

UNIVERSITY OF CAPE COAST

DETERMINANTS OF THE UTILISATION OF SKILLED DELIVERY
SERVICES BY PREGNANT WOMEN IN THE CENTRAL REGION,
GHANA

CHRISTIANA ASIEDU

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University of Cape Coast

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GHANA

BY

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requirements for the award of Doctor of Philosophy Degree in Health
Promotion

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate' Signature: Date:

Name: Christiana Asiedu

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature: Date:

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ABSTRACT

The purpose of this study was to investigate the determinants of utilisation of skilled delivery service (SDS) by pregnant women at health facilities in the Central Region of Ghana. A descriptive cross-sectional design was used to conduct the study. A multi-stage sampling technique was used to sample 1100 pregnant women. Questionnaire was used to collect the data after pretesting was done and the collected data were analysed using frequencies, percentages and binary logistic regression were used to analyse the data. SPSS version 21 was used to analyse the data. The results showed that majority of the pregnant women had the intention to use SDS during labour. The factors that were found to determine the use of SDS were religion, person who takes decision at delivery place, number of antenatal care (ANC) visits for the index child, place of last delivery, having experienced miscarriage in life and level of satisfaction with last delivery services. Attitude of staff, privacy, demand for items from pregnant women, mothers who needed closer attention from relatives and road network were the factors that correlate with SDS use. To improve maternal mortality, it is imperative to address the determinants of SDS use. It is recommended that future studies focus more on investigating why the Muslim minority in the Central Region are unlikely to use SDS. The Ghana Health Service (GHS) and Ministry of Health (MOH) should put measures in place to prevent midwives from illegally extorting items from pregnant women. Health care providers should adopt incessant health education and behaviour change communication strategies to increase the propensity for SDS use. Health service providers should ensure client and family-centered care to make the health facilities user friendly.

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DEDICATION

To my husband and children and in memory of my parents

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CHAPTER ONE

INTRODUCTION

Background to the Study

The World Health Organization (WHO) (2010) indicated that the contribution of women in the welfare of families, communities and countries in terms of ensuring better health for every individual and the society as a whole cannot be underestimated. Women serve important roles for the improvement of the economy, such roles include caring for all the members of the family especially the sick and children. In terms of economic development, they farm, trade and provide the basic needs of their families. The health of pregnant women is of importance in all countries of the world (WHO, 2010).

According to Baral, Lyons, Skinner, and Van Teijlingen (2012), the major factors that account for maternal mortality (MM) and morbidity are pregnancy and childbirth associated complications. Maternal death results in greater financial loss to countries (Baral et al., 2012). In 2014, the United Nations International Children's Emergency Fund (UNICEF) reported that an amount of \$15.5 billion is lost yearly from productivity because of maternal death (UNICEF, WHO, World Bank & United Nations, 2014). Concerning complications associated with pregnancy and labour, WHO (2010) recorded that close to 300 million women in childbearing age suffer from various forms of such complications in Africa. Pregnancy-related complications such as prolonged labour, convulsions, retained placenta, premature rupture of membrane and malposition of the fetus account for 15% of the complications in developing countries. These complications could lead to maternal mortality.

Maternal mortality is a global health challenge that needs to be addressed, especially in developing countries. Esena and Sappor (2013) found MM to be a major public health concern in sub-Saharan Africa (SSA). Sub-Saharan Africa account for about 62% of global maternal deaths. This could be attributed to the fact that about 53% of pregnant women in SSA still deliver without the assistance of skilled health personnel. Nonetheless, UNICEF (2014) and Ghana Statistical Service (GSS) (2015) pointed out that Ghana was able to reduce maternal mortality ratio (MMR) from 740 per 100,000 live births in 1990 to 350 deaths per 100,000 live births in 2014. The decreasing trend fell short of the 5.5% annual decline that was required to achieve the Millennium Development Goals (MDG) 5 target of 185 per 100,000 live births that was expected in 2015. This could be as a result of inadequate allocation of health resources to deserved communities as well as low utilisation of skilled delivery service (SDS) which was 57% in the country as at 2014 and even reduced to 56% in 2015 (GSS, 2016; GSS, 2015; UNICEF, 2014). The saddest aspect is that the causes of MM are preventable but it seems countries in SSA are faced with inadequate resources in addressing maternal health issues and economic and cultural challenges (UNICEF, 2014).

WHO (2010, p.4) defined MM as “death of a woman during pregnancy or within forty two (42) days after delivery, irrespective of the duration and site of the pregnancy”. It could result from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes (WHO, 2010). Maternal mortality can occur as a result of direct and indirect causes. Direct causes of maternal deaths are the result of complications of the pregnancy, interventions, omissions, or incorrect treatment, or issues resulting

from any of these. These complications are utilisation, sepsis, unsafe abortion, prolonged/obstructed labour and hypertensive disorders (WHO, 2010). Medical errors, negligence, unnecessary delays mostly during obstetric emergency, use of unhygienic equipment and supplies, failure to observe aseptic techniques during labour and surgery are other contributing factors of maternal death. Health facilities must put appropriate strategies in place to overcome medical complications and reduce maternal deaths. According to WHO (2010), there should be obstetric emergency preparedness at all health facilities and application of aseptic techniques in procedures during delivery to ensure quality of care. This will help to reduce and even prevent maternal and newborn infections and complications that could result in death.

According to WHO (2016), anemia, malaria, malnutrition, violence, high-risk pregnancy, infectious diseases and many others account for the indirect causes of maternal death. These conditions may result in maternal mortality because during pregnancy the fetus relies on the nutrients in the mother's system for growth and survival. When pregnant women experience any of the conditions stated, it may worsen their health status and even lead to death mostly when it is identified later or late medical intervention is given (Say et al., 2014; GSS, 2015; UNICEF, 2014; WHO, 2016). From WHO's (2010) point of view, MM will occur when pregnant women delay in identifying complications associated with pregnancy and delivery, delay in decision making to seek SDS and delay in reaching and receiving SDS at health facilities.

In addition, Mojekwu (2005) suggested that maternal deaths can be attributed to medical conditions and care, health status of the women and the health system, reproductive, unwanted pregnancy and socioeconomic factors.

In this case, Mojekwu views the medical factors as direct cause of obstetric deaths (complications of pregnancy and delivery and delays and errors in their management), indirect obstetric deaths (worsening of some existing conditions by the pregnancy) and unrelated deaths. The health service factors identified were largely health-facility related challenges that could lead to the death of a pregnant woman (Mojekwu, 2005). Such challenges identified by Mojekwu (2005) include inadequate medical treatment, medical errors, inappropriate care, omissions by the service providers, unavailability of very important drugs and logistics, shortage of skilled birth attendants (SBA) and other medical personnel at health facilities, failure of the pregnant women to attend antenatal service, and inaccessibility of maternal health care by pregnant women.

In the perspective of WHO (2014), the death of mothers threatens the survival and wellbeing of children in the family. Challenges in caring, feeding, health care, and many more could lead to death of some children after the death of their mothers. When a mother dies during childbirth, there is high probability of the baby also dying within two years (WHO, 2014). When children who are up to 10 years, loose their mothers, the children are 3 to 10 times more likely to also die within two years than children whose mothers are alive (WHO, 2014).

The death of a mother can hinder the education, care and health of children. Most of the time, families are unable to support the orphan's education and even to provide their basic needs (WHO, 2005). When a mother dies, the children in school most of the time drop out and the younger ones may not have the opportunity to be enrolled in school, or family members delay in their school enrollment. The utilisation of health services is a big challenge for most orphans. Many times orphans do not receive all the immunization as scheduled

to be fully immunized and are not fed with well-nourished diet by the family members. These situations eventually predispose the child to malnutrition, childhood conditions and even growth retardation. The implications for girls tend to be dire leading to a continued cycle of poverty and poor health (WHO, 2014). Maternal death most of the time leads to school dropout. The girl tends to struggle to meet her basic needs when she drops out of school. This could predispose her to teenage pregnancy with its associated complications and life challenges with the baby.

Globally, socioeconomic situation and quality of life is measured by infant and child mortality rates (Graham, 2007; Marmot, & Commission on Social Determinants of Health, 2007; Victora et al., 2011). The Ghana Health Service's (GHS) (2014) annual report shows that Ghana has a neonatal mortality rate of 41 deaths per 1,000 live births, infant mortality rate of 49 deaths per 1,000 live births, child mortality rate of 19 deaths per 1,000 children surviving at age 12 months, and the overall under-5 mortality rate was 60 deaths per 1,000 live births. Sixty-eight percent of all deaths among children under age 5 in Ghana take place before a child's first birthday, with 48% occurring during the first month of life. The GSS (2015) documents a pattern of decreasing the under-5 mortality during the 15 years prior to the survey. Results from the six Ghana Demographic and Health Surveys (GDHS) conducted between 1988 and 2014 show a decline in childhood mortality over the past two and a half decades. This decline in under five mortality is pronounced over the past decade. For example, the infant mortality rate declined from 64 per 1,000 for the five-year period preceding the 2003 GDHS to 41 per 1,000 during the same period prior to the 2014 GDHS. The under-5 mortality rate decreased from 111 per 1,000

for the five-year period preceding the 2003 GDHS to 60 per 1,000 during the same period prior to the 2014 GDHS (GSS, 2015).

WHO (2010) has established that improved Maternal and Child Health (MCH) is key to poverty reduction globally, mostly in SSA. This explains why reduction in MM and under five mortality was critical in the achievement of the Millennium Development Goal (MDG) 4 and 5. The MDG goal 5 sought to improve maternal health, through a reduction in the maternal mortality ratio by three quarters, between 1990 and 2015 (WHO, 2005). The MMR and the proportion of births attended by skilled health personnel were the two indicators used to monitor progress towards achievement of MDG 5 globally (Wagstaff, & Claeson, 2004). The MDG 4 was to reduce by two thirds, between 1990 and 2015, the under-five mortality rate. Between 1990 and 2015, the global under-five mortality rate declined from 90 to 43 deaths per 1000 live births and the number of deaths in children under five worldwide declined from 12.7 million in 1990 to almost 6 million in 2015. According to WHO (2016), children in rural areas were about 1.7 times more likely to die before their fifth birthday as those in urban areas. Again children of mothers with secondary or higher education are almost three times as likely to survive as children of mothers with no education. Sub-Saharan Africa has the world's highest child mortality rate; the absolute decline in child mortality has been the largest over the past two decades. Every day in 2015, 16,000 children under five continue to die, mostly from preventable causes (WHO, 2016a). Child survival must remain a focus of the new sustainable development agenda. After the end of MDGs in 2015, the global health assembly in collaboration with WHO proposed another set of

goals, Sustainable Development Goals (SDG) as indicators to guide and measure development (Osborn, Cutter, & Ullah, 2015; UN, 2015).

The SDG 3 seeks to ensure Good Health and Well-being of every individual globally (UN, 2015). The targets for the SDG 3 are to ensure healthy lives for all at all ages by improving reproductive, maternal and child health; ending the epidemics of major communicable diseases; reducing non-communicable and environmental diseases; achieving universal health coverage; and ensuring access to safe, affordable and effective medicines and vaccines for all (UN, 2015). The SDG 3.1., seeks to reduce the global MMR to less than 70 per 100,000 live births by 2030. The indicators are MMR and proportion of births attended by skilled health personnel (100%). The SDG 3.2., seeks to end preventable deaths of newborns and children under 5 years of age, with all countries aiming at reducing neonatal mortality (probability of dying during the first 28 days of life) to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births by 2030. The indicators are under-five mortality rate and neonatal mortality rate (Loewe & Rippin, 2015, p 21-25; UN, 2015).

According to WHO (2010), in percentage terms, MMR was to be reduced by 75% by 2015. Globally, MM reduced by 45% between 1990 and 2013. In 2013, an estimated 289,000 women died due to complications in pregnancy and childbirth, down from 523,000 in 1990 (WHO, 2014). That SSA has the highest MMR is alarming. Reports have it that about 510 maternal deaths occur per 100,000 live births. This is about 62% (179,000) of global maternal deaths. Adult lifetime risk of maternal mortality in SSA was the highest at 1 in 38, which was in sharp contrast with 1 in 3700 among women in

developed countries (WHO, 2014). Sadly, in SSA, about 122,275 women died in 2011 which was about half (45%) of the global burden (Lozano et al., 2011). The use of SDS is an intervention proposed by WHO to help reduce MM and under five mortality (WHO, 2015).

Skilled delivery services are services provided for women and their new borns during pregnancy, childbirth and six weeks after delivery by accredited and competent health care providers who have at their disposal the necessary equipment and the support of a functioning health system (WHO, 2004). Access to SDS or the services of skilled birth attendants (SBAs) can help reduce maternal and neonatal mortality (Gabrysch, & Campbell, 2009). It has been established that the presence of SBA is a critical intervention to reduce maternal mortality (WHO, 2013). This is because the skilled attendants have the knowledge and skills needed to identify and manage complications associated with pregnancy and delivery. According to Misra and Grason (2006), skilled attendant and enabling environment are the key components of SDS at health facilities. WHO (2004, p.1) viewed a SBA as

“an accredited health professional (midwife, doctor or nurse) who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancy, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns”.

Skilled Birth Attendants are trained to be present at childbirth, to recognize and respond appropriately to medical complications, and to implement interventions to prevent complications associated with delivery (WHO, 2010). The components of the enabling environment include

equipments, consumables, drugs, a referral system, regulatory frameworks and policies (WHO, 2004).

Improvements in the utilisation of SBAs have resulted in the decline in maternal and neonatal mortality globally (WHO, 2014). There are variations in the utilisation of SBAs between countries. The level of MM was estimated to be 99% in developed countries; in upper middle-income countries 95%; 64% in less developed countries and 47% in least developed countries (Kunst & Houweling, 2001; WHO & UNICEF, 2014). Ghana recorded 350 per 100,000 live births in 2014 but the institutional MMR was 144 per 100,000 live births while the Central Region recorded 102.1 per 100,000 live births (GSS, 2015).

Different regions and countries of the world, Ghana inclusive, have conducted studies on the factors that underpin/influence the utilisation of SDS at health facilities. By juxtaposing the problem – as presented above – and the literature, there were some deficiencies in the literature. The nature of these deficiencies varies from study to study. Deficiencies in past literature appear to exist in the variation (in the various studies) with regards to group under study, sample, or population; the literature may have to be replicated to see if the same findings hold, given new samples of people or new sites for study. This need equally rests on the fact that the voice of underrepresented groups has not been heard in published literature. For instance in a study conducted in Bangladesh by Bashar, Dahlblom, and Stenlund (2012), the research concluded that other factors which need critical investigation to improve the use of SDS were quality of services, cultural influences, and attitude of health care providers towards clients.

In line with this, Kkonde (2010) also suggested in the study done at Mukono District in Uganda that a study needs to be conducted to evaluate the unethical and unprofessional behaviours of health personnel to recommend appropriate measures that will improve their behaviour to enable women to deliver at health facilities. Makuta (2009) mentioned that the study could be replicated in another area when the sample is larger than the 100 used in the study and 267 for quantitative and 6 for qualitative study by Tsawe and Susuman (2014). Some of the factors investigated by Makuta were age, marital status, educational background, residence, satisfaction, culture and many more. In addition, because Makuta used only descriptive statistics, the recommendation was that other studies could use both descriptive and inferential statistical tools to analyze the data to predict the variables that are likely to influence the use of maternal health services. Furthermore, in a study done at Bangladesh by Islam, Islam & Yoshimura (2014), they recommended that other studies must be conducted to explore the potential barriers to the use of SBAs for delivery. Pongpanich, Ghaffar, Ghaffar, and Mehmood (2016) also recommended after their study at Balochistan in Pakistan that more research must be conducted to determine the relationship between ANC services and use of SDS and other factors that prevent pregnant women from using SDS. Moreover, Choulagai et al. (2013) recommended that other studies must explore the roles of husbands and other family members, which may influence women's use of SBA services.

Delivery by a SBA is important in preventing maternal deaths. SBAs are mostly available at health facilities to ensure that pregnant women deliver safely. In SSA, only 47% of pregnant women deliver at health facilities (Lozano

et al., 2011; WHO & UNICEF, 2014). This is an indication that the majority of women in SSA do not use SDS or the services of SBA. Some women in SSA use the services of traditional birth attendants (TBA).

Complications in pregnancy and delivery are difficult to predict yet, they can be managed effectively. Afulani and Moyer (2016) reported that when complications in pregnancy and delivery are identified and timely interventions are given, it prevents and reduces deaths among women. WHO (2010) indicated that complications associated with pregnancy and delivery and even maternal deaths could be prevented or reduced when pregnant women utilize SDS.

Some of the challenges affecting the utilisation of health service including SDS in some areas in Ghana could be inadequate or absence of skilled personnel and insufficient equipment, essential logistics and drugs at health facilities (GSS, 2011). The Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW), adopted in 1979, charges government with the responsibility to ensure appropriate maternal health services. Specifically, Article 14 of CEDAW calls on governments to make special efforts to ensure that rural women are not disadvantaged, specifically with regard to “access to adequate health care facilities, including information, counseling, ANC, skilled delivery and services in family planning” (WHO, 2005).

There are rural-urban disparities in the utilisation of SDS by pregnant women in Ghana. At the national level, economic, social, cultural and financial factors could account for disparities in the utilisation of SDS (GSS, 2016). GSS (2015) mentioned that skilled attendants assisted about 91% births of women in

urban areas in Ghana and about 91% of the birth took place at health facilities, as compared with births to rural women, 59% and 58%, respectively.

In 2015, there were 944,510 antenatal registrants and 621,287 deliveries at health facilities in Ghana (GHS, 2016). The total deliveries form 67% of the total antenatal registrants. This implies that about 33% of the pregnant women delivered at home (GHS, 2016). Deliveries conducted by traditional birth attendants (TBAs) totaled 74,984, forming about 8% of the antenatal registrants. This is a worrying phenomenon. The trained and untrained TBAs are excluded from the category of SBAs. This is because their training is inadequate and does not permit them to handle obstetric emergencies. In addition, the level of practice of the TBA was below WHO's standard expectation (WHO, 2008). Traditional Birth Attendants may be providing pregnancy, delivery and child health care services because the current number of skilled attendants is critically insufficient. An estimated 700,000 (seven hundred thousand) midwives are needed worldwide to ensure universal coverage of maternity care, but there is currently a 50% shortfall. In addition, 47,000 (forty seven thousand) doctors with obstetric skills are required, particularly in rural areas (WHO, 2008).

Factors that account for low utilisation of maternal health services including the services of SBA include distance from health institution, friendliness of the service, cost, low quality of care, socioeconomic status and cultural acceptability among others (Gabrysch & Campbell, 2009; McNamee, Ternent, & Hussein 2009). The factors that influence utilisation of maternal health services can be put into four main categories namely, sociocultural factors; perceived benefit or need of skilled attendance; economic accessibility, and physical accessibility (Gabrysch & Campbell, 2009).

Ghana has made significant progress in increasing access and of maternal health services. The evidence is that MMR in Ghana declined by 49% between 1990 and 2013 (GHS, 2014). Maternal mortality dropped from 155 deaths per 100,000 live births in 2013 to 144 deaths per 100,000 live births in 2014 (GSS, 2015). Ghana's "progress" towards reducing MM can be seen in the declining total fertility rates, increased contraceptive usage, improvement in income, improvement in maternal education and increased skilled attendant coverage (GSS, 2015). However, progress in reducing MMR in 2011 in Ghana fell short of the 5.5% in annual decline required to achieve MDG 5 target of 185 per 100,000 per life births by 2015 (GSS, 2011). Currently the MMR in Ghana as at 2015 was 380 per 100,00 life births (GSS, 2016).

While developed countries achieved 99% coverage of SBA use, developing countries achieved slightly over 50% of births, which took place with the presence of skilled attendant (WHO & UNICEF, 2014). In Ghana, about 57% of births were delivered in health facilities in 2014 (GHS, 2015). In addition, coverage of supervised delivery which increased slightly from 55 percent in 2013 to 56% in 2015 (GSS, 2016) was not distributed evenly across all ten regions of Ghana. In the Central Region in particular, coverage of supervised delivery was 54% and health facility delivery was 52% which was below the national average of 56% and the global expected coverage of 100% by 2030 as proposed by the SDG 3 (GSS, 2016; UN, 2015).

According to Afulani and Moyer (2016), complications associated with pregnancy and deliveries are generally preventable when pregnant women utilize SDS. In 2016, the global coverage of SDS was 78%. However, in SSA where maternal mortality is highest, about half of the pregnant women delivered

with the assistance of SBA in 2016 (WHO, 2017). In 2010, Ghana achieved 57% coverage of skilled delivery with 350 MMR per 100,000 live births (WHO, 2010) but in 2015, the SDS coverage reduced to 56% (GSS, 2016). This is a worrying situation in terms of maternal health because upon all the effective interventions implemented by the government (such as free delivery care) it did not have much impact on maternal death. This indicated that Ghana did not meet the MDG 5 target which sought to reduce MMR by at least 75% between 1990 and 2015 (Hosseinpoor, Victora, Bergen, Barros, & Boerma, 2011; Kyei-Nimakoh, Carolan-Olah, & McCann, 2016; Musahara, 2016; WHO, 2016). The failure of Ghana to achieve the MDG 5 could be attributed to the low level (57%) of utilisation of SDS in 2014 and inadequate maternal health care resources mostly in the rural areas (GHS, 2015).

On a whole, antenatal care (ANC) coverage in Ghana has been high, 84% in 2015 and 85% in 2016 in Central Region as compare to SDS (GSS, 2016). This could be attributed to the increase in the training of midwives by 47% between 2011 and 2014 in the country (GSS, 2016) and the free maternal care policy. According to GHS (2016), about 56% of pregnant women in Ghana received SDS during delivery in 2015. However, the coverage of ANC (85%) does not match with the SDS (56%). The question then is where do some of the women who attend ANC deliver? Who assist these women during labour to give birth?

Although improvements are being recorded in maternal health, in Ghana, there are regional variations in the utilisation of SDS. The Central Region of Ghana, however, falls among the four regions (Central, Northern, Eastern, Upper West and Volta Regions) with the lowest supervised coverage

(GSS, 2015). Efforts geared towards improving maternal health services in Ghana must focus on regions of the country with low SDS availability and utilisation especially in the rural and peri-urban areas (WHO, 2012). The Central Region being one such makes it a good study site. Therefore, this study sought to investigate the factors that determine the utilisation of SDS by pregnant women at health facilities across the Central Region of Ghana.

Statement of the Problem

Central Region is one of four regions (Central, Northern, Eastern and Volta Regions) of Ghana with the lowest supervised coverage (GSS, 2015). Another issue is that Central Region has total fertility rate of 4.7, which is higher than the national total fertility rate (4.2) (GSS, 2015). The region suffers even with regards to age groups of pregnant women. About 21% of teenagers in the Central Region were pregnant in 2014, and this places the region second in terms of teenage pregnancy (GSS, 2015). Upon all these births and pregnancies, some of the women are not using SDS. Several pregnancy and/or delivery related complications accompany teenage pregnancy (GSS, 2015). Some of which are unsafe abortion, pregnancy induced hypertension, hemorrhagic syndromes, urinary infection, fistula, and premature rupture of uterus, prematurity and LBW, anemia, and gestational diabetes (WHO, 2015). Consequently, teenage deliveries without SDS can lead to fatal outcomes such as death of the and/or the baby (GSS, 2015). In 2015, Ghana recorded 955,417 ANC registrants and Central region also recorded 93, 368. However, the coverage of SDS in Central Region in 2015 was 56% (GSS, 2016). This implies that about 44% (41, 082) of the ANC registrants in the region did not use SDS at health facilities in the region. Again the ANC coverage in Ghana in 2015 was

84% compared with 57% SDS use and Central region also recorded 85% ANC coverage with 56% SDS (GSS, 2016). This coverage of SDS use in Central region is below the expected coverage of 100% by the SDG 3. Although Central Region cannot be said to be largely rural, it is yet to be known empirically what the determinants of utilisation of SDS by women in the region are. Failure to identify determinants of utilisation of SDS can greatly affect policies on SDS, which determine health of pregnant women in the various regions. The Government of Ghana is working hard with key stakeholders to reduce maternal mortality in the country, but the utilisation of SDS varies across the various districts and regions in the country. This could be attributed to the fact that pregnant women, mostly those in rural areas, have challenges accessing the services of SDS (GSS, 2015).

In Ghana, there is information at the national level that personal, institutional and socio-cultural factors prevent women from accessing quality health services mostly during pregnancy, at delivery and after childbirth in the Central Region (GSS, 2015). However, little is known about the exact factors that account for the low utilisation of SDS in the Central Region of Ghana. The national average for neonatal mortality rate (NMR) is 29 deaths per 1,000 live births. Neonatal mortality is the death of a newborn baby within the first 4 weeks after birth. Some of the causes are asphyxia, infections, preterm birth, umbilical cord bleeding etc. all these causes are preventable when SDS is used by pregnant women during labour and delivery at health facilities (WHO, 2015). Central region ranks third highest in terms of NMR (36 deaths per 1,000 live births), Upper West 37 deaths per 1,000 live births and Ashanti 42 deaths per 1,000 live births. The record of the NMR is above the national average and that

of the SDG 3 (12 per 1,000 live births). In 2015, Ghana recorded 270 cases of obstetric fistula and Central region recorded 68 cases, which is about 25% of national incidence. And this placed the region second highest for obstetric fistula after Ashanti region (70 cases). This and other reasons why the government through ministry of health Ghana health service established fistula repair and management centre at Mankesemum in Central region (GSS, 2016).

The strategy proposed by the SDG is the proportion of births attended by skilled health personnel (UN, 2015). To ensure good maternal and child health there is the need for a study that investigates the determinants of the utilisation of SDS at health facilities across the Central Region. This will enable Ministry of Health (MOH) and Ghana Health Service (GHS) to implement policies and interventions to reduce maternal and infant mortality rates in the Central Region and the whole country at large. This study therefore sought to investigate the factors that determine the utilisation of SDS by pregnant women at health facilities in the Central Region of Ghana.

Purpose of the Study

The purpose of this survey was to investigate the factors that determine the use of SDS by pregnant women at health facilities in the Central Region of Ghana base on the Andersen's Behavioural Model of Health Services Utilisation.

Research Objectives

The objectives were to:

1. determine the level of use of SDS at health facilities by pregnant women in the Central Region,

2. identify the socio-demographic characteristics that predict the use of SDS by pregnant women at health facilities in the Central Region,
3. assess the influence of obstetric variables on use of SDS by pregnant women at health facilities in the Central Region,
4. assess whether antenatal attendance predicts the use of SDS by pregnant women at health facilities in the Central Region,
5. examine the influence of clients' satisfaction on utilisation of SDS by pregnant women at health facilities in the Central Region,
6. identify health service factors, which predict utilisation of SDS by pregnant women at health facilities in the Central Region and
7. explore the socio-cultural factors which predict the utilisation of SDS by pregnant women at health facilities in the Central Region.

Significance of the Study

This study has both academic and non-academic (professional practical) significance. The study comes at an opportune time as it meets the established need to evaluate improvements in maternal health after 2015. This marked the end of the MDGs 4 and 5. Monitoring and evaluation strategies which focus on maternal and newborn health are used by many health experts to improve maternal health and the health of newborn babies (Adegoke, Hofman, Kongnyuy, & van den Broek, 2011). Understanding the determinants of utilisation of SDS is important in designing more focused strategies to address maternal health care challenges and improve utilisation of SDS by pregnant women at health facilities in the Central Region of Ghana.

The finding of the study will form the bases for implementation of effective strategies by the government and Ministry of Health/Ghana Health

Service (MOH/GHS) to improve utilisation of SDS thereby reducing maternal and child mortality and morbidity. This study will enable the government to formulate policies that will motivate religious groups and community members mostly to support the use of SDS at health facilities where most of the resources for maternal health care are available. Again, findings of this study will help health personnel to intensify health education on the use of SDS at ANC and during community health programmes. It will also inform MOH/GHS about the gaps that exist in the provision of SDS to strengthen supervision and in-service training to enhance staff performance as satisfaction with delivery service also emerge as a determinant. This will also enable the Nursing and Midwifery Council (NMC) to review the utilisation for the student training on patient/client and family care study to ensure that women have successful and satisfied delivery services rendered to them by SBAs. The NMC of Ghana and the MOH base on the findings of the study will review the obstetric and midwifery curriculum to address issues that enhance the SDS provision to pregnant women at the health facilities.

The study will empower health providers to motivate pregnant women to attend ANC where adequate information are given to them to influence their use of SDS as women who attend ANC 4 or more are more likely to use SDS. Family members will also be encouraged to support the women to attend ANC timely.

Again the findings of the study will enable skilled providers to educate the pregnant women, their partners and community members about the complications associated with pregnancy for early identification, reporting and timely intervention to prevent abortions and miscarriages. The study will enable

MOH/GHS to support the government's initiative on Zongo development to ensure increase accessibility and use of SDS by the Muslim women who are mostly found at the Zongo communities. This is because Muslim women were found to have lower propensity of using SDS at health facilities. The findings of the study will enable MOH/GHS to provide adequate equipment, drugs and supplies at all health facilities for SDS to prevent unnecessary demands on pregnant women, which deter them from using SDS at health facilities. From this study, the MOH/GHS will formulate policies that will prevent visible and invisible cost of delivery services at health facilities to encourage pregnant women to use SDS. The government through the MOH/GHS will have bases for implementing policies that will sanction health workers who make unnecessary demands such as collection of money, soap and detergents that deter pregnant women from using SDS at health facilities.

The study will enable MOH/GHS to educate the public about the expectations at the health facilities during delivery to enable the pregnant women and their relatives to voice out their grievances anytime providers will make unexpected demands on them. The management at the health facilities will ensure client-friendly services and implement appropriate channels of communication to enable clients and their relatives to report any demands that will be made on them for timely and appropriate intervention.

The findings of the study will enable the government through MOH/GHS to strengthen domiciliary midwifery to enable pregnant women who needed closer attention from relatives during delivery and those who live in areas where the road networks are bad have equal access to SDS.

The findings will support the initiative by the government and community leaders to empower women to make timely decision concerning their health care needs. The study will also improve health education on NHIS for pregnant women and the need to use SDS as women who have active NHIS were more likely to use SDS. This will help to reduce maternal and child mortality in the Central Region and the country as a whole.

Academic literature will also benefit from this study. Since no empirical study exist on the use of SDS in the Central Region of Ghana, this study fills the gap in the literature left by limitations of existing studies. The findings of this study will significantly extend the body of knowledge available in the literature on the problem.

This study will contribute to the body of institutional knowledge available to GHS since it is the first of its kind that focuses on utilisation of SDS by pregnant women at health facilities in the Central Region.

Delimitation

There are several health facilities in the Central Region of Ghana, both private and public. The scope of the study was limited to selected public health facilities in selected districts of the Central Region. The reasons for using public health facilities being that, all the government health facilities in Central Region provide ANC and SDS. Ten districts and 2 health facilities were selected from each district. The health facilities are available at rural and urban communities. Antenatal clinics at both rural and urban districts and communities were selected. The study focused on women between the ages of 15-49 years with their first pregnancy and those who are pregnant and had given birth 3 years prior to the study irrespective of the birth outcome in Central region.

The study was quantitative which employed cross-sectional design and multistage sampling method was used. Frequencies, percentages and binary logistic regression were used to analyse the data. The dependent variable was utilisation of SDS by pregnant women. The study focuses on the determinants of the utilisation of SDS by pregnant women at health facilities in the Central Region of Ghana. Several variables may determine the utilisation of SDS. The independent variable(s) were the factors that determine the use of SDS. The dependent variable was the intention of the pregnant women making use of SDS available at health facilities in the Central Region of Ghana and the control and intervening variable(s), age, marital status, occupation, education and religion.

However, this study focused on level of utilisation of SDS by pregnant women, socio-demographic characteristics of the pregnant women, attendance to antenatal clinic (ANC) during previous pregnancy, number of ANC visits and information provided by staff at ANC), client's satisfaction with SDS (place of last birth, attitude of staff, level of satisfaction of care, place of birth with current pregnancy, recommendation of last place of birth to family or friends), health service factors (attitude of staff, equipment, drugs and supplies, cost of health service, privacy, communication, service hours and demand for money and items), socio-cultural and physical factors (distance to health facility, influence of husband/partner/family members, knowledge about signs of labour, closer attention by relatives, comfort with home delivery and community and family support). The study was grounded on the constructs of the Anderson's health utilisation model.

Limitations

The views of the husbands were not covered in this study as they could have given contributions as to why some of their partners fail to use SDS during delivery at health facilities. The role of family members during pregnancy and labour were not also covered. There could be biasness concerning information collected on satisfaction with previous delivery and previous ANC visits. In addition, questions about miscarriage and stillbirth are sensitive issues in maternal health, which could result in information biasness.

Some of the pregnant women were not willing to participate in the study and some of the staff at the selected clinics was not cooperate. However, conscious efforts were made with the research assistants to correct and control the situation and any other challenges that were encountered.

Organization of the Study

The rest of the report of the study was organized in four chapters in the following sequence. Chapter two details the review of related literature including concepts, theories and empirical studies. Chapter three focuses on the methodological aspect of the study and consists of the Research design, Population, Sampling procedure, Instruments, Data collection Procedure and Data Analysis. Chapter four is the presentation of results as well as discussion of the findings of the study. Chapter five is the last chapter and consists of the Summary, Conclusions and Recommendations made based on the findings of the study.

CHAPTER TWO

LITERATURE REVIEW

Overview

The purpose of this survey study was to investigate the factors that determine the use of SDS by pregnant women at health facilities in the Central Region of Ghana based on the Andersen's Behavioural Model of Health Services Utilisation. Concepts including maternal health, maternal mortality and SDS were defined and reviewed to provide understanding of the key issues of the study. The literature covered theories of health services utilisation and empirical review. Theories reviewed included Thaddeus and Maine Three Delays Model, Andersen's health behavior model, Health Belief Model (HBM), Nola Pender's Health Promotion Model and Theory of Planned Behaviour.

Empirical studies were located by using Google Scholar, Medline, Pubmed, Hinari, Cochrane Database of Systemic Reviews, and the Combined Health Information Database. Keywords used for the search included: socio-demographic characteristics, antenatal service, client's satisfaction, skilled delivery services, health service factors, socio-cultural and physical factors and utilisation of health service. Conceptual framework was developed by utilisation and synthesizing relevant components of the theories reviewed as well as the empirical literature. The conceptual framework was developed to help explain interrelationships between the issues involved in the problem.

Concept of Maternal Health

According to WHO (2012) maternal health is the complete state of mental, physical, social and emotional well-being of women during pregnancy, childbirth and the postpartum period. From safe motherhood point of view,

maternal health means ensuring that all women receive the care they need to be safe and be in a healthy manner throughout pregnancy and childbirth (Safe Motherhood Initiative, 2007). The components of maternal health, which contribute to the strategies to reduce maternal morbidity and mortality, are family planning, preconception, prenatal and postnatal care (WHO, 2012). High standard of maternal health status is an economic investment for every nation. Improved maternal and neonatal outcomes have been associated with utilisation of maternal healthcare services (Babalola & Fatusi, 2009; Mekonnen & Mekonnen, 2003).

A healthy mother can be highly productive and contribute to the well-being of her family and community. Poverty increases at the family level when a woman is sick and cannot work. Less money is available for health care and education for children, which in turn has an impact on the broader society (WHO, 2014). The International Conference on Population and Development (ICPD) held in Cairo in 1994 called on governments, donors and the international community to cut the number of maternal deaths to half by 2000, and to half again by 2015. At the International Conference on Population and Development (ICPD) in Cairo, it was recommended that governments, donors, and the members of the international community should be able to identify the relationship between high maternal mortality rate and poverty. Interventions that were suggested to ensure reduction of maternal and neonatal mortality and morbidity were accessibility to essential obstetric care for women, availability of adequate logistics and equipments at health facilities, quality maternal healthcare services, availability of adequate SBA, effective referral and

transport to higher levels of care when necessary for timely intervention of emergencies (Starrs, 2006).

Concept of Maternal Mortality

Achieving maternal health is measured by reduction of maternal mortality. From WHO's perspective, maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes" (AbouZahr, 2003; WHO, 2010). Every woman in child bearing age (15-49 years) stands the risk of disability or death during pregnancy and delivery (Bhutta, & Black, 2013; Say et al., 2014; UNICEF, 2008; WHO, 2016b; WHO, 2009). Pregnancy and delivery complications account for greater proportion of deaths and disability among women in reproductive age than any other reproductive health problems (WHO, 2010).

From the WHO (2016a) fact sheet report, globally, about 830 women die each day from preventable causes related to pregnancy and childbirth. According to WHO (2016a), global MMR has reduced by 44% between 1990 and 2015. That is from 523,000 in 1990 to 303, 000 maternal deaths in 2015. These maternal deaths mostly occur because of complications during pregnancy and childbirth (WHO, 2016b). The sad aspect is that these deaths could have been prevented with the use of SDS during pregnancy, labour and during postnatal period. Almost all (99%) of the maternal and newborn mortality occurs in the developing regions where resources for maternal health care is a major challenge. SSA accounts for about 62% of global maternal deaths (WHO,

2016b). This could be attributed to the fact that about 53% of pregnant women in SSA still deliver without the assistance of skilled health personnel.

About one third of the global maternal deaths also happened in South Asia (Wang et al., 2016; WHO, 2016b; WHO & UNICEF, 2014). The maternal mortality ratio (MMR) in developing countries in 2015 was 239 per 100 000 live births versus 12 per 100 000 live births in developed countries (WHO, 2016b). The maternal deaths in the developing countries are about 14 times higher than that in developed countries. Maternal deaths account for 10% of all deaths among women in reproductive age (Wang et al., 2016). There are large disparities between countries, but also within countries, and between women with high and low income and those women living in rural versus urban areas (Wang et al., 2016; WHO, 2016b).

The MMR is the number of maternal deaths occurring in a given year per 100, 000 live births during the same period (Penn-Kekana & Blaauw, 2002; Wang et al., 2016; WHO, 2016b). MMR is used to measure the risk of a woman dying once she is already pregnant. Collecting information and data on MMR and its rates is difficult and costly. This is because countries in SSA face challenges of quality health data management. In addition, the indicators used to measure MMR often do not register change over a short period, nor do they provide clear indications as to what actions should be developed to improve the situation. To address these challenges, proposals were made on the use of process indicators, which will enable skilled attendants to track the coverage over a specified period. According to WHO (2016b) and Penn-Kekana & Blaauw (2002) these indicators include percentage of women who attend antenatal care; percentage of women who deliver in an institution; percentage

of women who have a skilled attendant at birth; caesarian section rate and comprehensive and essential obstetric services per 500,000 population.

The major causes that account for about 75% of all maternal mortality are severe bleeding, infection, unsafe abortion, eclampsia, obstructed labour, other direct causes and indirect causes (25%) include anemia, malaria, malnutrition, violence, high risk pregnancy and infectious diseases (WHO, 2014). Too many pregnancies, too short an interval between pregnancies, having a pregnancy too early in life, or having a pregnancy too late in life are also some of the identified factors which predispose women to pregnancy and delivery complications (GSS, 2015). These factors most often affect women's health status negatively leading to birth injury, miscarriage, or stillbirth, anemia, fatigue, increased blood pressure, and decreased immunity to diseases such as malaria and reproductive tract infections (UNICEF, 2014).

According to GSS (2015) the major causes of maternal death in most of the regions in Ghana are haemorrhage and hypertensive disorders. The predisposing factors which lead to maternal deaths in the country are personal/family/ community factors; delay in seeking care, inability to identify danger signs, poverty, lack of transportation in the community, and socio-cultural factors which prevent women from seeking health care at health facilities. Transport and communication challenges included non-motorable roads, poor communication systems, inadequate number of ambulances in various regions, delayed response from ambulance service, and client paying for ambulance services (GHS, 2014). In addition, inadequate availability and inappropriate distribution of essential logistics and supplies for essential obstetric care services are other factors that account for the maternal deaths in Ghana. Now,

the GHS is embarking on evidence based-intervention. The findings of this study will add to the information available concerning the factors that determine the use of SDS in the country. This could enable the government of Ghana through MOH and GHS address the challenges facing pregnant women in using SDS. The interventions which will be implemented by the government will lead to improvement in the use of maternal health services by pregnant women mostly SDS which will in turn reduce maternal mortality in the country.

GHS (2014) indicated that poor health service provision by health personnel could lead to the death of women during pregnancy, labour, delivery and during postnatal period. Behaviors and practices of health workers which could lead to maternal death includes poor assessment of pregnant women; poor collection and documentation of information about the pregnant women; improper management of pregnant women during labour and delivery; and negative attitude toward the pregnant women and among other things (GHS, 2014). These factors could deter pregnant women from using SDS; and appears in an increased tendency of maternal and neonatal deaths (GHS, 2014).

To prevent unexpected complications that are associated with pregnancy and delivery, quality maternal health services including SDS must be accessible and affordable to all women in child-bearing age (15 – 49 years) (Say, Pattinson, & Gulmezoglu, 2004). Kruk & Freedman (2007) indicated that to reduce MMR there is the need for mothers to have access to SDS during labour and delivery and emergency obstetric services. Ghana has made significant progress in increasing access and of maternal health services. According to GSS (2015), between 2013 and 2014 functional Community-Based Health Planning and Services (CHPS) zones were increased by 27% that is from 2,315 – 2,948

respectively. Currently all the CHPS zones offer basic maternal health services and also make referrals of any obstetric emergencies to appropriate health facilities. Overall, about 47% out-patient services were provided by CHPS, sub-district clinics and health centers. These health facilities are very accessible to patients and clients mostly pregnant women. The training of midwives were also increased from 472 in 2011 to 1, 305 in 2014 (GSS, 2015).

Ghana was able to reduce MMR by 44% in 2014. Statistics shows that MMR in the country was reduced from 740 per 100,000 live births in 1990 to 350 deaths per 100,000 live births in 2014 (GSS, 2015). In 2014, Ghana was classified as making progress towards the achievement of MDG 5 by 2015 (GSS, 2015). The reducing trend fell short of the 5.5% annual decline required to achieve MDG 5 target of 185 per 100,000 by 2015. This could be because of inadequate allocation of health resources to deserved communities as well as the neglect of some components in the fight against maternal mortality (GSS, 2015; UNICEF, 2014). The failure of Ghana to achieve the MDG 5 stemmed from the low coverage of SDS (57%). In a bid to find out the actual cause of failure, this study seeks to investigate the factors that accounted for the low utilisation. The findings of the study inform maternal health policies and interventions that will enable majority if not all the pregnant women in Ghana to use SDS mostly at health facilities.

The lifetime risk of maternal death in Ghana was 1 in 66 (GSS, 2015). The lifetime risk is a measure of the probability of death over a woman's reproductive life. It assumes that most women have more than one pregnancy in their lifetime and is therefore a more realistic assessment of the risk an

individual woman faces because of her reproductive capacity (WHO, & UNICEF, 2014; Wilmoth, 2009; Zahr, Wardlaw & Choi, 2004).

Concept of Neonatal and Infant Mortality

SDG 3.2 seeks to end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births by 2030 (UN, 2015).

Globally, report from UNICEF (2013) indicated that about 6.3 million live born children died before their fifth birthday. This number decreased from 9.9 million in 2000. This shows that many countries have made great progress in improving child survival since the initiation of the MDG 4 (UNICEF, 2013). SSA and Southern Asia accounts for greater proportion of the under-five deaths. The proportion of the under-five deaths in the rest of the world dropped from 32% in 1990 to 18% in 2013. The likelihood of an under-five child to die in SSA is 15 times more than in developed regions (Vakili, Emami, Khademi, Vakili, & Saeidi, 2015)

In SSA, one child in 12 dies before their fifth birthday compared to 1 in 147 in developed countries (WHO, UNICEF, World Bank Group & UN, 2016). But according to GSS (2015) one in 24 Ghanaian children dies before their first birthday, and 1 in 17 before their fifth birthday in 2014 compared with 2008 where 1 in 13 children died before their fifth birthday (GSS, 2009). Under five mortality in Ghana also decline from 80 deaths per 1,000 live births in 2008 to 60 deaths per 1,000 live births in 2014. In 2014, the Central Region recorded 69 deaths per 1,000 live births, which was higher than the national average. This implies that there has been some improvement in under five mortality rate in

Ghana and also some improvement over the situation in SSA. This could be attributed to the improvement in the coverage of ANC (82% in 1988 to 97% in 2014) and SDS, 55% in 2013 to 57% in 2014 (GSS, 2015).

Although child mortality in most countries has been decreasing in the past decades, reduction in neonatal and MMR has been very slow. WHO, UNICEF, World Bank Group & UN (2016) and WHO and UN (2014) reported that between 1990 and 2015, the rate of global under-five deaths reduction was 53%, that is from 12.7 (12.6, 13.0) million in 1990 to 5.9 (5.7, 6.4) million in 2015. While that translates into around 17,000 fewer children dying every day in 2013 than in 1990, it still implies that there was of about 16,000 children under age five deaths every day in 2013 compared with 35,000 in 1990 (WHO, UNICEF, World Bank Group & UN, 2016).

Neonatal mortality (NM) accounts for about 40% of estimated 6.3 million children under-five deaths and for nearly 60% of infant deaths in 2013 globally (UNICEF, 2013). This means that a child is about 500 times more likely to die in the first day of life than at one month of age. The largest absolute number of newborn deaths occurs in South Asia. India contributes a quarter of the world total NM, but the highest national rates of NM occur in SSA (WHO, 2014). According to GSS (2015), there has been reduction in neonatal mortality rate in Ghana between 2003 and 2014 by 33%. That is from 43 deaths per 1,000 live births in 2003 to 29 deaths per 1,000 live births in 2014.

According to GSS (2015), the reduction of deaths among Ghanaian children is because of implementation of numerous effective interventions. This includes Health Sector Medium-Term Development Plan 2010-2013; Child Health Policy 2007-2015 which aim to reduce neonatal mortality from 43 deaths

per 1,000 live births to 25 deaths per 1000 live births in 2015; CHPS policy; National Health Insurance Policy which ensures free health care for children under age 18; free delivery care to all women; and malaria control programmes. MOH and GHS were able to improve on the diagnostic measures, treatment and prevention of malaria including promotion of insecticide treated bed nets use (GSS, 2015).

Globally, the NM rate fell from 36 (35, 38) deaths per 1,000 live births in 1990 to 19 (18, 21) in 2015, and the number of neonatal deaths declined from 5.1 (4.9, 5.3) million to 2.7 (2.5, 2.9) million. However, the decline in NM from 1990 to 2015 has been slower than that of post-neonatal under-five mortality: 47% compared with 58% globally (WHO, UNICEF, World Bank Group & UN, 2016). Countries in SSA must improve their child and neonatal survival strategies to achieve the SDG 3 which seeks to achieve under-five mortality rate of 25 or fewer deaths per 1,000 live births by 2030 (Alkema, & You, 2012).

MDG 4 sought to reduce child mortality by two-thirds between 1990 and 2015. This was projected only to be achieved by few countries (Bryce, Black & Victora, 2013; UN, 2013; UNICEF, 2013). Progress was insufficient in some countries to achieve MDG 4, particularly in Oceania, SSA, Caucasus and Central Asia, and Southern Asia. New set of targets have been set for post-2015 era to reduce child mortality. The targets include “A Promise Renewed” target of 20 or fewer under-5 deaths per 1,000 live births by 2035 or 25 or fewer deaths by 2030 (Owor, Matovu, Murokora, Wanyenze, & Waiswa, 2016; UNICEF, 2013) and the “Every Newborn Action Plan” (ENAP) target of 10 or fewer neonatal deaths per 1,000 live births by 2035 (or 12 or fewer neonatal deaths by 2030). These targets have either already been set or are being

discussed within the framework of the Lancet Commission on Investing in Health and the Sustainable Development Goals (SDGs), to be met by 2035 and 2030, respectively (UN, 2015; WHO, 2014). To achieve these targets and end child deaths, substantial effort is needed to improve utilisation of SDS by pregnant women mostly in SSA.

The global effect will be dependent on high coverage of the most effective interventions to prevent the major causes of death (WHO, 2014). As such, national, regional, and global trend data for causes of child death are crucial to inform the kind of priority interventions in countries.

Owor et al. (2016) indicated that for countries to achieve drastic reduction in under five mortality, the focus must be on the strategies to ensure survival of newborns. To ensure survival of new born babies WHO (2013) recommended that as soon a baby is born SBAs must establish, maintain and support respirations; provide warmth and prevent hypothermia; ensure safety, prevent injury and infection and identify actual or potential problems that may require immediate attention.

These many more SBAs interventions at delivery enable countries to achieve decline in maternal and NM globally (WHO, 2014). Neonatal mortality rate (NMR) fell by 40% between 1990 and 2013, that is from 33 to 20 deaths per 1,000 live births globally (WHO, 2014). Since 1990, about 24 million newborn lives have been saved. Yet despite the availability of effective, proven strategies to prevent newborn deaths, 2.8 million babies still died in the first month of life in 2013, largely of preventable causes. Neonatal health must be prioritized to sustain the rapid progress on overall child mortality (UNICEF, 2014). Mortality during the neonatal period is falling slower than during other

periods of childhood. As a result, the proportion of under-five deaths has increased in every region. According to UNICEF (2014) globally about two-thirds of neonatal deaths occur in just 10 countries, with India accounting for more than a quarter and Nigeria for about a tenth. The leading causes of death among children under age five include preterm birth complications (17% of under-five deaths), pneumonia (15%), intrapartum-related complications (complications during labour and delivery; 11%), utilisation (9%) and malaria (7%). Globally, nearly half of under five deaths are attributable to undernutrition (UNICEF, 2014).

Globally, preterm birth complications and complications during labour and delivery (intrapartum-related complications) account for nearly 60% of neonatal deaths. The focus clearly needs to be on preventing these deaths by providing high-quality care for both the mother and the baby around the time of birth (WHO, UNICEF, 2014). In 2014, Ghana recorded about 12,000 death of utilisation. About 41% of these deaths were intrapartum stillbirths and 59% maceration (ante-partum deaths). These deaths can be prevented by high quality ANC service and use of SDS (GHS, 2015).

Educational background of women is a very important determinant for reduction of NM. Mothers with no education normally have high NMR almost nearly twice as compared to mothers with secondary education or higher. This implies that the educated women are most of the time informed about pregnancy and its complications. Again educated women are able to make decisions to seek medical care timely when the need arises and they resort to SDS when in labour. According to GSS (2014), 95% of the pregnant women with secondary education and above used SDS at health facilities which is a great practice

compared to 54% of women with no education. About 55% of women with no education have challenge to get money to access health care compared with 27% of women with secondary education and above (GSS, 2015).

The family's wealth and geographic location (urban/rural) are equally powerful determinants of inequities in neonatal mortality. Economic background of women determines whether they will use SDS or not. Every pregnant woman need money to afford nutritious diet, pay her transportation cost to access quality health care and even to provide food and other basic needs of family before she leave the house for skilled care. Although there is free maternal care in most countries including Ghana, pregnant women pay some aspect of the services rendered to them. From the GSS (2014) 96% of women who belong to the highest wealth quintile used SDS whereas of women in lowest wealth quintile, only 46% used SDS. In addition, 90% of women in urban areas used SDS as compared to 59% in rural areas (GSS, 2014).

Certain newborns are particularly vulnerable, those born to the youngest and oldest mothers and to mothers living in rural areas (UNICEF, WHO & UN, 2014). Most of the young mothers are unemployed and this invariably raises financial challenges that affect where to get money to eat good food after and to pay for health services. In the case of young mothers, the difficulty in caring for their babies is paramount. Most of the time, these young mothers are unable to identify changes in the health status of their babies to seek early medical care. The consequence of this inability is death of their babies (UNICEF, WHO & UN, 2014).

Children born shortly after another sibling are also at greater risk of dying than those born after longer intervals between births (WHO-CHERG,

2014). When the birth interval is short, the woman is always stressed up due to equal demand of care and attention from all the children (WHO & UN, 2014). Due to this, if the woman is already facing financial crisis she will not be able to feed them well with nutritious meal. She cannot also leave the children to work to get money to provide their basic needs. Skilled health care providers must provide pregnant women with the needed information about family planning and contraceptive use. This will enable the women to make informed decision about contraceptive use to improve their birth intervals. Birth interval of two years and more improve their health status of women thereby preventing maternal deaths associated with pregnancy and delivery (GHS, 2014). The age of a mother is an important determinant for the health of the child. In Ghana, about 9% of pregnant women who attended ANC and 10% of those who delivered at health facilities in 2014 were below the age of 20 years (GSS, 2015). This is a very worrying situation in that there are complications associated with pregnancies and deliveries among women below 20 years. To ensure child survival and reduce child mortality, governments must implement effective strategies to end child marriage and reduce adolescent pregnancy. Since the global launch of A Promise Renewed in June 2012, nearly 180 governments have pledged to scale up efforts to accelerate declines in preventable maternal, newborn and child deaths (WHO-CHERG, 2014).

Most of the causes of maternal and child deaths are preventable. As a result, every effort must embrace the strategies suggested by WHO to achieve MDG 4 and 5 and SDG 3. The health system must collabourate with all stakeholders to achieve this (UNICEF, WHO, World Bank, & UN, 2014). Accelerating progress in child survival urgently requires greater attention to

ending preventable child deaths in SSA and Southern Asia (Lawn, Kerber, Enweronu-Laryea, & Cousens, 2010).

Concepts of Safe Motherhood Initiative

Safe motherhood (SM) means, “ensuring that all women receive the care they need to be safe and healthy throughout pregnancy and childbirth” (Wilcox, 2002). Each year, more than 500,000 women die due to complications during pregnancy, delivery and postnatal period and about 10 million also suffer debilitating and lifelong disabilities (WHO, 2016). The causes of maternal mortality are preventable. The truth is that the passage of motherhood must be safe. SM is an initiative that was adopted worldwide to reduce maternal and child mortality and morbidity. The Safe Motherhood Initiative (SMI) was launched in Nairobi in 1987. SMI placed the reduction of maternal mortality on the map. The aim of SMI was to raise awareness and mobilize action to reduce maternal mortality with an initial target to halve maternal deaths by 2000 (WHO, 2016).

An interagency group for safe motherhood was formed and now includes WHO, UNICEF, UNFPA, World Bank, Population Council, and IPPF (WHO, 2009; WHO, 2008). The strategies proposed and promoted by SMI to reduce maternal mortality, were training and use of TBAs, risk assessment of pregnant women and provision of ANC. Later it became necessary to train SBAs to offer comprehensive care to women during pregnancy delivery and post natal. There was the need to also increase accessibility of these services to women at affordable cost. The concept of Making Pregnancy Safer (MPS) in 2001 was modeled over the SMI. The goal of the MPS was to reduce maternal deaths by 75% between 1990 and 2015 (Penn-Kekana & Blaauw, 2002).

Safe motherhood program also stimulated interventions that address health challenges of women and their families. The health challenges include reproductive tract infections, infertility, HIV, AIDS, and other sexually transmitted infections (STI). Other areas of concern by the SMI were education of women, prevention of discrimination and violence against women as these social issues can improve or worsen the health status of women (Starrs, 2006). According to WHO (2005), the poor health status of some women and their children could be attributed to lack of recognition of women in the society; lack of decision-making power; unequal access to employment, low or no education, inability to access basic health care, poverty and lack or inadequate essential resources for maternal and child care. These factors, which are also important to address maternal, and child health challenges were not covered by the SMI.

Lifestyle, environmental and working conditions can also affect the health of women. The focus of the SM programmes was to investigate into the underlying causes of the factors that affect the health of women. The strategic interventions that were implemented by the SMI to improve maternal health were ANC services; use of SBA; access to quality emergency obstetrical care; postpartum care; and access to quality reproductive health care, services for adolescence; and community education for women and families including family planning and safe post-abortion care (WHO, 2005). The six pillars of SM are STIs, HIV, and malaria control; post abortion care; post natal care; obstetric care; pre natal care and family planning services (WHO, 2005). Starrs (2006) mentioned that to prevent maternal morbidity or mortality the SM program must include respect for women's basic human rights, including respect for women's autonomy, dignity, feelings, choices, and preferences during motherhood.

Again, social policies need to reflect that SM is a core value of our society. This requires initiatives to address the social determinants of safe motherhood.

The conditions in which women are born, grow, live, work and age are the social determinants of their motherhood. In addition, poverty; social exclusion; shortcomings in safeguarding early childhood development; unsafe relationships; unsafe employment conditions, and a lack of access to quality education and health care are other social factors that determine the health of women. The levels in which these factors affect the health of women vary from family to family and at global, national and local levels. Policy, money, power and resources influence the social determinants, which in turn lead to inequities (Starrs, 2006). After ten years of the SMI, prevention of maternal mortality became international health priority. However, maternal mortality remains a major global public health concern more than twenty years after the international SMI was launched (Gwamaka, 2012).

Antenatal care and counseling

Birth preparedness begin at ANC where comprehensive data is collected from the pregnant women, screening is done to detect early signs of complications for management of prevention (Canavan, 2009). ANC Focused Antenatal Care (FANC) is the new approach to ANC for pregnant women and its focus is on quality care rather than the quantity. Based on the FANC approach to ANC, WHO (2005) recommended only four ANC visits.

Health education that is given to pregnant women at ANC includes regular ANC visits, eating of nutritious meal, date of next visit, number of visits before delivery, importance of ANC, expected date of delivery, importance of hospital/health facility delivery, danger signs in pregnancy, labour, delivery and

after, transport arrangements, financial arrangement for transport and services, companion to the delivery site, blood donation, health care seeking during emergency and many more (Starrs, 2006). In addition, iron supplements, tetanus immunization, and detection and treatment of any existing problems such as sexually transmitted diseases were other services that are provided to the pregnant women at ANC (Starrs, 2006).

GSS (2015) indicated that about 97% of pregnant women in Ghana received ANC services from a skilled provider and about 87% attended the recommended four or more ANC visits. However, the availability and ANC visits do not influence use of SDS (GSS, 2014). The coverage of SDS in Ghana as of 2014 was 57% (GSS, 2015). Several studies have confirmed that in most countries in SSA where majority of the pregnant women attend ANC, most of them still deliver at home without the assistance of a SBA (GHS, 2015; GSS, 2009; Magoma, Requejo, Campbell, Cousens & Filippa, 2010).

According to Rööst, Altamirano, Liljestränd, and Essén (2010), when pregnant women fail to attend ANC and have poor educational background it put their health in danger for complication and even death.

Skilled care during labour and delivery

During childbirth, every woman should be helped by a health professional who can manage a normal delivery as well as detect and manage complications. SBAs should have access to a functioning emergency and transport system so that they can refer women to an appropriate health facility for higher level medical care (such as Caesarean delivery or blood transfusion) when necessary (Berry, 2006).

In a study conducted by Abera, Gebremariam, and Belachew (2011), it was revealed that skilled attendance during labour, delivery and the early post-partum period could reduce an estimated 16-33% of maternal deaths. WHO (2008) proposed that the global level of use of SBAs at delivery should be 90% by the year 2015. According to WHO and UNICEF (2014), the achievement of SBA use between 2006 and 2013 was about 70% globally, 99% in developed countries, 95% in upper middle-income countries, 64% in less developed countries, and least developed countries recorded 47%. Developed countries were able to use 9% more than the WHO's expectation while less and least developed countries could not make any significant progress. This explains that, skilled health personnel do not attend to more than 40 million births and more than 80% of this occurs in South Asia and SSA. There are regional and income level variations. South-East Asia and African regions have the lowest level of accessibility to skilled delivery, the coverage is 46% and 64% in low-income countries and lower middle-income countries respectively, and upper middle-income countries have coverage of 95% (WHO, 2014).

Eastern Africa (33.7%), Western Africa (41.2%) and South Central Asia (46.9%) have the lowest level of skilled delivery and Polynesia (99.8%), Eastern Asia (98%) and South America (92.7%) having the highest coverage in less developed countries. Ghana also recorded about 57% skilled delivery. This is not so different from that of the Western African countries where Ghana belong (GSS, 2015). Meanwhile SSA and South Asia is where greater number of maternal deaths occurred in 2010, about 85% of maternal mortality globally (WHO, 2013). This implies that home delivery is common in SSA. Women in developing countries perceive home delivery to be cheap, but home delivery is

associated with infections and complications (Thind, Mohani, Banerjee & Hagigi, 2008). When complications occur the woman needs to be referred to an appropriate health facility for immediate intervention and transportation and distance sometimes becomes a challenge.

Postpartum care

Following childbirth, women should be seen by a health care provider, preferably within three days, so that any problem can be detected and managed early (WHO, 2010). An additional postpartum visit within the first six weeks after delivery enables health workers to make sure that the mother and baby are doing well, to provide advice and support for breastfeeding and to offer family planning information and services (Starrs, 2006).

Family planning

Family planning counseling and services should be available to all couples and individuals, including adolescents and unmarried women. Family planning services should offer complete information and counseling as well as a wide choice of modern contraceptives, including emergency contraception, and should be part of a comprehensive programme that addresses other sexual and reproductive health needs.

Abortion related care

High-quality services for treating and managing complications of unsafe abortion should be available through all health systems. Services require: staff who are trained and utilisation to treat complications; appropriate equipment; protocols for care; and effective referral networks (Bartlett et al., 2004; Clark et al., 2010; Fetters, Vonthanak, Picardo, & Rathavy, 2008). Women with abortion complications should also have access to other reproductive health services,

including family planning. Where abortion is not against the law, safe services for pregnancy termination and compassionate counseling should be available. Health workers must be informed about the legal status of abortion and protocols for providing abortion services (Fetters et al, 2008). Appropriate technologies, including new methods such as non-surgical abortion, should be available where feasible (Starrs, 2006).

Adolescence reproductive health education and services

All young people should have information on sexuality, reproduction, contraception, decision-making skills and gender relations in order to help them make informed decisions about sexuality and to negotiate abstinence or safer sex. Sensitive, respectful and confidential reproductive health counseling and services for married and unmarried adolescents should emphasise the prevention of unwanted pregnancy, sexually transmitted infections (STIs) and unsafe abortion (Starrs, 2006).

Community education for women and families

Health topics for women and their families include how to prevent unwanted pregnancy and avoid unsafe abortion; how to utilisation complications of pregnancy, childbirth and unsafe abortion and where to seek treatment; and the dangers of certain traditional practices during pregnancy and childbirth. Education is also needed for decision-makers from husbands to community leaders to national policy-makers to promote safe motherhood and improvements in women's health and status (Starrs, 2006).

There are health-facility and community level indicators of safe motherhood. The health-facility level Indicators are: crude birth rate, neonatal mortality rate, stillbirth ratio, coverage of antenatal care, coverage of syphilis

screening, coverage of trained delivery services, coverage of postpartum care and incidence of obstetric complications. The community level indicators include: The knowledge of the community regarding safe motherhood interventions, training and quality of care, skills of health care providers to ensure quality of care of Safe Motherhood interventions (Starrs, 2006)..

Safe-Motherhood Coverage in Ghana 2010-2014

The indicators of safe motherhood that were used to assess the coverage were antenatal care, skilled delivery and postnatal care.

Antenatal care

Antenatal care coverage is an indicator of access and utilisation of care during pregnancy. It measures the proportion of women who receive care at least once during pregnancy within a given year. Studies have shown that mothers who make more visits also deliver in health facilities (Mpembeni et al., 2007). Women who attend ANC 4 times or more are more likely to be assisted during delivery by a SBA as compared to those who make less visits (Mpembeni et al., 2007).

ANC coverage has decreased steadily from 98.2% in 2011 through 92.2% in 2012 to 90.8% in 2013 and 87% in 2014 (GSS, 2015). A number of regions including Ashanti, Eastern and Upper West attributed the decline in ANC coverage to poor data capture and decrease in outreach activities due to lack of funds. According to GSS (2015), the overall coverage of ANC in 2014 revealed that, despite the consistent decrease over the last three years, clients making at least four visits increased over the same period. The proportion of clients who made at least four visits within the year under review increased from 72.7% in 2013 to 76% (GSS, 2015). This is significant because it indicates that

an increased number of women were reached with the basic interventions such as Intermittent Preventive Treatment of malaria in pregnancy, Prevention of Mother-to-Child Transmission of HIV among others. The trend in first trimester ANC registration has stagnated over the years (GSS, 2015). Most women continue to report late in pregnancy. There is an on-going community education, which is expected to improve the situation (GHS, 2014).

Tetanus vaccination is initiated at first contact with the antenatal clinic. The main purpose for this vaccination is to reduce neonatal tetanus as well as the incidence of maternal tetanus in the postnatal period. Unfortunately, the trend in Tetanus Diphtheria vaccination has continuously declined from 76.9% in 2012 to 61.4% in 2014 due to erratic supply and shortage of vaccines. Diphtheria Tetanus vaccination was introduced in 2012 (GHS, 2014).

Mother to Child transmission of HIV during pregnancy, labour and breastfeeding is the main cause of HIV in children under the age of 12 years. PMTCT services offered at antenatal clinics are routine testing and counseling of all pregnant women and administration of antiretroviral drugs for those who test positive. Prophylactic treatment is given to exposed newborns until six weeks. Consistently, there has been a gap between pregnant women who test positive and those who benefit from antiretroviral therapy. The main challenge is due to erratic supply and shortage of antiretroviral drugs. Inadequate Polymerase Chain Reaction machines and frequent shortage of Dried Blood Spot test kits also hamper early infant diagnosis (GHS, 2014).

Skilled delivery services

The time of delivery is one of the most critical times in the continuum of care from pregnancy to the postnatal period. Over the years, there has been a

steady and progressive increase in skilled delivery coverage, rising from 44.6% in 2010 to 56.7% in 2014 with regional variations. The achievement is the result of the provision of cost effective interventions such as implementation of domiciliary midwifery by some regions, free maternal care, training of midwives in focused antenatal care and lifesaving skills, provision of basic equipment, etc. There is the need to sustain these efforts to ensure continuous increase in access to skilled delivery. The strategy of task shifting/sharing to train auxiliary nurses to assist midwives in remote areas is being pursued vigorously to improve the human resource in maternity care (GHS, 2015).

Postnatal care services

The postnatal care coverage over the period increased from 59.6% in 2010 to 100.3% in 2014. This was unduly high due to data capture challenges. The issue of recounting of clients during subsequent visits after the registration contributed to the high coverage (GHS, 2015).

Determinants of Safe Motherhood

According to WHO (2015) factors that lead to poor health of women are culture, high fertility, low educational background, poverty, discrimination, and gender inequalities. These and many other factors lead to maternal mortality and disabilities. To ensure safe motherhood there is the need to protect and promote the rights of women, allow and support women to make decisions that will improve their health. Women must also be supported to improve their social and economic status. Early marriage and teenage pregnancy results in high fertility rates and unintended pregnancies which could result in unsafe abortions and even death (WHO & UNICEF, 2014).

WHO and UNICEF (2014) reported that health concern of most women in developing countries mostly SSA are malnutrition, anaemia, malaria and parasitic infections, teenage pregnancy with its associated complications. In addition, haemorrhage, sepsis, ruptured uterus, unsafe abortions, STIs, HIV and AIDS and mental and psychosocial stress are other factors that also affect the health of women (WHO & UNICEF, 2014). Underlying factors to these health conditions among women are culture, traditions of the families and communities where the women find themselves. Studies conducted by Abera et al. (2011), Birmeta, Dibaba, and Woldeyohannes (2013) revealed that some women have negative attitude and perception about their own health including their social rights. The income level of the family, the husband and that of the woman herself can determine her health status. This also determines the kind of environment women live. According to Abera et al. (2011), and Birmeta, Dibaba, and Woldeyohannes (2013), other factors which need critical attention are lack of social support, negative perception of health needs of women, and lack of or inappropriate policies to address health concerns of women and their rights. Conflicts in countries, between countries, communities and traditional groups displace people thereby affecting the health of the vulnerable groups (women and children). Women in conflict zones find it difficult to access quality health care (Abera et al., 2011).

Medical, socio-cultural issues, perception about the benefits or need for SDS, economic and physical accessibility are the five categories of the determinants of safe motherhood (Abera et al., 2011; Birmeta, Dibaba, & Woldeyohannes, 2013).

Medical determinants

The medical causes of maternal deaths are similar throughout the world. Underlying the medical causes are a range of socio-cultural factors that interact and exacerbate each other (Babalola, & Fatusi, 2009). These include women's poor health before pregnancy; inadequate, inaccessible or unaffordable health care; and poor hygiene and care during childbirth. Socioeconomic and cultural realities also contribute, including illiteracy, poverty, women's unequal access to resources, and their lack of decision-making power in families and societies (Abera et al., 2011).

Marchie (2012) conducted a study to investigate the socio-cultural factors that contribute to Maternal Mortality in Edo South senatorial district. The population of the study was made up of 2157 females of reproductive age and she used multi stage random sampling technique. She developed a structured and validated questionnaire with a reliability of 0.82 as her instrument for data collection. Focus group discussion and in depth interview guide were employed to complement the instrument. She found that socio-cultural variables when taken together contributed positively to maternal mortality (i.e. economic status, educational attainment, female genital mutilation, women decision-making power, early marriage/child bearing traditional obstetric care services).

Childbirth can be particularly dangerous when the births are too soon, too close together, or too many. Women can die because they do not realise they have a medical problem, because they postpone decisions to seek care, or because it takes them too long to reach appropriate care, affecting their chances of surviving an obstetric emergency. These factors reflect the underlying social

issues such as women's low status; lack of involvement in family decision-making about childbirth; lack of resources; poor infrastructure, and lack of accessibility to appropriate health facilities. These factors sometimes result in emergencies that are beyond the control of medical professionals. This may be deeply frustrating for the health professionals, because such social problems are difficult to change at the individual level. Women may also receive substandard or slow care at health facilities. Delays that occur once a woman reaches the facility are often under the control of health professionals. Although many health systems in developing countries cannot support adequate staff, there are still opportunities to do better with what resources are on hand (Abera et al., 2011).

From the WHO (2014) report, SM programme using existing resources would cost developing countries less than US \$3 per person per year. The programmes such as antenatal, delivery, and post-partum care alone could cost about \$2 per person. Political and social will are needed at international and national levels to overcome this avoidable tragedy (WHO, 2014).

Socioeconomic determinants

Socioeconomic factors undoubtedly play a large role in maternal deaths, although many of the exact mechanisms are still obscure. Poverty is clearly a high risk factor (Babalola, & Fatusi, 2009). It is also known that poor women are less likely to have formal education than wealthy women are, and are less likely to be in good health and to seek or receive medical care. Which of these factors are causes and which are effects, and how can this vicious cycle be broken? The socioeconomic status of women has a special importance in

maternal deaths. In almost all societies in the past, and many societies in the present, women are a socially disadvantaged group (Abera et al., 2011).

Strategies for Prevention of Maternal Mortality

Maternal mortality prevention can be achieved through the four pillars of safe motherhood. These are antenatal care, clean and safe delivery, essential obstetric care and family planning (WHO, 2014). Effective antenatal care is essential to detect preexisting conditions, prevent complications where possible, and ensure that complications of pregnancy are detected early and treated appropriately. All birth attendants must have the knowledge, skills, and equipment to perform a clean and safe delivery and provide postpartum care to mother and baby. Pregnancy is a period of potential risk, and any pregnant woman can develop complications. Accurately predicting which women will develop complications is not possible. As such making motherhood safer requires the establishment of a chain of care that links women, families, and communities with the health system. Therefore, interventions are needed at a community level and within health services. Individuals and couples must have the information and services to plan the timing, number, and spacing of pregnancies, and to prevent unwanted pregnancies (GSS, 2015; UNICEF, 2014).

There is a strong association between level of SDS use and maternal mortality. SDS will be effective only when the SBAs are having adequate supplies of logistics, equipment, and infrastructure, as well as an effective system of communication, transportation, and referral (WHO & UNICEF, 2014).

Models of Health Care Utilisation

Utilisation of health services is a complex behavioural phenomenon. An amalgam of factors including culture, economics, access, perceptions, knowledge, belief in efficacy, age, gender roles, and social roles among others influence both the choice to seek health care and the assessment of which health care option to utilisation for prevention and treatment of illness (WHO, 2010). To facilitate the understanding of the factors that determine the utilisation of SDS among pregnant women at health facilities in the Central Region of Ghana, seven models were used to guide the study. These were Thaddeus and Maine Three Delays Model, Andersen's health behavior model, Health Belief Model (HBM), Nola Pender's Health Promotion Model and Theory of Planned Behaviour.

The Three-Delays model

Thaddeus and Maine (1994) have provide an explanatory model of maternal mortality that identifies delays in seeking, reaching and obtaining care as the key factors leading to maternal death. The explanatory model is known as the Three Delays Model. When maternal health services are available and function well, women may still delay in accessing them. The Three Delays Model categorises delays into three types namely; delays in deciding to seek care, delay in reaching a treatment facility, and delay in receiving adequate care once at the point of service (Pacagnella, Cecatti, Osis, & Souza, 2012).

Each of these delays is facilitated by certain key factors motivated by poverty or attendant socio-economic inequalities. Thaddeus and Maine named women who survive death from pregnancy complications, either by chance or

by receiving timely care as maternal “near-miss” and argued that these women share similar experiences with those who died due to pregnancy complications.

Phase one

The issues in phase one concerns the factors that lead to delay with regards to the use of health care services. These are socio-cultural factors which include values, beliefs and attitudes; socioeconomic factors such as money and information; geographical setting such as physical accessibility; financial environment that determines the cost of services; and in the institutional context that shapes the scope and organization of medical services and the quality of care”(Thaddeus & Maine,1994). Delay in seeking care accounts for the greater proportion of women reaching facilities in poor clinical condition (Filippi, Richard, Lange, & Ouattara, 2009; Killewo, Anwar, Bashir, Yunus, & Chakraborty, 2006; Oliveira, Parpinelli, Cecatti, Souza, & Sousa, 2009; Souza, Cecatti, Parpinelli, Krupa, & Osis, 2009). This may be the most complex event to resolve in the obstetric care chain because it involves the concept of access and the phenomenon of behaviour (Igberase, & Ebeigbe, 2007; Röst et al., 2009).

The barriers most related to health care-seeking behaviour are economic status, distance to facility, educational level, women’s autonomy, recognition of disease, aetiology, severity of symptoms and knowledge and attitudes about use of the health system (Das, Agrawal, & Agarwal, 2010; Cham, Sundby, & Vangen, 2005; Lori, & Starke , 2012).

Given that decision-making is a complex behaviour related to perception of needs which is dependent on the interaction between individual traits, characteristics and the exposure to social, cultural, and economic conditions,

and gathering information requires a broad approach. The use of antenatal care seems to enhance the utilisation of emergency obstetric care, in the same way that lack of antenatal access is associated with delays leading to poor maternal outcomes (Behague, Kanhonou, Filippi, Legonou, & Ronsmans 2008; Rööst, Altamirano, Liljestrand, & Essén, 2010).

Given the complexity of health needs, Rodriguez Villamizar and colleagues added an additional delay for doing maternal mortality surveillance. They made the first delay the recognition of a problem, followed by the opportunity decision to seek care and take action. Phase I has three different components: delays in recognition, decision and departure, which reflects the complexity of the problem (Hirose et al., 2011; Rodriguez, Ruiz-Rodriguez, & Jaime, 2011).

Delay in decision to seek care is as a result of low status of women, poor understanding of complications and risk factors in pregnancy and of when medical interventions are needed, previous poor experience of health care, acceptance of maternal death and financial implications (Sebukoto, Semwaga, & Rugakingila, 2016; Somé, Sombié, & Meda, 2013)

Phase two

This phase addresses factors that affect accessibility of health care. Financial and physical accessibility are the two main issues in this phase. Witter and Adjei (2007) mentioned that lack of transport, cost and long distance to a facility are issues which can affect one's decision to use health care. These factors can be influenced by location and distribution of health facilities. Financial, organizational and socio-cultural barriers can also hinder utilisation of health services. According to Adisasmita, Deviany, Nandiaty, Stanton, and

Ronsmans (2008), Cham, Sundby, and Vangen (2005) and Gulliford et al. (2002), when there is obstetric emergency, women in rural areas are most likely to face challenges of how to reach a health facility for assistance of skilled personnel. These situations mostly confront women who are in poor families; those who live in areas with bad roads; and in some cases the decision for a woman to seek health care is made either by the head of the family or the husband. All these circumstances will delay the women from seeking health care on time and this could sometimes lead to the death of the woman (Cham et al., 2005; Gulliford et al., 2002). In the present study, NHIS and educational background were used as proxy to determine financial accessibility and socio-cultural variables were measured. Decision maker in time of health care seeking was investigated to determine the women's autonomy in decision making concerning their health care.

Lori and Starke (2012) stated that long distance for women to access health facility during pregnancy leads to high mortality and morbidity. According to some authors, women who are poor in urban areas could also have difficulty in accessing health care due to inability to pay even when the health facility is close to them. Studies conducted by Essendi, Mills and Fotso (2011), Lori and Starke (2012) and Matthews et al. (2010) revealed that cost of transport and health service, lack of autonomy and poverty affect the decision of women to seek health care on time.

Lori and Starke (2012) and Das, Agrawal and Agarwal (2010) argue that in rural areas when the women even have money to pay for their transport and health care, because the roads are bad and un-motorable, vehicles and other means of transport may not be available. These women in time of emergency

will either use unsafe routes or walk which will delay them from seeking health care on time. According to Lori and Starke (2012) and Das et al. (2010), the earlier women reach a health facility mostly within four hours, the better the outcome of their health condition. Lori and Starke (2012) and Murray and Pearson (2006) ascertain that women who are referred from one health facility to another reach earlier than women who had health challenge at home and were referred. The women in the present study areas are likely to face similar challenges, in that, the districts for the study were selected from both rural and urban centres in the Central Region of Ghana.

Murray and Pearson (2006) indicated that congestion at the middle and higher-level health facilities are as a result that there is mistrust and lack of confidence among the women on lower level health facilities. Lori and Starke (2012) reported that women referred from rural health facilities with mild obstetric conditions mostly arrive at the receiving health facility with severe condition. This could be attributed to bad roads or poverty (Filippi et al., 2005). Amaral et al. (2011) and Murray and Pearson (2006) stated that referrals in health facilities could be due to lack of inadequate logistics, lack of confidence and skills of health care providers to handle the situation or lack of skilled service providers to offer the needed care. According to Essendi, Mills, and Fotso (2011) and Hirose et al. (2011), the lack of social support and inequality are other factors which also prevent or delay women from accessing health services.

Phase three

This phase considers the delays, which occur at health facilities after the arrival of the patient. According to Niermeyer (2016), sometimes when women

struggle to reach health facilities, their conditions become worse and care provided in some occasions are not successful. This could be attributed to inadequate skilled service providers, poor attitude of staff, lack or improper policies at the facilities directing what needs to be done during emergency and lack of essential logistics for maternal health care (Gohou et al., 2004; Niermeyer, 2016; Pacheco, Katz, Souza, & de Amorim, 2014). Studies conducted by Essendi, Mills, and Fotso (2011) and Waiswa et al. (2015) revealed that when the need arises for emergency surgery, the time between the decision and the time of starting the surgery exceeds 30 minutes.

Pirkle, Dumont and Zunzunegui (2011) reported that the sub-standard health care provided at tertiary health facilities mostly in low-income countries directly and indirectly leads to maternal mortality. According to Killewo et al. (2006) the sub-standard health care could affect the decision of the women to use SDS on time when the need arises.

Utilisation of the three-delay framework provides better understanding as to the factors, which delay women in accessing health care on time. The three delays model has profound implication for practice and research. First, that the establishment of public health facilities and infrastructure that is supportive and accessible to the childbearing woman is a collective virtue. Further, it calls on the moral imperatives and ethical responses from health care workers to prioritise the care accorded to women, whether pregnant or not. This also has major implication for health policies, funding and leadership to ensure a reduction in the interval between onset of a complication and its efficient management in all health facilities. Delay in receiving adequate health care also occur as a result of poor facilities and lack of medical supplies, inadequately

trained and poorly motivated medical staff and inadequate referral systems (Karkee, Binns, & Lee, 2013).

The model provides powerful information to policymakers and health care providers within the context of maternal health care and the kind of interventions that need to be implemented to reduce maternal mortality.

Limitations of the Three-Delays model

Although the three-delay model is a widely used framework in maternal death studies, it refers only to emergency obstetric care and does not address missed opportunities for primary prevention or early detection of pregnancy complications during antenatal care. (Filippi et al., 2009; Gabrysch & Campbell, 2009). Although not sufficient, the role of preventive programmes is also very important in preventing and treating maternal morbidity that may or may not cause deaths. The fundamental purpose of this theoretical framework aims to draw attention to the gaps in reaching appropriate obstetric care.

Thaddeus and Maine model has been in a number of studies including Gabrysch, Cousens, Cox, and Campbell (2011), Gabrysch and Campbell, (2009) and Tarekegn, Lieberman and Giedraitis (2014) among others. In this study it informs the conceptual framework and helps in explaining why pregnant women may or may not utilize SDS.

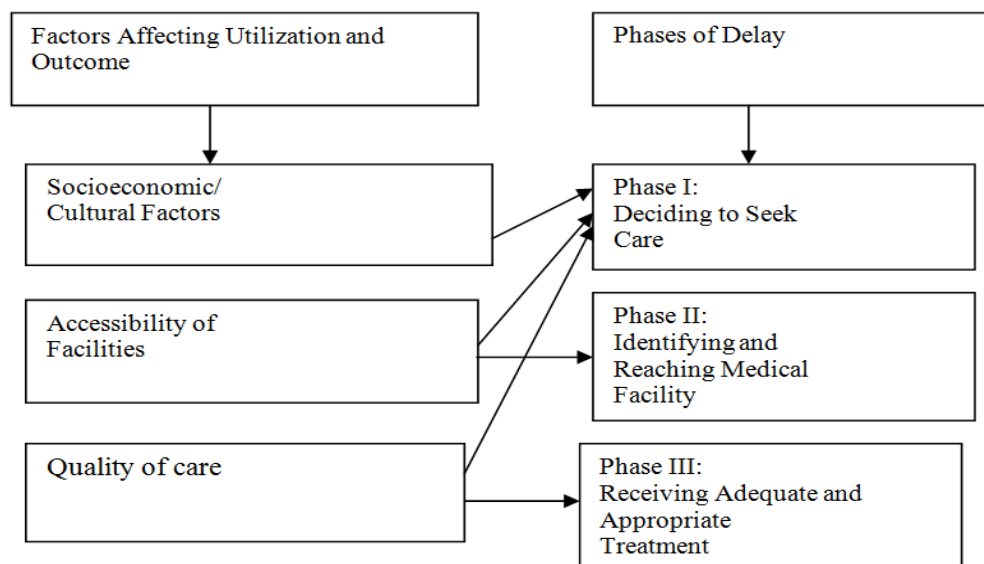


Figure 1: The Three Delays Model

Source: Thaddeus and Maine (1994)

Andersen’s behavioural model of health services use

Andersen’s behavioural model (Andersen, 1968) was created to empirically test hypotheses about inequality of access to health services. It addresses the concern that some sectors of society – in particular, people from ethnic minority groups, people who live in inner cities and people who live in rural areas – receive less health care provision than the rest of the population (Andersen & Newman, 1973). Andersen’s model views access to services as a result of decisions made by an individual, which are constrained by their position in society and the availability of health care services.

The model contains three sets of predictive factors: predisposing, enabling and need factors. The Anderson’s Behavioural model assumes that a sequence of factors determines the use of health services. These are predisposition to use services, the ability to use services and the need to use services. Andersen focused on the family and individual as the unit of analysis, hence several

family-level and individual level variables were used in the analysis (Andersen & Newman, 1973).

The predisposing factors are based on the argument that a family's propensity to use health services can be predicted from a set of personal characteristics, which predate the illness. These characteristics can be divided into three sets: family composition, social structure and health beliefs (Andersen, 1968). Specific variables include age, sex, family size, marital status, decision maker, religion, ethnicity and social class. The most important variable for this study are age, religion, decision maker and marital status. These indicate the position of the family in society, which could influence their lifestyle and their physical and social environments.

The enabling factors are based on the argument that even if a family has a predisposition to use health services, certain characteristics must be put in place to enable them to access these services. The enabling factors include presence of material resources, active membership of the health insurance scheme and availability of quality health services. Without the ability to access services, an intention will not necessarily translate into.

In order for a health service to be used, there must first be a need to use that service. Therefore, need factors were included in the model. There are two types of need factors: illness variables and response variables (Andersen, 1968). Thus inasmuch as the recognition of illness by the family is important, so is the need to respond appropriately in order to access services.

According to Andersen, access to services is considered equitable if it can be predicted by immutable demographic characteristics such as age and sex (Andersen & Aday, 1978; Babitsch, Gohl, & von Lengerke, 2012), or solely by

the need factors, such as illness. However, access is considered inequitable if it can be predicted wholly or partly by variables such as ethnicity or enabling factors (Andersen & Newman, 1973; Bosworth, 2010; Petrovic, & Blank, 2015). This provides the theoretical basis for using the Andersen model to study social inequalities in health service. Andersen's model, however, does not specify which variables must be used to operationalize the need, predisposing and enabling factors (Andersen & Newman, 1973; Bosworth, 2010; Petrovic, & Blank, 2015). Instead, the decision as to how to operationalise them should be derived from the theoretical relationship between the independent and dependent variables. The choice of variables, within the framework of need, predisposing and enabling factors, is up to each researcher.

In the 1970's, Andersen's model was later expanded and refined to include the health care system. The health care system includes health policy, resources, and organization of a specific place and time, as well as the changes over time. Resources comprise the volume and distribution of both labour and capital, including education of health care personnel and available equipment. Organization refers to how a health care system manages its resources, which ultimately influences access to and structure of health services. In the revised model, how an organisation distributes its resources and whether or not the organisation has adequate labour volumes will determine if an individual uses health services.

The updated model includes recognition that consumer satisfaction reflects health care use. The model includes the notion that there are several health services available, and both the type of service available (i.e., a hospital, dentist, or pharmacy) and the purpose of the health care service (i.e., primary or

secondary care) will determine the type of service utilisation. According to the revised Anderson's model, determinants of health service use is base on the characteristics of the population and the quality of the health service (Bosworth, 2010; Andersen & Newman, 2005; Andersen, 1995).

During the 1980's -1990's, Andersen's model was again revised to form three components with a linear relationship: 1) primary determinants; 2) health behaviors; and 3) health outcomes. Primary determinants are noted as the direct cause of health behaviors; these determinants include characteristics of the population (i.e., demographics), the health care system (i.e., resources and organisation), and the external environment (i.e., political, physical, and economic influences of utilisation). In addition, the model explains that health behaviors determine health outcomes. Health behaviors include personal health practices (i.e., diet and exercise) and the use of health services.

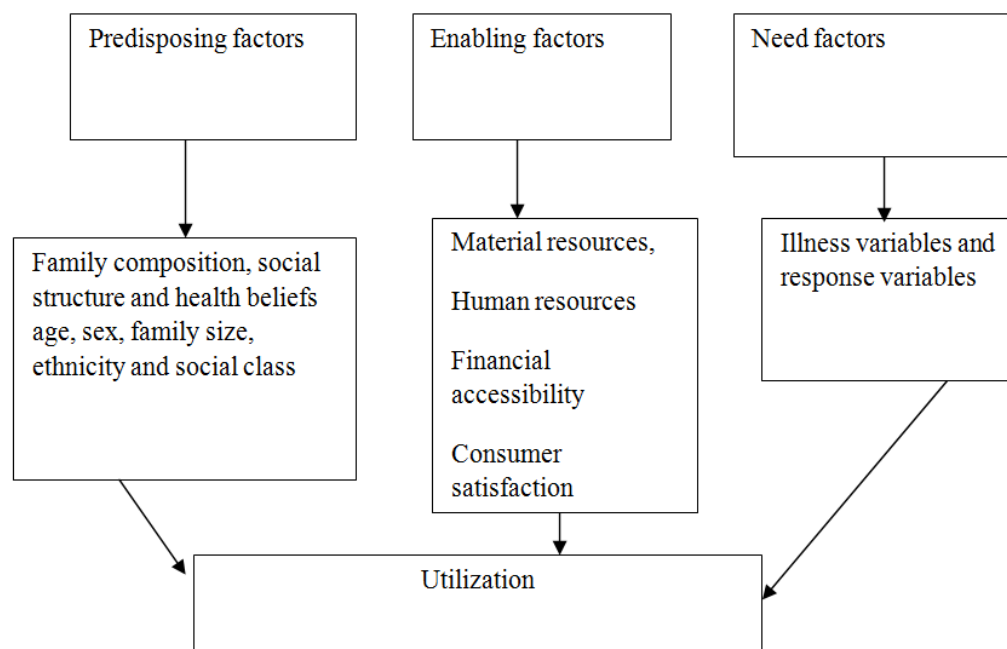


Figure 2: Andersen's Behavioural Model of Health Services Utilisation

Source: Andersen, (1968)

Lastly, the model indicates that health behaviours are the direct cause of health outcomes. Health outcomes include perceived health status, evaluated health status, and consumer satisfaction (Andersen, 1995).

Some of the studies that have used this model are Gabrysch, Cousens, Cox, and Campbell, (2011), Gabrysch and Campbell (2009) and Tarekegn, Lieberman and Giedraitis (2014) among others. Since Anderson's health behavioural model analyse differences in health services utilisation based on socio-demographic characteristics, this study uses it to achieve the first objective which seeks to analyse relationships between socio-demographic variables and utilisation of SDS by pregnant women at selected health facilities in the Central Region of Ghana. The predisposing factors (age, religion, educational background, occupation, decision maker and marital status) and the enabling factors such as health insurance coverage and income were used in this study. Analysis were done to determine among these variables which predict the use of SDS by pregnant women at facilities in the Central Region of Ghana.

Advantages

The Andersen model is useful because of its flexibility in allowing researchers to choose independent variables related to their specific hypotheses. Further, the adaptations of the model to study different outcome variables in later life, spanning the of health care and informal care (Gaugler & Kane, 2001), demonstrate its usefulness for utilisation of skilled attendant at delivery research.

Limitations

Andersen's model does not specify which variables must be used to operationalise the need, predisposing and enabling factors (Andersen &

Newman, 1973). Instead, the decision of how to operationalise them should be derive from the theoretical relationship between the independent and dependent variables. As such, the choice of variables, within the framework of need, predisposing and enabling factors, is up to each researcher.

Health Belief Model (HBM)

Irwin Murray Rosenstock developed the model in 1966. According to this model, health-seeking behaviour is influenced by a person's perception of the threat posed by a health problem and the value associated with the action aimed at reducing the threat. The components of this model are perceived susceptibility, perceived severity, motivation and enabling or modifying factors (Rosenstock, 1974). The HBM addresses individuals' perceptions of the threat posed by a health problem (susceptibility, severity); the benefits of avoiding the threat and factors influencing the decision to act (barriers, cues to action, and self-efficacy).

According to Rosenstock (1974), people are ready to adopt a health promoting behaviour if they believe they are susceptible to a health condition (perceived susceptibility) and if the condition has serious consequences for their health (perceived severity). A health behaviour may also be adopted if people believe that taking action would reduce their susceptibility to the condition or its severity (perceived benefits) while believing that the costs of taking such an action (perceived barriers) are outweighed by the benefits (Rosenstock, 1974).

Other factors influence the perceived susceptibility, perceived severity, perceived benefits and perceived barriers to adopting a health promoting behaviour. These include modifying factors, cue to action and self-efficacy. Self-efficacy refers to an individual's ability to successfully perform an action.

Cues to action are factors that individuals are exposed to, which prompt action. They include mass media campaigns, advice from others, reminder postcards, illness of a family member/friend and newspaper/magazine articles (Rosenstock, 1974).

There are several limitations of the HBM, which limit its utility in public health. Some of the limitations of the model are that it does not account for a person's attitudes, beliefs, or other individual determinants that dictate a person's acceptance of a health behaviour; it does not take into account behaviors that are habitual and thus may inform the decision-making process to accept a recommended action (e.g., smoking); it does not take into account behaviors that are performed for non-health related reasons such as social acceptability; it does not account for environmental or economic factors that may prohibit or promote the recommended action; it assumes that everyone has access to equal amounts of information on the illness or disease; and it assumes that cues to action are widely prevalent in encouraging people to act and that "health" actions are the main goal in the decision-making process.

Despite the limitations of the Health Belief Model (HBM), it was one of the first theories of health behaviour. The HBM remains one of the most widely recognized model in the field as it theorized that people's beliefs about whether or not they were susceptible to disease, and their perceptions of the benefits of trying to avoid it, influenced their readiness to act (Cottrell & McKenzie, 2005). Since health motivation is its central focus, the HBM is a good fit for addressing problem behaviours that evoke health concerns (e.g., negative attitude towards utilisation of skilled attendants at birth and the possibility of maternal and neonatal morbidity and mortality).

Together, the six constructs of the HBM provide a useful framework for designing both short-term and long-term behaviour change strategies (Cottrell & McKenzie, 2005). The model has been applied in various fields of research. Baghianimoghadam et al. (2013) applied the HBM in promotion of self-care among 180 heart failure patients who were randomly selected from patients who were referred to the Shahid Rajaee center of Heart Research in Tehran and allocated to two groups (90 patients in the case group and 90 in the control group).

They found significant differences between the mean grades score of variables (perceived susceptibility, perceived threat, knowledge, perceived benefits, perceived severity, self-efficacy perceived barriers, cues to action, self-behaviour) in the case and control groups after intervention that was not significant before the use of the health belief model.

The HBM consists of three constructs that lead up to an action related health. These are individual perceptions, modifying factors and likelihood of action. Individual perceptions are in two basic types: the individual subjective perception of the risk of contracting the health condition (perceived susceptibility) and perceived severity of the condition. Modifying factors such as demographic variables (age, sex, educational level) and psycho-social factors (personality and structural variables) influence health utilisation. In the context of the present study, the modifying factors included age, religion, educational background, occupation and marital status. The likelihood of action as described by Polit & Hungler (2004) is an individual's perceived positive and negative forces affecting his or her health behaviour. The likelihood of pregnant women

using SDS would be influenced by the factors that promote or discourage them both in the community and at the health facility (Polit & Hungler, 2004).

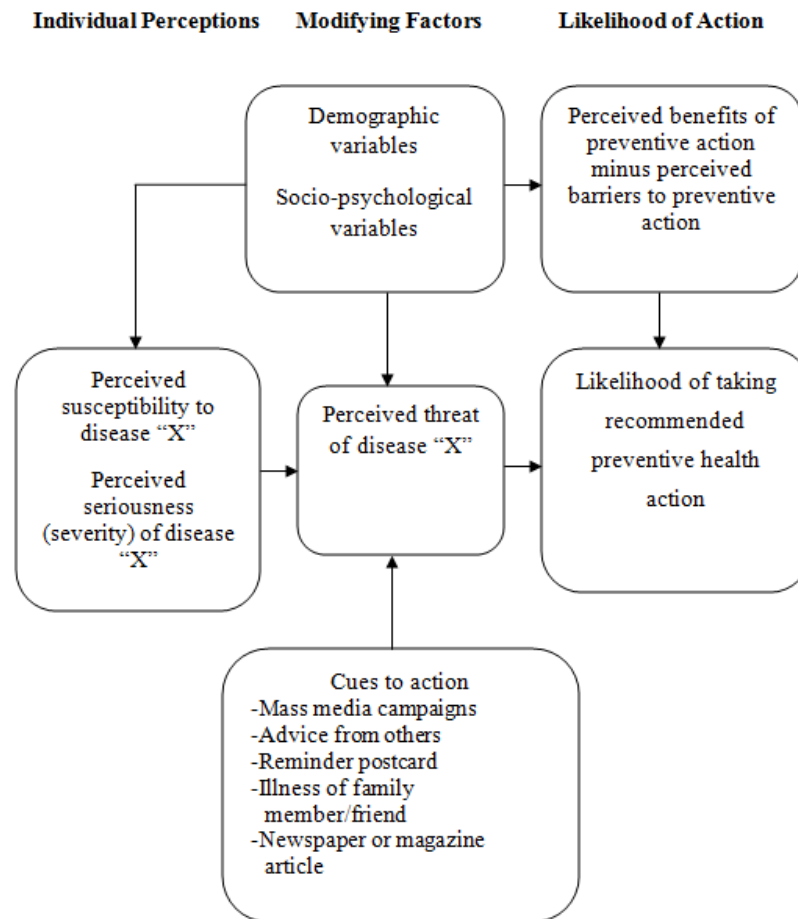


Figure 3: Health Belief Model

Source: Cottrell and McKenzie (2005).

Health behaviour as any activity is undertaken by individuals who believe themselves to be healthy for the purpose of detecting and preventing disease in any asymptomatic stage. In the context of this study, the health behaviour is the decision pregnant women will take to utilize SDS to prevent maternal and neonatal morbidity and mortality.

Limitations of the health belief model

The health belief model has been utilized for several reasons. The model is for instance criticised by a lack of adequate combinatorial rules and

inconsistent application. The model's main components have weak effect sizes, and its predictive capacity is limited as compared to that of other social cognition models.

Nola Pender's Health Promotion model

Nola Pender propounded the model in 1982. It was however reviewed in 1996. Nola Pender's Health Promotion Model (PHPM) was created to serve as a "multivariate paradigm for explaining and predicting health promoting component of lifestyle" (Pender, 1996). There are three major concepts in Pender's model, which are subdivided into narrower, more specific concepts. The major concepts are individual characteristics and experiences, behaviour-specific cognitions and effect, and behavioural outcome. These concepts have been sub-divided into sub-concepts. The sub-concepts of the theory, however, comprise personal factors, immediate competing demands and preferences, perceived barriers to action, perceived self-efficacy, activity related effect, interpersonal influences, situational influences, commitment to plan of action, perceived benefits of action (Parsons, Pender, & Murdaugh, 2011).

Personal factors are grouped as biological (comprising variables such as age, gender, body mass index, pubertal status, aerobic capacity, strength, agility, or balance), psychological (comprising variables such as self-esteem self-motivation personal competence perceived health status and definition of health), and socio-cultural (includes variables such as race ethnicity, acculturation, education and socioeconomic status). These factors are predictive of a given behaviour and are shaped by the nature of the target behaviour being considered (McCullagh, Lusk & Ronis, 2002; Michener, DeLamater & Myers, 2004).

Perceived benefits of action, according to Pender (1996), have to do with anticipated positive outcomes that will occur from health behaviour while perceived barriers to action are anticipated, imagined or real blocks and personal costs of understanding a given behaviour. Perceived self-efficacy deals with judgment of personal capability to organize and execute a health-promoting behaviour (Robbins, Gretebeck, Kazanis & Pender, 2006). Perceived self-efficacy influences perceived barriers to action so that higher efficacy results in lowered perceptions of barriers to the performance of the behaviour (Shin, Yun, Pender & Jang, 2005).

Activity related affect entails subjective positive or negative feeling that occur before, during and after behaviour based on the stimulus properties of the behaviour itself. Interpersonal influences have to do with cognition concerning behaviours, beliefs, or attitudes of the others. Interpersonal influences include norms (expectations of significant others), social support (instrumental and emotional encouragement) and modeling (vicarious learning through observing others engaged in a particular behaviour). Primary sources of interpersonal influences are families, peers, and healthcare providers (Pender et al., 2006).

Situational influences refer to personal perceptions and cognitions of any given situation or context that can facilitate or impede behaviour. The influences include perceptions of options available, demand characteristics and aesthetic features of the environment in which a given health promotion is proposed to take place. Situational influences may have direct or indirect influences on health behaviour (Pender et al., 2006). Commitment to plan of action refers to the concept of intention and identification of a planned strategy, which leads to implementation of health behaviour. Competing demands, which

are those alternative behaviours over which individuals have low control because there are environmental contingencies such as work or family responsibilities while competing preferences are alternative behaviours over which individuals exert relatively high control (Robbins, Pis, Pender & Kazanis, 2004).

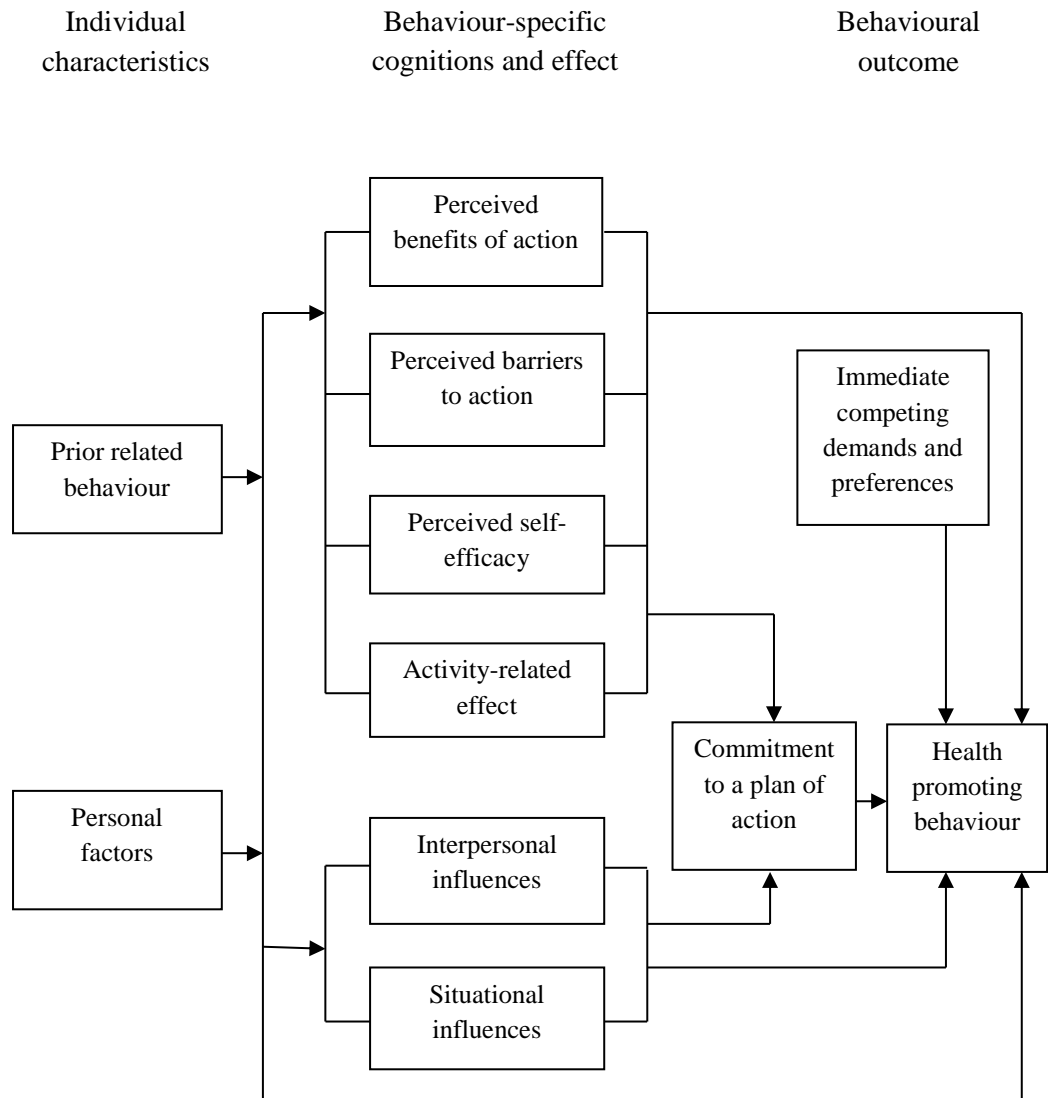


Figure 4: Nola Pender's Health Promotion Model

Source: Pender (1996)

Pender, Murdaugh and Parsons (2006) outline specific assumptions that the model is founded which overall emphasise the fact that the patients have an active role in their health behaviour. It is assumed that a patient can self-reflect,

actively seek to regulate behaviour, and initiate behaviours that modify their environment. Another assumption is that health professionals exert an interpersonal influence on an individual throughout their life (Pender, 1996). The health promotion model therefore suggests that each person has unique personal characteristics and experiences that affect subsequent actions. Health promoting behaviour is the desired behavioural outcome. It is therefore the end point in the HPM. Health promoting behaviours, as noted by Pender et al. (2006), should result in improved health, enhanced functional ability and better quality of life at all stages of development.

Limitations of the Nola Pender's health promotion model

Pender's health promotion model has been criticised for focusing only on perceptual and cognitive factors while identifying situational, environmental and interpersonal factors as being only important to the extent that they modify perceptual and cognitive influences. Pender emphasise the decision-making ability of individuals, their perception of control, and their definition of health as being critical factors. Little attention was however given to the relevance of economic or socio-political context. In addition, the theory was not specific on whether perceptual factors precede behavioural change or result from change. The model has also been critiqued for being focused on preventative, disease-centered, behavioural, and lifestyle-oriented concepts of the health education paradigm rather than addressing broader concepts of the health promotion paradigm (Whitehead & Helms, 2009).

Nola Pender's Health Promotion Model has been used by numerous nursing scholars and researchers, and has been useful in explaining and predicting specific health behaviors. McEwen and Wills (2011) noted that most

researchers used Pender's work as one component of a conceptual framework for their studies. Despite these limitations of the model, it is relevant to this study due to its strength in assessing an individual's background to predict health behaviours, which in the case of the present study, is utilisation of SDS.

In forming the conceptual framework of this study, the model helps identify characteristics, behaviour-specific cognitions and effects and how these results in the utilisation of SDS.

Theory of planned behaviour

Ajzen developed the Theory of Planned Behaviour (TPB) in 1988 (Ajzen, 1991). TPB explores the relationship between behaviour and beliefs, attitudes, and intentions. The TPB assumes that behavioural intention is the most important determinant of behaviour. According to this model, behavioural intention is influenced by a person's attitude toward performing behaviour, and by beliefs about whether individuals who are important to the person approve or disapprove of the behaviour (subjective norm). The TPB assumes that all other factors (e.g., culture, the environment) operate through the models' constructs, and do not independently explain the likelihood that a person will behave a certain way (Kalichman, Ajzen, Albarracin, & Hornik, 2007).

Developed from the Theory of Reasoned Action, TPB includes one additional construct, which is, perceived behavioural control. This construct has to do with people's beliefs that they can control a particular behaviour. Ajzen added this construct to account for situations in which people's behaviour, or behavioural intention, is influenced by factors beyond their control. Ajzen argued that people may try hard to perform a behaviour if they feel they have a high degree of control over it. It has applications beyond these limited

situations, however. People's perceptions about controllability may have an important influence on behaviour (Ajzen & Manstead, 2007).

Theory of Planned Behaviour offer an explanation for how behavioural intention determines behaviour, and how attitude toward behaviour, subjective norm, and perceived behavioural control influence behavioural intention. The model explicates that attitudes toward behaviour are shaped by beliefs about what is entailed in performing the behaviour and outcomes of the behaviour. In addition, beliefs about social standards and motivation to comply with those norms affect subjective norms. The presence or lack of things that will make it easier or harder to perform the behaviour affect perceived behavioural control. Thus, a causal chain of beliefs, attitudes, and intentions drive behaviour (Ajzen & Manstead., 2007).

There are limitations with the TPB. Factors such as personality and demographic variables were not taken into consideration by the theory. There is much ambiguity regarding how to define perceived Behavioural control and this creates measurement problems. The theory assumes that perceived behavioural control predicts actual Behavioural control. This may not always be the case. The longer the time interval between Behavioural intent and behaviour, the less likely the behaviour will occur. The theory is based on the assumption that human beings are rational and make systematic decisions based on available information. Another limitation of the Ajzen's model, according to, is that unconscious motives are not considered as variables, which also predict Behavioural intention.

The TPB has been employed in many empirical studies. For example, Knabe (2012) used the TPB to research public relations faculty intentions of

teaching online. Bayu, Adefris, Amano and Abuhay (2015) also used the TPB to investigate pregnant women's preference and factors associated with institutional delivery service utilisation in Debra Markos Town, North West Ethiopia. The authors concluded that all the main predictor variables (Subjective Norms, Attitude toward the Act and Perceived Behavioural Control) of the Ajzen's model were statistically significant at varying degrees.

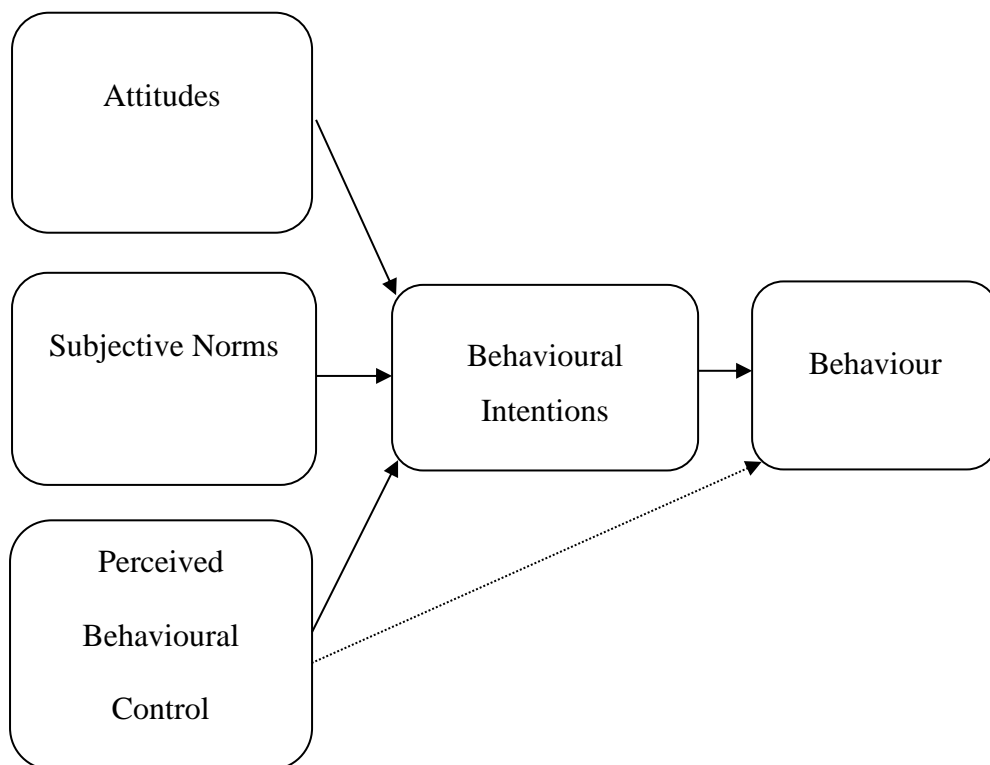


Figure 5: Theory of Planned Behaviour (TPB)

Source: Ajzen (1991).

Key Concepts of Health Care Utilisation Models

The factors which came out from the models and theories reviewed, that are those models and theories which could influence health care seeking, were demographic variables, health care access, culture and social networks.

Access is the ability of the individual to reach and obtain services. According to GHS (2014) the components of access to services include geographical, financial, organisational, and socio-cultural variables.

Geographical access is the ability of individuals who need health care to reach where the appropriate services are available. The factors that determine geographical accessibility are location of the health facility, distance, availability of transport, and travel time.

Financial accessibility is the ability of the individuals who need health service to pay for the services that will be rendered to them. Two main issues spring forth for considerations: either the person has fiscal cash to fund his/her health service or the person's health service will be funded for since he/she is an active subscriber of the NHIS. The financial accessibility to health care can be determined by assessing the levels of the fees, clients' income levels, the facility or government policies and payment mechanisms available at the health facility. The economic costs of health care seeking include not only payment for treatment, but also payment for lost productive time and the expense of transportation. Unless provided with a subsidized health care plan, persons of lower socioeconomic status can have difficulty affording the costs associated with utilisation of health care; a difficulty that directly makes utilisation less likely (Taylor, 2003).

Organisational accessibility concerns how best service users will be able to use services available any time the need arises. The determinants of utilisation access are clinic hours, waiting time and appointment schedules. To achieve these clinics must be organised in the communities and appropriate

duty schedules done for the providers to be available always at the facilities and at service points.

Culture is the sum total of the way of living of a group of people. The components of culture include values, beliefs, standards, language, thinking patterns, behavioural norms, communication styles etc. The variables for socio-cultural accessibility include social or cultural characteristics, values, beliefs and attitudes that affect clients' ability to use services. Use of understandable language at health facilities enables clients and their relatives to feel comfortable and welcome any time they visit health facilities. Trans-cultural services must be provided at our health facilities to increase accessibility. Patient's rights and responsibilities are all factors that need to be considered in ensuring socio-cultural accessibility at health facilities.

Culture can determine the level of utilisation of health services. Culture influence the way people think about their health conditions and the kind of treatment that needs to be used. Culture also determines the power of individuals to make decision concerning health care seeking. Culture can influence individual to utilize or abstain from 76 utilisation health services. Cultural background of pregnant women could influence their decision to use SDS at health facilities.

Lowe, Chen, and Huang (2016) have indicated that beyond physical limitations, social resources are also integral to utilisation. Social resources include family economic capital, social support, and group knowledge of illnesses and illness treatments. Lowe et al. (2016) stated that pregnant women in Gambia work in the field until the day of delivery. The reasons being that, it is a common practice, which is accepted by both men and women in the country.

Again, the women are very poor and as a result, they have to work every day to have money for their needs. This makes it difficult for the women to pay for transport when there is the need to access health care. Even when the women are sick, they have to pay for their medical expenses themselves. The women have limited control over resources in their marital homes. The knowledge and social support available to an individual can affect accessibility of health services.

Culture shapes not only illness treatment, but also illness recognition, perception of illness severity, and confidence in the efficacy of specific treatments for specific illnesses (Ikels, 2002). Variance in health care utilisation can result due to cultural knowledge and understandings.

Categories and perceptions of illness are often cultural. Conceptual incompatibility is a hypothesis frequently used to explain why members of another culture refuse to utilize health services. A person with conceptual-incompatibility would be unlikely to utilize available health care because the treatment conflicts with their culturally rooted knowledge of illness (Young & Young-Garro, 1982). For example, if a pregnant woman visits a health facility during labour and due to lack of resources or competency of the skilled providers, the woman is referred to another facility, the woman, her family and the entire community will lose confidence in the health facility. This will prevent most women from using that health facility.

If an individual is part of a culture that considers the self as heteronomous, they are likely to have their course of treatment determined by people within their social network (Ikels, 2002). If a culture considers the individual as autonomous, the decisions for treatment are more likely to be made

by the individual. In cultures that stress autonomy, the individual may consult social networks for illness advice. Social networks can provide an impetus for health care utilisation but may also press an individual to abstain from accessing health services.

The models do not adequately explain the effect of the individual's prior experience of illness. For example, while Young's choice making model considers gravity, the gravity is established within the individual's network group based on preconceived categories of illness severity, not the individual's prior experiences. Experience of illness may influence perception of severity. For instance, some people exhibit relatively minor symptoms of malaria, yet others experience painful aches. To the person who has minor symptoms, malaria may not be perceived as severe. Yet, to the individual's networks, malaria may be an unusually severe illness. If an individual has a prior experience with an illness and perceives the illness as more grave, they may be more likely to utilize preventive health care.

Apart from Young's choice making model and Andersen's revised Behavioural model, the other models and theories do not adequately consider the kind of health care used. These scholars tend to focus on use of professional biomedicine and overlook alternatives such as traditional medicine or different types of professional medicine. As such, they are not predictive of which health care services are likely to be utilized.

Finally, other than diseases for which a person believes himself or herself to be at risk, models and theories disregard utilisation of health care services for maintaining a healthy lifestyle. People may access health care

simply to maintain their health, not because they perceive themselves as being susceptible to a specific disease.

The current study is based on the Andersen's Behavioural Model (BM) specifically the Phase-1 Model of Health Services Utilisation. The model is appropriate for this study because it has been used in many studies investigating factors that influence utilisation of health services. Some of them are Chen, Kazanjian, and Wong (2008), Dhingra, Zack, Strine, Pearson, and Balluz (2010), Hammond, Matthews, and Corbie-Smith (2010), Hochhausen, Le, and Perry (2011), Insaf, Jurkowski, and Alomar (2010), and Nabalamba, and Millar (2007), Rutaremwa, Wandera, Jhamba, Akiror, and Kiconco (2015). Utilisation of maternal health services varied greatly by demographic and socio-economic characteristics as explained by Mengesha, Biks, Ayele, Tessema, and Koye (2013). Socio-demographic and accessibility related factors are major determinants of service utilisation. There is a high inequality in health service utilisation among women with differences in education, household wealth, autonomy and residence.

El Shiekh, and van der Kwaak (2015) mentioned that nomadic health practices and health care services are the main influencing factors affecting the utilisation of maternal health care services. Nomadic health practices are influenced by the mobile lifestyle of nomads, their low level of education and knowledge, gender norms, beliefs, values and attitudes, and their geographical locations. Adamu (2011) reported that there are differentials and commonalities in the predictors of MHCS utilisation in the regions. Education, family wealth index and place of residence are strong predictors of service utilisation in all the regions. However, some factors are significant predictors in one region but not

in the other. These include employment in the northern region; and mothers age and religion in the south.

Although associations were found between the main factors examined in the studies and the utilisation of health care, there was a lack of consistency in these findings. The context of the studies reviewed and the characteristics of the study populations seemed to have a strong impact on the existence, strength and direction of these associations.

Predisposing factors

The predisposing factors consist of individual, social and contextual factors. The individual factors include demographic characteristics such as age and sex. The social factors consist of education, employment status/occupation and social relationships. And the contextual factors are demographic and social composition of communities, collective and organisational values, cultural norms and political perspectives.

These factors are thought to predispose an individual to the transfer of informal support, and are predisposing conditions for the enabling factors. The enabling factors are based on the argument that even if a family has a predisposition to use health services, certain characteristics must be in place to enable them access health services. Without the ability to access services, a predisposition will not necessarily translate into utilisation.

Enabling factors

The components of the enabling factors are individual, organisational and contextual factors.

The individual financing factors include income, socio-economic status, wealth, health insurance status, and cost-sharing requirements. The

organizational factors are regular source of care and the nature of that source, material resources, means of transportation, travel time to and waiting time for health care.

The organizational factors are the amount, varieties, locations, structures and distribution of health services facilities and personnel, physician and hospital density, quality management oversight, and outreach and education programmes. These factors also include number of children and marital status.

The contextual factors consist of resources available within the community for health services, the rate of health insurance coverage, the relative price of goods and services, methods of compensating providers, health policies and health care expenditures.

Finally, in order for a health service to be used, there must first be a need to use that service. Therefore, need factors were included in the model.

Need factors

There are two types of need factors, which are illness variables and response variables (Andersen, 1968). Not only must the family recognise that there is an illness, but they must also respond appropriately in order to access services. This will enhance quality of life and will provide a buffer against adverse life events. Promotion of delivery at health facilities requires approaches that consider women's social situation, since factors influencing place of delivery differ for married and unmarried women (Ono, Matsuyama, Karama, & Honda, 2013).

The need factors are grouped into individual and contextual variables.

The individual factors include perceived need for health services. The perceived need explains how the pregnant women view and experience their own general health and functional state.

The evaluated need in the context of this study is ANC attendance and the need for SDS.

The contextual factors are environmental need, which include health-related conditions of the environment. The population health indices, includes mortality, morbidity, and disability which are associated with pregnancy. ANC attendance and use of SDS will help to prevent the incidence of these population indices among the pregnant women.

Theoretical Framework of the Study

Based on the literature reviewed including the theories of utilisation of health services and empirical studies, a conceptual framework was developed to graphically explain the key factors or determinants of utilisation of SDS and the presumed relationships among them. The conceptual framework was developed based on the Anderson's Behavioural model of the determinants of health service utilisation.

The Anderson's Behavioural model assumes that a sequence of factors determines the of health services. These are predisposition to use services, the ability to use services and the need to use services.

The components of the model have been combined in an integrated and holistic way with knowledge from empirical studies into a framework that attempts to predict determinants of the utilisation of SDS (the dependent variable of the study). The conceptual framework is shown in Figure 7.

Since Anderson's health behavioural model analyses differences in health services utilisation based on socio-demographic characteristics in the conceptual framework, it helps to explain relationships between socio-demographic variables and utilisation of SDS by pregnant women at selected health facilities in the Central Region of Ghana. Based upon empirical evidence and theoretical literature reviewed, the framework developed shows how the various factors may determine the utilisation of SDS and how that leads to safe delivery, good maternal health and reduction in maternal and neonatal mortality. The framework focuses on the approach to the problem, selection of methods and it demonstrates that the research can contribute new information and can have important implications for government policy aimed at improving maternal health especially in the Central Region of Ghana. Thus, the theory of reasoned action was relevant in explaining how behavioural beliefs and outcome evaluations, normative beliefs and motivation to comply as well as control beliefs and influence of control beliefs, influence behavioural intentions regarding the use of SDS by pregnant women, which then consequently result in the actual future use of SDS.

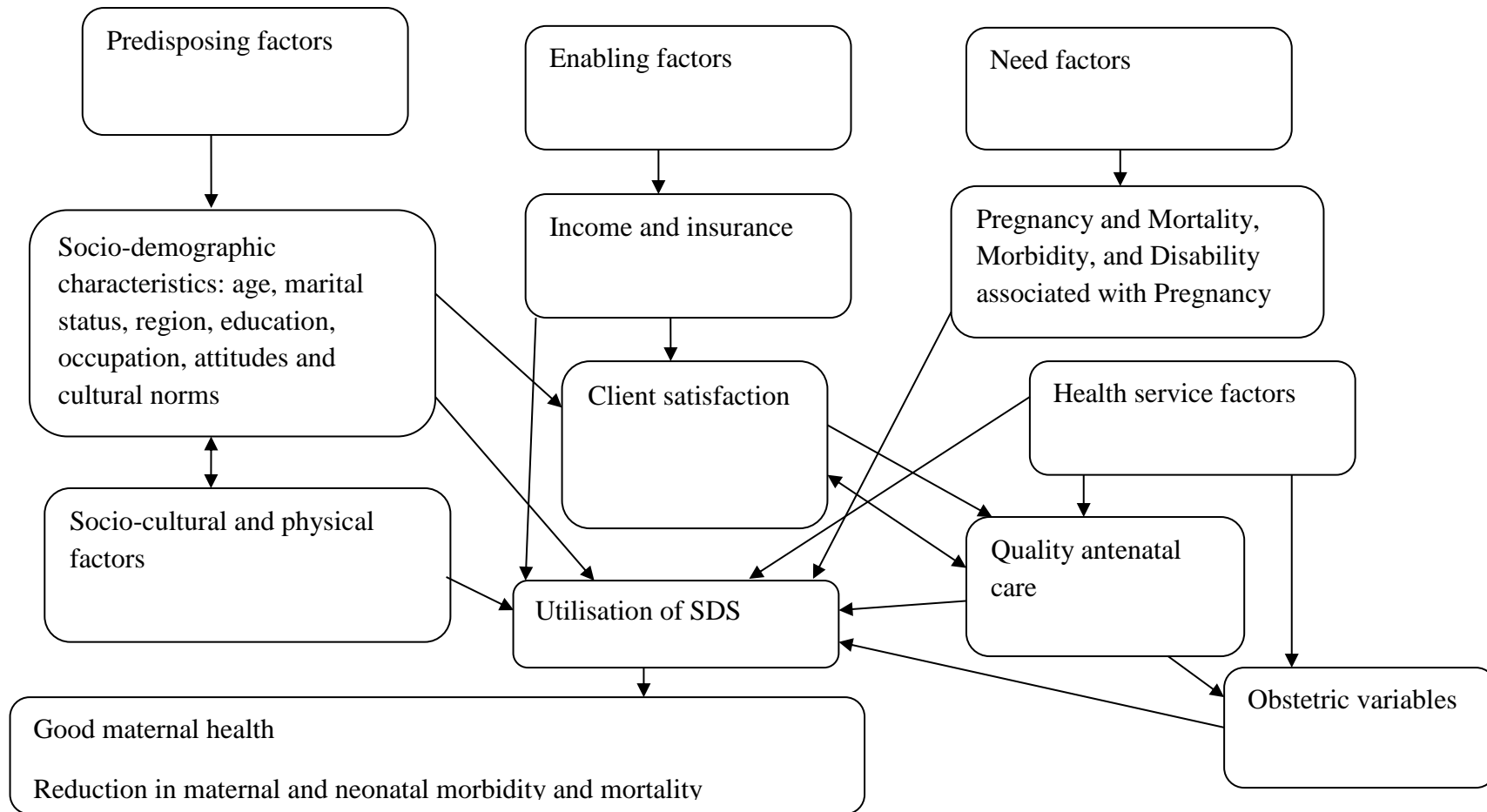


Figure 6: Theoretical framework of the study (Adapted from Andersen's, 1995)

Review of Relevant Literature

Utilisation of health services is a complex Behavioural phenomenon. Empirical studies of preventive and curative services have often found that the use of health services is related to the availability, quality and cost of services, as well as social structure, health beliefs and personal characteristics of the users (Andersen & Newman, 1973).

Level of Utilisation of Skilled Delivery Services

Level of SDS utilisation is the rate at which pregnant women use the available health services of SBAs either at health facilities or in their communities when the need arises within a specified period (monthly, quarterly, half year or annually) (WHO, 2015). Sometimes trend analysis are done to determine the level of use of SDS. The level of SDS use is usually determined through surveys (WHO, 2015). There are variations in the level of use of SDS between countries, districts, sub-districts and within communities (GSS, 2015). The level of use also varies based on the background characteristics of the pregnant women and their partners. Socio-cultural, physical and health service factors are other important determinants of the level of use of SDS.

According to WHO and UNICEF (2014), globally, skilled health workers attended about 78% of births. In developed countries, the level of births assisted by SBAs was estimated to be 99%; in upper middle –income countries it was estimated to be 95%; 64% in less developed countries and 47% in least developed countries (Kunst & Houweling, 2001; WHO & UNICEF, 2014a). In Ghana, about 57% of births were delivered in health facilities in 2014 (GHS, 2015). In addition, coverage

of supervised delivery which increased slightly from 55% in 2013 to 57% in 2014 was not distributed evenly across all the ten regions of Ghana (GHS, 2015). In the Central Region in particular, coverage of supervised delivery was 54% and facility delivery was 51.7% which was below the national average of 57% and the global expected coverage of 90% by 2015 (WHO, 2014). Nzioki, Onyango and Ombaka (2015) mentioned that 47% of pregnant women in their study used SBA at health facilities. Meanwhile in a household survey conducted in South Sudan by Mugo, Agho, Zwi and Dibley (2016), the prevalence of SDS use was 45% (95% CI = 42.4 – 47.0).

In Bangladesh, Islam, Islam and Yoshimura (2014) conducted post-intervention survey of a cluster-randomised community controlled trial on healthcare seeking behaviour of women with a recent live birth. The study revealed that about 30% of the women used SBAs during their last birth. The study also confirmed that women who attended ANC where the services were provided by SBAs were 2.62 times more likely (OR = 2.62, 95% CI = 1.66 – 4.14, $p < 0.001$) to use SBAs compared to those who did not, after adjusting for other covariates.

The findings from the cross-sectional cluster survey conducted by Gitimu et al. (2015) at Makueni in Kenya indicated that the level of use of SDS among women was 40%. Kimani, Farquhar, Wanzala, and Ng'ang'a (2015) reported from their longitudinal cohort study at Makueni County in Kenya that the level of SDS use was 54%. Cross sectional analysis of the 2007 Bangladesh Demographic and Health Survey revealed that only 20% of women use SBA for their most recent delivery (Bashar et al., 2012).

This confirms that the level of use of SDS in most countries in SSA is below the expected WHO standard of 90%. This could be attributed to low education background of most of the pregnant women, lack of autonomy of the women in making decisions concerning health care seeking, inaccessibility of health care due to poor road networks and many more.

Demographic Characteristics and Utilisation of Skilled Delivery Services

Many factors determine utilisation of health services by women including age, birth order, religion, residence, education, family size and others (GSS, 2015). According to Nzioki et al. (2015), women's level of education, age, income, occupation and parity are factors that influence their use of SDS. Addai (2000) also reported that in Ghana, key determinants of maternal health care utilisation are level of education, religion, residence, ethnicity and occupation of pregnant women. This indicates that background characteristics of pregnant women influence their use of SDS.

Age of women

According to Nzioki et al. (2015) the age of pregnant women determine their use of SDS. The authors concluded that pregnant women who are less than 25 years are less likely to use SBA (OR = 0.31, 95% CI = 0.16 – 0.62) compared with those who are 26 years and above. On the other hand, GSS (2015) stated that majority (74%) of the women who are 34 years and below use SDS at health facilities in Ghana compared with the women who are 35 years and above (70%).

Mother's age may sometimes serve as a proxy for the woman's accumulated knowledge of health care services which may have a positive influence on the use

of health services. Because of development of modern medicine and improvement in educational opportunities for women in recent years, however, younger women might have an enhanced knowledge of modern health care services and place more value upon modern medicine comparatively. Oo et al. (2012) indicated that young women (OR = 0.468, $p = 0.046$), and women and their husbands with lower educational background (OR = 0.391, $p = 0.007$), and women who live far from health facilities (OR = 0.457, $p = 0.011$) are less likely to use SDS at health facilities.

Age and parity are also determinants for the place of delivery, In Zambia, 55% of women who delivered in health facilities were younger, and out of that 65% were those having the first baby (Samson, 2012). Women of 35 years and above with more than five children tend to deliver at home because they consider themselves as having experience so they do not need assistance from skilled workers. This is evidenced by studies conducted by Mrisho et al. (2007) in southern part of Tanzania and in Nepal which documented that multi para and older women tend to deliver at home than young women (Carlough, & McCall, 2005; Carroli, Rooney, & Villar, 2001). These young women have no experience in childbirths and they tend to fear complications related to pregnancy and childbirth (Mrisho et al., 2007). Younger women aged between 15 to 19 and those over 35 years, are at greater risk during childbirth. Available literature shows that women of 35 years and over who have more than three children are less likely to use SBAs during pregnancies (NDHS, 2006; Wagle, Sabroe, & Nielsen, 2004). Low female literacy and women aged between 30-39 years were associated with the lower use of SBAs

when compared to younger and literate women (NDHS, 2006; Wagle, Sabroe, & Nielsen, 2004).

Birth order and family size

Studies have found a strong association between birth order and use of health care services (Nzioki et al., 2015). A study conducted by Jat, Ng and San (2011) in India shows that the probability of a woman with first order birth (OR = 2.39, CI = 2.22 – 2.58) to use SDS is higher than women with higher order births (OR = 1.8, CI = 01.65 – 1.95). The GSS (2015) reported about 84% women with first order birth delivered at health facilities compared with women with six and above birth order (54%). This could be as a result of perception and information that every first pregnancy carries risk of complications and death. Women with two children or more find it difficult to use SDS. The reason could be that the women need to find someone to take care of the children in their absence if their husband are not supportive.

The size of the family has greater influence on the use of SDS. Women from large families use SDS less than women from smaller families. This could be because most large families in SSA face challenges of resource mostly money for transportation, hospital bills and many more. Sometimes money to register for NHIS is a challenge.

Education

It is well recognised that mother's education has an impact on health care utilisation. Several literatures have shown that level of education are strongly associated with delivery in health facility (WHO, 2008). In these literatures, more

educated women tend to deliver in health facility compared to non-educated, therefore increased enrollment of girls to secondary education and above could help to improve delivery in health facilities (Abor, Abekah-Nkrumah & Sakyi, 2011; WHO, 2008). Mother's education being lower than primary level and not having had antenatal care (ANC) is also associated with a high prevalence of home delivery without help of SBAs (NDHS, 2006; Nzioki et al. 2015; Wagle, Sabroe, & Nielsen, 2004).

In a study conducted at Kenya (Gitimu et al., 2015), it came to light that mothers with tertiary/university education were more likely to use a SBA during delivery, compared to those with no education (AOR = 8.657, 95% CI = 1.445-51.853). Women whose partners had secondary education were 2.9 times more likely to seek SDS (AOR = 2.913, 95% CI = 1.337- 6.348) (Gitimu et al., 2015). In another study, Pongpanich, Ghaffar, Ghaffar, and Mehmood (2016) found mother's education to be an important determinant of the use of SBA. Lack of education was negatively associated with use of SBA (OR = 0.38, 95% CI = 0.09 – 0.67).

Several other studies also found a strong positive impact of mother's education on the utilisation of health care services (Abdella, Abebaw, & Zelalem, 2012; Teferra, Alemu, & Woldeyohannes, 2012; Babalola, & Fatusi, 2009; Tadese & Ali, 2014). In Ethiopia, the educational level of women was statistically and positively related to the use of SBAs during delivery (Tadese & Ali, 2014). Pregnant women with formal education were 7 times more likely to deliver with the assistance of SBAs than women with no education (OR = 7.98, 95% CI = 5.2 –

12.2) (Tadese & Ali, 2014). Women who have attained high educational level are most of the time more knowledgeable about pregnancy and the complications associated with it. These women tend to have more information about maternal health services and where to access such services. Educational background of the women determine the kind of work they do which intend reflect their financial status. The more economically the woman is empowered, the more likely she is to use SDS frequently and timely (Kimani et al., 2015; Gitimu et al., 2015).

Mother's level of education is also important determinant of place of delivery as those with non-formal education tend to deliver at home, and those educated tend to give birth in health facilities (Ejeta & Nigusse, 2015). There is a positive relationship between education and place of delivery as those with poor education are more likely to deliver at home compared to educated women who tend to deliver at health facilities (Pant et al., 2008). A study from Cambodia noted that women who attend at least seven years of school are six times more likely to deliver in health facilities compared to those who did not attend. The same findings were obtained in a study conducted in Kenya which concluded that community based antenatal education might be targeted at poorly educated mother to enable them make informed decision about the place of delivery (WHO, 2005). It has also been suggested that there may be community effects of education, with more highly educated communities organizing themselves and demanding better public services and higher position for health on the political agenda. In contrast, better awareness of poor quality in many facilities and higher confidence in self-care may delay care

seeking among educated women. Education is likely to be associated with wealth and even residence (Pant et al., 2008).

Education level of pregnant women is an important factor that determines the use of skilled delivery care. Most studies have confirmed that women with higher formal educational background are more likely to use SDS than women with no education. Some of the studies that support this assertion are Kimani et al. (2015), Gitimu et al. (2015) and Samson (2012). In Makueni County in Kenya, where Kimani et al. (2015) conducted their study which revealed that pregnant women with educational background of secondary school and above were 1.8 times more likely to use SDS compared to women with less education (OR = 1.8, 95% CI = 1.02 – 2.60). Another study which was conducted at Nkasi district in Tanzania by Samson (2012) brought to light the observation that women with secondary education were six times more likely to use SDS compared to those with no education (AOR = 6.15, CI = 1.11- 34.23). Moreover women in Makueni County in Kenya with tertiary/university education were also found to be more likely to use SBAs (AOR = 8.66, 95% CI = 1.45 – 51.85) compared to those with no education (Gitimu et al., 2015).

Afulani and Moyer (2016) investigated the disparities in SBAs by examining the determinants of use of SDS in Ghana. They found that, our proxies for perceived access, perceived need, and perceived quality of care account for approximately 23% of the difference between women with no education and those with primary school education, and about 55% of the difference between women in the lowest wealth quintile and those in the middle wealth quintiles. Afulani and

Moyer (2016) suggested that proximal factors are worthy of increased attention in terms of measurement, data collection, analysis, programmatic efforts, and policy interventions, as these factors are potentially more amenable to change than the distal factors. The effects of proximal factors are also likely context specific, thus sufficient understanding in different contexts is essential to developing appropriate interventions.

Afulani and Moyer (2016) found that women who live in urban areas have about four times higher odds of using SBA than those living in rural areas. Women who received higher quality ANC have about 47% higher odds of using a SBA than those who received lower quality ANC; and those with higher perceived need have about 28% higher odds of using SBA than those with lower perceived need. Afulani and Moyer (2016) found that women between ages 20–24 are less likely to use a SBA than older women, while primiparous women are more likely to use a SBA than women with higher order births. Women who are cohabiting, those who belong to the Traditional group, and those of Ewe, Mole-Dagbani or Hausa ethnicity are less likely to use SBAs than those who are married, Christian, and Akan respectively.

It is believed mothers who are educated have greater awareness of the availability and benefits of SDS, making education an important determinant of the utilisation of maternal health care services (Abor, Abekah-Nkrumah & Sakyi, 2011). Some researchers question the strong independent effects of education on utilisation of health services. Gage and Calixte (2006) argue that other factors such

as childhood place of residence, husband's educational level, and socioeconomic environment among others interact to dilute this strong association.

Income

Income level determines the amount of money available for individuals and family and their ability to afford health care (Nzioki et al., 2015; Abor, Abekah-Nkrumah & Sakyi, 2011). Income level of women has greater influence on the use of maternal health services (Blackwell, Martinez, Gentleman, Sanmartin, & Berthelot, 2009). Women in high-income countries are more likely to use SDS than women in low-income countries (WHO & UNICEF, 2014). In Central District, Kitui County, Kenya, as indicated by Kanini, Kimani and Mwaniki (2013), household monthly income (OR = 1.73, $p = 0.018$) affect the use of SDS by pregnant women. In a similar study done in Indonesia, it came to light that physical distance and financial limitations of the women were the two major factors that prevent them from using SBAs and to deliver at health facilities (Titaley, Hunter, Dibley, & Heywood, 2010).

Women in Zambia find it difficult to deliver at health facilities. The reason being that they face financial challenges which have robbed them of the funds to pay for transport to get to the facility and even to provide the items that are required by the SBAs for delivery and also they lack money to buy food as they are admitted at the health facility (Sialubanj et al., 2015).

According to Nzioki et al. (2015), pregnant women from households whose income is more than 1 US dollar per day and households whose income is more than GoK (Kshs 13,674) which are the minimum monthly wage were 7 times more

likely to use SBA during delivery (OR = 7.17, 95% CI = 4.20 – 12.22) compared to those from households earning less than 1 US dollar a day and those earning equal or below the minimum wage, (OR = 7.09, 95% CI, = 2.68 – 18.76) respectively. Women in employment and those operating small scale businesses were found to be 6 times more likely to deliver with the assistance of SBA as compared to expectant women who were peasants (OR = 5.93, 95% CI = 3.89 – 9.07).

Bashar et al. (2012) reported that wealth index of pregnant women in Bangladesh were found to be significantly associated with the use of SBAs. They explained that middle-income group women were 2.4 times more likely to use SBAs compared to women who are poor (OR = 2.45, CI = 1.81 – 3.33). Again women who are poor or from poor families have difficulty using SDS because they will not be able to pay for their transport and even pay for services that are rendered at the health facilities (Gabrysh & Campbell, 2009; Mugo et al., 2016).

Nigatu, Gebremariam, Abera, Setegn, and Deribe (2014), in their study, also came out with the notion that women in families with household monthly income greater than 1,000 ETB are more likely to use SDS (AOR = 3.32, 95% CI = 1.62 – 6.78) and women whose husbands are gainfully employed are those who are also more likely to use SDS (AOR = 3.75, 95% CI = 1.24 – 11.32).

Kunst and Houweling (2001) stated that women who are financially sound are able to make their own decision to seek health care than women who depend on their partners to provide all that they need including money for health care. Women

who also belong to families with high standard of living are more likely to use SBAs at birth (Senapaty, 2011).

According to Anderson and Newman (2005), family resources such as income, ownership of active health insurance and location of residence influence the use of maternal health care. The kind of work the women and their husbands do determines the amount of money available for them to spend on their needs including health care (Blackwell, Martinez, Gentleman, Sanmartin, & Berthelot, 2009). Husband's occupation can be considered a proxy of family income, as well as social status. Differences in attitudes to modern health care services by occupational groups depict occupation as a predisposing factor.

Place of residence and accessibility of health services

Place of residence (urban/rural) and physical accessibility are other factors that determine the use of SDS by pregnant women. According to Mayhew et al. (2008), women who travel less than 60 minutes to access health facility are more likely to use SDS (OR = 1.5; 95% CI = 1.1- 2.0) than women who travel more than 60 minutes.

Other studies also found out that women who travel less than 20 km to a health facility (Desalegn, Mekonnen, & Abeje, 2014; Gitimu et al., 2015; Tsawe & Susuman, 2014) and women who live more than 5 kilometers away from a health facility were four times less likely to deliver at a health facility compared to those living within a 5 kilometer range to a health facility (AOR = 0.24, CI = 0.130 – 0.43) (Samson, 2012). Residency brings disparities in the use of SDS. About 90%

of Ghanaian women in urban areas used SDS during their most recent births compared with 59% of women in the rural areas (GSS, 2015).

Bashar et al. (2012) explained that the difference in odds ratio between urban women from richest wealth group (OR= 18.86, CI: 9.79-36.31) and rural women from the same wealth grouping in terms of SDS use (OR= 12.19 CI: 8.63-17.21) was 6.67. Kanini et al. (2013) indicated that the residence of pregnant women determine whether they will use SDS or not (OR = 4.07, $p < 0.0001$). As a result Pongpanich, Ghaffar, Ghaffar, and Mehmood (2016) mentioned that pregnant women in rural areas are less likely to use SDS compared with those in urban areas (OR = 0.73, 95% CI = 0.51 – 0.95). This implies that women in rural areas are less likely to use SDS whether rich or poor. This could be due to long distance to access a health facility or poor road networks coupled with unavailability of transport services. Moreover, in urban areas, all forms of health facilities that provide maternal health care are available at both private and public health institutions.

Many communities have difficulty with long distance in accessing healthcare at health facilities especially during obstetric and medical emergencies. According to Yakong (2008), some of the pregnant women deliver at home due to inaccessibility of SDS. The inaccessibility could be due to long distance or lack of qualified skill provider at the available health facilities. Other explanations could be attributed to poor road networks mostly in rainy seasons, which prevent vehicles from using such roads (Baral et al., 2010; Gitimu et al., 2015; Magoma et al., 2010).

Religion

There is strong relationship between religion and utilisation of maternal health services (Baral, Lyons, Skinner, & Van Teijlingen, 2012; Gitimu et al., 2015). Kamal (2009) found out that utilisation of SBA among non-Muslim pregnant women was higher than Muslim women. Religious background of pregnant women influences their beliefs, norms and values towards the use of maternal health service. Male dominance in Islamic religion which constrain women's power and autonomy prevent them from making timely decisions to use SDS and other maternal health services (Bashar et al., 2012; Ghuman, 2003).

A woman's power in a household

Women's power to make decision is a key factor as far as the use of maternal health care is concerned (Beegle, Frankenberg & Thomas, 2001). According to Fapohunda, and Orobato (2013), factors that are likely to enable women to use SDS are women's autonomy and social standing. In a study done by Gyimah, Takyi and Addai (2006), it was revealed that women who are more likely to use the services of SBAs during pregnancy and delivery, either at the health facilities or at home, are those who own some aspects of family resources. These women most of the time do not need the permission of their husbands before they seek health care. When a woman has control over the economic resources of the family, she is able to make decisions at any time as to how the money will be used. According to Bloom, Wypij and Das Gupta (2001) women who have the freedom to move out from their households are 3 times more likely to use ANC and quality delivery services than women who face restrictions about their movement. Baral et

al. (2010) concluded, in their study done at Nepal that the status of women in society; women's involvement in decision-making; and women's autonomy have high influence on their use of SDS at health facilities.

According to Lowe et al. (2016), decision-making regarding access to and use of skilled maternal healthcare services is strongly influenced by the values and opinions of husbands, mothers-in-law, traditional birth attendants and other family and community members, more than those of individual childbearing women (Ganle, Otupiri, Parker, & Fitzpatrick, 2015).

Clients' Satisfaction and Utilisation of SDS

Attitude of health professionals

In a survey to find out health professionals' attitude towards patient, the result showed that all of the participants had positive attitudes towards patient safety and patient rights. In a study conducted by Marranzano, Ragusa, Platania, Faro, and Coniglio (2013) at Sicily university hospital, it was revealed that nurses have some misconceptions and concerns about HIV and AIDS. It was also found that there is significant correlation between attitudes toward patient safety scores and attitudes towards patient rights scores. In a related issue, some studies conducted about AIDS revealed that healthcare providers were knowledgeable about AIDS, but their attitude towards AIDS patients was negative (Reis et al., 2005; Umeh, Essien, Ezedinachi, & Ross, 2008).

Joukar, Mansour-Ghanaei, Soati and Meskinkhoda (2012) conducted a study to find the knowledge levels and attitudes of health care providers toward patients with hepatitis C virus infection in Guilan, which is in the northern province

of Iran. The results showed that there were negative attitudes of the health care providers towards the hepatitis C patients. The researchers recommended that it is necessary to improve healthcare workers' knowledge level and attitude toward hepatitis C disease and how best to care and attend to such patients. Kapungwe et al. (2011), in a similar study of health care workers' attitude towards mentally ill patients, have revealed that there are widespread stigmatizing and discriminatory attitudes among primary health care providers toward mental illness and those who suffer from it.

Amporfu, Nonvignon and Ampadu (2013) reported on effects of institutional factors on quality of Care in the Ghanaian health care sector indicated that patients' characteristics showed that as per the culture of Ghana, health workers' attitudes towards patients improved with the age of the patient but did not change with patients' gender. Patients with higher education were also likely to receive friendly attitude from health workers. The result however, is portraying how health workers are not demonstrating any professionalism in their work but rather playing the card on culture even at the health facility studied.

In a qualitative study done in Bolivia, the women complained of negative attitude of health care providers at health facilities, which prevent them from using SDS at health facilities. Some of the reports were maltreatment of pregnant women by staff, lack of explanation about their conditions and treatment (Rööst, Jonsson, Liljestrand, & Essén, 2009). This implies that when the expectations of the pregnant women are not met, they are unlikely to use SDS.

Quality of Care and Patient Satisfaction

Atinga, Abekah-Nkrumah, and Domfeh (2011) in a study on healthcare workers' revealed that human dimensions of service quality (interaction with service provider and attitude of healthcare providers) were perceived by the insured patients to be good, and they constitute major determinants of perceived service quality. Although waiting time was generally perceived to be long, it is not in any way associated with patient perception of quality of care. The result of the study provides an important step towards strengthening service quality in public hospitals in the wake of the introduction of the NHIS.

Fenton, Jerant, Bertakis and Franks (2012), and Manary, Boulding, Staelin, and Glickman (2013) confirmed that while patients may not understand the technical details of care, their perceptions of quality from what they see, hear, and feel can be remarkably accurate. According to Fenton et al. (2012) and Manary et al. (2013), the quality of interpersonal interactions is a very important predictor of patient satisfaction. The author reported that patients evaluate satisfaction with care according to their experiences, judging their care by the way they are treated as persons, not by the medical treatment they received. Patients receive the impression that hospital staff are too busy to help or to properly answer questions.

Feedback tells us that patients can feel emotionally ignored by health providers. If service quality is the essence of patient satisfaction, caring and comforting behaviours exhibited by health care providers play a significant role in creating patient and family satisfaction in the emergency department. Unfortunately, caring behaviours may become invisible to patients in the midst of

the multitude of technologies that focus on curing, rather than caring for patients (Welch, 2010).

Of the 2,953 US hospitals that perform one of these 6 procedures, the median patient satisfaction score was 69.5% (inter-quartile range, 63%-75.5%). Length of stay was shorter in hospitals with the highest levels of patient satisfaction (7.1 days versus 7.7 days, $p < 0.001$). Hospitals with high patient satisfaction also had a higher composite score for quality across all measures ($p < 0.001$). The study concluded that among US hospitals where major surgical procedures are done, hospitals with high patient satisfaction provided more efficient care. This result is attributed to higher surgical quality (Tsai, Orav & Jha, 2015).

Patient satisfaction is a key determinant of quality of care and an important component of healthcare performance. Under the CMS Hospital Inpatient Value-Based Purchasing (HIVBP) programme, Medicare reimbursements are linked to patient satisfaction and surveys completed by patients (Morris, Jahangir & Sethi, 2013).

Iloh et al. (2013) conducted a study to find out the satisfaction with quality of care received by patients without National Health Insurance (NHI) in Tertiary Hospital in Eastern Nigeria. The result showed that the overall satisfaction score of the respondents was generally good. Specifically, the respondents expressed satisfaction with patient–staff relationship and patient–staff communication. The findings from a study conducted by Alhassan, Spieker, van Ostenberg, Ogink, and Nketiah-Amposah (2013) revealed that quality care and patient safety standards are generally inadequate in the 64 surveyed primary healthcare facilities in Ghana.

Peprah (2014), in a study to find out the determinants of patients' satisfaction at the Sunyani Regional Hospital, revealed that patients' satisfaction is influenced by a number of factors such as attitudes of nurses toward patients, the capacity to deliver prompt service without wasting time, ability to disseminate information to patients and the availability of up-to-date equipment. The hospital's ability to render 24 hour service, response to emergency cases, the patience of the doctor to clearly explain what was wrong with patients before giving treatment, providing patients with detail information about their medication, and attractiveness and cleanliness of the hospital among others constitute some of the factors that determined patients' satisfaction.

A lot of patients visiting outpatient health services at public and private hospitals in Addis Ababa, Ethiopia indicated that clients at the private hospitals were more satisfied than those at the public hospitals with the healthcare they received (Tateke, Woldie & Ololo, 2012). Thus, hospitals in both categories should work to improve the competencies of their employees, particularly health professionals, to win the interests of the clients and have a physical structure that better fits the expectations of the patients.

Ambelie, Demssie, and Gebregziabher (2014) conducted a study on assessment of patients' satisfaction and associated factors among adults at Bahirdar Felege Hiwot Referral Hospital, Amhara National Regional State, North West Ethiopia. The results showed that overall patient satisfaction with the health services rendered at the private wing of the hospital was 58% (95% CI = 52.8% - 63.1%) computed from satisfaction measuring items. This was lower compared

with studies in public hospitals. Age, occupation, and patient department are significantly associated with patient satisfaction.

Patients' satisfaction at Western Kenya hospital was studied to find out how satisfied they were with nursing care received. The result showed that in all, 87% of patients felt satisfied with nursing care received. Most (81.8%) of the patients interviewed felt they had been promptly attended to, with a further 71.6% rating the nurses as competent and knowledgeable in their clinical care (Tarus et al., 2014).

A similar study in Kenyatta Renal hospital has revealed that patients in the Renal Unit were generally satisfied with the nursing services. The aggregate mean score for all patients on Likert scale was 71.2 out of 105, with a standard deviation of 16.8. Level of satisfaction was 67.8%. The findings also showed that there was no association between demographic characteristics with the levels of satisfaction and the nursing services (Ndambuki, 2013). At the medical wards at a Kenyan referral Hospital it was found that the average patient satisfaction rating was 65%, nearly midway between average and good. Higher rated satisfaction was associated with higher self-rated general health scores and self-rated health gains during the hospitalization ($p = 0.023$ & $p = 0.001$) (Ndambuki, 2013).

Another study evaluated the in-patient satisfaction at Meridian Equator hospital Nairobi in Kenya in 2015. The study looked at the doctors' professionalism and care information as well as the nurses' care among others (Kioi, Cowden & Karodia, 2015). The doctors' professionalism was scored by the respondents as 67%, which indicated that the levels of doctors' professionalism were excellent. Further, 27% indicated that doctors care professionalism was very good and 5% of

the response indicated it was good and 1.7% indicated it was fair. Doctors' care information was scored 47% of the respondents to this study; doctors at the Meridian Hospital were good in providing care information. About 13.3% of respondents rated the doctors as good while 1.7% rated the doctors fairly. This denotes that doctors were efficient in providing care information to the customers, which led to high levels of satisfaction amongst the customers.

The overall efficiency according to Kioi and Cowden (2015) indicates that most customers of the Meridian Hospital were satisfied with the levels of efficiency, information and service provided by doctors to patients. Nurses' care professionalism had a score of 70.5% from their customers, which indicated that nurses' had excellent professionalism.

In addition, 19.7% of the customers indicated that the nurses' had very good professionalism, 6.6% indicated it was good and 3.3% indicated it was fair. Nursing care promptness was rated excellent by 60.7 percent of the respondents, very good by 24.6 % of the respondents, good by 11.5% of the respondents and fair by 3.3 % of the respondents. The findings denote that over 95% of the customers were satisfied with the levels of promptness of care given to them by nurses (Kioi & Cowden, 2015). A study was conducted in the Hawassa University Teaching Hospital to assess the level of satisfaction of patients with outpatient health services and factors associated with it. Multiple logistic regression was used to assess the relationship between patients' satisfaction and possible predictors. Four-fifth (80.1%) of the patients reported to be satisfied with the hospital's outpatient services (Asefa, Kassa & Dessalegn, 2014). A total of 600 clients were interviewed

to assess their level of satisfaction in the Agra District Hospital. It was found that majority of the interviewees were satisfied with the courtesy and respect given by the doctor, overall time duration given by the doctor and the skills of the doctor. Others include effectiveness of health services in problem solving, cost incurred on health services and the behaviour of paramedical staff. However, low level of satisfaction was found regarding timings of out patient department (OPD), registration procedure, waiting time, cleanliness and comfort of waiting area and examination room, privacy areas and behaviour of other non-medical staff members (Anand, Kuashal & Gupta, 2012).

Evidence suggests that MM is responsive to the availability of skilled health workers. As in many developing countries, rural health services in Nepal are facing numerous problems that affect the uptake of SBAs. In Nepal, there is a chronic shortage of skilled resources e. g. the physician and nurse ratios are 5 and 26 per 100,000 people respectively (Pradhan, 2005). Lack of trained staff, equipment, and drugs are common (Acharya, & Cleland, 2000; Pradhan et al., 2010). Qualified midwives and doctors were often based in urban areas and/or hospitals. A child from an urban area of Nepal is six times more likely to be delivered in a health facility with the help of an SBA than a child from a rural area (Matsumura, & Gubhaju, 2001.). Chronic shortages of skilled attendants in rural areas of Nepal is due to frequent transfers of the staff, and staff on leave, high patient load and lack of female staff and poor facilities compared to urban areas. (Pradhan et al., 2010). Different studies from Bangladesh, Malawi and Nepal show that death or retirement of staff, emigration overseas in search of better pay and working condition are

further reasons for shortage of SBAs in many developing countries (Carlough & McCall, 2005; Pradhan et al., 2010).

In countries, like Nepal, low use of SBAs during pregnancy is not only caused by economic, geographic, cultural and religious reasons but also by institutional problems. Different research studies from Nepal have shown that poor quality services, unavailability and inaccessibility of services, minimal staff support, lack of medicine and equipment, and deficiency in the referral systems are some reasons (WHO, 2008). Staff knowledge and competence, lack of proper training and new development, inadequate payment, unsupportive management, and lack of support from the other staff are some of the constraints on providing the quality maternal health services in Nepal (Pradhan et al., 2010). The quality of the health facilities, women's age, parity, education, perceptions of safe pregnancy, place of residence (rural/ urban), gender inequality, cultural and religious beliefs, decision making power, socio-economic status of women, and geographical barriers including poor communication and road links are associated factors that affect the uptake of SBAs. Also salient institutional problems such as staff attrition for several reasons, limited availability of services, minimal staff support and training, lack of medicine and equipment and deficiency in the referral systems are other factors (Kaufmann, Kraay, & Mastruzzi, 2008). It has also been suggested that political instability and weak governance, change policy and planning all influence the use of existing health services including the use of SBA during labor and delivery of pregnant women (Pradhan et al., 2010).

The failure of SBAs to manage complications deters most women from using such health facilities. Health facilities that fail to manage difficult cases are not suitable places for pregnant women to seek delivery care. Most people will bypass such nearby facilities and go directly to hospitals or facilities that can provide better services to save their lives and that of their babies. Most women are concerned about specific routine and lifesaving procedures conducted by health care providers during labour, delivery, and immediate postpartum. Some women perceive digital vaginal examinations performed at health units as painful, likely to damage the baby, and a cause of labour retraction. Some women and men also describe digital examinations performed by male providers as dehumanizing. In contrast, Maasai women felt that TBAs perform digital vaginal examinations gently and only when the baby's head is crowning. Maasai and Watemi participants explained that caesarean sections performed with no explanation provided in advance evoke fear in pregnant women that they will undergo unnecessary caesarean sections if they deliver in health units. Episiotomies and repairs of genital tears sustained during delivery also deter Maasai and Watemi women from seeking skilled delivery care. Genital tears are viewed in the two communities as inevitable complications of childbirth that do not require medical intervention (Magoma et al., 2010; Pradhan et al., 2010). Health care providers interviewed blamed Maasai and Watemi women's low education level as the underlying cause of their misperceptions about routine labour and delivery procedures. Squatting is the traditional labour position in the two ethnic groups.

Skilled providers were only trained to assist women in the orthodox supine position. Study participants agreed that labour position is not a crucial factor in the decision making process about where women deliver. Some women felt that they should accept whatever position the provider decides is best. This view reflects the scope for deference to authority figures. Maasai and Watemi women were expected to show: “It is bad for an expectant mother to be so demanding. How you deliver and who assists you does not matter but your safety and good care. Since not all providers are of our ethnic group, it is bad to impose our norms on others. We need to show respect to the providers as much as they respect us. If a woman has birthing preferences and the provider suggests that she may not be comfortable with that choice, the woman must listen and abide” (Magoma et al., 2010). Health care providers interviewed noted instances when they observed colleagues verbally abuse, and force Watemi and Maasai women in labour to bathe and put on hospital uniforms. Maasai and Watemi women are being told to bathe and put on uniforms by labour ward staff at the two hospitals (Magoma et al., 2010).

Socio-Cultural and Physical Factors and Utilisation of SDS

Transportation

Unreliable transport is also a barrier to access skilled delivery in rural areas, the failure to plan for transport cause higher number of women to deliver in their homes even if they had planned to deliver in health facilities (Magoma, 2010; Mrisho et al., 2007). Similar findings have been documented by a study done at Nepal where 18% of women who planned to deliver in health facilities delivered at home due to lack of transport. In a rural Tanzania for instance, 84% of women who

give birth at homes had intended to deliver in health facilities but due to transport problem and long distance to health facilities they ended up delivering at home.

Expenses of transportation and time needed to access health care services influence the rate at which people use the health services they need (King, Jackson, Dietsch, & Hailemariam, 2015; Young & Young-Garro, 1982). Physical and social resources influence accessibility of health care (LaVela, Smith, Weaver, & Miskevics, 2004).

Nepal's challenging terrain and poor communication network meant that travel to health facility is difficult especially in the hill and mountain districts. Poor or non-existent road links caused transport to be an important barrier (Borghi, Ensor, Neupane, & Tiwari, 2006; Simkhada, van Teijlingen, Porter, & Simkhada, 2006). When travel times have to be measured in hours or even days rather than minutes because of the topography of the country (and most people travel without transportation), these become great deterrents to service use. (Furber, 2002; Hotchkiss, 2001) Limited geographic access to maternal health services is a further barrier in the remote rural areas of Nepal (Simkhada, van Teijlingen, Porter & Simkhada, 2006). A period of armed conflict between the years of 1996-2006, further exacerbated the limited use of maternal health services. A study in 2003 found that the armed conflict had affected women's access to emergency obstetric care through increased barriers to travel and security.

Studies conducted in Bangladesh, Malawi and Nepal have shown that living one hour away from a health facility increases the chance of a home delivery without a SBA. The tendency of such deliveries occurring at home is eight times

more than if the patient lived a distance of under one hour away from a health facility (Borghi, Ensor, Neupane, & Tiwari, 2006). Distance from a facility adds to the financial burden facing households. It also determines time spent and other indirect cost for a delivery.

Barriers to access SDS are planning, transportation and cost issues. The largest obstacle to receiving skilled and emergency obstetric care is failure to plan for transport. Planning for delivery is not part of traditional practice in communities where home delivery is the norm. For most Maasai and other women living in remote villages, transport to health units for delivery or emergency obstetrical care is unreliable and unaffordable but transport costs are not prohibitive for Watemi women who have more financial security (Ensor & Cooper, 2004).

Cultural factors

Cultural factors and accessibility to health care are key determinants for pregnant women in South Africa to use maternal health services (Tsawe & Susuman, 2014). Maternal health services are mostly used less by women who travel long distances, and those who have received poor quality of care (Birungi, Odaga, Lochoro, Santini, Owiny, & De Vivo, 2009; Mattson, 2011; Silal, Penn-Kekana, Harris, Birch, & McIntyre, 2012). The dominant aspect of culture, which is expected by pregnant women at health facilities, is respectful communication during labour and birth and this relates to the women's feeling of personal capacity (Renfrew, et al., 2014)

Socio-cultural factors that influence the use of health service in Ghana are cultural preferences for home births, expectations of society about women's

conduct during pregnancy and childbirth and religious beliefs of the women. Furthermore, faith healing practices, cultural norms and traditions including rituals around pregnancy, negative conceptions of health-facility birth, the legitimacy of a pregnancy, and women's relative lack of power and freedom to make decisions, were other important socio-cultural factors that affected access and service utilisation (Ganle, et al, 2015; Ganle, Parker, Fitzpatrick, & Otupiri, 2014). Minority ethnic groups reported lower levels for most of the components of skilled maternity care in Ghana (Ganle et al., 2015).

Health Service Factors and Utilisation of SDS

Several studies have found the influence of health service factors and use of SDS. Health workers tend to unnecessarily refer pregnant women to higher level because they don't have adequate knowledge and skills about the use of the partograph; a tool used to monitor the progress of labour to ensure normal delivery. These women will never visit such facilities again anytime they are pregnant (WHO, 2010).

Adequate availability of SBAs is key to the utilisation of skilled delivery services and reduction in maternal mortality. There is a big challenge globally about the number of SBAs trained and distributed mostly in rural areas. Physician and nurse ratios in Nepal are 5 and 26 per 100,000 people respectively (Pradhan, 2005). There are inadequate trained personnel, equipment and drugs (Acharya, & Cleland, 2000; Pradhan et al., 2010). Most qualified midwives and doctors are often based in urban health facilities. Children in urban areas most of the time were delivered in health facilities than children from rural areas (Matsumura, & Gubhaju, 2001).

Frequent transfers of the staff, and staff on leave, high patient load and lack of female staff and poor facilities result in persistent shortage of skilled birth attendants in rural areas in Nepal (Pradhan et al., 2010). Death or retirement of staff, emigration for better pay and working condition are other reasons for shortage of SBAs in many developing countries (Pradhan et al., 2010; Carlough & McCall, 2005). Staff knowledge and competence, lack of proper training and new development, inadequate payment, unsupportive management and lack of support from the other staff are some of the constraints on providing the quality maternal health services in Nepal (Pradhan et al., 2010).

High staff attrition is because of limited availability of services, inadequate staff support and training, lack of drugs, logistics and equipment and poor referral systems (Kaufmann, Kraay, & Mastruzzi, 2008.). Political instability and weak governance, change in policy and planning can affect the use of health services including the services of SBA (Pradhan et al., 2010).

When health care providers are unable to manage women's difficulties, labour, the women lose of trust and confidence and conclude that those places are not suitable to seek delivery care. Some community members also advise women to bypass those, although they are close, to them to seek services directly from hospitals that are even far. These are facilities where all conditions can be managed (Magoma et al., 2010).

Lack of advanced explanation about caesarean sections induces so much fear in pregnant women such that they will undergo unnecessary caesarean sections if they deliver in health units. Episiotomies and repairs of genital tears sustained

during delivery also deter women from seeking skilled delivery care. The women believe that genital tears are inevitable complications during delivery and medical intervention is not necessary (Magoma et al., 2010).

Low educational level of the women was viewed as the cause of their misperceptions about routine labour and delivery procedures. The supine position used during delivery was not a major concern for the women although the traditional position used during delivery is squatting. The major concern was about safety and quality care. In some hospitals, the health care providers verbally abuse the women, and there are instances where women are forced to bath and put on hospital uniforms at labour wards (Magoma et al., 2010).

The success of births attended by skilled attendants and reducing maternal and new born mortality depends on well-developed health system, strong referral systems and linkages, availability of transport networks and emergency services. The midwifery programmes have met with varying levels of success (Gunathunga & Fernando, 2010; Mavalankar, Vora & Prakasamma, 2008; Warren & Mwangi, 2008) in reducing maternal mortality through increased skilled birth attendance.

WHO (2012) reported that about 15% of pregnancies result in obstetric complications. This could be attributed to the fact that most of the developing countries have inadequate SBAs to manage the high number of pregnancies. The perceived inability to pay healthcare costs held huge weight in the decision of where and with whom to give birth. In areas with high poverty levels and little salaried work available, economic factors understandably play a key role in health-seeking behavior. Better communication by the health facilities to advertise free delivery

services and better government and staff accountability to uphold the minimal registration fees may begin to correct misperceptions of high costs (WHO, 2012).

A rich-poor gap may also exist in “near miss” cases, when life-threatening complications occur during pregnancy, delivery, or postpartum. Research in Burkina Faso showed that women who experienced a life-threatening obstetric complication were poorer than women who had normal deliveries in the same hospital. Caesarean delivery rates also reflect a rich poor gap. The poorest women in many countries have extremely limited or no access to this potentially lifesaving surgery. Where caesarean rates are very low, a high proportion of surgery is carried out to save the mother’s life, according to Impact Research. As rates rise, such as in urban areas or among the rich, a greater share of caesarean deliveries are performed (WHO, 2012).

Collecting and analysing information on how money is allocated and spent at the national, regional, district, and health-facility level are important ways to assess the effects of health system reforms on maternal health. In Ghana, the success of the delivery-fee-exemption policy was threatened by funding problems. Impact’s analysis of financial flows suggested that when funds were initially available through Ghana’s Highly Indebted Poor Countries money, health facilities increased their revenue, with reimbursements more than matching losses from user fees foregone. However, inadequate provision of budgets led to funds running out, which in turn drove facilities into debt, and led to the eventual suspension of the policy (GSS, 2011; GSS, 2015).

WHO (2010) reported that personnel and building expenses at Burkina Faso were the main costs of facility-based maternal health care. Also in Indonesia, trained midwives had the sole responsibility for a village health care, since they tend to be more productive, the unit cost per midwife was lower than in villages where the midwife has shared responsibility (US \$48 per delivery compared with US\$59).

Maternal-health services are staff-intensive. Incentives and motivations are essential for the success of maternal health care programmes (Ensor, Quayyum, Nadjib, & Sucahya, 2009). While private incentives in Indonesia, while they serve as motivation for the midwives these incentives present a barrier to service use by poor women. Despite the relatively equitable distribution of public resources to maternity care, when village midwives work outside the programme, they do not serve their poorest clients (Ensor et al., 2009). Other incentives that will motivate service providers and ensure that the service is affordable to users must be implemented.

Chapter Summary

This chapter reviewed literature relevant to the study. The review highlighted concepts and definitions, theories and empirical evidence that the related to the study. Maternal health, maternal, neonatal and infant mortality, safe motherhood initiative, determinants of SDS use were some of the concepts reviewed. Theories including Thaddeus and Maine Three Delays Model, Andersen's health behavior model, Health Belief Model (HBM), Nola Pender's Health Promotion Model and Theory of Planned Behaviour were reviewed.

Empirical studies were also reviewed on the level of utilisation of SDS, and determinants of SDS use such as demographic characteristics, client's satisfaction, ANC attendance, socio-cultural and physical and health service factors. Based on a critical and evaluative review of theories and empirical findings of previous studies, a conceptual framework was developed by synthesizing relevant components of the Anderson's model as well as empirical evidence.

CHAPTER THREE

RESEARCH METHODS

Overview

The purpose of the survey was to investigate the factors that determine the use of SDS by pregnant women at Health Facilities in the Central Region of Ghana based on the Andersen's Behavioural Model of Health Services Utilisation. This chapter presents the methodology of the study. Sections in this chapter are research design, profile of study area, population, sampling procedure, data collection instrument, pretesting of the instruments, validity and reliability, data collection procedure and data analysis.

Research Design

The study was a descriptive cross-sectional survey that quantitatively explored the various factors that influence utilisation of SDS in the Central Region of Ghana. The function of the research design is to ensure that the evidence obtained enables the researcher to answer the initial research objectives as unambiguously as possible. Obtaining relevant evidence entails specifying the type of evidence needed to answer the research objectives, to test a theory, to evaluate a programme or to accurately describe some phenomenon.

Descriptive research provides an accurate account of characteristics of the study participants, or group in real-life situations (Polit & Beck, 2004). A descriptive design was beneficial for this study because it enabled the researcher to identify factors that determine the use of SDS with current pregnancy, justify

current practice, making judgments, or determining what others in similar situations are doing (Wynd, Schmidt, & Schaefer, 2003).

The strength of the descriptive design also lies in the fact that it strives to confirm existing knowledge and that it is a flexible research design that provides an opportunity to examine all aspects of utilisation of SDS. The use of a descriptive design enabled the researcher to describe the responses of the respondents concerning the use of SDS. By this design, the researcher was able to collect the data, describe and document the situation at the health facilities and the level of intention of SDS use among the pregnant women.

The purpose for conducting descriptive study was to provide appropriate information to SBAs, health planners, the government and other stakeholders regarding interventions that need to be put in place. It will enable the SBAs to improve SDS to pregnant women and to improve overall maternal health service provision to achieve SDG 3.1 and SDG 3.2.

The descriptive study is cross-sectional because it involved a one-time interaction with the study participants (cross-sectional). Data was collected from respondents at one point in time at all the selected health facilities (Burns & Groove, 2005). Cross-sectional studies can help make health-policy decisions. Cross-sectional surveys enabled the researcher to gather information on important health-related aspects of the study population. Cross-sectional studies are done on representative samples of the population if generalisations from the findings are to have any validity (Abramson & Abramson, 2000).

The aims of cross sectional survey is to describe the relationship between dependent and independent variables depending on their prevalence in a specified population at a particular time, without regard for what may have preceded or precipitated the health status found at the time of the study. Cross-sectional studies are done on representative samples of the population if generalizations from the findings are to have any validity. These studies gather information about the prevalence of health-related states and conditions.

The weaknesses of this study are that it is impossible either to establish causal relationships or to get reliable perspectives on the natural occurrence of a particular situation or the focus of interest of the study. Again, cross sectional studies cannot distinguish between newly occurring and long-established conditions or situations. They cannot identify cause-and-effect relationships, though they do identify the existence of health problems.

Study Area

The study focuses on the Central Region. The Central Region occupies an area of 9,826 square kilometres, which is about 6.6% of the total land area of Ghana. It is bounded on the south by the Gulf of Guinea and on the west by the Western Region. The region shares borders on the east with the Greater Accra Region, on the north with Ashanti Region and on the north-east with Eastern Region. The region has 20 administrative districts with the historical city of Cape Coast as the capital. About 63% of the region is rural (GSS, 2009). The population was estimated at 2,413,050 for the year 2013 with an annual growth rate of 3.1% (GSS, 2011) and a population density of about 215 inhabitants per square utilisation.

The region enjoys two main rainy seasons in a year. The major rainy season occurs in the months of April to July, peaking in June. The minor rainy season peaks in October and spans the months of September to November. The vegetation is divided into dry coastal savannah stretching about 15 km inland, and a tropical rain forest covering hinterland areas. There is one forest reserve, the Kakum National Park, which is located at about 25km from Cape Coast in the Hemang Lower Denkyira district. The region had at the time of the study 373 health facilities comprising 181 functional CHPS, 15 private hospitals, 13 district Hospitals in the breakdown below. Majority of private institutions are located in the district capitals and other urban areas.

Out of the 20 districts, seven districts did not have district hospitals. These were Assin South, Gomoa East, Upper Denkyira West, Awutu senya, Awutu Senya East, Ekumfi and Agona East districts. The distribution of health facilities does not favour the large rural majority as most of the facilities are located in urban areas. This calls for a scaling up of the CHPS initiative to get basic services to the doorsteps of the people, especially those in rural areas. There are five health training institutions in the region located at Winneba, Cape Coast, Ankafu, Twifu Praso and Dunkwa-on-Offin.

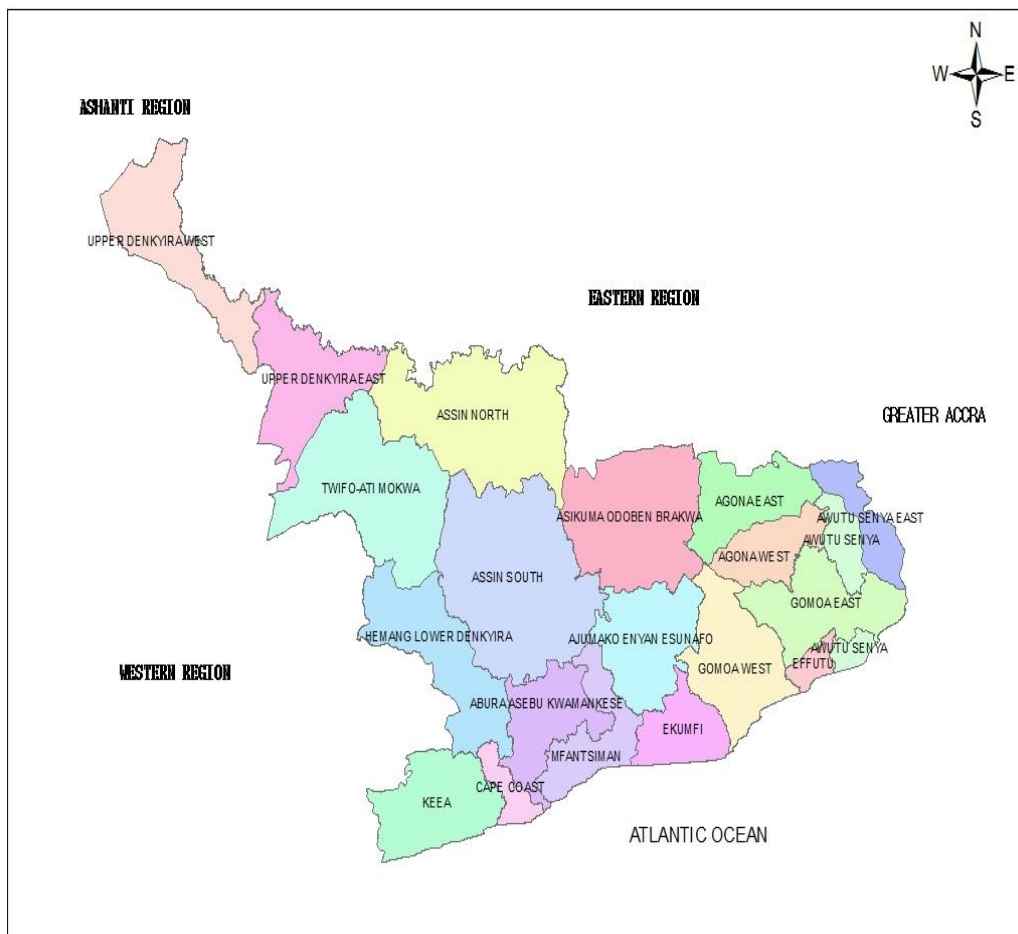
The region is predominantly Akan, they constitutes more than 90% of the population. Majority of the Akans are Fantes, the indigenes of most districts in the region. The region is endowed with rich cultural events including annual festivals such as Aboakyer, Fetu Afahye, and Bakatue among others. An international festival, the Pan African Historical Theatre Festival (PANAFEST) is hosted every

two years by the region. It also has historic monuments like castles and forts, which attract many tourists.

The Central Region is considered a stronghold of education due to the number of top class educational institutions located in the region. There are 92 senior high schools, two public universities, one polytechnic and three colleges of education. Adult literacy rate in the region is more than 50%, with the highest being 75.3% in Cape Coast and the lowest 45.2 % in Abura-Asebu-Kwamankese. The proportion of males who are literate is 81.4% compared to 62.0% of females (GSS, 2009). The employment status for men in the region stood at 74.2% whereas that of women was 76.6%. The national average for men is 79.7% and for women is 74.8% (GHS, 2009).

The predominant industry in the region is agriculture (52.3%). Manufacturing forms 10.5% of industries in the region. Agriculture (including fishing) is therefore the main occupation and employs more than two thirds of the work force in the region. Cocoa and oil palm production is concentrated at Assin North and South, Twifo-Hemang-Lower Denkyira and Upper Denkyira East and West districts. Other major agricultural enterprises include pineapple and grain production. Fishing is concentrated mainly in the Coastal areas.

This study was carried out at selected health facilities in the following districts in the Central Region, Cape Coast Metropolis, Gomoa West, Agona West, Twifo Ati Mokwa, Mfantsiman Municipal, Effutu Municipal and Asikuma-Odoben-Brakwa. These districts were selected because they have health facilities which offer SDS.



Source: Central Regional Health Directorate annual report (2014).

Population

The target population for the study was pregnant women of reproductive age (WRA), between 15-49 years. Women in Reproductive Age who had delivered within the past three years prior to the study regardless of their birth outcome and those who had never given birth and are pregnant for the first time, in the Central Region of Ghana.

Women in Reproductive Age between 15-49 years were used because the age bracket has been used by most studies, which were conducted about use of SDS

globally. Examples of such studies are Basher et al. (2012), Choulagai et al. (2013), Islam et al. (2014) and others. Age group 15 -18 years, considered under age, was included in the study because of the high incidence of teenage pregnancies among these age group in the study area. Teen pregnancies and births can contribute to maternal mortality in the country (GSS, 2015). Based on the use of the Krejcie and Morgan (1970) sample size estimation formula 1,100 pregnant women were used for the study.

Women who gave birth outside the Central Region were excluded and if a woman gave birth twice within the 3 year period prior to the study, she was interviewed on the last delivery. Women who were below or beyond the reproductive age (15 – 49 years) were also excluded from the study, as this age bracket is the main target for female reproductive years. Most women are giving birth at this age group. Many studies about SDS use used women within the ages of 15-49 years. Examples were Bashar et al. (2012), Gitimu, et al. (2015), Kebede, Addisu, and Vata (2011/12), Wilunda, et al. (2015), Yanagisawa, Oum, and Wakai (2006) and others.

Women who were not pregnant, pregnant women who were not within the ages of 15 – 49 years, those whose last birth were more than 3 years, those who gave birth 3 years prior to the study but outside Central Region and pregnant women who were not antenatal care attendees were excluded from the study.

Sampling Procedure

The sample size is subject to the nature of the population, the kind of data to be collected, the type of the analysis to be carried out, and the availability of

funds for the study (Mathews, 2010). The sample frame of the study included all districts in the Central Region. There are 20 districts in the Central Region. They are one metropolitan, 6 municipalities, and 13 ordinary districts. Krejcie and Morgan (1970) formula was used in calculating the sample size. It is given as:

$$s = \frac{X^2NP(1-P)}{d^2(N-1)+X^2P(1-P)} \text{ where,}$$

s = required sample size.

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841).

N = the population of ANC clients in the selected health facilities.

P = the population proportion (assumed to be 0.50 since this would provide the maximum sample size).

d = the degree of accuracy expressed as a proportion (0.05).

After the calculation, the sample size was 385. Assuming 10% non-response rate, design effect of 2, (to compensate the clustering effect introduced as a result of using stratified sampling technique) the sample size was:

$$N = 385 \times 2 + 10\% \text{ of } 770 = 770 + 77 = 847$$

This brought the estimated sample size to 847 and this was rounded up to a sample size of 1000. This is because as the sample size increases, the result becomes more accurate (Cohen, 1992). However, an overall sample size of 1100 was used. The additional 100 respondents were determined by selecting 10% of first time pregnant women at each selected health facility to add to the 1000 already chosen. The sample size determined was proportionally allotted to the health facilities selected based on their average monthly ANC attendance at each facility

as presented in Table 1. The average number of clients was determined by considering the ANC attendance for the 3 months preceding the month of the study.

Table 1- *Selected Districts with sample size*

District hospital	Population of expected Pregnancies	Sample size	First time pregnant women (10%)
Cape Coast Metropolis	7,448	163	16
Gomoa West District	5,926	130	13
Agona West Municipal	5,057	111	11
Mfantsiman Municipal	5,997	131	13
Effutu Municipal	3,007	66	6
Asikuma-Odoben-Brakwa District	4,941	108	11
Awutu Senya District	4,105	89	9
Awutu Senya East District	4,456	97	10
Twifo Heman Lower Denkyira District	2,203	48	5
Ekumfi District	2,619	57	6
TOTAL	45,759	1,000	100

Source: Ghana statistical service (2015).

Multi-stage cluster sampling was used to select the respondents for the study.

Stage one

The districts in the region were not the same in terms of population, social, economic and geographic factors (GSS, 2015). All the districts have health facilities. The districts were therefore grouped into two strata, urban and rural. That

is urban districts are districts with adequate social amenities including public hospital(s) and rural districts are districts with inadequate social amenities and without public hospital(s) (GHS, 2015). Stratified sampling was used to select the respondents from each stratum (Delice, 2010).

Stage two

The purposive sampling method was used to select public health facilities that provide ANC services within the selected districts such as hospitals, polyclinics, health centers and CHPS compounds. Purposive sampling was very useful for this study because it ensured easy accessibility of the targeted sample. The hospitals, polyclinics, health centers and CHPS compounds are the main public health facilities where most of the ANC services occur within the region.

Stage three

Simple random sampling technique was used to select 10 districts out of the 20 districts. That is 6 districts with hospitals and 4 districts without hospitals. This was to make the sample representative of the 12 districts that had hospitals and 8 districts that did not have hospitals. The simple random sampling method was also used to select 2 health facilities that provide ANC services from each of the selected districts, one from urban and one from rural area. The simple random sampling method gave every facility a fair chance of being selected to help determine the utilisation of SDS at the selected health facilities to inform appropriate intervention. The proportionate stratified sampling method was used to select the respondents in proportion to the size of the population in their study area.

Stage four

The purposive sampling method was also used to select 1,000 women who had their last delivery between one and three years and 100 women who had never given birth.

Stage five

The convenient sampling method was also used to select the pregnant women at each selected health facility for the study. In convenient sampling, study participants were selected based on their availability (Walliman, 2001). In clinical practice, clients who are available are used as sample. This is because pregnant women mostly attend ANC at their own convenient time as normal pregnancy is not sickness that demands emergency attention. Convenient sampling method was employed since the pregnant women were homogenous. Aside the fact that many studies conducted in similar area also used the same sampling procedure, the convenient sampling method has been used by several studies that were conducted about use of maternal health and SDS. Examples of such studies are Awuni, Ninsawu, Narh, Bonsu, and Abrefa, (2017), Esienumoh et al. (2015), Makuta (2009), Walker et al.(2013), and Walker, DeMaria, Suarez, and Cragin (2012).

Data Collection Instrument

Questionnaire was used to collect the data from the respondents. The questionnaire was adapted from the safe motherhood questionnaire developed by maternal and neonatal health programme of JHPIEGO and GDHS, 2014. The questionnaire was used to collect information from pregnant women who had never given birth and those who had given birth within the past 3 years preceding the

study. The sub-sections of the questionnaire were on socio-demographic characteristics of respondents, obstetrical issues of respondents, ANC service attendance, clients' satisfaction with previous SDS, health service factors affecting utilisation of SDS and socio-cultural and physical factors that influence utilisation of SDS. The questionnaire was developed in English and later translated into Fante to suit the research objectives, the local situation and the dominant language of the respondents. This is because most of the people in the Central Region of Ghana are Fantes and the translation of the questionnaire also ensured the quality of the data.

The items on the questionnaire were organised into five sections. "Section A" covered the socio-demographic characteristics associated with utilisation of SDS with 12 items (item 1-12). The socio-demographic characteristics of the women were measured by their age in years, religion, marital status, residence, educational and occupational background, income, decision maker, and ownership of health insurance.

The age of the women ranged from 15 to 49 years. The age of the women were classified into four age groups. These were coded as 1, 2, 3, and 4 for the age groups of less than 20, 20-29, 30-39, and 40-49, respectively. The question "what is your religion?" was used to determine the religious affiliation of the pregnant women. The religions of the women were classified into three; no religion, Christian and Muslim. Christianity was coded as 1 and Muslim 2. Educational background referred to the highest levels of education of the women and their husbands. The women and their husbands' education were classified into four levels: no formal education, basic education, secondary education, and tertiary

education and they were coded as 1, 2, 3 and 4 respectively. Marital status of the women sought to determine whether the pregnant women were single, married or cohabiting. The coding was done as never married 1, married 2, and living together or cohabiting 3. The variable, decision taker on where mothers should seek healthcare, refers to the rate of involvement of women at the various level of decision making concerning their health in the family. The responses that were used to address this were coded as follows: husband/partner 1, family member 2, self 3 and husband and self 4.

“Section B” addressed the relationship between obstetric variables of the women and use of SDS with 8 items (item 13-20). The issues that were covered were age of last child, gestational age, ever experience miscarriage or abortion, ever had stillbirth delivery or neonatal death, and ever experience complications during pregnancy or delivery. The age of last child was grouped as less than one year, one year, two years and three years and were coded as 1, 2, 3 and 4 respectively. The gestational ages of the women were put into three categories and were coded as 1, 2, and 3 for 1-3 months, 4-6 months and 7-9 months respectively. Ever experienced miscarriage or abortion, ever had stillbirth delivery or neonatal death, and ever experience complications during pregnancy or delivery were dichotomous responses (Yes or No) which were 1 and 2.

In “Section C” the relationship between antenatal attendance and use of SDS was assessed with 6 items (item 21-25). The items were number of pregnancies, number of deliveries, number of ANC visits during previous pregnancy, number of ANC visits with current pregnancy and information received

at the ANC clinic. The number of ANC visits during previous pregnancy and with current pregnancy was coded as 1, 2, 3 and 4 for one, two, three and four or more visits respectively. The response options for the number of pregnancies were one, two, three and four or more, which were coded as 1, 2, 3 and 4 respectively. Concerning the number of deliveries, options for the responses were none, one, two, three and four or more for codes 1, 2, 3, 4, and 5. The women were also asked whether they were given any information at the ANC or not. The responses for this were Yes and No and coded as 1 and 2.

“Section D” of the questionnaire consisted of 6 items (item 26-31) on the relationship between clients’ satisfaction and utilisation of SDS. The items were place of last birth, attitude of staff, level of satisfaction with service during last delivery, and recommendation of last delivery place to others. The place of last delivery considers whether the woman delivered at home or health facility. The codes used were 1 for home and 2 for health facility. To determine the attitude of staff during last delivery, the response options that were used were negative and positive, with codes 1 and 2 respectively. The responses for level of satisfaction with service during last delivery were dissatisfied and satisfied, for codes 1 and two respectively. “Yes” and “No” was used to assess whether the women will recommend the delivery to friends and relatives or not. The codes used were 1 for dissatisfied and 2 for satisfied.

“Section E” was about health service factors affecting utilisation of SDS with 13 items (item 32-44). The items were staff attitude, experience from past health facility delivery, approach of providers, service hours, privacy, referral,

communication, beaten during labour, service cost in health facilities, equipment, drugs and supplies, demands of money and items (soap, pad, cot sheets etc), service provision time/ promptness of service delivery and position used for delivery. The response options for all the items in this were “Strongly Agree”, “Agree”, “Disagree”, and “Strongly Disagree”, which were recategorized as, “Agree” and “Disagree”. Disagree was coded as 1 and Agree 2.

“Section F” on the questionnaire assessed the socio-cultural and physical factors that influence utilisation of SDS with 11 items (item 45-55). The items on the questionnaire were money for transport and health care, cultural, religious beliefs and custom, decision making power, health facility in the community, distance, road networks, husband/partner/family members influence, knowledge about signs of labour, need for closer attention from relatives, comfortable when delivered at home and community and family support. The response options for all the items in this were “Strongly Agree”, “Agree”, “Disagree”, and “Strongly Disagree”, which were recategorised as, “Agree” and “Disagree”. The variables were coded 1 if the response was “Disagree” and 2 if the response was “Agree”.

The variable that assessed the level of use of SDS during last birth and intension to use SDS with current pregnancy were place of last birth and intended place of delivery with current pregnancy. The response options were coded 0 for home and 1 for health facility. Women who delivered at home and those who had the intension to deliver the current pregnancy at home were deliveries without the assistance of SBA.

The “Sections E” and “F” of the questionnaire were four point Likert Scale of “Strongly Agree” (SA), “Agree” (A), “Disagree” (D), and “Strongly Disagree” (SD). The researcher assisted the respondents who could not read and those who could not complete some parts of the questionnaire. The questionnaires were then explained for the respondents to make informed decisions concerning their responses. The filled questionnaires were checked daily for completeness and accuracy, and then codes were given before leaving the health facility. The completion rate of the questionnaires was 100 percent. All items on the questionnaire administered were completed.

Measures

For sections E and F on the questionnaire, all the responses for “agree” and “strongly agree” were re-categorised as “agree” while “disagree” and “strongly disagree” were re-categorised as “disagree”.

Pre-testing of research instrument

In order to ensure validity, reliability and minimize errors of the instrument used for the data collection, a pre-test or preliminary trial of the instrument was conducted. The pre-test was conducted at Effia Nkwanta hospital in Takoradi Metropolis in the Western Region to ensure clarity of the questions and to correct confusion over some items of the instrument before the actual fieldwork. The Effia Nkwanta hospital was selected because the pregnant women the hospital had the same background characteristics as the pregnant women in the Central Region of Ghana.

The responses from the pregnant women were collated and used to determine the reliability of the instrument. The reliability of the items on the questionnaire were determined separately with the use of the Cronbach's alpha. This helped the researcher to determine how the items relate to each other. To determine reliability coefficient, a scale from 0.00 (very unreliable) to 1.00 (excellent or very reliable) was used (Streiner, 2003). The items that were poorly correlated with Chronbach alpha of less than 0.6 were removed from the questionnaire to ensure internal consistency. Based on the experience from the pretest, revision was made in the wording and translation of the questionnaire into fante for better understanding of the respondents. Some of the items were then reworded for better understanding for the respondents without changing their meaning. After the pre-testing the 75 items were reduced to 74. This is because some of the items were were ambiguous and some also did not address the study objectives directly. Some of the items were modified and the structuring of some questions were also improved to facilitate easy understanding by the participants.

Validity of the instrument

Validity is the extent to which an instrument measures what it purports to measure (Burns & Grove, 2005; Polit & Beck, 2004). Validity is concerned with the accuracy of the measurement scale (Garcia, Rodriguez, & Carmona, 2009). The questionnaire was reviewed to determine whether it measured what it was designed to measure (Blanker & Schouten, 2003). The focus of the study was to investigate the determinants of the use of SDS at health facilities. To ensure validity of the questionnaire, the researcher ensured that the items on the questionnaire

represented the domain of interest. Again, the items on the instrument were reviewed by the supervisors, colleagues and other experts in SDS use for scrutiny, corrections, readability, clarity and comprehensiveness for face and content validity. Pretesting of the instrument was also done and the items on the questionnaire were analyzed critically with the supervisors to determine the validity of the instrument.

Reliability of the instrument

Reliability is the extent to which a study instrument or any measurement procedure produces the same results on repeated trials. Reliability determine the stability or consistency of scores over time or across raters (Burns & Grove, 2005; Polit & Beck, 2004). To determine reliability of the instrument, the validated version of the questionnaire was pretested with 100 pregnant women who consented to the pretest at one hospital in the Western Region. The facility provides ANC services to pregnant women within the same age group as selected health facilities in the Central Region. The data collected for both pretesting and the actual study were subjected to Cronbach's Alpha coefficient to determine the reliability of the instrument. This helped to measure accuracy, trust worthiness and consistency and dependability of the instrument and the data collected. The Cronbach's Alpha for the pretest instrument was 0.905 for the pre test instrument with 75 items. In the case of the actual study, the 1100 questionnaires with 74 items on each questionnaire, the scale had good internal consistency with a Cronbach's Alpha coefficient of .921. This implies that the items on the questionnaire correlate

to each other. Cronbach's Alpha is an index which is used to determine the reliability of the data collection instrument (Tavakol & Dennick, 2011).

Table 2- *Cronbach's Alpha of each research objective*

Research Objective	Cronbach's Alpha
2. identify the socio-demographic characteristics that predict the use of SDS by pregnant women at health facilities in the Central region (CR) of Ghana	.764
3. assess the influence of obstetric variables on use of SDS by pregnant women at health facilities in the CR of Ghana	.841
4. assess whether antenatal attendance predict the use of SDS by pregnant women at health facilities in the CR of Ghana	.862
5. examine the influence of clients' satisfaction on utilisation of SDS by pregnant women at health facilities in the CR of Ghana	.758
6. identify health service factors which predict utilisation of SDS by pregnant women at health facilities in the CR of Ghana	.825
7. explore the socio-cultural and physical factors which predict the utilisation of SDS by pregnant women at health facilities in the CR of Ghana	.869

Data Collection Procedure

The study was conducted by means of pre-tested structured questionnaire to determine the factors that influence the use of SDS by pregnant women (see APPENDIX A). Data was collected mainly from primary source; directly from the responses obtained from the pregnant women. Ethical clearance for the study was sought from the University of Cape Coast Ethical Review Board and Ghana Health Service, Ethics Review Committee (see APPENDIX B). Approval for the study

was sought from the Central Regional Health Directorate and permission was sought from the District Health Directors, Medical Superintendents, and the in-charges of the selected districts, health facilities and ANC clinics respectively (see APPENDIX B).

The purpose of the study was explained to the clients. Six research assistants were trained and supported the data collection that is five Community Health Nursing trainees and one ANC clinic in-charge. The use of the research assistants facilitated the data collection. Participants who could not read and/or write were asked to thumb print as approval for informed consent after the purpose of the study was explained and they were informed about their right to interrupt the interview at any time or opt out of the study without any fear of future prejudice. This was achieved by giving them informed consent forms to fill. The questionnaires were distributed to those who consented to participate in the study (see APPENDIX B) and the instruments were taken right after completion. The data were collected within 40 working days. That is from 4th April – 31st May, 2016. The sample size was divided by the 40 days, and approximately 25 clients answered the questionnaire at each clinic a day till the required number was obtained. Respondents were assured of confidentiality. The principal researcher was in full control over the data collection. This also ensured that the data were collected as planned.

All information obtained from the participants were kept confidentially. The names of respondents were not associated with responses provided to ensure their anonymity. Participants were informed about their freedom to skip some of the

questions and exit from the study. The participants were informed about the duration (20 minutes) for answering the questionnaire.

There were no risks associated with the study and there were no material or financial benefit to respondents. The information obtained will inform the management of the region about the determinants of utilisation of SDS. This will help the management at the regional and district levels and policy makers to implement interventions that will improve utilisation of SDS to reduce maternal mortality in the country at large. Participation in the study was entirely voluntary, and declining to enter the study, declining to answer a question, or terminating the interview did not have any negative consequence. Data collected was stored in locked file cabinets.

Data Processing and Analysis

Data collected from respondents were processed using SPSS version 21. Descriptive and inferential statistics were used to analyse the data. The data collected were screened to ascertain the accuracy of the data, deal with missing data, and assess the effects of extreme values on the analysis. The screening of the data enabled the researcher to determine the adequacy of the data and the assumptions of the specific procedure for the analyses. The scores that fell outside the possible range of the data entered for the analyses were corrected. Frequencies were done for each of the variables to check for errors which were subsequently corrected. This included all the individual items that made up the scale. The analysis was done based on the objectives. The statistical techniques that were used for the analysis depended on the type of research objective, type of items on the

questionnaire and scales that were used, the nature of data available for each variable and the assumptions that must be met for each of the different statistical techniques.

The dependent variable, utilisation of SDS, was dichotomous; implying that a pregnant woman in labour would use SDS or not. There was the need to predict intention to use. This required predicting the probability of use or non-use. To determine the socio-demographic factors that predict use of SDS among pregnant women, logistic regression was conducted. This analytic technique produced results in the form of odds ratio, p-value, and confidence intervals, which were useful in discussions.

Logistic regression was the appropriate analysis to use because there was the need to analyse and predict the dependent variable which was a dichotomous outcome and categorical. There were only two categories of the independent variable; whether a pregnant woman would use SDS or not. With the logistic regression, the knowledge of the relationships and strengths among the variables could be known. Logistic regression has been used extensively in the analysis of dichotomous variables by Peng and So (2002), Peng, So, Stage and St. John (2002) among others.

Statistical data analysis that ignores missing values lead to biased effect estimates of odds ratio and other statistical parameters (Lee & Carlin, 2010). Missing values in this data set were imputed using multiple imputations by chained equation. Monte-Carlo error estimation was used to determine the number of imputations required. Since the Monte Carlo error on the coefficient was more than

10% with p -values greater than 0.01, the number of imputations was increased to 50. Odds ratio estimates were averaged over the 50 imputations as recommended by (Nevalainen, Kenward, & Virtanen, 2009; Stuart, Azur, Frangakis, & Leaf, 2009; Schenker et al., 2006).

Descriptive statistics helped to summarise and describe the data. The frequencies provided information about the number of participants who responded to each item. Consideration was given to the dichotomous (whether client will use SDS at health facility or not) data. Pie chart and cross tabulations were used to present the data.

The first objective determined the level of use of SDS at health facilities by pregnant women. Descriptive statistics using frequencies and percent frequencies were conducted to quantify the level of SDS used. Analysis was also conducted on the perceived factors that influence SDS use (Anderson model).

The second objective identified the socio-demographic characteristics associated with utilisation of SDS. Socio-demographic characteristics were utilisation as predisposing and enabling factors, to help examine the nature of association between these factors and use of SDS. Items 1-12 on the questionnaire sought to gather data on socio-demographic characteristics (age of the mother, marital status, occupational status, educational background, income and religion). These represent predisposing and enabling factors, which determine utilisation of SDS. Descriptive statistics and logistic regression analysis were done. The tests were two sided and $p < 0.05$ was considered statistically significant. Results were reported as odds ratios (Ors) with 95% confidence interval.

The third objective assessed the relationship between obstetric variables and use of SDS by pregnant women at health facilities. Items 13 to 20 on the questionnaire covered the information for obstetric variables. Logistic regression analysis was done to predict whether the obstetric variables would determine utilisation of SDS during current delivery. The independent variables were age of last child, gestational age, ever had miscarriage, history of stillbirth and ever experienced any complication during pregnancy or labour. The dependent variable was the use of SDS.

The fourth objective determined the relationship between ANC attendance and use of SDS. Indicators commonly used to assess care during pregnancy and deliveries were ANC and SBA. ANC serves as a proxy to the early detection of complications during delivery. Items 22-26 on the questionnaire solicited for information on ANC visit, place of ANC during previous pregnancy and information provided at ANC and number of ANC visits. Descriptive tests (frequencies), cross tabulations and logistic regression analysis was done. Bivariate and multivariate analyses were done to determine the effect of ANC attendance on the utilisation of SDS. The tests were two sided and $p < 0.05$ was considered statistically significant. Results are reported as odds ratios (Ors) with 95% confidence interval.

The fifth objective sought to determine the relationship of clients' satisfaction with SDS. Items 26 to 31 on the questionnaire solicited information on the clients' satisfaction during the last birth. Logistic regression analysis was done to predict whether client's satisfaction during previous birth would determine the

utilisation of SDS during current delivery. The independent variables were place of last birth, attitude of staff, level of satisfaction of care, place of birth with current pregnancy and recommendation of last place of birth to family or friends. And the dependent variable was use of SDS.

The sixth objective aimed at determining health service factors that influence utilisation of SDS. Items 32-44 on the questionnaire solicited for experience from past health facility delivery, experiences from skilled attendants, approach of health workers, privacy, communication, beating during labour, services in health facilities, equipment and supplies, demands of money and items and delays in service provision. Descriptive statistics for percentages and cross tabulations and logistic regression analysis were done to predict whether health service factors determine the utilisation of SDS. The tests were two sided and $p < 0.05$ was considered statistically significant. Results were reported as odds ratios (Ors) with 95% confidence interval.

The seventh objective sought to explore socio-cultural and physical factors that influence utilisation of SDS. Items 45-55 solicited information on socio-cultural and physical factors (money, cultural and religious beliefs, decision-making power, distance, road networks, husband/partner/family members influence knowledge about signs of labour, need for closer attention from relatives, comfortable when delivered at home, community and family support). Logistic regression was done to predict whether socio-cultural and physical factors determine the utilisation of SDS. Tests were two sided and $p < 0.05$ was considered

statistically significant. Results were reported as odds ratios (Ors) with 95% confidence interval (CI).

The logistic regression explored the predictive ability of independent variables. The logistic regression assessed how well the socio-demographic characteristics, obstetric variables, ANC attendance, clients' satisfaction, health service factors, and socio-cultural and physical factors predict the use of SDS by pregnant women at health facilities. The first step checked the details concerning the sample size. Coding of the independent variables in the categorical variables and the number of cases in each category in the frequency was checked. The next section of the output, headed Block 0, is the results of the analysis without any of the independent variables used in the model. This served as a baseline for comparing the model with independent variables included. The next step was to look at the Block 1. This is where the model (set of predictor variables) was tested. The Omnibus Tests of Model Coefficients provided information about how well the model performs, over and above the results obtained for Block 0, with none of the predictors entered into the model. This is referred to as a 'goodness of fit' test. The highly significant value expected in the results should be less than .05. The results for the Hosmer and Lemeshow Test was checked to determine whether it supported the model. The pseudo R square values (Nagelkerke) were included to provide some information about the percentage of variance.

Ethical Considerations

Ethical clearance for the study was sought from the University of Cape Coast Ethical Review Board and Ghana Health Service, Ethics Review Committee.

Approval for the study was sought from the Central Regional Health Directorate and permission was also sought from the district/municipal health directors, hospital management and antenatal clinic in charges (see APPENDIX C).. Informed consent was sought from respondents before including them in the study (see APPENDIX B). Participants who could not read and write were asked to thumb print as approval for informed consent after the purpose of the study has been explained to them and informed about their right to interrupt the interview at any time or decline from the study without any fear of future prejudice. This was achieved by giving them informed consent forms to fill. All information obtained from the participants were kept confidentially. The names of respondents were not associated with responses provided to ensure their anonymity. Participants were informed about their freedom to skip some of the questions and exit from the study. They were informed that the answering of the questionnaire will take 20 minutes.

There was no risk associate with the study and there were no material or financial benefit to respondents. The information obtain will inform the management of the region about the determinants of utilisation of SDS. This will also help the management at the regional and district levels and policy makers to implement interventions that will improve utilisation of SDS to reduce maternal mortality in the country at large. Participation in the study was entirely voluntary, and that declining to enter the study, declining to answer a question, or terminating the interview did not have any negative consequence. Data collected were stored in locked file cabinets at the offices of Principal Investigator.

The letters of approval and ethical clearance certificate were obtained for the study (APPENDIX C).

Chapter Summary

This chapter described the research design and methodology used in the study. A cross-sectional design was utilised to achieve the overall objective of the study. The study covered pregnant women between the ages of 15-49 years in Central Region of Ghana. Questionnaire was designed and used as the main instrument for the study. Data collected were processed by the use of SPSS version 21 and analysed using descriptive and inferential statistics.

CHAPTER FOUR

RESULTS AND DISCUSSION

Overview

The purpose of this survey study was to investigate the factors that determine the use of SDS by pregnant women at health facilities in the Central Region of Ghana based on the theory of Andersen's Behavioural Model of Health Services Utilisation. This chapter presents results and discussion of the data analysed. The objectives of the study form the themes under which the results were discussed. In the discussion, inferences were made as well as references to findings of previous studies and the assumptions of the Andersen's model. This was to confirm or contradict previous findings.

Level of Use of SDS at Health Facilities by Pregnant Women in the Central Region

The aim of this research objective is to determine the level of use of SDS among the respondents. The results for intended place of delivery for current pregnancy and place of delivery with previous pregnancy are presented in Figure 8 and 9, respectively. Figure 8 shows that 80% (n = 881) of the pregnant women had intentions to use SDS when in labour while 20% (n = 219) did not. Concerning last place of delivery, 31% (n = 299) had home delivery and 69% (n = 677) delivered at a health facility as shown in figure 9.

The finding implies that there has been an improvement of the use of SDS at health facilities from 69% during previous delivery of the women to 80% of women who are likely to use SDS with current pregnancy.

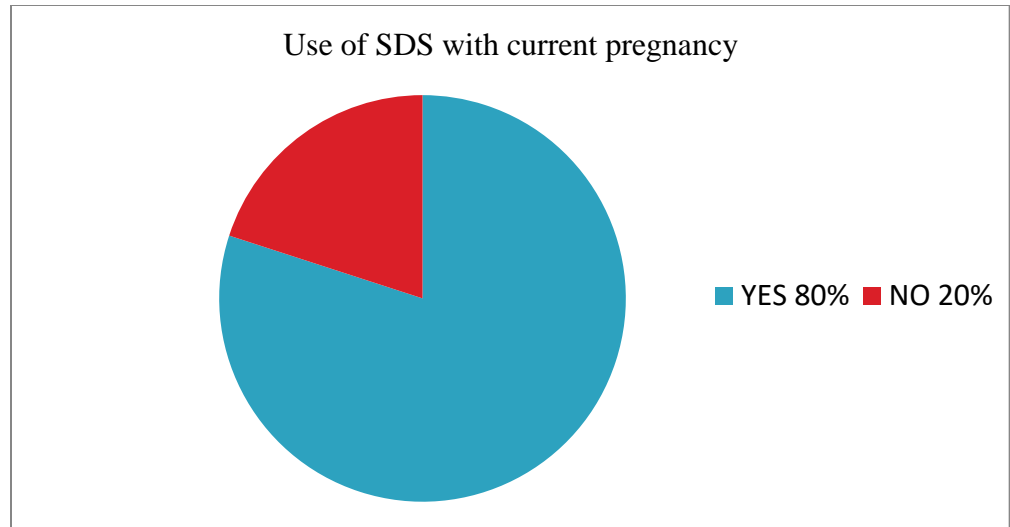


Figure 8: Level of SDS use with current pregnancy

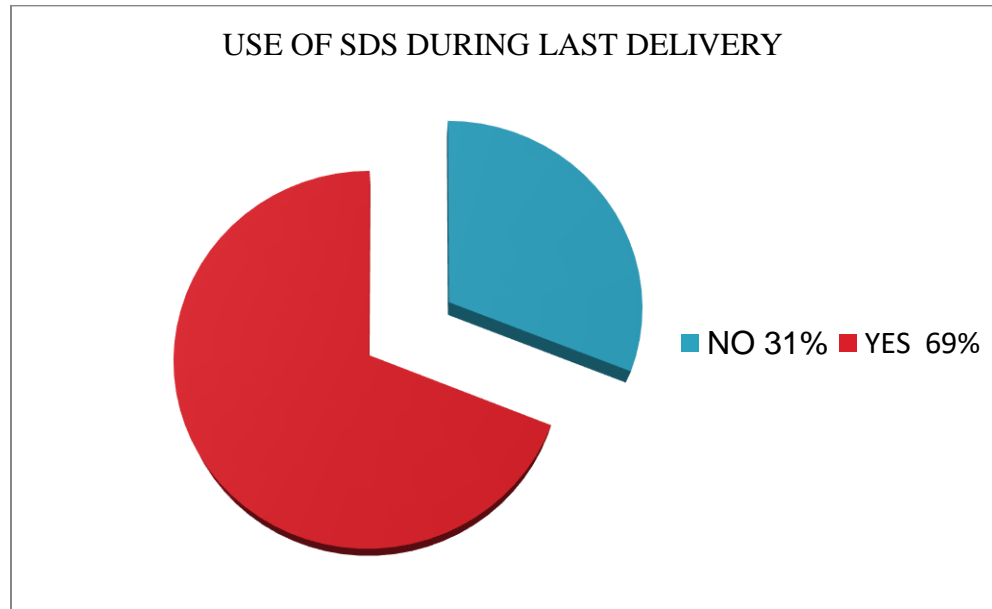


Figure 9: Level of SDS use during last delivery

The possible explanation for most (80%) of the pregnant women having the intention to use SDS during current pregnancy could be due to the 58% increase in the functional CHPS zones available to pregnant women in Ghana (GSS, 2015). CHPS zones are means of increasing accessibility of health services including SDS.

Most of the CHPS zones now have SBAs who provide SDS to pregnant women and refer those with complications when necessary.

The findings are consistent with studies conducted by Mugo et al. (2016) and Manye (2014) which found that majority of the respondents used SDS during their last delivery. The similarities in the findings could be due to the predisposing factors of the Anderson's model which guided the study. The Andersen's model suggested that utilisation of health service is based on the predisposing factors (personal characteristics) and enabling factors of the individual (Andersen, 1995). The predisposing factors such as age, marital status, education, religion and occupation have greater influence on the decision of pregnant women to use SDS. The enabling factors such as having active insurance and accessibility can also determine the use of SDS by pregnant women. This suggests that the predisposing and enabling factors could enhance or deter pregnant women from using SDS.

Improvement in general health seeking behaviour (Bosomprah et al., 2014) might have also contributed to a larger proportion of women seeking assisted delivery. This improvement in SBA use is consistent with similar study conducted by Bosomprah et al. (2014) who used decomposition statistical approach to explain the variation in the observed change in percentage of SBAs using two successive nationally representative household survey data. Studies employing similar statistical design in Ghana such as Esena and Sappor (2013) and Sakeah et al. (2014) through cross-sectional multi-stage cluster household survey showed that 79% of women who had ever given birth in the year prior to the survey had the

assistance of skilled attendants during delivery in the Upper East and Greater Accra regions of Ghana which is consistent with the findings of this study.

A study conducted in some rural districts of Burkina Faso (De Allegri et al., 2011) with similar socio-economic indices (income and education) to Central Region of Ghana reported that 72% of women delivered in health facilities. Since similar study designs were employed in both studies, the observed difference may arise as a result of different time periods of the study.

Based on secondary data, Gitimu et al. (2015) found that 40% of mothers delivered new babies with the assistance of skilled attendants which contradicts the findings of this study. This difference in proportion could be attributed to different populations used in both studies. While Gitimu and colleagues recruited female respondents (15-49 years), who had children less than five years (0-59 months) at the time of the study, the present study also sampled women of reproductive age (15-49 years) who have delivered within the past three years prior to the study in the Central Region. This implies that the last children of the women in the present study were younger than those of the mother in the study by Gitimu and colleagues.

The findings contradict studies conducted by Islam et al. (2014) in Bangladesh, Gitimu et al. (2015) in Kenya, Kimani et al. (2015) in Kenya, and Bashar (2012) in Bangladesh which found that the level of use SDS were 20%, 40% , 54% and 21% respectively. Factors that may account for the observed remarkable discrepancy in the level of SDS use among districts of these countries were religion, occupation and educational level of the pregnant women. Most of

the women in these countries were Muslims, protestants, house wives, and unemployed as compared with the present study where most of the women are Christians and engaging in jobs which offer them more than two hundred Ghana cedis a month.

A similar point estimate within the ranges of 30-36% was found by Anwar et al. (2008), Kabakyenga et al. (2012), and Nair et al. (2012) using community based cross-sectional study among sample of 600-1,700 women who had ANC visit and delivered one year before the survey. Although the sample size differ remarkably from the current study, it is important to note that prevalence point estimate from different surveys is independent of sample size on condition that the sample size is representative of the target populations from which the samples were randomly drawn. The preceding explanations also apply to Dida et al. (2014) who in modeling the probability of giving birth at health institutions among pregnant women attending ANC in West Shewa Zone, Oromia, and Ethiopia estimated the proportion of women who intended to give birth in a health facility to be 69%. Weighted logistic regression analysis from a cross-sectional survey conducted in the Amansie West District of the Ashanti region in Ghana and some selected districts in Nigeria among women of reproductive age, however, reported low proportion of birth attended by skilled personnel (Idris et al., 2006; Nakua et al., 2015). This difference in SDS use especially between districts in Ghana and Nigeria may be attributed to different time periods of the study, ethnic diversity and socioeconomic imbalance.

Many studies have found inverse relationship between MMR and the proportion of use of SDS among pregnant women. Gitimu et al. (2015), Islam et al. (2014), Wang, et al. (2011), Zere et al. (2010), and Lewis (2008) have concluded that poor access and utilisation of SDS have undesirable impact on the achievement of the MDG 5 and SDG 3.

The SDG 3, set out by the United Nations General Assembly and the international communities has been the gold standard for which the proportion of SDS use are compared. The SDG 3 has proposed that, by the year 2030, all women (100%) of child bearing age should deliver with the assistance of SBA and MMR will be reduced to less than 70 per 100,000 live births from 2016 to 2030 (United-Nations, 2015). Although this is a nationwide expected estimate, it may be prudent to compare regional estimates to the set target to critically assess how the Central Region is contributing to the national target of 100%. The results of this study, 80% intended coverage, showed that the Central Region is 20% point below the set target of 100% and several reasons may have accounted for the observed discrepancy which is the goal of this study.

The 20% of the pregnant women who have no intension to use SDS are likely to deliver with the assistance of TBA or family members at home. These practices are likely to result in maternal and child mortality and morbidity. As a result, the governments through the GHS must implement strategic interventions that will motivate every pregnant woman in the country to use SDS. To achieve the SDG 3 target of 100% by 2030, it will be prudent for the government through the GHS to establish more CHPS zones to increase accessibility of SDS by pregnant

women in Central Region and the country at large. SBAs must be equipped with the needed knowledge and skills to provide house-to-house SDS and identify at risk women for timely referral and intervention. Healthcare providers must intensify the education about the importance of SDS use mostly at health facilities through the social media. Community health nurses must be motivated to intensify their home visits to encourage pregnant women to deliver at health facilities. Birth preparedness plan and the importance of health facility delivery must be emphasised at ANC by service providers. The policy on community based emergency transport system for maternal health must be revisited by government and strengthened to facilitate easy transportation of all pregnant women during emergency, mostly for those in rural areas. Health care providers must be trained to provide maternal friendly services to encourage all pregnant women to deliver at health facilities. Husbands must be encouraged to accompany their partners to ANC to learn about the health of their pregnant women and that of their unborn babies to support the women to use SDS when in labour. This will motivate the husbands to support and accompany their partners to deliver at health facilities

Socio-demographic Characteristics Associated with the Utilisation of SDS in the Central Region

The results of the data analysed on the relationship between socio-demographic characteristics and the utilisation of SDS are shown in Table 3 .

The majority of pregnant women 55% (n = 489) who intended to use SDS were between 20-29 years. Among the 52% (n = 115) who do not intend to use SDS, the majority, 53% (n = 115) were between 20-29 years. On the religious faith

of pregnant women and intention to use SDS, among those who intended and those who did not intend to use SDS, Christians were the majority, 87% (n = 753) and 81.3% (n = 170), respectively.

Concerning marital status and use of SDS, married women were the majority. More than two thirds of the married women, 69% (n = 600) had the intention to use SDS. Among the pregnant women who did not intend to use SDS, the majority, 65% (n = 141) were also married.

Educational background of pregnant women and their partners plays a very important role in determining the use of SDS. The majority of the respondents who intended to use SDS, 58% (n = 509), and those who did not intend to use SDS, 66% (n = 145), had basic education. Regarding the level of education of husbands of the pregnant women, almost half, 49% (n = 429) of the women who intended to use SDS, were married to husbands who had up to basic level education. However, with regards to the level of education of husbands of pregnant women who did not intend to use SDS, 54% (n = 119) of them also had up to basic level education. Few of the pregnant women, 26% (n = 227), and their husbands, 40% (n = 349), had secondary and above as their educational background.

Regarding who makes decisions for respondents about where they seek health care, 41% (n = 355) of the women who intended to use SDS make their own decisions. Among those who do not intend to use SDS, 36% (n = 77) of the women also make their own decisions regarding where to seek health care. Husbands of pregnant women who have less influence regarding where to seek health care, 32% (n = 275) have the intention to use SDS and 26% (n = 56) were not willing to use

SDS with current pregnancy. The majority, 88% (n = 778) of the pregnant women among those had the intention of using SDS and those who were not willing to use SDS, 80% (n = 174) had active NHIS.

Overall the logistic regression model was significant at $-2\text{Log } l = 463.021$; Nagelkerke $R^2 = .239$; $X^2 = 92.92$; $p = .000$. The correct prediction rate was about 92.6%. The multivariable logistic regression analysis in Table 3 shows that religion and the person in authority who takes decision on where mothers should deliver their babies are associated with the use of SDS. The odds of a Christian using SDS is approximately 1.6 (OR = 1.58, 95% CI = 1.06-2.37, $p = 0.025$) times higher than the odds of a Muslim. The odds of a pregnant woman using SDS is 2.5 (OR = 2.50, 95% CI = 1.58-3.95, $p = 0.001$) times higher if the decision to deliver in a recommended health facility was made by husband of the woman compared to it being supported or recommended by a family member. Pregnant women who had valid NHIS were 1.8 (OR = 1.78, 95% CI = 1.06 - 3.00, $p = 0.030$) time more likely to use SDS than women who had invalid NHIS.

This study assessed the effects of socio-demographic characteristics of respondents on the level of use of SDS as an intervention to reducing MMR and to accelerate efforts in achieving the SDG 3. The type of person in authority who has the power to decide whether a woman visits health facility at delivery or not, religious affiliation of the woman and ownership of valid NHIS were the three main socio-demographic factors associated with the use of SDS.

Table 3- *Effect of socio-demographic characteristics on use of SDS*

Socio-demographic predictors	Use of SDS		B	Wald	OR	95% CI	p-value
	No n (%)	Yes n (%)					
Age in years (n =1100)				0.95			0.416
<20	15 (6.9)	76 (8.6)			1.95	0.78-4.90	
20-29	115 (52.5)	489 (55.5)	1.180		1.64	0.77-3.49	
30-39	79 (36.1)	290 (32.9)	.354		1.41	0.65-3.05	
40-49	10 (4.5)	26 (3.0)	.391			ref	
Religion (n =1072)				2.25			0.025
Islamic	39 (18.7)	110 (12.7)				ref	
Christianity	170 (81.3)	753 (87.3)	.551		1.58	1.06-2.37	
Marital status (n =1090)				0.76			0.466
Never married	24 (11.0)	78 (9.0)				ref	
Married	141 (64.7)	600 (68.8)	.628		1.31	0.80-2.15	
Living together/cohabiting	53 (24.3)	194 (22.2)	.204		1.13	0.65-1.96	
Mothers level of education (n =1100)				1.86			0.133
No formal	26 (11.9)	145 (16.4)				ref	
Basic	145 (66.2)	509 (57.8)	-1.409		0.63	0.40-0.99	
Secondary	28 (12.8)	139 (15.8)	-.125		0.89	0.50-1.59	
Tertiary	20 (9.1)	88 (10.0)	-.774		0.79	0.42-1.50	
Husband/partner's level of education (n =1100)				1.50			0.213
No formal	27 (12.3)	103 (11.7)				ref	
Basic	119 (54.4)	429 (48.7)	.066		0.95	0.59-1.51	
Secondary	43 (19.6)	176 (20.0)	.813		1.07	0.63-1.84	
Tertiary	30 (13.7)	173 (19.6)	.627		1.51	0.85-2.68	

Table 3: Cont'd

Decision taker on where mothers should seek healthcare (n=1088)				6.18		0.001
Family member	46 (21.2)	90 (10.3)			ref	
Husband/partner	56 (25.8)	275 (31.6)	1.665		2.50	1.58-3.95
Self	77 (35.5)	355 (40.8)	.379		2.35	1.52-3.62
Husband/partner and self	38 (17.5)	115 (17.3)	.263		2.00	1.21-3.31
Ownership of NHIS (n =1100)				2.17		0.030
Not valid	22 (10.0)	52 (5.9)			ref	
valid	197 (90.0)	829 (94.1)	1.254		1.78	1.06-3.00
Average monthly income in cedis (n =566)				0.69		0.502
≤ 100	56 (42.4)	167 (38.5)			ref	
101-200	18 (13.6)	86(19.8)	.265		1.36	0.78-2.36
>200	58 (44.0)	181(41.7)	.044		1.18	0.79-1.75

The finding that religion is associated with use of SDS supports the findings of cross sectional descriptive studies conducted by Shahabuddin et al. (2017), Esena and Sappor (2013) and Gyimah et al. (2006). The similarities could be due to the research design and the population of the study used for the current. Another possible explanation could be that all the studies were done in developing countries which have the same socio-economic characteristics.

Religious affiliation may not change over time but there is the possibility that maternal education, occupation and monthly income of mothers have changed over the 3-15 year period between these studies, which could be attributed to the individual effort and government interventions, and for that matter they no longer have effect on SDS use with the current study. Systematic review by Baral et al. (2012) highlighted the important role religious beliefs play in determining where a woman delivers in Nepal and they recommended the use of qualitative design to explore why and how religion is responsible for of SBAs during delivery.

In Ghana, most Muslims live in the slum areas and are generally considered to be poor with low-moderate level of education (GSS, 2015). This accounts for the recent decision by the Government of Ghana to develop such areas through the Zongo Development Fund. Their inability to perhaps pay for hospital delivery charges may account for why most of them seek the services of TBAs which are relatively cheaper and easily accessible within the communities. It could also be to the fact that Muslims mostly believe in herbal medicines for pregnant women during and after labour which are not provided at health facilities by SBAs. Most

of the Muslim dominated Zongo communities do not have health facilities located within the reach of the masses and that might have also contributed to why few of them delivered in health facilities (Gabrysch & Campbell, 2009). It was emphasised by Gleit et al. (2003) that certain ethnic or religious groups may be discriminated against by staff of health facilities, making them less likely to use SDSs available to them. The study findings is also supported by Gyimah et al. (2006) found members of traditional religions and Muslims to be less likely to use delivery services as compared to Christians. Based on a similar cross-sectional study where SBA was modelled through logistic regression analysis, Hazarika (2011) showed that Muslim women in rural India were less likely to benefit from SDS.

In rural Ghana however, Sakeah et al. (2014) contradict the findings on religious affiliation and its relationship with SDS use. In another study conducted by Anwar et al. (2005), they did not find a statistically significant relationship between ethnic and religious differentials. Anwar et al. proved that mothers from minority religious groups similar to Muslims in Ghana were 1.8 times more likely to use SDS compared to the majority religious groups which is a sharp contrast to the current findings.

Women and husband autonomy in deciding where to deliver has long been linked to SDS as was the case in this study (Duong et al., 2004; Li, 2004; Mrisho et al., 2007; Nigussie et al., 2004). Women who are involved in taking key decisions of the house are normally well educated, financially independent or hold key position in society. These attribute result in higher probability of delivering in

health facilities as those women are more likely to be aware of the risk of delivering without the assistance of SBA.

Age of mothers is in most cases treated as a confounder in multivariable studies investigating the effect of socio-demographic factors on SDS. The findings from the current study indicated that mother's age did not have effect on SDS use which contradicts the findings of Magadi et al. (2007) and Shahabuddin et al. (2017) who applied multivariate analysis to establish whether there is evidence that teenagers have poorer SBA use than older women with similar background characteristics. The present study did not support the findings of similar cross-sectional studies by Idris et al. (2006) and Yaya et al. (2017) where age at birth was related to place of delivery through multivariable logistic regression analysis.

However, the current study replicates the findings of Reynolds et al. (2006) and Wanjira et al. (2011) which saw no statistically significant relationship between mothers' age and place of delivery. It could be inferred that as most of the young women in Ghana are unemployed, they are unlikely to afford SDS if they don't have valid NHIS (GSS, 2015). As a result, these young mothers could end-up delivering by TBAs but the free maternal delivery intervention in Ghana is available to every woman independent of her age. This singular policy might have contributed to why age was not seen as a significant factor in SDS. Mass education carried out on several radio stations by governmental and non-governmental organisations on the consequences of delivering outside health facilities could have contributed to the larger proportion of individuals having the intention to deliver at health facilities with their current pregnancy.

Several authors have explained that husband and maternal education are consistently and strongly associated with all forms of maternal health outcomes and use of SDS. The findings of the study contradict studies conducted by Burgard (2004), Gitimu et al. (2015), Idris et al. (2006), Kimani et al. (2015), Samson (2012) and Yaya et al. (2017). Couples who are educated generally have increased knowledge of the benefits of seeking quality health care, understand the risk associated with unskilled birth attendants coupled with reduced power differential towards health care providers since they have the financial capabilities to pay for health service delivery bills (Burgard, 2004; Gitimu et al., 2015; Idris et al., 2006; Kimani et al., 2015; Samson, 2012 & Yaya et al., 2017) .

In the current study, husband and maternal education were not found to influence SDS use and this replicates the findings of few studies that did not find statistically significant relation between SDS use and husband and maternal level of education (Dharmalingam et al., 1999; Raghupathy, 1996). The nationwide free maternal delivery policy may have played critical role in improving the use of SDS since there is no prior condition before one becomes beneficiary of the intervention.

The findings of the study corroborates that of studies conducted by Brooks et al. (2017), Celik and Hotchkiss (2000), Mills, Ally, Goudge, Gyapong, and Mtei (2012) where there is positive correlation between health insurance coverage and use of SDS. The similarities were in line with the fact that all the studies were conducted in SSA countries. Mothers with valid NHIS membership card may generally end-up delivering in health facilities as certain cost of facility delivery are catered for by the insurance. Hong, Ayad, & Ngabo (2011) confirm that

financial barriers may be lifted when women are insured and encouraged to deliver their babies in a health facility by SBAs. However, having health insurance was not consistent with economic theory that health insurance coverage can reduce financial barriers to care and increase the probability of using SDS in this study. These findings could be attributed to the free maternal delivery policy which insists that all pregnant women must have valid NHIS membership card.

The findings of the study are in support of the Andersen's Behavioural Model of Health Services Use. The model posits that predisposing factors (religion and decision maker) and enabling factor (health insurance coverage) facilitate the use of any available health service. The enabling factors are based on the argument that even if a family/individual has a predisposition to use health services, certain characteristics must be in place to enable them to access services. This confirms that religious affiliation of the pregnant women, the one who decides on where and when the women should seek health care and ability to afford the SDS in terms of owning valid NHIS are factors, which could strongly determine the woman's intention to use SDS with current pregnancy. According to Andersen (1968), an individual's access to and use of health services is considered to be a function of predisposing factors of social structure and demographic parameters which include education, occupation, ethnicity, religion, social networks, social interactions, culture, access to health insurance, income and age. This study investigated these predisposing factors and how they influence skilled delivery in health facilities across the CR. With the exception of religion, all other predisposing factors investigated were not related to institutional delivery. Most of Anderson's

predisposing factors are time-varying which shows that those characteristics might have had effect on skilled birth attendant some years back but may not necessarily be relevant predictor today especially when there are currently ongoing Government intervention (free maternal facility delivery policy) where sole inclusion criteria for enjoying benefits of the intervention is to be a Ghanaian woman independent of one's highest education level, occupation, ethnicity, religion, social networks, social interactions, culture and age. The argument being advance is that although religious affiliation of an individual could also change over time, the propensity is low compared to other identified predisposing factors by Anderson which could still make religion a good predictor of SBA.

Religious leaders are considered influential persons in most of the communities in Ghana. Health care providers should organize meetings or seminars about interventions which an improved utilisation of SDS mostly among the Muslim women and the consequences of not using skilled assistance at delivery with these influence leaders (Basher et al., 2012). The government and all stakeholders should provide interventions that will address the SDS issue of the Muslim communities in the Central Region by providing cost effective and easy access to health facilities within those communities, placing more emphasis on facility delivery education, counselling and increasing ANC services with the aim of promoting maternal health and safe delivery and hence reducing maternal mortality. The Government through the opinion and traditional leaders should institute policies to ensure that women are empowered to be independent in taking decision regarding use of SDS at health facilities. The government through the GHS

must ensure that all pregnant women will have valid NHIS. To achieve this, the government could collaborate with relevant NGOs and stakeholders.

Relationship between Obstetric Variables and Use of SDS by Pregnant

Women at Health Facilities in the Central Region

Multivariate analysis of obstetric variables including age of last child, gestational age, past experience of ever having miscarriages, ever had still birth/neonatal mortality and experience of complications during previous pregnancy/delivery was done.

Among multiparous pregnant women who did not intend to use SDS, those whose last child was 2 year of age were 46% (n = 86). Among multiparous pregnant women who intended to use SDS, those whose last child was 2 year were 45% (n = 350) as presented in Table 4.

Regarding the gestational age, among women who did not intend to use SDS, 45% (n = 100) of them were in their third trimester, (7-9 months) and also among women who intended to use SDS, 40% (n = 354) of them were in their third trimester, (7-9 months).

Among the multigavid pregnant women who did not intend to use SDS, 68% (n = 131) had ever had a miscarriage. Among the multigavid pregnant women who intended to use SDS, 80% (n = 642) had ever had a miscarriage.

Among the multigavid pregnant women who did not intend to use SDS, 89% (n = 171) had ever had stillbirth/neonatal mortality. Among the multigavid pregnant women who intended to use SDS, 92% (n = 743) had ever had still birth/neonatal mortality.

Regarding experience of pregnancy complications during previous pregnancy/delivery, 76% (n = 190) of those who did not intend to use SDS had ever had complications during pregnancy or delivery. Among those who intended to use SDS, 77% (n = 619) had ever had complications during pregnancy or delivery. Results of multivariate analysis of obstetric variables and use of SDS are shown in Table 4.

Logistic regression analysis were done to ascertain the relative effect of obstetric variables (age of last child, gestational age, ever having a miscarriage in life, ever had still birth/neonatal mortality and whether the mother has had the experience of pregnancy complications during previous pregnancy/delivery) on use of SDS by pregnant women. Overall the logistic regression model was significant at $-2\text{Log } l = 804.442$; Nagelkerke $R^2 = .186$; $X^2 = 32.52$; $p = .001$. The correct prediction rate was about 82.7%. With the exception of having had miscarriage in life ($p < 0.05$), none of the obstetric variables investigated were found to be associated with the use of SDS. Women with no history of miscarriage were about 2 times more likely to use SDS as compared to those who have had the experience of miscarriage in life (OR = 1.95, 95% CI = 1.34-2.83, $p = < 0.000$). The effect of the obstetrics variables studied can be found in Table 4.

The study did not find a statistically significant effect of previous history of birth complication and SDS use which replicates the findings of Potter (1988) who showed that prolonged labour or bleeding is not associated with SDS. It is generally expected that mothers who have had the experience of neonatal deaths, loss of a new-born baby, loss of female relative during child birth and other birth

complications during previous deliveries would make women mindful of the risks of childbirth and the importance of SDS. This should increase the probability of using SDS for subsequent deliveries. Women with specific medical interventions in a previous delivery, for instance a caesarean section, will be encouraged by health workers to seek skilled care for subsequent deliveries since there is an increased risk for rupture with a scarred uterus (Gabrysch & Campbell, 2009). Complications during an attempted home delivery often influence women and their families to seek professional care, even though the original intention was to deliver at home.

The result of no significant effect of previous history of birth complication and neonatal mortality could be attributed to the fact that only few women in the current study indicated that they have had birth complications or experienced neonatal mortality before (<9% for neonatal and <23% for birth complication). Since majority of these women had never experienced complication during delivery, there were no compelling reasons to influence their choice of place of delivery for the index birth. This study also shows that a higher proportion of women attended ANC which could reduce the propensity of future birth complications and neonatal mortality as a result of the education they received during ANC period. Drastic reduction of reported birth complication and neonatal mortality in Central Region showed that there may be no enthralling reasons why complications and neonatal mortality could lead to future SDS use. The results contradict previous complex surveys that used logistic regression analysis to find determinants of SBA (Afsana & Rashid, 2001; Bloom et al., 2001; Burgard, 2004; Mesko et al., 2003; Pomeroy et al., 2014; Telfer et al., 2002).

Table 4- Influence of obstetric factors on SDS use

Obstetric factors	No n (%)	Yes n (%)	Use of SDS with current pregnancy				
			B	Wald	OR	95% CI	p-value
Age of last child (n = 967)				0.04			0.989
Less than one year	4 (2.2)	18 (2.3)			ref		
One year	40 (21.5)	156 (20.0)	-.052		0.92	0.29-2.93	
Two year	86 (46.2)	350 (44.8)	-.046		0.95	0.31-2.94	
Three year	56 (30.1)	257 (32.9)	.074		1.00	0.32-3.11	
Gestational age (n = 1100)				1.03			0.359
1-3 months	32 (14.6)	163 (18.1)			ref		
4-6 months	87 (39.7)	364 (41.3)	.257		0.83	0.50-1.37	
7-9 months	100 (45.7)	354 (40.2)	.041		0.71	0.42-1.16	
Ever had a miscarriage in life (n = 998)				3.50			<0.000
Yes	131 (67.9)	642 (79.8)			ref		
No	62 (32.1)	163 (20.2)	.181		1.95	1.34-2.83	
Ever had stillbirth/neonatal mortality (n = 980)				-1.29			0.197
No	171 (88.6)	743 (92.2)			ref		
Yes	22 (11.4)	63 (7.8)	.181		0.70	0.41-1.20	
Complications during previous pregnancy/delivery (n = 980)				0.58			0.563
No	130 (76.0)	619 (76.5)			ref		
Yes	41 (24.0)	190 (23.5)	.827		1.13	0.75-1.68	

OR:

odds ratio, CI: confidence interval, Ref: reference category

None of the studies reviewed directly assessed the impact of previous history of miscarriage on SDS use. The causes of miscarriage or spontaneous abortion are easily identified by trained medical staff in facilities especially when the woman attend ANC. It is natural to believe that mothers who have never experienced miscarriage may be well informed, have limited biological deficiencies or strong immune system, educated and understand the importance of ANC and SDS. These mothers may attribute their success to previous ANC attendance and facility delivery and that could have influenced their choice of intended SDS use for the index birth.

The age of last child to the index birth (birth spacing) was not found to be related to SDS use which does not support the findings of Sharma et al. (2007) and Stephenson and Tsui (2002). It is known that women in their first pregnancy are more likely to have their babies delivered in health facility especially when the woman really wanted to be pregnant for the first time. Poorly spaced pregnancies have been documented worldwide to result in adverse maternal and child health outcomes (Exavery et al., 2012). The reason could be that short birth intervals are generally associated with health risk knowledge, information availability, religion, poverty, education and use of contraceptive. These factors are also found to be related to facility delivery. The WHO recommends a minimum inter-birth interval of 33 months between two consecutive live births in order to reduce the risk of adverse maternal and child health outcomes (WHO, 2010). This study did not find significant differences in the proportion of facility delivery among birth spacing categories because it is independent of facility delivery which is basically free in Ghana coupled with the fact that the mother may have valid NHIS membership card. The

consequences of poorly spaced pregnancies indicated by WHO may not be a key deterrent among women who are not well educated and are unwilling to use contraceptives with the firm conviction that after all, having SDS at birth is virtually free. This reason might have contributed to why this study could not really distinguish between mothers who are very much aware of the risk of poor birth spacing and those who are not. Almost all the mothers independent of the age of their last child intended to use SDS.

The findings of the study is in line with the Andersen's Behavioural Model of Health Services Utilisation. According to the model need factors (illness variables and response variables) must be considered when thinking about use of any health service. For pregnant women to use SDS, there must first be a need to use that service. The need to use SDS by the pregnant women who had never had miscarriage in life is to prevent such negative outcome of pregnancy and delivery and any morbidity, mortality and disability associated with pregnancy.

Health care providers must intensify health education and counselling to enable pregnant women to identify their health care needs, which will enable them to use SDS. SDS at health facilities must meet quality standards to prevent women and their babies from complications to motivate other pregnant women to use such health service when the need arises.

Influence of ANC Attendance on Use of SDS by Pregnant Women at Health Facilities in the Central Region

Logistic regression analysis of association between ANC attendance and use of SDS by pregnant women with current pregnancy was conducted. The study compared a baseline logistic regression model which has only ANC

services as predictors to a model which integrates socio-demographic factors (ANC factors and socio-demographic characteristics). Overall the logistic regression model was significant at $-2\text{Log } l = 529.988$; Nagelkerke $R^2 = .135$; $X^2 = 63.57$; $p = .000$. The correct prediction rate was about 81%.

In the model that the study did not control for socio-demographic factors, the number of ANC visits with current pregnancy was found to be associated with SDS. The odds of SDS utilisation for mothers who have attended ANC visits for at least 2 times were approximately 2.5 times (OR = 2.47, 95% CI = 1.35 – 4.51, $p = 0.008$) higher than the odds of SDS use for mothers who have had only one ANC attendance. Number of ANC visits with current pregnancy was however not significant when socio-demographic factors were controlled ($p = 0.117$). None of the other ANC factors were related to SDS use after controlling for socio-demographic characteristics of the study participants ($p > 0.05$) as shown in Table 5.

The impact of ANC experiences on use of SDS is multifaceted. The WHO recommends that women without complications should have at least four ANC visits, the first of which should take place during the first trimester (Yebyo et al., 2015). This study evaluated the predictive effect of number of previous pregnancies/ actual deliveries, place of ANC attendance during last/previous pregnancy, number of ANC visits during last/previous pregnancy, number of ANC visits with current pregnancy, and information received during ANC visits on SDS.

The results show that none of these factors is associated with SDS use in the Central Region. This section discusses why such results were observed. Family composition (number of previous pregnancy/deliveries) could be a key

determinant of SDS utilisation in the nuclear family context. This is particularly important especially since women with fewer or younger children may have difficulties finding child support and care while they use SDS at a health facility (Gabrysch & Campbell, 2009). In most of the cases, they are accompanied to the facility by other family members at the onset of delivery but women who live with the immediate nuclear family may not enjoy this support. Women with more children might feel that they have had more experience due to previous deliveries (home or maternity home) and may end up having their next delivery at home instead of recommended health facilities especially when there were no complications during the previous pregnancy (Stephenson & Tsui, 2002).

Many studies have associated SDS use to women who have experienced complications in the previous delivery (Afsana & Rashid, 2001; Mesko et al., 2003; Telfer et al., 2002). Navaneetham and Dharmalingam (2002) indicated that women generally place high value on the first pregnancy and in some settings the woman's biological family helps her get the best care possible by utilising SDS. Health workers may also recommend use of SDS for primipara (Gabrysch & Campbell, 2009). There is a positive correlation between high parity and lack of access to family planning services which may be linked to lack of access to SDS. All these illustrations show that the study should have expected some level of association with SDS but the results of this study showed otherwise.

Table 5- *Assessing the influence of ANC attendance on Use of SDS*

	Use of SDS					Use of SDS			
	B	Wald	OR	95%CI	p-value	Wald	aOR	95%CI	p-value
ANC factors									
Number of pregnancies		0.03			0.992	2.45			0.086
One			ref				ref		
Two	.937		2.75	1.19 – 6.31			2.66	1.11 - 6.40	
Three	.715		1.97	0.95 – 4.05			1.90	0.89 - 4.04	
Age of last child		2.91			0.055	0.08			0.969
Less than one year			ref				ref		
Exactly one year	.081		0.86	0.26 – 2.87			0.88	0.26 – 3.02	
Two years	-.034		0.88	0.27 – 2.85			1.00	0.30 – 3.30	
Three years	-.034		0.91	0.28 – 2.99			0.98	0.29 – 3.29	
Number of deliveries		0.87			0.483	1.10			0.356
None			ref				ref		
One	1.835		2.28	0.64 – 8.12			2.55	0.67 – 9.80	
Two	.398		3.03	0.78 – 11.67			3.85	0.90 – 16.36	
Three	.238		3.85	0.87 – 17.04			4.93	1.01 – 24.06	
Four or more	.045		3.63	0.81 – 16.21			4.47	0.89 – 22.41	

Table 5- Cont'd

Place of ANC attendance during last/previous pregnancy	0.96			0.335	0.56			0.576
Private Health Facility		ref				ref		
Public Health Facility	.291	1.26	0.79 -2.01			1.15	0.70 – 1.89	
Number of ANC visits during last/previous pregnancy	0.52			0.668	0.52			0.666
One		ref				ref		
Two	.720	1.18	0.40 – 3.42			1.41	0.45 – 4.41	
Three	.366	1.51	0.58 – 3.97			1.89	0.66 – 5.40	
Four or more	.058	1.59	0.64 – 3.93			1.65	0.62 – 4.39	
Number of ANC visits with current pregnancy	3.91			0.008	1.96			0.117
One		ref				ref		
Two	1.772	2.47	1.35 – 4.51			1.79	0.92 – 3.47	
Three	.121	1.82	1.05 – 3.15			1.28	0.69 – 2.37	
Four or more	.226	2.32	1.37 – 3.92			1.86	1.02 – 3.38	
Information received during ANC visits	0.88			0.378	0.27			0.791
No		ref				ref		
Yes	.163	1.20	0.80 – 1.82			1.06	0.68 – 1.66	

Relatively few studies have considered the number of previous pregnancies and delivery services but such studies did not find significant effect of previous pregnancies on utilisation SDS which supports the findings of the current study (Gage, 2007; Magadi, Diamond, & Rodrigues, 2000). Once again, the free maternal health policy, education, counselling and other health interventions might have played a significant role as to why previous deliveries have no influence on SDS in Central Region now. There could be a number of women who delivered prior to the implementation of the policy and could not have had access to free facility delivery at the time.

Most of the studies reviewed used community based cross-sectional approach with multivariable logistic or probit regression models in rural settings similar to the current study. The findings of this study however did not support revelations from other studies which found effect of previous pregnancies and deliveries on facility delivery (Gyimah et al., 2006; Stephenson & Tsui, 2002).

The importance of ANC visits on place of delivery has been found to be immeasurable and colossal. Detailed risk assessment of the pregnant women and the unborn baby are carried out during this period and this presents a unique opportunity for health workers to disclose to the women information on the status of their pregnancy, which in turn informs their decisions on where to deliver. That notwithstanding, some pregnant women may misconstrue the interpretation that everything is fine with their pregnancy and may feel more reinvigorated to use SDS. In addition, midwives in some cases abuse women with invalid ANC card and this obstructs their admission for SDS which consequently dissuades women who did

not use ANC from seeking SDS at health facility as was the case in Uganda (Li, 2004).

In this study, ANC use was found to be related to the use of SDS when socio-demographic factors were not controlled for in the regression model and this replicates the findings of Gage (2007) and Gage et al. (2006). On average, 25% of all studies investigating the determinants of institutional delivery service utilisation assess the role of ANC use as a predictor (Gabrysch & Campbell, 2009). Very few studies did not find statistically significant effect of ANC use using multivariable regression analysis where socio-demographic factors were controlled as it was the case in this study but quite a significant number of studies could relate ANC use to SDS utilisation (Gage, 2007). An unmatched case-control study of 275 women in Northern Ethiopia by Tsegay et al. (2017) and Mengesha et al. (2013) showed that not pursuing ANC visits at all or having 1-3 ANC visits only was strongly associated with home delivery.

A cross-sectional study conducted in Ghana and Ethiopia by Amponsah and Moses (2009) and Freweini (2009) found statistically significant relationship between ANC use and facility delivery. Recently, Hernandez et al. (2017) after using data from 1592 deliveries and controlling for characteristics of women and health facilities have also linked ANC use to SDS which contradicts the findings of the study. Their study employed cross-sectional study design to explore the barriers and facilitators for institutional delivery among poor Mesoamerican women (Guatemala, Honduras and Nicaragua). More robust matched case-control study design could be employed to establish the relationship between ANC use and SDS

utilisation. Statistical association between ANC use and SDS utilisation is always confounded by other factors, in particular availability of and access to services, since closer the pregnant women to health facilities enable them to use such services (Stephenson et al., 2006). Other confounding factors may be knowledge of pregnancy risks and attitude towards health services (Bell et al., 2003), complications (Mishra & Retherford, 2008) and most other factors influencing service use. According to Gabrysch and Campbell (2009), when examining the effect of other determinants on use of SDS, controlling for ANC use may be inappropriate as it is likely to be on the causal pathway.

Although this study could not establish the link between ANC use and SDS after controlling for socio-demographic factors of the study participants, the suggestion is that government and civil society groups should not underestimate the importance of ANC use as the collective goal is to reduce maternal mortality to the barest minimum in the Central Region as the country strive to achieve SDG 3.1 and SDG 3.2.

Place of previous delivery correlates with place of previous ANC attendance (public/private) (Stephenson et al., 2006; Bell et al., 2003). The propensity to deliver in a health facility for women who use SDS previously would probably be higher because they have become more accustomed to the previous setting, which could make them more likely to use or not use it again. It is worth emphasising that determinants such as religion, previous complications, knowledge about pregnancy risks and various other factors which influence a previous place of delivery, are likely to operate in the same manner again. Multistage cluster

sampling design from Demographic and Health Survey has shown that place of previous ANC attendants correlate with the desire to deliver in similar health facility in subsequent deliveries (Stephenson et al., 2006; Bell et al., 2003). These findings were supported by some studies which used qualitative study design and found that women tend to deliver with the same provider if a previous delivery went well and tend to change when they are dissatisfied (Duong et al., 2004). These findings, however, do not support the results from studies that found that place of previous ANC attendance is not related to SDS use for the current delivery. Private hospital ANC attendance are generally more expensive in Ghana compared to government hospitals coupled with the fact that ANC attendants in government hospitals is virtually free. Since the Central Region is among one of the poorest Regions in Ghana (GSS, 2015), those who are able to afford private ANC attendant may be the very few elite in the Central Region who could easily afford delivery charges and need optimum care as was the case in this study where 14.8% (n = 134) used private ANC. These people may continue to use these same facilities on the condition that they were satisfied with the previous experience with the facility.

Most of the factors under ANC experiences were not found to be consistent with the findings stipulated by the Anderson behavioural model. It is the believe that time is a key determinant in any survey and prevailing conditions at the time of development of the model might have changed with time. Free policy initiatives aimed at promoting facility delivery were not taken into consideration at the time of the development of the model and this might have contributed to the observed differences in the performance of ANC predictors.

Andersen's Behavioural Model of Health Services Use indicated that when an individual evaluates his/her health status, it will tell whether that person needs healthcare or not. The study findings support this assertion because pregnant women who had attended ANC two times or more with current pregnancy were more likely to use SDS. The possible explanation will be that the frequent exposure at ANC has given the women enough information about their pregnancy and the unborn baby. This is likely to inform their decision to use SDS.

When individuals are well informed about their health status they are likely to use health services.

Influence of Clients' Satisfaction on Use of SDS by Pregnant Women at Health Facilities in the Central Region

Pregnant women's level of satisfaction with previous delivery services may determine whether they will use such services again or not. The relationship between satisfaction of pregnant women with previous services and use of SDS is displayed in Table 6. Overall the logistic regression model was significant at $-2\text{Log } l = 140.192$; Nagelkerke $R^2 = .399$; $X^2 = 80.69$; $p = .000$. The correct prediction rate was about 96.8%.

The place of last birth, attitude of staff during last delivery, level of satisfaction with services provided during last delivery, and recommendation of last delivery place to family and friends were studied. Two different nested models were fitted. The first model had only satisfaction level variables as predictors. The second model had both socio-demographic and satisfaction level variables as predictors.

Place of last delivery and level of satisfaction with services provided during last delivery were found to be statistically significant in both models ($p < 0.05$). The odds of a woman using SDS for the current child was 1.8 times higher if the woman's last delivery was in a health facility compared to a woman whose last delivery was outside recommended health facility (OR = 1.79, 95% CI = 1.21-2.63, $p = 0.003$). The odds of women using SDS is 3.4 times higher if they were satisfied with services provided during their last delivery compared to those who were dissatisfied with the services provided (OR = 3.41, 95% CI = 1.78-6.51, $p = 0.001$). Attitude of staff towards the women during last delivery and recommendation of last delivery place to family and friends were not statistically significant ($p > 0.05$) as presented in Table 6.

Women who had had the experience of SBA became more accustomed with the facility delivery setting, which is more likely to influence them to use it again on condition that they were satisfied with the services provided. This study found association between previous delivery service use, satisfaction with services provided during last delivery and use of SDS which is consistent with similar findings of Bell et al. (2003) and Stephenson et al. (2006). These two studies based on demographic and health surveys that are linked with contextual data of six different countries, established via multilevel models that previous use of facility delivery services and community level factors are linked to the use of SDS.

A multilevel analysis was applied to a cross-sectional baseline household survey by Jacobs, Moshabela, Maswenyeho, Lambo, and Michelo (2017) to

investigate the predictors of SDS among the remote and poorest rural communities of Zambia.

Their study revealed that previous use of institutional delivery services is highly related to current use which replicates our findings. Other qualitative studies that used focus group discussions and in-depth interviews have also shown that there is a high propensity for a woman to deliver with the same provider if a previous delivery went well and tend to change when they are dissatisfied (Duong et al., 2004; Paul & Rumsey, 2002).

Table 6- Association between place of last birth, previous experience with regard to health service satisfaction and use of SDS with current pregnancy

Previous delivery experience	Use of SDS					Use of SDS			
	B	Wald	Unadjusted effect of previous delivery experiences on SDS use			Wald	Adjusted effect of previous delivery experiences on SDS use		
			OR	95% CI	p-value		aOR	95% CI	p-value
Place of last birth		2.93			0.003	3.05			0.002
Home			ref				ref		
Health facility	1.889		1.79	1.21-2.63			1.87	1.26-.81	
Attitude of staff during last delivery		-0.97			0.335	-1.12			0.263
Negative			ref				ref		
Positive	.165		0.67	0.30-1.52			0.62	0.26-.44	
Satisfaction with services provided during last delivery		3.72			<0.001	3.70			<0.001
Dissatisfied			ref				ref		
Satisfied	3.499		3.41	1.78-6.51			3.61	1.82-.15	
Recommendation of last delivery place to family and friends		1.53			0.126	1.94			0.073
No			ref						
Yes	2.578		1.70	0.86-3.37			1.92	0.94-3.91	

Ref: reference category, aOR: Odds ratio adjusted for socio-demographic factors, OR: Odds ratio based on only previous experiences and place of birth.

Using systematic review to assess how other studies have linked previous use of facility delivery to current use, Gabrysch and Campbell (2009) indicated “that almost all studies have found strong statistical association with index facility delivery which supports our current findings”. It is paramount to note that “observed statistical association between previous and subsequent SDS use is likely to be confounded by availability of and access to services, attitude towards health services, previous complications, knowledge about pregnancy risks and various other factors. Naturally, the same determinants that played a role for previous use are likely to influence present use” (Bell et al., 2003; Stephenson, Baschieri, Clements, Hennink, & Madise, 2006).

Attitude of staff during last delivery and recommendation of last delivery place to family and friends however did not correlate with SDS utilisation. Perhaps staff attitude has improved over the years due to intense education and health facility measures that ensure that service providers put on their name tags when on duty from GHS and MOH. These government agencies have put in place punitive measures to deter health workers from abusing pregnant women during pregnancy. Although there may be pockets of abuse, it is our believe that the problem has reduced drastically over time. Government and other private health facilities have mechanisms through which women in labour report abusive staff for necessary sanctions.

Among the four key satisfaction determinants of SDS utilisation identified by Anderson in 1968, two representing 50%, are still relevant predictors of SDS today. There is clear indication that there might be interaction among

recommendation of last delivery place to family and friends, place of last birth, satisfaction with services provided during last delivery and attitude of staff during last delivery but none of the studies reviewed fitted interaction models to quantify this interaction effect on SDS. We recommend that future studies should focus on that direction. These interaction models will better explain the dynamics of SDS.

The updated Andersen's model included recognition that consumer satisfaction reflects health care use. The findings of the study supports this aspect of the model because the women who used SDS during their previous delivery were more likely to use it again. If a client who had ever used a particular health service will use it again, then it means that client was pleased and satisfied with the service and there was positive outcome of the care received. The model includes the notion that there are several health services available, and both types of services available and the purpose of the health care service will determine the type of service utilised. Sometimes during labour and delivery, there is the need to transfuse blood, perform caesarean section and intervene when complications arise. In this case, the women have trust and confidence in the services provided at the health facility and will use it again and even recommend to others.

The model indicates that health behaviors are the direct cause of health outcomes (Andersen, 1995). When the outcome of the health facility delivery sees both mother and baby alive with no complications, the women will use it again.

Health Service Factors that Influence Utilisation of SDS by Pregnant Women at Health Facilities in the Central Region

To determine the relationship between health service factors and the use of SDS, logistic regression was done to predict the effect of the independent variables (health service factors) on the dependent variable (use of SDS). Attitude of staff, equipment, drugs and supplies, cost of health service, communication, service hours and demand for money and items are health factors that influence the use of SDS. Results are shown in Table 7.

Attitude of staff, privacy and demand for money and items (soap, pad, cot sheets, etc.) from pregnant women were among the seven health service factors found to influence the use of SDS. Overall the logistic regression model was significant at $-2\text{Log } l = 563.655$; Nagelkerke $R^2 = .064$; $X^2 = 29.90$; $p = .000$. The correct prediction rate was about 92.4%. The odds of using SDS is 1.6 times higher among women who perceived attitude of staff to be an important factor compared to those who disagreed to that assertion (OR = 1.60, 95% CI = 1.06 - 2.41, $p = 0.025$). Women who disregard privacy as a key factor are 1.5 times more likely to use SDS compared to those who still believe privacy is an important deciding factor in SDS use (OR = 1.51, 95% CI = 1.10 - 2.26, $p = 0.040$). Women who consider and put premium on haphazard demand for money and other items such as soap, pad, and cot sheets from health service staff during delivery are 1.5 times less likely to use SDS (OR = 1.55, 95% CI = 1.04 - 2.31, $p = 0.030$). There was insufficient statistical evidence to establish association between service hours,

communication, service cost in health facilities, equipment, drugs and supplies and use of SDS ($p > 0.05$ for each factor) as presented in Table 7.

Attitude of staff towards women in labour and demand for money and other items are correlated and therefore could have effect on use of SDS. There are many studies on the attitude of midwives and other health professionals towards pregnant women during delivery and how they could influence subsequent SDS use. This study finds the attitude of staff towards women in labour to correlate with SDS use which confirms results of other studies. Adeyemo et al. (2013) suggested that SBAs should provide the necessary supervision, care and advice to women during pregnancy, labour and the post-partum period and also show great willingness to care for the newborn. The authors stated that it is the responsibility of the midwife to counsel and provide the necessary support to the mothers to enable them breastfeed their newborns well.

In addition, midwives, per their training, have the ability to relieve mothers' of their stress, depression and anxiety because some of these mothers' inherent abilities to resist pain is very low. The relationship between the women in labour and the midwife is important as the midwife ensures that the birth experience is gratifying and heartwarming to encourage future delivery in health facility (Bluff & Holloway, 1994).

As indicated by Olusegun et al. (2012) women in labour tend to overestimate their ability to cope with pain, therefore midwives are expected to be well-mannered, easy-going and attend to mothers' need immediately in the practice of safe delivery.

Table 7- *Impact of health service variables on use of SDS*

Health service factors	B	Wald	Use of SDS		
			OR	95% CI	p-value
Attitude of staff					
Disagree			ref		
Agree	.916	2.24	1.60	1.06-2.41	0.025
Service hours					
Disagree			ref		
Agree	.315	-1.48	0.76	0.52-1.11	0.157
Privacy					
Disagree			ref		
Agree	.924	-2.01	1.51	1.1-2.26	0.040
Communication					
Disagree			ref		
Agree	.855	1.68	1.41	0.94-2.10	0.093
Service cost in health facilities					
Disagree			ref		
Agree	.313	-1.27	0.78	0.53-1.15	0.205
Equipment, drugs and supplies					
Disagree			ref		
Agree	.052	1.57	1.39	0.92-2.08	0.116
Demand for money and items					
Disagree			ref		
Agree	.517	2.17	1.55	1.04-2.31	0.030

OR: odds ratio, CI: confidence interval, Ref: reference category.

The findings of the study replicate a recent qualitative study (in-depth interviews and focus group discussions) of women of reproductive age, midwives, doctors, and administrators in Guinea which showed the importance women attach to subsequent facility delivery as a result of untoward attitude of staff (Balde et al., 2017). A cross-sectional survey by Oluyemisi et al. (2017), using a random sample of five hundred and seventy nine respondent mothers who gave birth in either a mission teaching hospital or a state hospital in Ogbomoso Southwest Nigeri,a also showed encouraging impression of subsequent facility delivery on condition that mothers see attitude and practice of midwives during previous delivery to be

optimum. Based on cross-sectional data, Speizer et al. (2014) found, in Northern and the Central regions of Ghana, that women who perceive positive attitudes toward staff are more likely to have their subsequent delivery in health facility. Their study was based on multi-level logistic regression models, including cross-level interactions between community-level attitudes and individual-level autonomy as predictors of SDS. Facility delivery is relatively cheaper compared to some other African countries. This is because of the free maternal delivery and NHIS policies which allow women to pay smaller amount of money for few other services provided during labour. Although undocumented, there have been reports of health service staff extorting money and other items such as toiletries, soap, pad, cot sheets from unsuspecting pregnant women during delivery. This attitude, if not checked and completely stopped, may encourage out- of- facility delivery and endanger the lives of pregnant women.

According to Lothian et al. (2004), many people incorrectly assume that women don't care about their privacy during childbirth because they are in too much pain, but that is simply not the case in this study. There are many women who feel that their privacy during childbirth is extremely important and must be protected. Some women and their partners do not want a male obstetric/gynaecologist or any other male health professional to be present for the birth of their baby (Lothian et al., 2004). All too often, families have their wishes for privacy violated as they gave birth. The birth of your child should be an ecstatic moment and it is heartrending how violations of privacy have made birth experiences of some women nightmares that could prevent subsequent SDS use.

Even female obstetrics/gynaecologist can be insensitive. Some midwives have ignored women's wishes for privacy and allowed nursing/ midwifery students to be present for all parts of birth even when asked otherwise. Privacy of women and religious affiliation are interlinked and how they interact to affect utilisation of SDS have been scanty in literature. In general, Muslim women have less autonomy to interact with males outside their immediate family and are less likely to go for antenatal check-up and seek delivery assistance because they feel their privacy is invaded (Navaneetham & Dharmalingam, 2002). In addition, they believe it is totally unacceptable for a third party to invade their privacy during pregnancy. For instance, if a male doctor is available in a health facility, Muslim women are generally less likely to visit that facility. It was not surprising that both religious affiliation and privacy were found to be statistically significant in this study.

Service hours, communication, service cost at health facilities, equipment, drugs and supplies did not affect SDS use in the Central Region. As indicated previously in the discussion about the input made by previous governments in improving health facility delivery towards achieving MDG goal 5 and SDS 3, it is believed that service cost at health facilities, equipment, drugs and supplies may not be relevant predictors of SDS as of today. The impact of NHIS and free maternal health policies has reduced the cost burden of mothers during delivery to the barest minimum. The total number of health facilities that have sprung up in Central Region within the last ten years is enormous. This perhaps has helped reduce patients' waiting and service delivery time during labour.

Communication improves the knowledge of women about the risks of childbirth and the potential benefits of SDS. Midwives and other professionals may not be the only repository of knowledge especially when there are a lot of TV and radio stations within the reach of pregnant women in Central Region. Communication with pregnant women about health risk during ANC and information availability for facility delivery may not be relevant predictors of SDS utilisation. This is because access to information through modern media and informal communications could influence women's knowledge about delivery risks and availability of services.

With the exception of few qualitative studies reviewed, almost all the quantitative study designs employed binary logistic regression analysis to quantify the effect of health service factors on SDS. Anderson identified several health service factors that could influence SDS. This study evaluated seven of them and three key factors were found to be still relevant today with reference to Central Region.

Primary determinants of the Andersen's model are the direct cause of health behaviors; these determinants include characteristics of the population, the health care system, and the external environment. The findings from the current study are in conformity with the issues in the health care system. Anderson identified several health service factors that could influence SBA. This study evaluated seven of them and three key factors were found to be still relevant today with reference to Central Region.

The findings indicated that the pregnant women place very much importance on the attitude of the staff at the health facility in relation to the use of SDS. In addition, pregnant women who consider and put premium on haphazard demands of money and other items during labour are less likely to use SDS.

Socio-Cultural Variables that Influence Utilisation of SDS by Pregnant Women at Health Facilities in the Central Region

A logistic regression analysis of the association between the socio-cultural and physical factors and use of SDS with current pregnancy using road networks, distance, husband/partner/family members' influence, need for closer attention from relatives, community and family support, health facility in the community and money for transport and health care was done. Overall the logistic regression model was significant at $-2\text{Log } l = 556.818$; Nagelkerke $R^2 = .079$; $X^2 = 36.74$; $p = .000$. The correct prediction rate was about 92.4%.

Comparison was done based on a baseline logistic regression model which has only socio-cultural and physical factors as predictors to a model that controls for socio-demographic factors (socio-cultural and physical factors and socio-demographic characteristics). The best performing model that explains the variations in SDS use was the model with socio-cultural and physical factors controlling for the possible confounding effect of socio-demographic characteristics of the study participants. Detailed evaluation of the 2 models can be found in Table 8. In the model where control for socio-demographic factors was not done, road network and need for closer attention from relatives were found to be associated with SDS use although the p-value was at the borderline for road

network. The odds of SDS utilisation for mothers who needed closer attention from relatives was 1.6 times higher (OR = 1.56, 95% CI = 1.05-2.34, $p = 0.027$) than the odds of facility delivery for mothers who did not need closer attention. None of the socio-cultural and physical factors were found to be related to SDS in the multivariable logistic regression model controlling for socio-demographic factors ($p > 0.05$) as shown in Table 8 with the exception of need -for-closer attention (OR = 1.51, 95% CI = 0.99 - 2.28, $p = 0.054$) and feeling comfortable when delivered at home (OR = 0.71, 95% CI = 0.49 - 1.03, $p = 0.069$) which even assumed borderline significant effect on SDS use.

The propensity for socio-cultural and physical factors to explain use of SDS has long been documented in literature. This study however did not find significant effect of most of these factors (money for transport and health care, distance to facility, partner or family members influence, knowledge about signs of labour and the need for closer attention from relatives) which is inconsistent with the findings of several authors (Abraha & Hurissa, 2016; Azilke, 2016; Gultie et al., 2016; Seme & Seifu, 2017).

The fact that the pregnant women feel comfortable when delivered at home with community and family support had moderate influence on SDS use as they both assumed borderline significance in the univariate and the multivariable stages of the analysis respectively. This finding is consistent with similar community based multi-stage sampling cross-sectional study conducted among mothers who gave birth in the last 12 months in Sekela District, Amhara Region, Ethiopia by (Seme & Seifu, 2017) using multivariable logistic regression analysis.

Seme and Seifu (2017) indicated that 61% of the mothers were of the view that delivering at home instead of a health facility affords them the opportunity to have closer attention from family members and relatives. Findings from Tenaw et al. (2017) replicates the findings of this study where mothers feel comfortable and have their privacy delivering at home compared to health facility.

The cost of SDS use may include costs of transportation which include relatives that may accompany the woman to health facility, medications and supplies, official and unofficial provider fees as well as the opportunity costs of travel time and waiting time lost from productive activities as indicated by Thaddeus and Maine (1994). It is important to note that households with woefully inadequate budget will have great difficulties to pay these costs and therefore be less likely to use SDS. This could have influence on SDS use as have been found by other studies (Amano et al., 2012; Navaneetham & Dharmalingam, 2002). This is because they increased opportunity costs, transportation costs and costs for staying overnight in the town where the health facility is located but that was not the case in this study.

The reason might be that most communities in the Central Region have received massive health infrastructural development located not too distant from these communities in the past few years and women no longer need to pay for additional cost associated with delivering in far distant health facilities. These perhaps attest to why 80% of women in this study intend to use SDS. Thaddeus and Maine (1994) found to their disbelief that "the literature indicates that compared to other factors, the financial cost of receiving care is often not a major determinant of the decision to seek care" which is consistent with this study. Future studies needs to be conducted to investigate the community level poverty effect on the use of SDS.

Table 8- *Impact of socio-cultural variables on SDS use*

Socio-cultural and physical factors	Use of SDS					Use of SDS			
	B	Unadjusted effect of socio-cultural and physical factors on SDS: model 1				Effect of socio-cultural and physical factors on SDS controlling for Socio-demographic factors: model 2			
		Wald	OR	95%CI	p-value	Wald	aOR	95%CI	p-value
Money for transport and health care			ref				ref		
Disagree									
Agree	.472	0.28	1.10	0.76-1.60	0.778	0.16	1.03	0.70-1.53	0.873
Distance			ref				ref		
Disagree									
Agree	.257	0.95	1.19	0.83-1.71	0.342	0.55	1.11	0.76-1.62	0.585
Husband/partner/family members' influence			ref				ref		
Disagree									
Agree	.305	1.46	1.32	0.91-1.94	0.143	0.26	1.23	0.82-1.84	0.798
Knowledge about signs of labour			ref				ref		
Disagree									
Agree	.836	0.37	1.07	0.74-1.56	0.711	0.26	1.05	0.71-1.55	0.798
Need for closer attention from relatives			ref				ref		
Disagree									
Agree	1.389	2.15	1.56	1.05-2.34	0.027	1.93	1.51	0.99-2.28	0.054
Comfortable when delivered at home			ref				ref		
Disagree									
Agree	-.107	-1.50	0.76	0.53-1.09	0.133	-1.82	0.71	0.49-1.03	0.069
Community and family support			ref				ref		
Disagree									
Agree	-.188	-1.68	0.72	0.49 – 1.06	0.094	-0.99	0.81	0.54–1.22	0.324

The effects of availability of health facility in the community, distance to facility and road network on facility delivery are inter-related. Several authors have linked these factors to the use of SDS as a larger proportion of pregnant women do not even attempt to reach a facility for delivery since walking many kilometres is difficult in labour and impossible if labour starts at night and transport means are often unavailable (Gage, 2007; Gage et al., 2006; Gleit et al., 2003; Potter, 1988; Thaddeus & Maine, 1994). It is important to note that those women trying to reach a far distant facility often fail and women with serious complications may die trying. This could prevent women from seeking assisted delivery in health facilities (Yanagisawa et al., 2006). However, this study did not find significant effect of distance to facility and road network. This is partly due to the fact that a lot has changed in the road networks between the periods where these studies were conducted (1988-2007) and now. The Central Region has seen massive improvements in the area of road network and tremendous availability of health facilities. Several CHPS compounds have sprung up over the past 10 years and several road networks have seen major face-lift. These factors may not be relevant determinants of the use of SDS now as seen in this study. In places where facilities are conveniently located, they may be underused if their quality of service is considered bad or cost of delivery is high. Where people have the choice between several facilities, they sometimes travel further if the target facility is perceived to offer superior quality care and cost of delivery is relatively low. None of the aforementioned factors may be relevant now because of the implementation of free maternal health policy largely enjoyed by people in the Central Region.

Specific knowledge about signs of labour, risks of childbirth and the benefits of SDS should increase preventive care-seeking, while the acknowledgement of danger signs and knowledge about available beneficial interventions such as free maternal delivery policy should increase care-seeking for complications. ANC periods provide genuine opportunity for mothers to meet skilled attendant and this could increase specific knowledge on childbirth via health education. Specific knowledge may also be associated with educational level in general. Both the univariate and multivariable logistic regression analysis did not find any effect of knowledge of signs of labour and this was consistent with Phoxay et al. (2001) but contradicts the findings of Stekelenburg et al. (2004) that showed that women in Zambia who know danger signs in pregnancy are more likely to deliver in a health facility as compared to those without such knowledge. In addition, Gage (2007) used 2001 DHS and multilevel logistic regression models to examine area-and individual-level barriers to the utilisation of maternal health services in rural Mali. Gage (2007) found that women who are told about birth complications at ANC are more likely to give birth in a facility, this contradicts the current findings.

Several authors have linked the position of a woman in the household, financial independence, mobility and decision-making power to institutional delivery (Li, 2004; Mrisho et al., 2007; Stekelenburg et al., 2004). In a developing country such as Ghana, some women cannot decide on their own to seek healthcare, but have to seek permission from a husband or some other persons in authority. This is an important factor especially when the woman is unemployed and financially handicapped (Furuta & Salway, 2006; Thaddeus & Maine, 1994). However, this study did not find women autonomy to be

statistically significant. This may be partly due to the fact that women in some rural communities in the Central Region are rather key decision makers in the household and moreover gainfully employed compared to their partners which could reduce the chances of delivering outside health facilities. It is paramount to note that the autonomy effect is likely to be modified by age, marital status, wealth and parity (Gabrysch & Campbell, 2009).

The findings of the study support the Andersen's model in that the model suggests that the likelihood of an individual to use health services depends on family composition, social composition of communities and social relationships. This implies that pregnant women will be willing to use SDS when the service ensures family centred care and family members will be permitted to visit the women at the health facility. In most of our Ghanaian communities and families, relatives mostly support women before, during and after delivery as a woman after delivery is unlikely to meet her basic and health needs.

Some of the socio-cultural and physical factors (transportation and distance) found to play key role in facility delivery by Anderson (1968) were no longer significant with reference to communities within the Central Region. This might be due to general improvement in the number of health facilities, road network, education, counselling, government intervention, self-awareness of the risk of delivering outside health facility and the fact that women are fast becoming more autonomous in the Central Region.

The government through the MOH and GHS must provide in-service training for SBAs to provide services that will ensure that family members will have close contact with their relatives when they are on admission. SBAs must

ensure good relationship with their clients to enable them identify things that will make them feel comfortable to use SDS.

Chapter Summary

This chapter has addressed how the data was analysed and processed during the study. It also presented the findings of the study in detail. The findings have also been related to findings of other studies that were alluded to in the literature review. It was found that the intension of the pregnant women to use SDS was high (80%). The study found the factors that determine the use of SDS to be religion, person who takes decision on delivery place, number of ANC visits for the index child, place of last delivery, having experienced miscarriage in life and level of satisfaction with last delivery services. Attitude of staff, privacy, demand for items from pregnant women, mothers who needed closer attention from relatives and road network were factors that were also found to correlate with SDS use.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Overview

This chapter presents summary, highlighting major findings of the study, conclusion as well as the recommendations of the study.

Summary

The purpose of this survey study was to test the theory of Andersen's Behavioural Model of Health Services Use that relates predisposing and enabling factors to the use of SDS by pregnant women at health facilities controlling for background characteristics of the respondents at health facilities in the Central Region of Ghana. Specifically, the study sought to: determine the level of use of SDS at health facilities by pregnant women; identify the socio-demographic characteristics associated with utilisation of SDS by pregnant women at health facilities; determine whether antenatal attendance predict the use of SDS by pregnant women at health facilities; assessing the relationship between obstetric variables and use of SDS by pregnant women at health facilities, determine the relationship between clients' satisfaction and utilisation of SDS by pregnant women at health facilities and determine health service factors which predict utilisation of SDS by pregnant women at health facilities.

The study was conducted in selected health facilities in the Cape Coast Metropolis, Gomoa West, Agona West, Twifo Ati Mokwa, Mfantseman Municipal, Effutu Municipal and Asikuma-Odoben-Brakwa. The target population included all ANC clients in the reproductive age (15-49 years) who have delivered within the past three years prior to the study in the Central Region, regardless of their birth outcome and of the pregnancy being the first.

Age group 15 -18 years, considered under age, was included in the study because of the high incidence of teenage pregnancies among this age group in the study area.

A sample of 1,100 women drawn from an estimated total population of antenatal clients of 45,759 was used to determine whether women will use SDS. Data was collected on level of SDS use, socio-demographic characteristics of respondents, antenatal service attendance, clients' satisfaction with SDS, health service factors affecting utilisation of SDS and socio-cultural and physical factors that influence utilisation of SDS. The main instrument for data collection was a questionnaire. Data collected was processed using SPSS version 21. The analysis was done based on the objectives. The statistical techniques that were used for the analysis depended on the type of research objectives, type of items on the questionnaire and scales that were used, the nature of data available for each variable and the assumptions that must be met for each of the different statistical techniques. Results of the study were presented in tables and charts.

Summary of Findings

This section presents the main findings of the study. The findings are put into the objectives of the study. The main findings are highlighted below.

1. Greater percentage 80% (n = 881) of the respondents have the intention to use SDS during labour with current pregnancy.
2. The odds of a Christians using SDS is approximately 1.6 (OR = 1.56, 95% CI = 1.06-2.37, $p = 0.025$) times higher than the odds of a Muslim. The use of SDS is 2.4 (OR = 1.35, 95% CI = 1.52-3.62, $p = 0.0005$) times higher if the decision to deliver in a recommended health facility was done by the husband of the woman compare to a family member.

Pregnant women who had valid NHIS were 1.8 (OR = 1.78, 95% CI = 1.06 - 3.00, $p = 0.030$) more likely to use SDS than women who had invalid NHIS.

3. Women with no history of miscarriage are 1.9 times more likely to use SDS compared to those who have had the experience of miscarriage in life (OR = 1.94, 95% CI = 1.34-2.83, $p = <0.0001$).
4. The odds of SDS utilisation for mothers who have attended ANC for at least 2 times was approximately 2.5 times (OR = 2.47, 95% CI = 1.35 – 4.51, $p = 0.008$) higher than the odds of SDS use for mothers who have had only one ANC attendance.
5. The odds of women using SDS is 3.4 times higher if they were satisfied with services provided during last delivery compared to those who were dissatisfied with the services provided (OR = 3.61, 95% CI = 1.83-7.15, $p = 0.001$).
6. The odds of using SDS is 1.6 times higher among women who perceived the attitude of staff to be an important factor compared to those who disagree with that assertion (OR = 1.59, 95% CI = 1.01 - 2.25, $p = 0.025$). Women who disregard privacy as key factors are 1.5 times more likely to use SDS compared to those who still believe privacy is an important deciding factor in SDS use (OR = 1.51, 95% CI = 1.00 - 2.26, $p = 0.040$). Women who consider and put premium on haphazard demand of money and other items such as soap, pad, cot sheets from health service staff during delivery are 1.5 times less likely than the odds to use SDS (OR = 1.52, 95% CI = 1.04 - 2.25, $p = 0.032$).

7. The odds of SDS utilisation for mothers who needed closer attention from relatives was 1.6 times higher (OR = 1.56, 95% CI = 1.05-2.34, $p = 0.027$) than the odds of facility delivery for mothers who did not need closer attention.

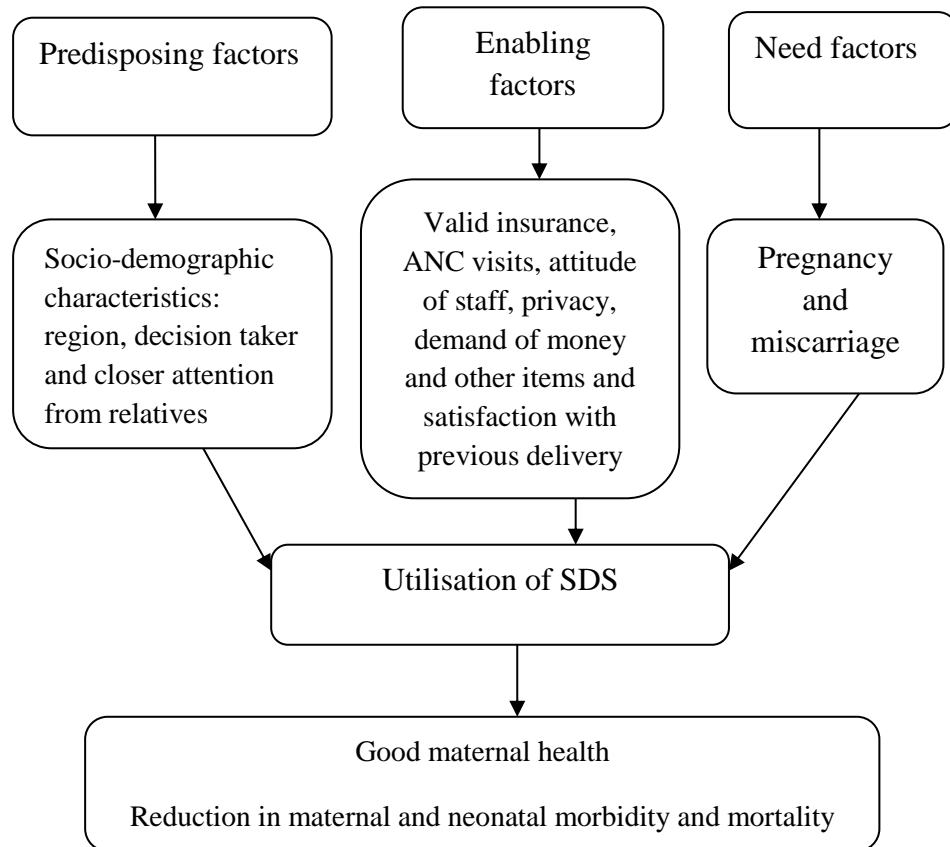


Figure 10: Determinants of SDS use in Central Region based on the Anderson's model.

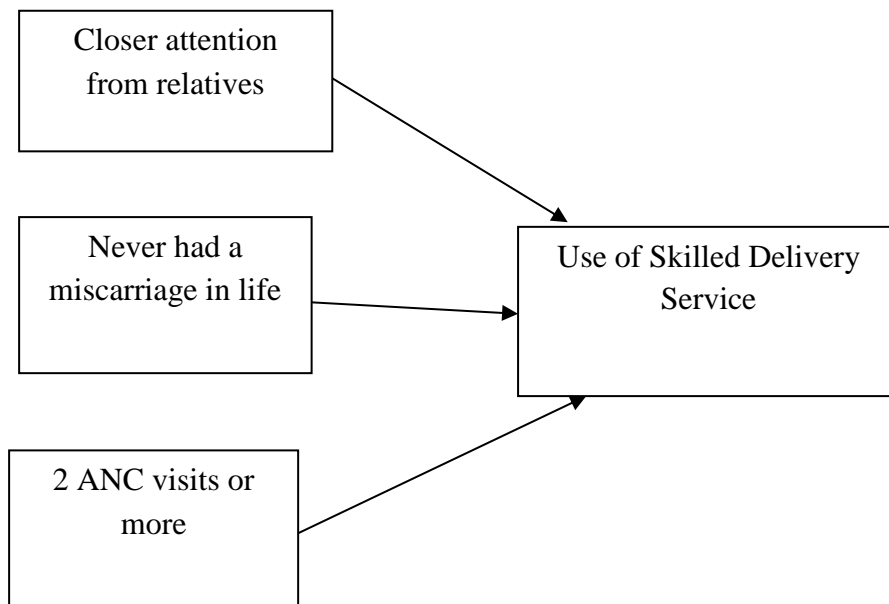


Figure 11: Conceptual framework of Novelty of the study

Conclusions

The study has established that majority of pregnant women intend to use SDS with their current pregnancy.

The utilisation of SDS in Central Region is determined by:

- a. Socio-demographic factors: religion and decision maker, having valid NHIS
- b. Obstetric variables: never experience miscarriage
- c. ANC attendance: 2 or more visits
- d. Clients satisfaction: Previous delivery at health facility and Satisfaction during previous delivery
- e. Health service factors: attitude of staff and privacy at the facilities and demand of money and other items from the women
- f. Socio-cultural: closer attention from relatives

The components of the conceptual framework support the conclusion of this study. The conceptual framework also supports the results that socio-

demographic factors, information on ANC visits, health services factors and socio-cultural and physical factors explain intention to use SDS by pregnant women. The conceptual framework shows the complex interaction between these factors which have been found to determine use of SDS in this study.

Recommendations

This research had many findings and has important implications for policy aimed at improving maternal health especially in increasing utilisation of SDS. Based on the conclusions, it is recommended that:

Objective 1:

- a. Health education on the benefits of the utilisation of SDS at health facilities should be intensified by Skilled Birth Attendants.
- b. The free maternal health care policy should be strengthened to motivate all pregnant women to use SDS at health facilities.

Objective 2:

- a. Health education programmes should be routed through religious leaders
- b. Pregnant women should be empowered to make their own decisions to seek health care.
- c. All pregnant women should be encouraged to have valid NHIS.

Objective 3: Skilled birth attendants should educate the pregnant women about the complications associated with pregnancy.

Objective 4: Health care providers should encourage all pregnant women to attend ANC as proposed by WHO.

Objective 5: The Government through the MOH/GHS should invest more in supervision and on the job training for the SBAs to ensure quality care to satisfy clients.

Objective 6:

- a. The management at the health facilities must implement appropriate channels of reporting unacceptable demands by the health personnel.
- b. The government through the MOH/GHS should implement policies that will sanction health workers who make unnecessary demands on clients.
- c. Provision of adequate equipment, drugs and supplies at all health facilities for SDS to prevent unnecessary demands on pregnant women by MOH/GHS.

Objective 7:

- a. Health service providers should ensure client and family-centered care is provided to make the health facilities user friendly.

Suggestions for Further Studies

This study has investigated the determinants of the utilisation of skilled delivery services (SDS) by pregnant women at selected health facilities in the Central Region of Ghana. This implies that any findings from this study would be limited to this area. Therefore, future studies in this domain should endeavour to include all the districts in the Central Region, as they are also very essential to the region and the country as a whole. Future studies could also look at the views of family members and husbands with regard to determinants of use of SDS. Service providers could also be targeted about the same issue. Studies could be conducted on the effects of birth preparedness plan and use of SDS.

Furthermore, other studies should be conducted on the impact of husbands' involvement in the use of SDS. Qualitative studies should also be done to assess the experiences of pregnant women and health care providers at the health facilities during SDS provision.

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APPENDICES

APPENDIX A
QUESTIONNAIRE

Serial Number.....

This questionnaire is meant to solicit your views about the determinants of utilisation of skilled delivery services by pregnant women at health facilities in the Central Region of Ghana. Please feel free and respond to the questions. This study is purely for academic purposes. You are assured of anonymity and confidentiality. Thank you in advance for your cooperation.

Instruction: Please tick (✓) where appropriate and write your answers where necessary in the spaces provided.

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS

1. District

2. Age in years

3. Religion

No religion

Islamic

Christianity

4. What is your marital status?

Never married

Married

Living together/ Cohabiting

Divorced/Separated/Widowed

5. Do you live in this town?

Yes

No

6. What is the level of your formal educational?

No formal education

Basic education

Secondary education

Tertiary

7. What is your main occupation?

Self employed

Civil servant

Unemployed

Other specify

8. On average how much do you make in a month?

9. What is your husband/partner formal educational?

No formal education

Basic education

Secondary education

Tertiary

10. What is your husband's/partner's occupation?

Self employed

Civil servant

Unemployed

Other specify

11. Who decides where you have to seek health care?

Husband/partner

Family member

Self

Health care provider

Husband/partner and self

Others specify

12. Do you have health insurance?

Yes and it is active

Yes but it has expired

No

**SECTION B: OBSTETRIC VARIABLES AND USE OF SDS BY
PREGNANT WOMEN AT HEALTH FACILITIES**

13. How old is your current pregnancy in months?

1-3

4-6

7-9

14. How old is your last child?

15. How many times have you been pregnant?

1

2

3

4 or more

16. How many deliveries have you had?

None

1

2

3

4 more

17. Have you had miscarriage/spontaneous abortion in your life time?

No

Once

2 times

3times

More than 3 times

18. Have you had still birth/neonatal death in your life time?

No

Once

2 times

3 times

More than 3 times

19. Did you experience any complications during your previous pregnancy/delivery?

Yes

No

20. If yes, what were the complications? You may select more than one response. Select those that apply to you.

Severe vaginal bleeding

Prolonged labour

Convulsions

Retained placenta

Premature rupture of membrane

Malposition of the fetus

Swollen hands/face/feet

Blurred vision

Excessive vomiting

Severe abdominal pain

Hypertension

Other specify

SECTION C: ANTENATAL SERVICE AND UTILISATION OF SKILLED BIRTH ATTENDANTS AT DELIVERY

21. Did you attend antenatal clinic during your last/previous pregnancy?

Yes

No

If yes, please answer question 22-23 following questions

22. Where did you attend antenatal clinic during last/previous pregnancy?

Private clinic

Maternity home

Private hospital

Public hospital

Public clinic

23. How many times did you visit the ANC during last/previous pregnancy?

1

2

3

More than 3 times

24. How many times have you visited the ANC during current pregnancy?

- 1
- 2
- 3
- More than 3 times

25. What information were you provided with during ANC visits? You may select more than one response?

- Date of next visit
- Number of visits before delivery
- Importance of ANC
- Expected date of delivery
- Importance of hospital/health facility delivery
- Danger signs in pregnancy, labour, delivery and after
- Transport arrangements
- Financial arrangement for transport and services
- Companion to the delivery site
- Blood donation
- Health care seeking during emergency

SECTION D: CLIENTS SATISFACTION ABOUT SKILLED DELIVERY SERVICES

26. Where did you give your last birth?

- Home
- Health facility

Other (specify).....

If you deliver at home, do not answer questions 28-30

27. What was the type/method of delivery?

- Caesarean section
- Spontaneous vaginal delivery
- Forceps delivery
- Induced vagina delivery
- Vacuum

28. What was the attitude of the nurse/midwife/doctor who assisted you during your last delivery?

- Positive
- Negative
- Others

29. How satisfied were you during your last delivery time?

- Very satisfied
- Satisfied
- Indifferent
- Dissatisfied
- Very dissatisfied

30. Where you had your last delivery, would you recommend that facility for delivery care to your family or friends?

- Yes
- No

31. Where would you give birth with this current pregnancy?

- Health facility
- Home

SECTION E: HEALTH SERVICE FACTORS AFFECTING UTILISATION OF SKILLED DELIVERY SERVICES

For questions 32 – 44, kindly indicate your level of agreement to the statements below using the scale provided by ticking [√] your opinion.

Scale for response options: Strongly Agree (SA), Agree (A), Disagree (D), Strongly disagree (SD)

	Item	SA	A	D	SD
32.	Attitude of staff				
33.	Experience from past health facility delivery				
34.	Approach of providers				
35.	Service hours				
36.	Privacy				
37.	Referral				
38.	Communication				
39.	Beating during labour				
40.	Service cost in health facilities				
41.	Equipment, drugs and supplies				
42.	Demands of money and items (soap, pad, cot sheets etc)				
43.	Service provision time/ promptness of service delivery				
44.	Position used for delivery				

SECTION F: SOCIOCULTURAL AND PHYSICAL FACTORS THAT INFLUENCE UTILISATION OF SKILLED DELIVERY SERVICES

For questions 45 – 55, kindly indicate your level of agreement to the statements below using the scale provided by ticking [√] your opinion.

Scale for response options: Strongly Agree (SA), Agree (A), Disagree (D) , Strongly disagree (SD)

	Item	SA	A	D	S D
45.	Money for transport and health care				
46.	Cultural, religious beliefs and custom				
47.	Decision making power				
48.	Health facility in the community				
49.	Distance				
50.	Road networks				
51.	Husband/partner/family members influence				
52.	Knowledge about signs of labour				
53.	Need for closer attention from relatives				
54.	Comfortable when delivered at home				
55.	Community and family support				

Thank you very much for your kind cooperation.

APPENDIX B

CONSENT FORM

Title: Determinants of of Skilled Delivery Services by Pregnant Women at Health Facilities in the Central Region, Ghana

Investigator: Christiana Asiedu

Qualification: PhD student

Address: Department of Health, Physical Education and Recreation, College of Education Studies, University of Cape Coast, Cape Coast.

Tel: 0244477116, E-mail:christforiwa@yahoo.com; casiedu@ucc.edu.gh

General Information about Research

The largest threat of maternal mortality occurs during labour, birth and 24 hours following birth. Many of the interventions known to save the lives of women and their newborns depend upon the presence of a skilled birth attendant. Complications associated with pregnancy and delivery could best be prevented with the use of skilled attendants. Clinical factors that can result in maternal mortality are delay in recognizing problem associated with pregnancy and delivery, delay in deciding to seek skilled delivery services and delay in reaching and receiving skilled delivery services. Coverage of skilled delivery was about 70%, 99 % in developed countries, upper middle income countries 95 %, less developed countries 64%, and least developed countries 47%. In Ghana there are 59 percent of births occur with skilled birth attendants while 57% take place at health facilities. Coverage of skilled delivery in the Central Region is 54% and facility delivery is 51.7% which is below the global expected coverage of 90%. Central region is among the four regions with the lowest coverage in skilled delivery and second region with highest total fertility of 5.4

in the country. The national total fertility rate is 4.1. To decide on the appropriate strategies to improve on the utilisation of skilled delivery in the region there is the need for data that will guide the decision of management. The study objective is to identify the socio-demographic characteristics of respondents associated with utilisation of skilled delivery services, determine the influence of antenatal service on SBA at delivery, assess the status of resources available for skilled delivery services (SDS), assess clients' satisfaction with the use of SDS and determine health service factors that influence utilisation of skilled delivery

Possible Risks and Discomforts

There is no risk associate with the study.

Description of Level of Research Burden

Study participants will be asked to fill questionnaire which will take about 20 minutes to complete.

Possible Benefits

Description of Potential Benefits

There will be no material or financial benefit to respondents. The information obtain will inform the management of the region about the factors influencing utilisation of skilled delivery. This will also help the management at the regional and district levels and policy makers to implement interventions will improve utilisation of skilled delivery services to reduce maternal mortality.

Confidentiality

Data Security

All the questionnaires and informed consent forms will be stored in locked file cabinets at the offices of Principal Investigator. Data will be entered in PASW

software by the researcher and research assistants, and electronic files will be made accessible only to the research team.

Plans for Record Keeping

All the questionnaires and informed consent forms will be labeled and each one will be given a unique study identification number for each study participant.

Person Responsible & Telephone Number

The person responsible for data storage will be the researcher (Christiana Asiedu), of the Department of Health, Physical Education and Recreation, University of Cape Coast, Cape Coast. Tel: 0244477116

Who Will Have Access to the Data

The researcher and her team members (research assistant, data analyst, and the data entry personnel) will have access to the data.

Compensation

There will be no compensation for the study participants.

Voluntary Participation and Right to Leave the Research

The potential study participants must be aware that participating in the study is entirely voluntary, and that declining to enter the study, declining to answer a question, or terminating the interview will have no negative consequence.

Contacts for Additional Information

Please call the person responsible for this study, Christiana Asiedu .Tel. no. 0244477116, if you have any questions about the study.

Your rights as a Participant

This research has been reviewed and approved by the ERB of the Ghana Health Service. You may contact them for any further information and inquiries.

VOLUNTEER AGREEMENT

The above document describing the benefits, risks and procedures for the research title (determinants of of Skilled Delivery Services by Pregnant Women at Health Facilities in the Central Region, Ghana) has been read and explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate as a volunteer.

Date

Signature or mark of volunteer

If volunteers cannot read the form themselves, a witness must sign here:

I was present while the benefits, risks and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

Date

Signature of Witness

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

Date

Signature of Person Who Obtained Consent

APPENDIX C

OUTPUT OF CRONBACH'S ALPHA

OUTPUT FOR PRETEST QUESTIONNAIRE

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Reliability

Notes

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	Definition of Missing	User-defined missing values are treated as missing.
Missing Value Handling		Statistics are based on all cases with valid data for all variables in the procedure.
	Cases Used	

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Case Processing Summary

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	Total	100	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
------------------	------------

.905	75
------	----

Item Statistics

	Mean	Std. Deviation	N
Age	2.56	.625	100
Age of last child	26.14	41.157	100
Number of pregnancies	2.46	.958	100
Number of deliveries	2.71	1.175	100
Religion	2.38	1.354	100
Ethnic group	2.70	2.956	100
Marital status	2.02	.426	100
Residence	1.51	.502	100
Gestational age	2.33	.726	100
Level of formal education	4.21	1.748	100
Main occupation	5.15	1.321	100
Average monthly income	1.93	1.085	100
Level of education of husband/partner	5.58	1.799	100
Main occupation of husband/partner	5.08	1.612	100
Person who decides where respondent should seek health care	4.31	1.562	100
Ownership of NHIS	2.07	.383	100
Ever having a miscarriage in life	20.04	38.442	100
Ever had still birth/neonatal mortality	19.78	38.564	100
Experience of pregnancy complications during previous pregnancy	19.88	38.515	100
Specific complications (Severe vaginal bleeding)	.12	.327	100
Specific complications (Prolonged labour)	.08	.273	100
Specific complications (Convulsions)	.01	.100	100
Specific complications (Retained placenta)	.03	.171	100

Specific complications (Premature rupture of membrane)	.01	.100	100
Specific complications (Malposition of the fetus)	.01	.100	100
Specific complications (Swollen hands/face)	.03	.171	100
Specific complications (Blurred vision)	.00	.000	100
Specific complications (Excessive vomiting)	.04	.197	100
Specific complications (Severe abdominal pain)	.01	.100	100
Specific complications (Other)	.02	.141	100
Attendance to ANC during last/previous pregnancy	20.33	38.295	100
Place of ANC attendance during last/previous pregnancy	31.30	43.489	100
Number of ANC visits during last/previous pregnancy	31.36	43.450	100
Number of ANC visits with current pregnancy	2.68	1.246	100
Information received during ANC visits (Date of next visit)	.79	.409	100
Information received during ANC visits (Number of visits before delivery)	.64	.482	100
Information received during ANC visits (Importance of ANC)	.64	.482	100
Information received during ANC visits (Importance of hospital/health facility delivery)	.70	.461	100
Information received during ANC visits (Danger signs in pregnancy and its management)	.53	.502	100

Information received during ANC visits (Danger sings in labour, delivery and after)	.53	.502	100
Information received during ANC visits (Place of delivery)	.51	.502	100
Information received during ANC visits (Transport arrangements)	.49	.502	100
Information received during ANC visits (Blood donor)	.50	.503	100
Information received during ANC visits (Arrangement for someone to help with household chores)	.52	.502	100
Information received during ANC visits (Birth preferences)	.38	.488	100
Place of last birth	20.31	38.305	100
Type/method of delivery	20.24	38.342	100
Attitude of staff during last delivery	31.48	45.486	100
Level of satisfaction with services provided during last delivery	32.03	45.123	100
Delivery place with current pregnancy	1.84	.368	100
recommendation of last delivery place to family and friends	31.98	45.149	100
Attitude of staff	2.80	1.414	100
Experiences from past health facility delivery	2.89	1.348	100
Approach of providers	2.58	1.379	100
Service hours	2.50	1.389	100
Privacy	2.43	1.373	100
Referral	2.50	1.283	100
Communication	2.45	1.366	100
Beating during labour	2.21	1.289	100
Service cost in health facilities	2.41	1.319	100
Equipment, drugs and supplies	2.36	1.352	100

Demand for money and items	2.78	1.411	100
Service provision	2.54	1.314	100
Money for transport and health care	2.54	1.452	100
Cultural and religious beliefs	2.50	1.411	100
Decision making power	2.50	1.307	100
Health facility in the community	2.76	1.311	100
Distance	2.84	1.412	100
Road networks	2.59	1.364	100
Husband/partner/family members influence	2.65	1.424	100
Knowledge about signs of labour	2.55	1.388	100
Need for closer attention from relatives	3.05	1.351	100
Comfortable when delivered at home	2.29	1.313	100
Community and family support	3.35	1.321	100
Stealing of babies	2.52	1.132	100

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Age	423.01	191865.949	-.356	.905
Age of last child	399.43	163121.298	.808	.897
Number of pregnancies	423.11	192294.786	-.743	.905
Number of deliveries	422.86	192234.728	-.548	.905
Religion	423.19	191612.176	.049	.905
Ethnic group	422.87	191796.114	-.051	.905
Marital status	423.55	191703.604	-.086	.905
Residence	424.06	191666.219	.012	.905
Gestational age	423.24	191640.770	.048	.905
Level of formal education	421.36	191474.819	.127	.905
Main occupation	420.42	191671.196	-.001	.905
Average monthly income	423.64	191600.657	.073	.905
Level of education of husband/partner	419.99	191338.959	.209	.905

Main occupation of husband/partner	420.49	191791.848	-.087	.905
Person who decides where respondent should seek health care	421.26	191878.316	-.153	.905
Ownership of NHIS	423.50	191729.384	-.173	.905
Ever having a miscarriage in life	405.53	161041.767	.945	.894
Ever had still birth/neonatal mortality	405.79	160940.471	.945	.894
Experience of pregnancy complications during previous pregnancy	405.69	160966.802	.946	.894
Specific complications (Severe vaginal bleeding)	425.45	191716.109	-.156	.905
Specific complications (Prolonged labour)	425.49	191673.101	-.007	.905
Specific complications (Convulsions)	425.56	191653.724	.204	.905
Specific complications (Retained placenta)	425.54	191682.615	-.074	.905
Specific complications (Premature rupture of membrane)	425.56	191670.673	.010	.905
Specific complications (Malposition of the fetus)	425.56	191670.673	.010	.905
Specific complications (Swollen hands/face)	425.54	191684.453	-.086	.905
Specific complications (Blurred vision)	425.57	191671.561	.000	.905
Specific complications (Excessive vomiting)	425.53	191688.615	-.099	.905
Specific complications (Severe abdominal pain)	425.56	191677.279	-.065	.905
Specific complications (Other)	425.55	191680.472	-.072	.905
Attendance to ANC during last/previous pregnancy	405.24	161177.295	.944	.894
Place of ANC attendance during last/previous pregnancy	394.27	163060.603	.761	.898
Number of ANC visits during last/previous pregnancy	394.21	163066.794	.761	.898

Number of ANC visits with current pregnancy	422.89	191777.755	-.099	.905
Information received during ANC visits (Date of next visit)	424.78	191662.699	.024	.905
Information received during ANC visits (Number of visits before delivery)	424.93	191657.601	.032	.905
Information received during ANC visits (Importance of ANC)	424.93	191696.248	-.059	.905
Information received during ANC visits (Importance of hospital/health facility delivery)	424.87	191618.559	.131	.905
Information received during ANC visits (Danger signs in pregnancy and its management)	425.04	191622.564	.111	.905
Information received during ANC visits (Danger signs in labour, delivery and after)	425.04	191641.493	.068	.905
Information received during ANC visits (Place of delivery)	425.06	191613.451	.132	.905
Information received during ANC visits (Transport arrangements)	425.08	191642.034	.067	.905
Information received during ANC visits (Blood donor)	425.07	191673.015	-.004	.905
Information received during ANC visits (Arrangement for someone to help with household chores)	425.05	191711.543	-.092	.905
Information received during ANC visits (Birth preferences)	425.19	191681.873	-.025	.905
Place of last birth	405.26	161231.871	.942	.894
Type/method of delivery	405.33	161139.011	.944	.894
Attitude of staff during last delivery	394.09	160813.477	.789	.897

Level of satisfaction with services provided during last delivery	393.54	161064.958	.789	.897
Delivery place with current pregnancy	423.73	191766.522	-.295	.905
recommendation of last delivery place to family and friends	393.59	161035.254	.789	.897
Attitude of staff	422.77	191470.280	.161	.905
Experiences from past health facility delivery	422.68	191674.099	-.004	.905
Approach of providers	422.99	191576.050	.078	.905
Service hours	423.07	191540.591	.106	.905
Privacy	423.14	191494.243	.146	.905
Referral	423.07	191472.631	.176	.905
Communication	423.12	191449.238	.184	.905
Beating during labour	423.36	191576.839	.082	.905
Service cost in health facilities	423.16	191486.459	.159	.905
Equipment, drugs and supplies	423.21	191335.218	.283	.905
Demand for money and items	422.79	191694.753	-.020	.905
Service provision	423.03	191480.736	.164	.905
Money for transport and health care	423.03	191569.302	.079	.905
Cultural and religious beliefs	423.07	191574.652	.077	.905
Decision making power	423.07	191561.864	.094	.905
Health facility in the community	422.81	191557.206	.098	.905
Distance	422.73	191628.138	.034	.905
Road networks	422.98	191486.202	.154	.905
Husband/partner/family members influence	422.92	191748.983	-.064	.905
Knowledge about signs of labour	423.02	191563.757	.087	.905
Need for closer attention from relatives	422.52	191735.808	-.056	.905
Comfortable when delivered at home	423.28	191446.567	.194	.905
Community and family support	422.22	191719.224	-.043	.905
Stealing of babies	423.05	191533.321	.138	.905

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
425.57	191671.561	437.803	75

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Reliability

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a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.921	74

Item Statistics

	Mean	Std. Deviation	N
Age in completed years	2.44	.595	374
Age of last child	3.11	.729	374
Number of pregnancies	2.95	.832	374
Number of deliveries	2.97	1.010	374
Religion	1.11	.313	374
Marital status	2.13	.466	374
Residence in town of data collection	1.72	.451	374
Gestational age	2.26	.729	374
Level of formal education	3.34	2.431	374
Main occupation	1.38	.903	374
Average monthly income	3.00	2.147	374
Level of education of husband/partner	4.21	2.710	374
Main occupation of husband/partner	1.48	.965	374
Person who decides where respondent should seek health care	3.79	2.385	374
Ownership of NHIS	2.84	.468	374
Ever having a miscarriage in life	1.16	.362	374
Ever had still birth/neonatal mortality	1.08	.272	374
Experience of pregnancy complications during previous pregnancy/delivery	1.26	.439	374
Specific complications (Severe vaginal bleeding)	72.61	43.734	374
Specific complications (Prolonged labour)	72.61	43.747	374
Specific complications (Convulsions)	72.55	43.844	374

Specific complications (Retained placenta)	72.53	43.871	374
Specific complications (Premature rupture of membrane)	72.53	43.867	374
Specific complications (Malposition of the fetus)	72.54	43.858	374
Specific complications (Swollen hands/face)	72.59	43.774	374
Specific complications (Blurred vision)	72.57	43.814	374
Specific complications (Excessive vomiting)	72.64	43.699	374
Specific complications (Severe abdominal pain)	72.63	43.712	374
Specific complications (Other)	72.56	43.822	374
Attendance to ANC during last/previous pregnancy	2.00	.000	374
Place of ANC attendance during last/previous pregnancy	1.83	.377	374
Number of ANC visits during last/previous pregnancy	3.76	.557	374
Number of ANC visits with current pregnancy	3.24	.950	374
Information received during ANC visits (Date of next visit)	.84	.365	374
Information received during ANC visits (Number of visits before delivery)	.63	.485	374
Information received during ANC visits (Importance of ANC)	.81	.395	374
Information received during ANC visits (Expected date of delivery)	.42	.494	374
Information received during ANC visits (Importance of hospital/health facility delivery)	.72	.449	374

Information received during ANC visits (Danger signs in pregnancy, labour, delivery and after)	.74	.442	374
Information received during ANC visits (Transport arrangements)	.57	.496	374
Information received during ANC visits (Financial arrangement for transport and services)	.52	.500	374
Information received during ANC visits (Companion to the delivery site)	.57	.495	374
Information received during ANC visits (Blood donation)	.58	.495	374
Information received during ANC visits (Health care seeking during emergency)	.57	.495	374
Place of last birth	1.99	.073	374
Type/method of delivery	1.92	.476	374
Attitude of staff during last delivery	1.92	.268	374
Level of satisfaction with services provided during last delivery	1.90	.299	374
Intended place of delivery with current pregnancy	.84	.367	374
Recommendation of last delivery place to family and friends	1.92	.268	374
Attitude of staff	1.59	.493	374
Experiences from past health facility delivery	1.57	.495	374
Approach of providers	1.54	.499	374
Service hours	1.50	.501	374
Privacy	1.48	.500	374
Referral	1.44	.497	374
Communication	1.50	.501	374
Beating during labour	1.32	.467	374
Service cost in health facilities	1.41	.492	374

Equipment, drugs and supplies	1.49	.500	374
Demand for money and items (soap, pad, cot sheets, etc.)	1.43	.495	374
Service provision/time	1.47	.500	374
Position used for delivery	1.47	.500	374
Money for transport and health care	1.68	.467	374
Cultural and religious beliefs and customs	1.53	.500	374
Decision making power	1.58	.494	374
Health facility in the community/availability	1.60	.490	374
Distance	1.65	.477	374
Road networks	1.54	.499	374
Husband/partner/family members' influence	1.53	.500	374
Knowledge about signs of labour	1.60	.490	374
Need for closer attention from relatives	1.58	.495	374
Comfortable when delivered at home	1.34	.475	374
Community and family support	1.54	.499	374

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Age in completed years	902.82	232281.054	-.027	.922
Age of last child	902.15	232258.453	.010	.922
Number of pregnancies	902.31	232292.857	-.034	.922
Number of deliveries	902.29	232284.346	-.020	.922
Religion	904.15	232301.336	-.117	.922
Marital status	903.14	232251.770	.031	.922
Residence in town of data collection	903.55	232232.656	.076	.922
Gestational age	903.00	232317.426	-.074	.922
Level of formal education	901.93	232313.565	-.023	.922

Main occupation	903.89	232325.035	-.069	.922
Average monthly income	902.26	232336.782	-.036	.922
Level of education of husband/partner	901.05	232303.177	-.017	.922
Main occupation of husband/partner	903.78	232253.618	.012	.922
Person who decides where respondent should seek health care	901.47	232047.606	.093	.922
Ownership of NHIS	902.42	232234.496	.070	.922
Ever having a miscarriage in life	904.11	232333.404	-.193	.922
Ever had still birth/neonatal mortality	904.18	232301.281	-.134	.922
Experience of pregnancy complications during previous pregnancy/delivery	904.00	232680.453	-.979	.922
Specific complications (Severe vaginal bleeding)	832.65	192035.146	1.000	.912
Specific complications (Prolonged labour)	832.66	192023.412	1.000	.912
Specific complications (Convulsions)	832.71	191938.430	1.000	.912
Specific complications (Retained placenta)	832.73	191914.702	1.000	.912
Specific complications (Premature rupture of membrane)	832.73	191918.574	1.000	.912
Specific complications (Malposition of the fetus)	832.72	191926.330	1.000	.912
Specific complications (Swollen hands/face)	832.67	191999.685	1.000	.912
Specific complications (Blurred vision)	832.70	191965.167	1.000	.912
Specific complications (Excessive vomiting)	832.63	192065.452	1.000	.912
Specific complications (Severe abdominal pain)	832.63	192053.938	1.000	.912
Specific complications (Other)	832.70	191957.084	1.000	.912
Attendance to ANC during last/previous pregnancy	903.26	232266.092	.000	.922

Place of ANC attendance during last/previous pregnancy	903.43	232267.233	-.004	.922
Number of ANC visits during last/previous pregnancy	901.50	232158.605	.200	.922
Number of ANC visits with current pregnancy	902.02	232261.477	.004	.922
Information received during ANC visits (Date of next visit)	904.42	232227.821	.108	.922
Information received during ANC visits (Number of visits before delivery)	904.64	232208.522	.123	.922
Information received during ANC visits (Importance of ANC)	904.45	232224.597	.109	.922
Information received during ANC visits (Expected date of delivery)	904.84	232164.696	.212	.922
Information received during ANC visits (Importance of hospital/health facility delivery)	904.54	232193.171	.168	.922
Information received during ANC visits (Danger signs in pregnancy, labour, delivery and after)	904.53	232202.615	.149	.922
Information received during ANC visits (Transport arrangements)	904.70	232248.207	.037	.922
Information received during ANC visits (Financial arrangement for transport and services)	904.75	232213.756	.108	.922
Information received during ANC visits (Companion to the delivery site)	904.69	232191.293	.156	.922
Information received during ANC visits (Blood donation)	904.68	232219.267	.098	.922
Information received during ANC visits (Health care seeking during emergency)	904.69	232221.957	.092	.922
Place of last birth	903.27	232263.403	.038	.922

Type/method of delivery	903.34	232226.682	.085	.922
Attitude of staff during last delivery	903.34	232235.126	.120	.922
Level of satisfaction with services provided during last delivery	903.36	232218.816	.164	.922
Intended place of delivery with current pregnancy	904.42	232248.159	.050	.922
Recommendation of last delivery place to family and friends	903.34	232223.437	.165	.922
Attitude of staff	903.67	232264.923	.002	.922
Experiences from past health facility delivery	903.69	232279.904	-.029	.922
Approach of providers	903.72	232289.902	-.050	.922
Service hours	903.76	232276.079	-.021	.922
Privacy	903.78	232286.375	-.043	.922
Referral	903.82	232244.957	.044	.922
Communication	903.76	232264.454	.003	.922
Beating during labour	903.94	232251.997	.031	.922
Service cost in health facilities	903.86	232259.175	.014	.922
Equipment, drugs and supplies	903.78	232287.456	-.045	.922
Demand for money and items (soap, pad, cot sheets, etc.)	903.84	232271.890	-.013	.922
Service provision/time	903.79	232263.971	.004	.922
Position used for delivery	903.79	232302.634	-.076	.922
Money for transport and health care	903.58	232235.086	.068	.922
Cultural and religious beliefs and customs	903.73	232220.300	.095	.922
Decision making power	903.68	232297.842	-.067	.922
Health facility in the community/availability	903.66	232250.815	.032	.922
Distance	903.61	232285.810	-.043	.922
Road networks	903.72	232251.263	.030	.922
Husband/partner/family members' influence	903.74	232282.683	-.035	.922
Knowledge about signs of labour	903.66	232267.340	-.003	.922

Need for closer attention from relatives	903.68	232246.780	.040	.922
Comfortable when delivered at home	903.92	232314.465	-.106	.922
Community and family support	903.72	232267.912	-.004	.922

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
905.26	232266.092	481.940	74