enables women to attend antenatal clinics so as to learn how to provide appropriate care for their children, which is an important determinant of children's growth and development. Studies in the Philippines show a decreased incidence of malnutrition among mothers attending antenatal clinics with an increase in the level of mothers' education. Schula & Hossain (2000) assert that education makes a woman knowledgeable, aware of the environment, and gives her access to information readily. Lack of sufficient information can affect the attitude of a client toward utilization of maternal health care services. Clients want to receive information that is relevant to their needs, desires, and lifestyle. Clients who are well informed and have made their choice about health services may not want detailed information. People who are better informed tend to expect and seek services and are in a better position to demand accountability from service providers.

Martines (2005) opined that women who are not educated tend to be ignored by healthcare professionals, as they feel they would not understand their condition and therefore neglect to communicate relevant, user-friendly, and sensitive information to them. Therefore, it is a well-recognized fact that a mother's education has a positive impact on health care service utilization. Underutilization of health care facilities by expectant mothers is often due to a lack of knowledge, as corroborated by Addai (2000), who observed that 33 percent of women did not use antenatal care services due to ignorance. Ondimu (2000) stated that the level of formal education attainment affects the health behaviours of women, which in turn affects their health status. Chowdhury (2003) opined that education also empowers women to demand more and better quality health care. Researchers believe that the association between education and health care utilization may be due to a number of factors, including the tendency of educated mothers to

obtain safer, better jobs, have a greater level of health literacy, take preventive healthcare measures, avoid risky behaviours, and experience greater self-efficacy or level of control in their lives.

Studies have shown that the higher the education level of a woman, the more she is likely to utilize healthcare services. In a study by Elo (2000), they found quantitative importance and a statistically significant effect of a mother's education on the use of antenatal care services and delivery assistance. In another study, Becker, Peter, Gray, and Black (2000) found a mother's education to be the most consistent and important determinant in the use of maternal and child health services. Bhardwag, Hassan, and Zaheer (2004) observed that the illiteracy of pregnant women was a major cause of underutilization of antenatal services. Kabira, Gachulla & Matedria (2000) also found in their study in Kenya that poor maternal education is one of the factors that influence women's health and the utilization of health care services. Evidence from several countries shows that the impact of education on utilization of maternal and child health services depends on the type of services and the social settings (Dhermalingham, Hussain & Smiths, 2000). All these studies mentioned clearly demonstrate that illiteracy among women leads to underutilization of maternal health care services. Gareth (2006) discovered that women who were educated preferred antenatal care in modern health facilities. Ragna, Mishra, and Krishnamoorthy (2001) agreed that maternal education influences antenatal service utilization. The authors opined that utilization of the services goes a long way towards reducing both maternal and neonatal mortality. Ondimu (2000) opined that reproductive health problems have been found to be higher for mothers who have a low level of education and thus the same goes for women who do not adequately utilize antenatal services. Nielsen, Ligestrand, Thilsted, Joseph & Hedeganrd (2001) confirmed that the literacy level of the antenatal mother greatly influences attendance of antenatal care services and that a low level of education negatively influences antenatal service utilization. Maternal education has been shown repeatedly to be positively associated with the utilization of maternal care services (Abbas & Godfrey 2008).

In their study in Ghana, Overboseh (2005) observed that there was a significant positive association between the level of education of pregnant women and the use of antenatal services. Higher maternal education is mentioned in literature to promote the use of antennal care services in several ways. For instance, Elo (2000) mentioned that more education might lead to more decision-making power for the mother within the household. It might also increase her knowledge of modern health care, its effectiveness, and how to apply it. Education of the mother might further lead to a higher living standard because of the increased care for herself of a wealthier husband. Thus, the level of education of the antenatal mother might be correlated with several factors that can be assumed to influence the utilization of antenatal care services. Indeed, both Elo (2000) and Martines (2005) showed that the bivariant correlation between antenatal care use and the mother's educational level is considerably compounded by several factors, such as household living standards and access to health care facilities. However, after controlling for such factors, they still found a significant positive association between the mother's level of education and the utilization of modern antenatal services. Other reasons put forward by researchers why educated mothers utilize maternal health care services more than their less literate counterparts, besides decision-making power on health-related matters, are that educated mothers also attach a higher value to their welfare and that of their health. They are more

confident in handling health officials and have the ability and willingness to travel outside their home to seek such services (Navaneetham & Dhermalingam, 2002). It was expected that among educated women, the decision-making power within the household, awareness, knowledge, and acceptance of modern medical treatment and health care institutions should vary with their level of education.

Grumbach & Bodenheimer (2002) observed that the educational level of both mothers and their partners is a dominant predictor of antenatal care utilization. He narrated that in Haiti, the education of either the pregnant woman or her partner was positively related to the likelihood of antenatal care use. He stated that when compared to women who had no education, women in rural areas who had completed primary school were more than twice as likely to use antenatal care services, and those who had at least a secondary education level were more than three times as likely to use these services. They also noted that there is no significant difference in antenatal service utilization between urban mothers with no education and those with a primary education. With secondary or higher education, Simkkhada (2008) agreed that there is a significant association between maternal education and the utilization of antenatal care facilities by expectant mothers and that a high level of education is associated positively with the utilization of services. However, it is good to note that after that study, several other studies also found a strong positive impact of mother education on the utilization of health care services (Addai, 2000). It is argued that better educated women are more aware of their problems, know more about the availability of health care services, and use the information more effectively to maintain or achieve good health status. The mother's education may also act as a proxy variable for a number of background variables representing the woman's higher socio-economic status, thus enabling her to seek proper medical care whenever she perceives it necessary.

MARITAL STATUS AND HEALTH STATUS OF MOTHERS

It has been observed that the marital status of a pregnant mother can be a significant factor in antenatal care services. Elo (2000) stated that when a woman is married, some of the husband's variables come into play in her life. He opined that the husband's income, education, and religion, among other variables, become relevant to the woman and therefore influence her outlook and perception of health care services. Gage (2007) opined that once a woman gets married, her socioeconomic status changes instantly to reflect that of her husband. These influences, the authors opined, could be negative or positive and could influence her use of antenatal care services.

Studies have also confirmed that the husband's decision greatly influences the utilization of antenatal care services. In their study in Zaria, Northern Nigeria, Adamu and Slihu (2002) reported that in almost all cases, a husband's permission is required for a woman to seek health care services, especially maternal health care services, including life-saving care. If a husband is away from home during delivery, those present are often unwilling to take the woman to a hospital. In the Hola district in Tanzania, it is the husband who makes the important decision of where and when pregnant women should go for care. They also stated that if the decision maker is not at home during the labour onset, some considerable time might be lost. These women have little power to influence their own health care. Because these women have little autonomy, their husbands frequently make decisions about maternal health care access for them.

Kaguna and Nuwaha (2000) opine that beginning at birth and continuing throughout their lives, women in many countries face numerous barriers to attaining good health. Gender discrimination and unequal power structures heighten women's health risk. These also constrain their decision-making ability, physical morbidity, and access to material resources needed to access basic health independently. Women's decision-making power is extremely limited, particularly in matters of reproduction and sexuality. They also state that, in this regard, decisions about maternal care are often made by husbands. In Uganda, it was established in a study that influence from a spouse affects utilization of antenatal services by expectant women. Studies conducted in Northern Nigeria, where they are predominately Muslim, indicate that when their women are in purdah, especially those of child bearing age, they are not allowed to engage in any form of commerce. So, in times of emergency, they depend on their husband for decisions and wish to access health care services (Adamu & Slihu, 2002).

CONCLUSION

The study concludes that utilization of antenatal care can help to identify those women who are at risk of complications during pregnancy and delivery, thus ensuring that they obtain special attention in suitably equipped facilities. Though older mothers have a healthy pregnancy and birth, they do have an increased risk of ongoing health conditions. These conditions can have an impact on how well the pregnancy and birth go, as well as their overall health. Also, it is observed that assessment of the educational status of women is crucial in determining the outcome of other variables. This is because education is a change agent, and a higher educational qualification brings about change in the health-seeking behaviour of women. In fact, educational qualification plays a very dominant role in the uptake of antenatal services. In addition, it is concluded that the marital status of mothers influences their perception of health care services.

RECOMMENDATIONS

1. Antenatal care is a systematic follow-up of pregnant women; as such it is recommended that pregnant women should not despise the privilege to assure the best possible health of they themselves and their fetus.

2. Husbands should ensure that their wives are encouraged to take active part in antenatal attendance.

REFERENCES

Abbas, A. & Godfrey A. J Walker. (2008) Determinants of the Utilization of Maternal and Child Health Services in Jordan. *International Journal of Epidemiology* 15(3) 404-407.

Adamu, Y.M. and Salihu, H.M. (2002) Barriers to the use of antenatal and obstetric care services in rural Kano, Nigeria. *Journal of Obstetrics & Gynaecology*, 22, 600-603.

Addai, I. (2000) Determinants of Use of Maternal Child Health Services in Rural Ghana. *Journal of Biosocial Science*, 32, 1-15.

Afework, M. (2010). Role of anxiety and depression in the onset of spontaneous preterm labor. *Am J Epidemiol*. 155: 293–301.

Akinsola, H.A. (2006) *A-Z of Community Health, Social Medical and Nursing Practice with Special Reference to Nigeria. (2nded.).* 3AM communications, Ibadan.

Becker, P. G. & Black (2000). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. Results from the National Comorbidity Survey. *Arch Gen Psychiatry*, 51:8–19.

Bhardwag, Hassan &Zaheer (2004). Breast-feeding and weaning practices - a rural study in Uttar Pradesh. *J Fam Welfare*, 39(1):23-9.

Bircher, J. (2005) Towards a dynamic definition of health and disease. *Medicine, Healthcare & Philosophy*, 8, 335- 341.

Chowdhury, R. (2003). Antenatal depression, substance dependency and social support. *J Affect Disord.* 65:9–17.

Coria-Soto, R. (2000). Controlled prospective study of postpartum mood disorders: comparison of childbearing and nonchild bearing women. *J Abnorm Psychol*., 99:3–15.

Dhakal, S. (2007). *Utilisation of postnatal care among rural women in Nepal.* BMC Pregnancy and Childbirth. 7: 19-10.

Dharmalingam, A., Hussain, T. & Smith, J. (2000). *Women's education, autonomy and utilization of reproductive health services in Bangladesh.* Reproductive health: programmes and policy changes post-Cairo. Edited by: Mundigo AI. 1999, Liege, Belgium, International Union for the Scientific Study of Population (IUSSP).

Elo, I. T (2000). Utilisation of maternal health-care services in Peru: the role of women's education. *Health Transit Rev.* 2: 49-69.

Fotso, J. & Ezeh A (2009). What does access to maternal care mean among the urban poor? Factors associated with use of appropriate maternal health services in the slum settlements of Nairobi, Kenya. *Maternal and Child Health Journal.* 13(1):130–137.

Gage A (2007). Premarital childbearing, unwanted fertility and maternity care in Kenya and Namibia. *Population Studies*, 52: 21-34.

Gerein, M. & Lubben (2003). Estimation of maximum oxygen uptake from clinical data: performance of the Specific Activity Scale. Am Heart J., 115(pt 1): 203–4.

Grumbach, K. & Bodenheimer, T. (2002) A primary care home for Americans: putting the house in order. *JAMA The Journal of the American Medical Association*, 288: 889–93.

Hutaserani, J. Barker (2002). Comparison of perceived health status and conventional functional evaluation in stable patients with coronary artery disease. *J Clin Epidemiol.*, 44:779–86.

Kabira, G. & Matedria (2000). Maternal mortality—a neglected tragedy. Where is the M in MCH? *Lancet*, 2:83–5.

Kaguna, N. (2000). Medical outcomes study short form-36: A consistent and powerful predictor of morbidity and mortality in dialysis patients. *Am J Kidney Dis.*, 41:1286–92.

Martines B. (2005). Failure of physicians to recognize functional disability in ambulatory patients. *Ann Intern Med.*, 114:451–4.

Matthews, M. (2001). Depressive symptoms among pregnant women screened in obstetrics settings. *J Womens Health (Larchmt)*, 12:373–80.

McIntyre, J. (2005). Cohort study of depressed mood during pregnancy and after childbirth. *BMJ*, 323:257–60.

Navaneetham, K. & Dharmalingam, A. (2002). Utilisation of maternal health care services in southern India. *Soc Sci Med.* 55: 1849-1869.

Nielsen, L. Thilsted, J. & Hedeganrd (2001). Screening for depression in well older adults: evaluation of a short form of the CES-D (Center for Epidemiologic Studies Depression Scale) *Am J Prev Med.*, 10:77–84.

Ondimu S. (2000) Pregnancy-related mortality surveillance—United States, 1987–1990. *MMWR CDC Surveill Summ.*, 46:17–36.

Overboseh (2005) Newly delivered women's evaluation of personal health status and attitudes towards sickness absence and social benefits. *Acta Obstet Gynecol Scand.*, 81:104–11.

Ragna, M. & Krishnamoorthy (2001) The determinants of time off work after childbirth. *J Health Polit Policy Law*, 25:527–64.

Regassa E. (2011) General health and psychological symptom status in pregnancy and the puerperium: what is normal? *Obstet Gynecol*., 1999;94:935–41.

Salami, A. K. (2006). HIV-TB co-infection, pathogenesis, diagnosis and management in adults. *African Journal of Clinical and Experimental Microbiology.* 7(3) 158-171.

Saracchi P. (2002) *Maternity Leave and Employment Patterns*: 1961–1995. Washington, DC: U.S. Census Bureau; 2001. Current Population Reports.

Simkkhada, J. (2008) Obstetric outcome in grand multipara in the United Arab Emirates: a case control study. SMA Nutrition (2009)

Starrs A, (2006). *The Safe Motherhood Action Agenda: Priorities for the Next Decade.* New York: Family Care International

UNICEF Report (2000) Aerobic exercise for women during pregnancy. *Cochrane Database Syst Rev.*, (2): CD000180.

Utting & B. (2011) Hospital use and health status of women during the 5 years following the birth of a premature, low-birth weight infant. *Am J Public Health*, 87:1151–5.

World Health Organisation (2003). *Integrated management of pregnancy and childbirth. Pregnancy, childbirth, postpartum and newborn care: A guide for essential practice.* Singapore: WHO.