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DETERMINANTS OF POSTNATAL CARE ATTENDANCE IN NSAWAM-ADOAGYIRI MUNICIPAL

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(ID NO. 10803958)

THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF MA IN DEVELOPMENT STUDIES DEGREE

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DECLARATION

I, Joshua Oscar Atura, declare that this dissertation is the product of my study to acquire a Master of Arts in Development Studies at the Institute of Statistical, Social and Economic Research (ISSER) – University of Ghana, under the Supervision of Dr. Ama Pokuaa Fenny. To the best of my knowledge, this work is not previously produced by any another author, except for the works of other authors, which have been duly referenced. Also, this work has not been presented to this or any other University for the award of another Degree.

JOSHUA OSCAR ATURA: …… February 01, 2023 ……

STUDENT **SIGNATURE** **DATE**

DR. AMA POKUAA FENNY: …… 01/02/2023 ……

SUPERVISOR **SIGNATURE** **DATE**

ABSTRACT

Postnatal care is essential in maintaining the health and well-being of mothers and children. This study explored the determinants of postnatal care attendance in the Nsawam-Adoagyiri municipal in the Eastern region. The study was hinged on three main objectives which were: to assess the knowledge level of mothers regarding postnatal care; to assess the knowledge of mothers about postnatal care attendance and to find out factors that affect postnatal care attendance. A total of 300 mothers from five health facilities in the Nsawam- Adoagyiri municipality were purposively sampled and surveyed. The analysis centered on knowledge of mothers on postnatal care; knowledge of mothers concerning postnatal care for newborns and knowledge of danger signs as well as factors affecting postnatal care attendance. The study revealed that 89% of mothers have good knowledge of postnatal care. Using the chi-square test of independence, the study showed that age, education level, and marital status of mothers have no significant influence on the knowledge of postnatal care. The bivariate analysis results showed that 64.7% women have a good knowledge of postnatal care for newborns; 84.3% of mothers have good knowledge as mothers during postnatal care and 93.0% of the mothers have a good knowledge of responding to danger signs in newborns. The chi- square test on the knowledge of mothers regarding newborns showed significant influence of occupation on knowledge of newborn care. In addition, educational level had a significant influence on the knowledge of postnatal care as mothers. Using the probit regression, the study revealed factors such as income, occupation, marital, and educational status of respondents, national health insurance card and awareness of postnatal care as significant and had a positive influence on postnatal care attendance. However, distance to health facility was significant and had a negative influence on postnatal care attendance. The study therefore recommended that the NHIS should

be well managed and financially resourced to ensure increased access and quality postnatal care; the need for continuous counselling of pregnant mothers by midwives in and out of health facilities to ensure increased utilisation of postnatal care during antenatal visits. Moreover, there should be increased efforts by the municipal health directorate at Nsawam-Adoagyiri to expand postnatal outreach programs to mothers who stay far away from health care centers.

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LIST OF ABBREVIATIONS

ANC	Antenatal Care
CHAG	Christian Health Association of Ghana
CHPS	Community-based Planning System
GHS	Ghana Health Service
GSS	Ghana Statistical Service
HIV/AIDS	Human Immune Virus/ Acquired Immunodeficiency Syndrome
JHS	Junior High School
HBM	Health Belief Model
ICF	International Classification of Functioning, Disability, and Health
ISSER	Institute of Statistical, Social and Economic Research
MDGs	Millennium Development Goals
NAMA	Nsawam-Adoagyiri Municipal Assembly
NAMHD	Nsawam Adoagyiri Municipal Health Directorate
NHIS	National Health Insurance Scheme
OOP	Out-of-Pocket
PCK	Postnatal Care Knowledge

PMNCH	Partnership for Maternal, Newborn, and Child Health
PNC	Postnatal Care
SDGs	Sustainable Development Goals
SHS	Senior High School
UNFPA	United Nations Population Fund
UNICEF	United Nations International Children's Emergency Fund
VIF	Variance Inflation Factor
WHO	World Health Organisation

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter introduces the work. It discusses the background to the study, establishes the problem and outlines the research questions and objectives. Moreover, the chapter highlights the study's significance.

1.2 Background of Study

Health care improvement is critical to both human and sustainable socio- economic development (WHO, 2010). On the turn of the 21st century, maternal health issues gained global attention which led to its inclusion in the Millennium Development Goals (MDGs) in 2000. However, the issues became intensified and were therefore included in the Sustainable Development Goals (SDGs) in 2015. It is worth noting that the health-related goals in the two afore-stated development frameworks (MDGs and SDGs) focus on women and children in the areas of equity, equality and accessibility. According to Partnership for Maternal, Neonatal and Child Health (PMNCH), MDG 4 and 5 were set to reduce child mortality and improve maternal health respectively by 2015 (PMNCH, 2020). The MDG report (2015) shows that between 1990 and 2000, the global under-five mortality rate declined over 50 % while the maternal mortality ratio declined by 45% (United Nations, 2015). Despite the progress, an estimated 303,000 women died during pregnancy and child delivery in 2015 (WHO, 2019). This might have possibly led to the establishment of SDG 3 which targets less than 70 maternal deaths per 100,000 live births by 2030 (United Nations, 2020). According to the World Health Organization's Regional Office for Africa, 99% of maternal death occurs in developing countries, with over 50% of death cases recorded in sub-Saharan Africa and 25% in South Asia.

Over the years, developing countries have put in place interventions to alleviate maternal and child mortality. For instance, in Ghana, the National Health Insurance Scheme (NHIS) was launched in 2003 to increase healthcare delivery and access to the vulnerable and poor in the country (Ministry of Health, 2004). The NHIS was implemented in response to the fact that:

The implementation of the "Cash and Carry" compounded the utilization problem by creating a financial barrier to health care access, especially for the poor. It is estimated that the Ghanaian population who require health care at any given time, only twenty percent of them can access it. Implying that about eighty percent of Ghanaians who need health care cannot afford it. (Ministry of Health, 2004). The NHIS was implemented to replace the "cash and carry" system which existed since 1985 (Ministry of Health, 2004). Per the 2008 Demographic and Health Survey, almost half of the women interviewed cited lack of money as the reason for not accessing health services (Ghana Statistical Service, 2009). This finding led to the introduction of free maternal health care under the National Health Insurance Scheme in the year 2008 (Ministry of Health, 2009). Thus pregnant women and mothers accessed comprehensive maternal benefit packages covering antenatal, perinatal, postnatal, as well as neonatal care for infants within a period of three months (Ministry of Health, 2004). Surprisingly, the Multiple Indicator Cluster Survey in 2012 revealed that 70 percent of the 10,000 women studied during their pregnancy never registered with the NHIS (Ghana Statistical Service, 2012).

Nonetheless, Ghana's Maternal Health Survey (2017) report shows that under-five mortality has reduced from 155 deaths per 1,000 live births in 1988 to 52 deaths per 1,000 live births in 2017

(Ghana Statistical Services; Ghana Health Services; ICF., 2018). Also, maternal mortality is estimated at 310 maternal deaths per 100,000 live births. (Ghana Statistical Services; Ghana Health Services; ICF., 2018) Despite the gradual decrease in global maternal mortality, estimations in developing countries are above 239 maternal deaths per 100,000 live births (WHO Regional Office for Africa, 2020).

In 2020, the WHO Ghana Country Office reported family planning, emergency obstetric and newborn care and poor access to high-quality skilled delivery as contributory factors to maternal mortality (WHO, 2020). In the same vein, the WHO recognizes that, women and newborns need help and close observation after delivery. According to the WHO, the first six weeks following delivery are when most maternal and infant deaths occur, but this is still the time when adequate care for mothers and newborns is most rarely provided (WHO, 2022a). This study however, seeks to explore the factors that determine postnatal care attendance.

1.3 Statement of the Problem

The Institute for Statistical, Social and Economic Research (ISSER) reports that the persistent problems with maternal health care is access to services due to factors such as geography, transportation, and other related costs (ISSER, 2017). Furthermore, irrespective of delivery location, mothers and newborns spend the postnatal period outside a health facility, with periodic visits to a health facility (Warren et al., 2006). Consequently, poor care of mothers and newborns can lead to poor health practices and disability (Warren et al., 2006). Since the early 2000s, the need to improve postnatal care has been the burden of international communities and national

governments. The shift from "cash and carry" system to enrolling pregnant women onto National Health Insurance Scheme through the free maternal care policy has improved postnatal care attendance among mothers in Ghana.

Even so, the Eastern region of Ghana has witnessed a decreasing trend (73.1%, 66%, and 61.8%) in postnatal care attendance in 2014, 2015, and 2016 respectively (Ghana Health Service, 2017). Less than 85% mothers go for postnatal care after birth (ISSER, 2019). A needs assessment conducted by the Nsawam-Adoagyiri Municipal Assembly (NAMA) in 2019 revealed inadequate health facilities, and poor access to standardized health care, among others as factors that affect prenatal and postnatal care attendance (NAMA, 2019). Moreover, the Nsawam-Adoagyiri Municipal Health Directorate (NAMHD) recorded a drop in postnatal care attendance from 8,046 in 2014 to 7,510 in 2016 (NAMHD, 2019).

In relation to the above facts, this study was conducted to examine knowledge of postpartum mothers of postnatal care at health facilities. Also, the current research seeks to ascertain other determining factors that affect postnatal care attendance at the Nsawam-Adoagyiri municipality.

1.4 Research Objectives

The main objective of the study is to find out the factors that determine postnatal care attendance in the Nsawam-Adoagyiri municipality.

The specific objectives are as follows:

1. To assess mothers' level of knowledge about postnatal services in Nsawam-Adoagyiri municipality.

2. To assess mothers' level of knowledge about attendance to postnatal care in Nsawam-Adoagyiri municipality.
3. To determine factors that affect access to postnatal care services at Nsawam-Adoagyiri municipality.

1.5 Research Questions

To be able to achieve the objectives above, the following questions are asked to guide the enquiry:

1. What is the knowledge level of mothers on postnatal care at Nsawam-Adoagyiri municipality?
2. What is the knowledge level of mothers of postnatal attendance at Nsawam-Adoagyiri municipality?
3. What factors affect access to postnatal care provision at Nsawam-Adoagyiri municipality?

1.6 Justification of Study

Most scholarly literature have focused on determinants of antenatal care (ANC) (Atinga & Baku, 2013; Ndidi & Oseremen, 2010; Overbosch, Nsowah- Nuamah, Van den Boom, & Damnyag, 2004; Owusu, 2018). Even the few studies conducted on postnatal care are mostly set in Ethiopia, Malawi and Bangladesh. This study focused on assessing the knowledge of mothers in postnatal care in the Nsawam-Adoagyiri municipality and determined the contextual factors that influence mothers' attendance to postnatal care in Nsawam-Adoagyiri. Findings of this study can be used to shape the data-driven decision on policy and project development that seeks to improve postnatal care. Additionally, the findings can help health care workers to improve practice because it gives an understanding of the perception of mothers under their care. Finally, the study customarily

contributed to academic knowledge on determinants of postnatal care attendance in Nsawam-Adoagyiri. To the best of my knowledge, the study is the first of a kind in the Nsawam- Adoagyiri municipality.

1.7 Organisation of Study

The study is organised into five chapters. Chapter one is the introductory chapter covering the background of the study, statement of the problem, research questions and objectives. The chapter end with a justification for the study. Chapter two is broadly divided into two parts. The first part presents a review of relevant literature. The review is organized around the following themes: Postnatal care, WHO Standards on postnatal care; Knowledge and attitudes of mothers of postnatal care as well as factors affecting postnatal care attendance. The second part of chapter two presents an explanation and justification of the theoretical and conceptual frameworks of the study. Chapter three establishes the research methodology for the study. Chapter four analyses the data and presents a discussion on the results. Chapter five presents a summary of the work, draws meaningful conclusions as well as make useful recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews important literature and discusses the theoretical and conceptual frameworks of the study. The review is structured in six thematic areas comprising, postnatal care, WHO Standards on Postnatal Care; mothers' postnatal care knowledge of mothers towards utilization of postnatal care; factors affecting the use of postnatal care and strategies to improve postnatal care.

2.2 Postnatal Care

In 2010, the Technical Consultation on Postpartum and Postnatal Care of the World Health Organisation agreed on the definition of the postnatal period as the period that begins immediately after the birth of a baby and extends up to six weeks (42 days) after birth. The care that comes during this period is termed as postnatal care (PNC) (WHO, 2010). WHO recommends that "if birth is in a health facility, mothers and newborns should receive postnatal care in the facility for at least 24 hours after birth" (WHO, 2013). Also, "if birth is at home, the first postnatal contact should be as early as possible within 24 hours of birth" (WHO, 2013).

Moreover, "at least three additional postnatal contacts are recommended for all mothers and newborns, on day 3 (48–72 hours) and between days 7–14 after birth, and six weeks after birth" (WHO, 2013). Therefore, WHO recommends at least four postnatal care services for mothers and newborns (WHO, 2010). Appropriate care in the first hours and days after childbirth could prevent majority of infant deaths (WHO, 2010). Thus, it has been recommended that skilled health professionals, including midwives, nurses and doctors with midwifery skills, and Obstetricians attend all births, to ensure the best possible outcome for both mother and newborn infant (WHO,

2004). Globally, three million infants die in the first week of life annually and another 900,000 die in the next three weeks (WHO, 2010; Ahman & Zupan, 2007). The essence of postnatal care is to provide adequate care for mothers and newborns as well as promote and maintain related social and health needs (WHO, 2010). These needs include physical, mental, and socio-cultural issues that affect both health and well-being (WHO, 2010).

2.3 Knowledge of Postnatal Care

This section reviews literature on postnatal care knowledge of mothers. It looks at mothers' know-how regarding care for newborn babies and how well they understand the concept and practice of the postnatal care process.

Castalino, Nayak and D'Souza (2014) studied the knowledge of neonatal care among 30 postnatal mothers in a tertiary care hospital in South India and found that 76.7% of the mothers had good knowledge of essential newborn care and 23.3% had excellent knowledge of newborn care. In another study also, Bansal and James (2016) saw that 34 out of 50 postnatal mothers had average knowledge about postnatal care. Whereas only six mothers had good knowledge scores, ten mothers scored below average as regards essential newborn care (Bansal & James, 2016). The two studies share common indicators in knowledge assessment on essential newborn care in the areas of umbilical cord care, thermal regulation, vaccination against diseases, and breastfeeding.

Similarly, Timilsina and Dhakal (2015) found in their study that 62.76% mothers had average knowledge regarding postnatal care whereas 36.73% had good knowledge. The indicators to assess knowledge in the study included the basic concept of postnatal care, danger signs of mothers and newborns, immunization, and nutrition. Though the same indicators were used for a study in

Ethiopia, these findings are contrary to earlier study where 60.2% of mothers had poor knowledge of essential newborn care (Berhan & Gulema, 2018). Mundia (2012) in assessing knowledge on postnatal care finds that 60% of the study participants had knowledge on postnatal care (Mundia, 2012). Interestingly, Chembe and Siziya (2017) concluded that the majority of women did not know about postnatal care timing, the activities conducted in the postnatal clinic, and the benefits of utilizing postnatal care service.

2.6 Attitude Towards Postnatal Care

In Africa, 18 million women do not give birth in a health facility annually and this poses challenges for planning and implementing postnatal care for women and their newborns (DiBari, Yu, Chao, & Lu, 2014). In Africa, "most mothers and newborns do not visit the health institution following birth, indicating that postnatal care programs are among the weakest of all reproductive and child health programs" (WHO, 2013). This calls for a need to measure the knowledge of women ofpostnatal care to ascertain the reason(s) for what they know about postnatal care practice which leads to the preventable death of mothers and newborns.

According to Memon, Holakouie-Naieni, Majdzadeh, Yekaninejad, Garmaroudi, Raza and Nematollahi, S. (2019), education influence mothers' attitudes to postnatal care of newborns. Memon and his colleagues posited that highly educated women have a better understanding of the implications of postnatal care and shows a good attitude to PNC (i.e., skin to skin contact, delayed bathing of newborns, umbilical cord treatment, and colostrum feeding) compared to low educated women (Memon, et al., 2019). Likewise, Meedya, Fahy, and Kable (2010) stress on impacts of education in contributing to the positive understanding of postnatal care of newborns especially breastfeeding. Accordingly, Padiyath, Bhat and Ekambaram's (2010) study concludes that the gap

in the awareness and attitude of postnatal mothers of neonatal care is higher especially for those with lower socioeconomic status (Padiyath, Bhat, & Ekambaram, 2010). Similarly, Majumder et al. (2018) discovered that mothers of lower socioeconomic status and women with no education and employment have a poor attitude to postnatal care (Majumder, Najnin, Ahmed, & Bhuiyan, 2018). To add, a study by Majumder, Najnin, Ahmed, & Bhuiyan, (2018) shows that overall, age has a significant influence on the attitude of mothers to postnatal care and there are good attitudes towards postnatal care among women within 15-30 years old. This finding is consistent with another study conducted in Pakistan which found that age of mothers has a significant influence on knowledge of postnatal care of newborns. For instance, women who fall within the age category 20-29 scored high statistics in terms of positive attitude to postnatal care (Memon, et al., 2019).

2.7 Factors Influencing Postnatal Care Attendance

This section reviews literature on factors that facilitate or inhibits the utilization of postnatal care at home or in health facilities. Timely and quality PNC are important for mothers and their newborns to treat complications that may arise early after birth. There are factors that affect PNC attendance. In this particular review, some of these factors have been gleaned from the vast literature that exists.

2.7.1 Distance to care

Distance is a great barrier for women in accessing PNC services. A study conducted by Appiah, Salihu, Fenteng, Darteh, Kannor, and Ayerakwah, (2021) on utilization of postnatal care in rural Ghana revealed that women who do not view distance to health facilities as a challenge were more likely to attend PNC as compared to those that perceived it as a challenge. Similarly, a study conducted in Malawi also concluded that women who responded to distance to health facility as

less of a barrier to attend postnatal care were more likely to attend early postnatal care than women who perceived distance to the health facility as a barrier (Kim et al., 2019).

In studies conducted in Nigeria, it has been reported that distance to health facilities has a great negative effect on the use of PNC services. A study conducted by Okafor and Bashir (2013) in Southwest Nigeria reports that women who need less time to get to the nearest health facility attended PNC more as compared with others with more remote homes. Likewise, Dahiru and Oche (2015) found at the end of their study that 44% of urban settlers utilized PNC services as compared to 21% who reside in rural areas. Some of the reasons were because rural dwellers face challenges as regards accessibility to health services. Some of these rural folks are discouraged by the long distance they must cover in order to access health facilities. Contrary to the above argument, Mohan (2015) discovered in his study conducted in Tanzania that there was no significant correlation between distance of health facilities and PNC attendance (Mohan, 2015).

The physical challenges of long-distance travel and the expensive cost of motorized transportation prevent postpartum women from seeking PNC. The above results underline the requirement to reevaluate the accessibility and availability of maternity healthcare services. Women may be recuperating from childbirth during the postpartum period, and they may not have enough energy to travel long distances (Mukonka, Mukwato, Kwaleyela, Mweemba, & Maimbolwa, (2018). As such, increasing maternal healthcare centers in rural communities and citing these facilities at shorter intervals within communities can substantially reduce the challenge posed by distance.

2.7.2 Cost

Poverty is a strong barrier for women seeking PNC services. It is not enough for PNC services to be available, but the level at which these women can afford the services matter most. Studies have shown that women who are insured attend PNC services more compared with those who have to pay totally out of pocket (Babalola & Fatusi, 2009). A study conducted in Ghana by Browne et al. (2016) revealed that the use of ANC, having skilled delivery, and utilizing PNC services increased predominantly among women who had health insurance. Hence insurance play a significant role in the utilization of PNC services.

According to a study by Appiah et al. (2021) on postnatal care use among women in rural Ghana, women who were employed were more likely to use PNC than unemployed women. Similarly in Uganda, unemployed women had reduced probabilities of attending postnatal care (Ndugga, Namiyonga, and Sebuwufu, 2019). Additionally, a Malawi-based study found that mothers who were employed were 44% more likely than unemployed women to have their health examined by a professional within 42 days of giving birth (Khaki and Sithole, 2019). In explaining this inverse correlation between poverty and PNC patronage as seen from the above review, a reason that could make sense is that unemployed women are likely to have fewer financial resources and may therefore be less likely to use professional healthcare due to related cost despite recommendation. This may highlight how vital it is to give women work options and opportunity in order to improve their economic power and consequently, their chances of using PNC.

A study conducted by Dahiru and Oche (2015) reported that women from rich households attend PNC services three times more than those from poor households. Similar finding was reported from a study carried out in Burkina Faso (Yugbar et al., 2016). All these findings could be because

poor households have to prioritize their resources hence may want to cater for basic daily needs first before considering of seeking professional health care services from health facilities.

In a facility-based study conducted in Southwest Nigeria, women who are insured attended PNC services more compared with those who were not insured. This is so because mothers who are not insured pay 100% Out-of-Pocket (OOP) while those insured pay 10% OOP Okafor and Bashir (2013). In the study, only 10% of women were covered with health insurance and the remaining were not, another reason for having low PNC utilization (Okafor & Bashir, 2013). It was also reported in the study that women who were insured had no challenges with transportation to the health facility as compared with those who were not insured. The above review presupposes that health insurance especially for postpartum mothers is critical. However, there should be both communication as well as systemic mechanisms to reach out to these women especially those in rural areas so that they can benefit from the program.

2.7.3 Awareness

According to a study by Abebo and Tesfaye (2018), women of childbearing age who were unaware of at least one postpartum health risk had 0.06% likelihood of using PNC than those who were aware of at least one postpartum health risk. When compared with mothers who were familiar with child care and had one ANC visit, women who had three ANC visits were 0.14 times less likely to use PNC services (Abebo & Tesfaye, 2018). Furthermore, Rahman et al. (2011) discovered in their health survey that there exists a direct correlation between using postnatal care and giving birth in a medical facility. This may be because women who gave birth in a health facility have a higher opportunity to learn about the advantages and disadvantages of PNC.

Other factors such as the availability of trained staff, could also contribute to higher PNC patronage as it makes it easier for nurses and midwives to diagnose any postpartum health risk symptoms. A study by Rahman et al, (2011), demonstrated a correlation between increased ANC and PNC attendance, as well as adequate counseling of mothers (Rahman, Haque, & Zahan, 2011). Research from Nigeria has shown that women who have access to mass media such as television, radio and are aware about health promotion programs, have better chances of attending PNC services (Agho, Ezeh, Issaka, Enoma, Baines, & Renzaho, (2016). The possibility of women who attended ANC during pregnancy to utilize PNC services is very high (Rai, Singh, & Singh, 2012). This may be because the study was carried out in rural areas where majority of women do not have access to public media due to poverty. It may also be because women do not see the importance of PNC after delivery as they are usually told during the ANC visits. Hence, if the barriers in accessing the public media sources are abolished there may be positive association of exposure to the public media and PNC utilization (Tarekegn, Lieberman, & Giedraitis, 2014). The above findings show that women who have access to information from ANC clinics before delivery have an increased chance of utilizing PNC services.

2.7.4 Attitude of Health Personnel

Negative experiences that women had during antenatal and intrapartum care influence the probability of ignoring PNC. A study conducted by Takai et al. (2015) reported that there was no significant association between ANC attendance and PNC utilization. From studies conducted in Uganda and Zambia, some of the women expressed their displeasure on how they were being treated by health workers when they went for PNC especially those ones that had home delivery. Similar finding was reported in another study on how attitude of health workers has led to negative impact of PNC utilization (Sacks et al., 2017; Agho et al., 2016).

2.4 Theoretical Framework

In developing the conceptual framework for this study on determinants of postnatal care attendance, Anderson and Newman Healthcare Utilization Model gives a useful perspective. It was first introduced by Anderson and Newman in their study "Societal and individual determinants of medical care utilization in the United States" in 1975 and reviewed in 1995. The model explains how an individual utilization of health care facilities, services and/or products are affected by the interactions of predisposing, enabling and need factors.

The principle of the healthcare utilization model has been used in different studies that focus to find out determinants of contraceptive use (Mbalinda, Kaye, Nyashanu, & Kiwanuka, 2020); investigate the use of traditional medicine (Felix, 2020); understand antenatal care use (Tesfaye, Chojenta, Smith, & Loxton, 2018); understand patient behaviour (Petrovic & Blank, 2018), and examine the general use of health care services (Azfredrick, 2016). As stated earlier, the model interacts across three factors: predisposing, enabling and need factors. The predisposing factors are the socio-cultural characteristics of individuals that exist before their illness, and these include age, gender, education, occupation, ethnicity, social networks and interactions, culture, knowledge, attitude, and values (Andersen, 1995).

The enabling factors include the individual's logistical ability and organizational set up to utilize health care such as the means and know-how to access health services, income, health insurance, a regular source of care, travel, extent, and quality of social relationships, available health personnel and facilities, waiting time, genetic factors, and psychological characteristics (Andersen, 1995). The need factors comprise factors indicating an individual's stance to receive health care

such as patient's perception as to whether or not their health needs are important or serious to seek professional help from medical and health care workers, and or whether to seek health care based on professional advice on the need to receive health care (Andersen, 1995). In applying the model to this study, the potential for a mother to attend postnatal care is a functional interaction of various predisposing and enabling factors. The perceived needs of a patient to seek postnatal care based on professional advice can be influenced by the mother's predisposing needs such including age, gender, education, occupation, knowledge, and attitude and enabling factors such as waiting time at health facilities, income, cost of health care (health insurance), cultural beliefs as seen in other studies.

The following statement represents the underlying rationale for conceptualizing this study. If the mothers' a) their age, education, occupation, and income affect their health-seeking behavior b) knowledge and attitude play a part in their health care c) the waiting time, valid national health insurance care of health care and cultural beliefs are enabling to postnatal care d) antenatal visits care has been helpful, then they increase postnatal care attendance or utilization.

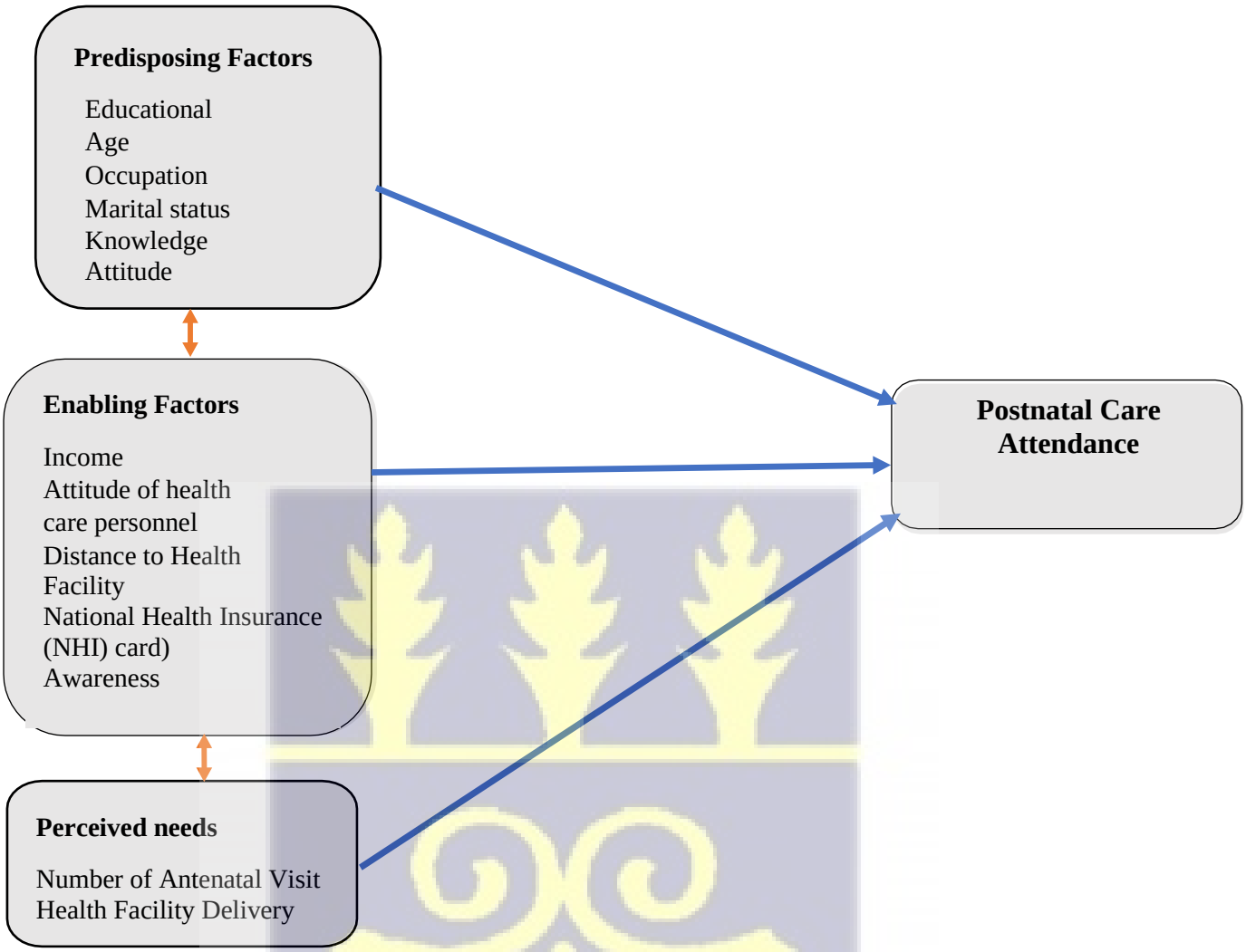
2.5 Conceptual Framework

The conceptual framework depicted in Figure 2.1 for this study sought to find out the determinants of postnatal care attendance in Nsawam-Adoagyiri municipality. The figure uses one-way arrows to illustrate the various aspects of the study. These aspects comprise independent variables (predisposing, enabling and need) which could be found on the left leading to the dependent variable (postnatal care) which is at the right side. The two-way arrow links the independent variables to reveal the relationship among other independent variables on the left side of the conceptual framework.

The independent variables under the predisposing factors capture the individual-level factors that influence mothers' readiness to utilize postnatal care services. The education, age, occupation, knowledge, attitude, and cultural beliefs of mothers can positively or negatively affect their level of attendance to postnatal care services. As part of this study, knowledge of mothers to postnatal care are measured are used basis to compare differences across demographic characteristics.

The enabling factors entail independent variables such as income, attitude of health care personnel workers, means of transport, distance to health facility, waiting time for postnatal, and cost for health (Cash or NHIS). These variables measure mothers' capacity and organizational factors that affect mothers' decision to either or not utilize postnatal care services. These perceived needs on the number of antenatal visits, number of prior births, and delivery in health facilities by mothers. Mothers perceived needs guide decisions on whether to utilize postnatal care.

Figure 2.1: Author's Conceptual Framework to the Study



Source: Author's Construction, 2020

The table below shows a priori expectation of the independent variables of the study.

Table 2.1 Priori Expectations of Independent Variables

S/N	Variable	Expected Coefficient	Remarks
1.	Mothers' age	Negative	As mothers' age increases, utilisation of postnatal care services reduces. This is probably because of their experiences with previous births or lack of exposure to information. On the other hand, young mothers tend to utilize postnatal care because of their exposure to intensified postnatal care education or fear of harm to the child (Ayanore, Pavlova & Groot, 2016)
2.	Marital Status	Positive	Married women are likely to receive spousal support in caring for herself and the newborn. As a result, they are likely to use postnatal care services (Fekadu, Ambaw, & Kidanie, 2019; Ndugga et al., 2020).
3.	Mothers' education	Positive	Mothers who are educated are likely to appreciate the essence and benefits of postnatal care, and also have the autonomy to decide on their health and the newborn's. This is contrary to mothers without education (Adane et al., 2020).

4.	Mothers' occupation	Positive	Mothers with paid jobs are highly inclined to seek postnatal care because they can afford. This is not the same for unemployed mothers (Khaki & Lonjezo, 2019).
5.	Income	Positive	Mothers with income are likely to utilize postnatal care services than women without income (DiBari Yu Chao & Lu, 2014).
6.	Distance to health facilities	Negative/Positive	The longer the distance to health facilities the less likely the utilisation of the health facility i.e., distance decay (Tesfahun, Worku, Mazengiya, & Kifle, 2014)
7.	Knowledge of mothers	Positive	A high level of knowledge and awareness of postnatal care leads to increased utilization of postnatal care services by mothers (Tesfahun, Worku, Mazengiya & Kifle, 2014).

Source: Author's composition, 2021

2.8 Summary

Postnatal care is given to mothers and newborns after birth to ensure good health and maintain well-being. Statistics show that there are several maternal and neonatal deaths globally but more predominant in the in Sub-Saharan Africa as a result of inadequate postnatal care. This is attributed to poor health care provision, lack of knowledge of mothers about postnatal care, poor attitude regarding utilization of postnatal care among others. Studies which have assessed knowledge of mothers on postnatal care indicate that few mothers have comprehensive knowledge on postnatal

care, with more women having average or poor knowledge about postnatal care. Therefore, this study assessed the knowledge level of mothers of postnatal care in the Nsawam-Adoagyiri municipality. Despite the good knowledge of few mothers of postnatal care, some studies reveal that there are still gaps in knowledge when specific contextual demographics such as education, age, income among other variables are considered. This study attempts to fill these existing gaps.

In conclusion, several factors that affect postnatal care utilization include lack of awareness, waiting for time, negative attitude of providers of healthcare, lack of time, distance to health facilities, high cost of health care, and national health insurance scheme. As a contribution to literature, this study investigated the socio-economic factors that influence postnatal care attendance in the Nsawam-Adoagyiri municipality. This study focused on establishing the determinants of postnatal care attendance by assessing the knowledge of mothers regarding postnatal care as well as the factors that affect utilization of postnatal care services.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

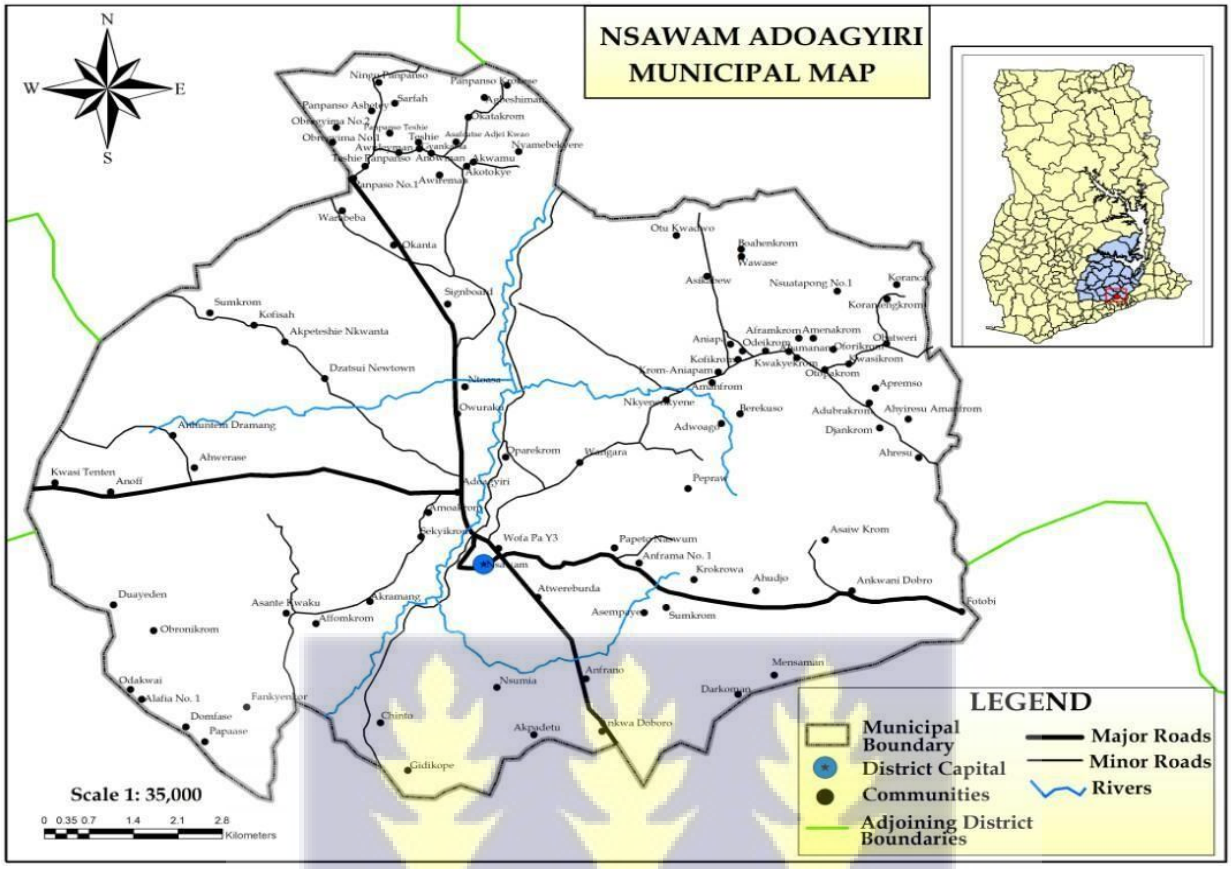
This section elaborates on how the study was implemented. The chapter presents profile of the study area, population, sampling and sample size, methods and sources of data, statistical analysis, and ethical consideration.

3.2 Profile of Study Area

3.2.1 Location and Size

The Nsawam-Adoagyiri Municipality has Nsawam as its capital. It is located in the Eastern region of Ghana. The municipality lies between latitude 5.45'N and 5.58'N and longitude 0.07'W and 0.27'W in the South-Eastern part of the Eastern region. The municipality is approximately 23km from Ghana's capital, Accra. The Nsawam-Adoagyiri Municipality was renamed from Akwapim-South Municipal in 2012. Currently, with a land size of about 205 square kilometers, it has seven (7) sub-municipals namely, Nsawam, Adoagyiri, Djankrom, Dobro, Panpanso, Kwakyekrom and Fotobi, with about 135 surrounding communities. Regarding spatial connection, it is bordered to the South by Ga South and Ga West Municipalities in the Greater Accra Region and borders Akwapim-South District to the North in the Eastern Region. It is also bordered to the North-West by Ayensuano District and the South-West by the Upper-West-Akim District. Additionally, Nsawam is a nodal town along the national highway, N10 linking the coastal lands to the forest and savannah lands of the country.

Figure 3.1: Map of Nsawam-Adoagyiri Municipal



Source: NAMA, 2019

3.2.2 Population

According to the 2021 Population and Housing Census, Nsawam-Adoagyiri municipal has a population of 155,597 with 79,180 (50.88%) being females and 76,417 (49.11%) being males (Ghana Statistical Service, 2021). Additionally, almost 24% of the female population in the municipality are in their fertility age which falls within ages 15 to 49 (NAMA, 2019).

3.2.3 Health Care Facilities

The Nsawam-Adoagyiri Municipality has various levels of health care facilities that provide various types of health services to the population. According the municipality's Health Directorate, health care facilities in the municipality consist of one Government Hospital located in Nsawam;

four Health Centres located in Djankrom, Adoagyiri, Nsawam, and Obregyimah respectively; 12 Reproductive and Child Health/Family Planning Centres; 35 Outreach Clinics; four Private Clinics located In Adoagyiri, Nsawam, Lantei, and Dobro respectively; 35 Community-Based Health Planning System (CHPS) Zones; one Christian Health Association of Ghana (CHAG) facility, and one Orthopedic Centre, both based in Adoagyiri (NAMA, 2019).

In terms of staffing of public health care facilities, there are 8 medical doctors, and 186 trained nurses who are present at both district and sub-district facilities providing health services to the people. Other health care workers in the municipality are three Pharmacists, three Nutritionists, four Biomedical Scientists, and eight Medical Assistants.

3.2.4 Water and Sanitation

The major sources of potable water in the municipality are pipe borne water, borehole and hand-dug wells. The supply of pipe-borne water in the municipality is woefully inadequate- only about 40% of the required volume is supplied. About 77.4% of population in the municipality are connected and can have access to pipe-borne water, provided there is constant flow. About 45% of the rural communities have boreholes and 62% have hand-dug wells (NAMA, 2019). Regarding sanitation and waste disposal, the common facilities and approaches are crude dumping of liquid waste, refuse dumping, septic tank latrines, Kumasi Ventilated Improved Pits (KVIPs), Water Closets (WC) and few pan latrines. There are two refuse trucks, one cesspool emptier, and a refuse tractor. The Municipal Assembly has one cesspool emptier which conveys the wastes from 12 withholding tanks to a lagoon in Accra, since there is no final liquid waste disposal site in the municipality. Currently, the municipality uses a dumping site at Adipa, a nearby community from the municipal capital, Nsawam, as a final waste disposal site for solid waste. Despite efforts to

control and manage waste disposal, 95% of the population relies on crude dumping to dispose household refuse resulting in huge piles of refuse dumps in the communities, some as close as 10 meters to the nearest dwelling houses. (NAMA, 2019) There are 47 community public toilets in the municipality, made up of one water closet, 21 aqua privy, 11 KVIP and two Pit latrines. In addition to the public toilets, the municipality, with help from development partners has constructed 31 institutional latrines and 362 household latrines.

3.2.5 Economic Activities

The economically active population in the municipality falls within the age of 15 to 64. 92.7 percent of this population are employed while 7.3 percent remain unemployed. The economic activities in the municipality center on Agriculture, Commerce, Industry and Service provision. Agriculture has employed about 37% out of the total labour force. Out of this percentage about 40% are female. Majority are into crop farming while few are into livestock production and fisheries. The municipality accounts for about 60% of all pineapples and 30% of vegetables exported from the country. Second to the agricultural sector, is commerce. This sector employs about 28% of the labour force. The next is the industrial sector which employs about 20% of the labour force. The least sector is service provision which employs 15% of the labour force. (NAMA, 2019). Commercial activities undertaken are wholesale and retail of textiles, electrical appliances and gadgets, food produce, and plastic wares. Industrial activities include fruit processing, tailoring, carpentry, basketry, craftsmanship, blacksmith works, and doormat making. The service sector consists of government decentralized agencies (municipal assembly, health, and education), private enterprises, banking and telecommunication services, non-governmental organisations and transport services (NAMA, 2019).

3.3 Research Design

This is a cross-sectional quantitative research study. This research seeks to assess the knowledge and attitude of mothers on postnatal care as well as identify factors that affect postnatal care attendance, hence the need to adopt a quantitative research design. This study adopted the quantitative method of data collection using a structured questionnaire. Given that the study targeted mothers attending postnatal care, the questionnaire was administered to postnatal care attendants in selected health facilities in the study area.

The research was undertaken in Nsawam-Adoagyiri because the municipality has many health facilities across its jurisdiction, suggesting a high possibility of getting access to a sample (women who attend postnatal care) that can provide the right information to meet the study's objectives. The designated health care facilities for postnatal care in the municipality includes the Nsawam Government Hospital located in Nsawam, four Health Centres located in Djankrom, Adoagyiri, Nsawam and 35 Community-Based Health Planning System (CHPS) Zones in the municipality. Four health facilities selected for the study include Nsawam Government Hospital, Adoagyiri Health Centre, Djankrom Health Centre, Dobro CHPS Centre and Nsawam Health Centre.

These health facilities were selected for the study because they have specific days designated for postnatal care for mothers so, it was a reliable source to get access to mothers visiting the health care facilities for postnatal care. Additionally, Dobro CHPS Centre and Adoagyiri Health Centre were selected because these two facilities are in the outskirts of the Nsawam township and serve mothers attending postnatal care from surrounding rural communities.

3.4 Population, Sampling Technique and Sample Size

3.4.1 Population and Sampling Technique

The study population were women who had given birth and were attending postnatal care at the health facilities in Nsawam-Adoagyri municipality. According to postnatal registers at selected health facilities, there are 4,456 postnatal care registrants in the selected health facilities from January 2020 – August 2020. The convenience sampling technique was used to select respondents of the questionnaire. This sampling technique is appropriate as data was to be collected from mothers receiving postnatal care service. As such, there was difficulty in getting access to these mothers at their households to participate in the research. Therefore, the sample for each facility was conveniently selected. The reason for this approach was because the health facilities had specific days for postnatal attendance by mothers. The research team monitored the time and date for such programs and interviewed mothers in attendance.

Again, due to time and resources constraints, these health facilities were selected based on their level of service provision, primary and secondary health care and location, given the fact that Nsawam-Adoagyiri is a twin municipality. The Nsawam Government Hospital was selected because it was a secondary health facility providing services for the wider population. The Nsawam Health Centre, Dobro CHPS are primary health care facilities located in Nsawam. Adoagyiri Health Centre and Djankrom Health Centre are primary health centres located in Adoagyiri. The study did not engage all mothers that visited the health facilities. The research team randomly engaged mothers who were waiting in line to receive postnatal care or have received postnatal care and are departing from the health facility.

3.4.2 Sample Size

The sample size was drawn from a list of postnatal care registrants, from January 2020 - August 2020 in selected health care facilities in the municipality. In all, the sample frame had about 4,456 units (mothers). The Yamane (1967) formulae was used to calculate sample size.

$$n= N/ (1+N (e)^2)$$

Where, n = *unknown* sample size, N = population size, (*4,456) and* α = sampling error (0.05*)*.

Using the above formulae, the calculated sample size was 367. However, due to heightened COVID-19 pandemic prevention measures and limited resources of student, the study covered 300 respondents.

Table 3.1: Disaggregated Sample Size in Selected Health Facilities

S/N	Health Facility	PNC Registrants	Number of Respondents
1.	Nsawam Government Hospital	3,411	88
2.	Adoagyiri Health Centre	430	82
3.	Djankrom Health Centre	302	45
4.	Dobro CHPS	74	43
5.	Nsawam Health Centre	239	42
	Total	**4,456**	**300**

Source: Postnatal Registers from Health Facilities, 2020

3.5 Sources and Methods of Data Collection

3.5.1 Primary Source

Primary data was collected with the aid of a structured questionnaire. The data was collected from women who came to the health facility for postnatal care. The data was collected from mothers who visited health care facilities on days that they were scheduled for postnatal care across all the health care facilities. This is because the health care facilities, with the exception of the Nsawam Government Hospital have specific days scheduled for postnatal care. Data collection spanned from August 18, 2020, to August 28, 2020. To ensure accuracy and reliability an enumerator was trained on instruments in questionnaire before data collection exercise.

The questionnaire collected data on demographic characteristics of respondents such as age, marital status, employment status, number of children alive, and method of delivery among others. Other components of the questionnaire sought to assess the knowledge of mothers on postnatal care, attitude of mothers to postnatal care, newborns, and danger sign in newborns as well as factors affecting postnatal care attendance. As indicated in Table 3.1 above, primary data were collected from four health care facilities within the municipality namely: Nsawam Government Hospital, Nsawam Health Centre, Adoagyiri Health Centre, Djankrom Health Centre, and Dobro CHPS Centre.

3.5.2 Secondary Source

Secondary data was obtained from the Nsawam-Adoagyiri Municipal Health Directorate's mid-year and annual report. Data was as well gleaned from a profile and annual report of Nsawam-Adoagyiri Municipal Assembly. Moreover, articles, journals and reports from Ghana's Ministry

of Health and the Institute of Statistical, Social and Economic Research (ISSER) regarding PNC were studied.

3.6 Data Analysis

This section explains the statistical methods adopted to measure the research objectives of this study. The data was collected and transported from KoboCollect® into Excel and imported to Stata for cleaning and analysis.

3.6.1 Objective One

The demographic characteristics of respondents such as age, marital status, employment status, NHIS holder, place of last delivery, method of delivery were analysed using descriptive statistics. To achieve objective one on assessing the knowledge of mothers on postnatal care, chi square (χ^2) was used. There are three main types of chi-squares: goodness-of-fit test; test for independence, and test for homogeneity. This study adopted test of independence because of some very important reasons. First, the test was done with same population and compared two categorical variables with one another in a given sample. Moreover, the sample size was 300, constituting a perfect number for the test for independence method. In conducting this test, correct and wrong responses on four questions assessing knowledge of mothers were dichotomized into poor and good. Second, mothers' knowledge on postnatal care was compared across demographics such as age, marital status, education and employment status. This was carried to assess whether knowledge levels of mothers have different relationship across selected demographic variables by testing the following null (H_0) and alternative (H_1) hypotheses:

H_1: There is significant association between knowledge of mothers and age, marital status, and education.

H_0: There is no significant association between knowledge of mothers and age, marital status, and education.

3.6.2 Objective Two

To measure objective two, which seeks to assess mothers' knowledge of postnatal care, chi square (χ^2) was used. Similar to objective one, test of independence was adopted. With this objective, knowledge was dichotomized into good and poor attitude from a 5-point Likert scale of strongly agree, agree, neither, disagree and strongly disagree. Responses that 'strongly agreed' and 'agreed' with positive statements were measured as good knowledge, and responses of 'neither', 'disagreed' and 'strongly disagreed' were measured as poor knowledge. Knowledge of postnatal care attendance was measured with three indicators: knowledge of newborn care, knowledge of danger signs in newborns, and knowledge of mothers to maternal care. To test the association of knowledge of these indicators by demographic characteristics such as age, marital status, education, employment status, the following null (H_0) and alternative (H_1) hypotheses was developed:

Knowledge of newborn care

H_1: There is significant association between knowledge of newborn care and age, marital status, education, and occupation status,

H_0: There is no significant association between knowledge of newborn care and age, marital status, education, occupation status

Knowledge of danger signs in newborns

H_1: There is significant association between knowledge of danger signs in newborns and age, marital status, education, occupation status.

H_0: There is no significant association between knowledge of danger signs in newborns and age, marital status, education, occupation status.

Knowledge of Postnatal Care

H_1: There is significant association between knowledge of mother care and age, marital status, education, occupation status.

H_0: There is no significant association between knowledge of mother care and age, marital status, education, occupation status.

3.6.3 Objective Three

To measure the third objective which seeks to determine factors that influence access to postnatal care services, a probit regression was used. This method was adopted because the dependent variable is a single categorical binary variable, making this model more appropriate to predict the utilization of postnatal care services. The probit regression model adopted for this study is outlined as follows.

$$\mathbf{Pr\ (Y/(1\text{-}Y) = \beta 0 + \beta 1 X_1 + \beta 2 X_2 + \ldots + \beta n X_n + \varepsilon}$$

Where

Y = Binary dependent variable

β_0 = constant term

$\beta_1 \ldots \beta_n$ = coefficient of independent variables

$X_1 \ldots X_n$ = Two or more independent variables used in the model

ε = error term

Table 3.2 below illustrates the breakdown of dependent and independent variable components and their respective measurement units.

Table 3.2: Variables hypothesized on factors that influence of postnatal care attendance

Variable	Variable Measurement	Expected Coefficient
Dependent		
Postnatal Care	Yes, 1; No, 0	
Independent		
Predisposing Factors		
Education Attainment	None, 0 Primary, 1 Junior High School (JHS), 2 Senior High School (SHS), 3 Post-secondary/Tertiary, 4	Positive
Age	Age of Mothers in Years	Negative
Occupation	1 if employed, otherwise 0	Positive
Marital Status	1 if married, otherwise 0	Positive
Knowledge	Good, if "strongly agree" or "agree" with statements; Poor, if "neither", disagree or strongly disagree with statements	Positive
Enabling Factors		
Income (GHS)	Average monthly income	Positive/Negative

Attitude of health care personnel	Good, if "Not likely" response; Poor, if "Most likely" or "Likely" response	Positive/Negative
Distance to Health Facility	Close or far	Positive/Negative
National Health Insurance Scheme (NHIS) card	Valid or expired	Positive
Awareness	Yes or No	Positive

Source: Author's Construction, 2020

3.7 Ethical Consideration

The Nsawam-Adoagyiri Municipal Health Directorate permitted for the study to be carried out in the health facilities within the municipality by issuing introduction letters to all health care facilities selected for the study. The respondents gave informed consent to be interviewed. Also, anonymity of respondents was promised and maintained as the research team intentionally left out their (respondents) names from the data. Mothers who were present at health care facilities and did not give informed consent were not interviewed for the study. Respondents were informed that the data collected was strictly for academic purposes.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter is divided into two sections: results and discussions. The results section presents the data obtained from the field both in descriptive and inferential statistical form. The discussion section presents the results in comparison with the literature reviewed.

4.2 Results

4.2.1 Demographic Characteristics

The sample consists of 300 females who have delivered within the period of 3rd January 2019 to 20th August 2020. The age group of the respondents was 18-46 years. About 49.7% of the respondents had completed Junior High and middle school at the time of the study. Also, 89% of the respondents were married, 83.7% of the respondents were unemployed while only 16.3% are employed. Also, about 98% of the women delivered in the health facilities and about 99% of them had a valid national health insurance (NHI) card. Table 4.1 again shows that whiles 77.7% of the respondents delivered through normal vaginal delivery, 22.3% of them delivered through caesarean section.

Table 4.1: Descriptive Statistics of Mothers

Variable	Frequency	Percentage %
Age		
18-25	62	20.67
26-33	174	58
34-41	60	20
42-46	4	1.33
Education Attainment		
None	12	4.00
Primary	26	8.67
Junior High School	149	49.67
Senior High School	91	30.33
Post-Secondary/ Tertiary	22	7.33
Marital status		
Single	33	11.00
Married	267	89.00
Occupation of Respondents		
Unemployed	49	16.33
Employed	251	83.67
Income (GHS)		
Income	251	83.67
No-income	49	16.33
Children Alive		
One child	75	25.00
Two-children	92	30.67
Three Children	65	21.67
Four Children	41	13.67
Five Children	16	5.33
Above five (5) children	11	3.66
Place of Delivery		
Home	6	2.01
Health Facility	293	97.99
Method of Delivery		
Normal Vaginal Delivery	233	77.67
Caesarean Section	67	22.33
NHIS card		
Valid	296	98.67
Expired	4	1.33
Observations	*300*	

Source: Author's computation from primary data, 2020

4.2.2 Knowledge of Mothers on the Concept of Postnatal care

From Table 4.2, 89% of the women have good knowledge of postnatal care whereas 11% have poor knowledge of postnatal care. This is ascertained from the respondents' knowledge on postnatal care in the Nsawam-Adoagyiri Municipality. Specifically, 57.67% of the mothers agreed that postnatal care is for the mother and the newborn. About 80% agreed that postnatal care is after birth while 90% agreed that inadequate postnatal care causes the death of a baby. Again, 98% of the respondents agreed that postnatal care improves health and well-being.

Table 4.2: Knowledge level of mothers on the Concept of Postnatal Care

Demographic Variable	Knowledge			Chi-square	P-value
	Poor	Good	Total		
Age (years)					
18-25	12 (19.4%)	50 (80.6%)	62 (100%)		
26-30	15 (13.9%)	93 (86.1%)	108 (100%)		
31-35	2 (2.4%	83 (97.6%)	85 (100%)		
36-40	4 (11.1%)	3 (88.9%)	36 (100%)		
40+	0 (0%)	9 (100)	9 (100%)		
Total	**33 (11.0%)**	**267 (89.0%)**	**300 (100%)**	***12.95***	***.12***
Education Attainment					
None	0 (0.0%)	12 (100%)	12 (100%)		
Primary	3 (11.5%)	23 (88.5%)	26 (100%)		
JHS	21 (14.1%)	128 (85.9%)	149 (100%)		
SHS	8 (8.8%)	83 (91.2%)	91 (100%)		
Tertiary	1 (4.5%)	21 (95.5%)	22 (100%)		
Total	**33 (11.0%)**	**267 (89.0)**	**300 (100%)**	***4.34***	***.36***
Marital					

Status					
Married	31 (14.2%)	236 (85.8%)	267 (100%)		
Single	2 (6.1%)	31 (93.9%)	33 (100%)		
Total	**33 (11.0%)**	**267 (89.0%)**	**300 (100%)**	***0.92***	***.34***

Source: Author's computation from primary data, 2020

Table 4.2 shows the knowledge assessment of postnatal care among women in the Nsawam-Adoagyiri Municipality. The constitution of good knowledge of postnatal care is respondents' ability to correctly answer and score average of more than 50% of the four questions. Poor knowledge of postnatal care however refers to respondents' inability to answer all four questions scoring an average of less than 50%. The overall assessment of the knowledge of women on postnatal care shows a good knowledge of postnatal care. In other words, 89% of the women have good knowledge about PNC while 11% have poor knowledge about postnatal care. Women between the ages of 31-35 years have the highest score of good knowledge on postnatal care compared to women within the ages of 18-25 years who have the highest level of poor knowledge on postnatal care. This is represented by 97.6% and 19.4% respectively. The reason could be that older women might have been exposed to information on postnatal care during their past Antenatal visits thereby helping them to improve their knowledge regarding the need for postnatal care.

Women with tertiary educational level had a good knowledge on postnatal care compared to JHS/middle school leavers in the Nsawam-Adoagyiri Municipality. This means that educational level influences an individual's level of knowledge of postnatal care. The marital status classification under this study is categorized into married or single mothers. It can be observed from this study that single mothers also possess good knowledge of postnatal care compared to their married counterparts.

Despite the disparities within the demographic variables among mothers, the results were not the same as when a chi-square test of independence was performed to examine the association between age, level of education, marital status and level of knowledge on postnatal care. The chi-square test of independence showed that there was no significant association between age of mothers and knowledge of postnatal care, χ^2 (N=300) = 12.95, p = .12; there was no significant association between educational level and knowledge of postnatal care, χ^2 (N=300) = 4.34, p= .36, and there was no significant association between marital status and knowledge of postnatal care, χ^2 (N=300) = 0.92, p=.34.

4.2.3 Knowledge of Postnatal Care Attendance

The analysis covers three indicators of knowledge of mothers to postnatal care; newborn care (Table 4.3), danger signs in newborns (Table 4.4) and maternal care (Table 4.5).

4.2.3.1 Knowledge of Newborn Care

The knowledge of mothers to newborn care measures mothers' beliefs on a set of statements. These statements are based on whether hospital birth is important to the health of the baby; postnatal care should be received for 6 weeks; breastfeeding should be done within the first hour; baby should be kept warm through skin-to-skin within the first hour; bathing should be done after 24 hours; umbilical cord should be dry and clean; mothers should communicate and play with the baby, and whether baby should be immunized against killer diseases. For each of these statements, a good knowledge is recorded for a mother who agrees to the statements, and a poor knowledge is recorded to a mother who disagrees to statements. Knowledge was dichotomized into good and poor attitude from a 5-point Likert scale of strongly agree, agree, neither, disagree and strongly

disagree. Responses that 'strongly agreed' and 'agreed' with positive statements were measured as good knowledge, and responses of 'neither', 'disagreed' and 'strongly disagreed' were measured as poor knowledge. Table 4.3 shows that 62.9% of mothers aged 18-35years have a good knowledge of newborn care, whereas 77.8% of those aged 40 years and above have a relatively poor knowledge of newborn care.

Further, the results show that 72.7% of the respondents who have had post-secondary education demonstrated a good knowledge of newborn care. Mothers with primary education also have poor knowledge of newborn babies and this is represented by 57.7% whiles mothers with JHS/Middle school education level have a good knowledge of newborn babies. Under the category of marital status, it is either the respondent is married or unmarried. It is interesting to note that 65.2% of married women have a good knowledge of newborn care. On the occupation of mothers, the study finds that 70.5% of unemployed mothers have good knowledge of newborn care, whereas 65.3% of employed mothers have poor knowledge of newborn care

A chi-square test of independence was performed to determine the relation between age, level of education, marital status and occupation, and knowledge of newborn care. The test was performed using the sample size of 300 mothers with a confidence interval of 95%. The study revealed that there is a significant relationship between mother's occupation and knowledge of newborn care, χ^2 (N=300) = 23.03, P< .01. There is, however, no significant relationship between mother's age and knowledge of newborn care χ^2 (N=300) = 7.78, P= .10; educational level and knowledge of newborn care χ^2 (N=300) = 8.73, p= .68; marital status and knowledge of newborn care χ^2 (N=300) = .27, P= .65

Table 4.3: Knowledge of newborn care by demographic variables

Demographic Variable	Knowledge			Chi-square	P-value
	Poor	Good	Total		
Age (years)					
18-25	23 (37.1%)	39 (62.9%)	62 (100%)		
26-30	36 (33.3%)	72 (66.7%)	108 (100%)		
31-35	29 (34.1%)	56 (65.9%)	85 (100%)		
36-40	11 (30.6%)	25 (69.4%)	36 (100%)		
40+	7 (77.8%)	2 ((22.2%)	9 (100%)		
Total	**106 (35.3%)**	**241 (64.7%)**	**300 (100%)**	***7.78***	***.10***
Education Attainment					
None	6 (50.0%)	6 (50.0%)	12 (100%)		
Primary	15 (57.7%)	11 (42.3%)	26 (100%)		
JHS	52 (34.9%)	97 (65.1%)	149 (100%)		
SHS	10 (66.7%)	5 (33.3%)	15 (100%)		
Tertiary	6 (27.3%)	16 (72.7%)	22 (100%)		
Total	**106 (35.3%)**	**241 (64.7%)**	**300 (100%)**	***8.73***	***.68***
Marital Status					
Married	93 (34.8%)	174 (65.2%)	267 (100%)		
Status	13 (65.3%)	0 (60.6%)	33 (100%)		
Total	**106 (35.3%)**	**41 (64.7%)**	**300 (100%)**	***.27***	***.60***
Occupation					
Unemployed	**74 (29.5%)**	**177 (70.5%)**	**251 (100%)**		
Employed	**23 (65.3%)**	**17 (34.7%)**	**49 (100%)**		
Total	**159 (39.8)**	**241 (60.2%)**	**300 (100%)**	**23.03**	**.01**

Source: Author's computation from primary data, 2020

4.2.3.2 Knowledge of Danger Signs in Newborns

The indicator of mother's knowledge of danger signs in newborns measure mothers' beliefs on statements such as, the baby not breastfeeding well; difficulty in breathing; no spontaneous movement; high body temperature; low body temperature; yellow coloration of eyes, palms, and soles; breathing fast; and vomiting, which are all symptoms of health danger for the newborn. knowledge was dichotomized into good and poor attitude from a 5-point Likert scale of strongly agree, agree, neither, disagree and strongly disagree. Table 4.4 shows the mothers' knowledge of danger signs in newborns. It illustrates that 96.8% of the study participants aged 18-25 years have good knowledge about danger signs in newborns, whereas 11.1% of those aged 36 and above have poor knowledge of danger signs in newborns. Under marital status, married mothers have a good knowledge of the dangers in newborn babies herein represented by 93.6% compared to the single mothers who have a poor knowledge of danger in newborn babies also represented by 12.1%. Additionally, 94% of unemployed mothers have a good knowledge of danger signs in newborns compared to 87.8% of employed mothers.

A chi-square test of independence was performed to examine the relationship between age; education level; marital status, and occupation and mothers' knowledge of danger signs in newborns. The test was performed using the sample size of 300 mothers with a confidence interval of 95%. There was no significant association relationship between the variables. There was no significant relationship between age and knowledge of danger signs in newborns, χ^2 (N=300) = 1.98, p= .74; no significant relationship between education level and knowledge of danger signs in newborns χ^2 (N=300) = 3.06, p=. 54; no significant relationship between marital status and knowledge of danger signs in newborns χ^2 (N=300) = 1.49, p= .22, and no significant relationship between occupation and knowledge of danger signs in newborns χ^2 (N=300) = 2.46, p= .12

Table 4.4: Knowledge of danger signs in newborns by demographic variables

Demographic Variable	Knowledge			Chi-square	P-value
	Poor	Good	Total		
Age (years)					
18-25	2 (3.2%)	60 (96.8%)	62 (100%)		
26-30	9 (8.3%)	99 (91.7%)	108 (100%)		
31-35	6 (7.1%)	79 (92.9%)	85 (100%)		
36-40	3 (11.1%)	33 (88.9%)	36 (100%)		
40+	1 (11.1%)	8 (88.9%)	9 (100%)		
Total	**21 (7.0%)**	**279 (93.0%)**	**300 (100%)**	***1.98***	***.74***
Education Attainment					
None	2 (16.7%)	10 (83.3%)	12 (100%)		
Primary	3 (11.5%)	23 (88.5%)	26 (100%)		
JHS	10 (6.7%)	139 (93.3%)	149 (100%)		
SHS	5 (5.5%)	86 (94.5%)	91 (100%)		
Tertiary	1 (4.5%)	21 (95.5%)	22 (100%)		
Total	**21 (7.0%)**	**279 (93.0%)**	**300 (100%)**	***3.06***	***.54***
Marital Status					
Married	17 (6.4%)	250 (93.6%)	267 (100%)		
Single	4 (12.1%)	29 (87.9%)	33 (100%)		
Total	**21 (7.0%)**	**279 (93.0%)**	**300 (100%)**	**1.49**	**.22**
Occupation					
Unemployed	15 (6.0%)	236 (94.0%)	251 (100%)		
Employed	6 (12.2%)	43 (87.8%)	49 (100%)		
Total	**21 (7.0%)**	**279 (93.0%)**	**300 (100%)**	***2.46***	***.12***

Source: Author's computation from primary data, 2020

4.2.3.3 Knowledge of Maternal Care

This indicator measures mothers' beliefs on a number of statements: maintaining blood pressure is important for the health of the mother; the heart rate (pulse) of the mother should be monitored after 24 hours of birth; should the mother feel back pains after 24 hours; being able to respond to nature' call is important to the health of the mother, and feeling fatigued. knowledge was dichotomized into good and poor attitude from a 5-point Likert scale of strongly agree, agree, neither, disagree and strongly disagree. Responses that 'strongly agreed' and 'agreed' with positive statements were measured as good knowledge, and responses of 'neither', 'disagreed' and 'strongly disagreed' were measured as poor knowledge. Mothers are measured to have a good knowledge of maternal care when they agree with the statements and are measured to have poor knowledge of maternal care when they disagree with the statements.

It can be observed from Table 4.5 that, among all the age categories, mothers above 40 years have the lowest percentage (66%) of good Knowledge about maternal care as compared to other categories who all scored above 80%. Regarding education, 95.5% of mothers with post-secondary/tertiary educational attainment seems to have good knowledge about maternal care than other mothers with low or no education attainment. For marital status, 85.8% of married mothers have good knowledge of maternal care compared to 75% of single mothers. Both employed and unemployed mothers demonstrate good knowledge of maternal care standing at 87.8% and 84.1% respectively.

A chi-square test of independence was conducted to determine the relation between age, education level, marital status and occupation, and knowledge of maternal care. The test was conducted using the sample size of 300 mothers with a confidence interval of 95%. The results in Table 4.5 indicates

a significant relationship between mother's education level and her knowledge of maternal care, χ^2 (N=300) = 23.03, p< .01. There is, however, no significant relationship between age and the remaining independent variables.

Table 4.5: Knowledge of Maternal care by demographic variables

Demographic Variable	Knowledge			Chi-square	P-value
	Poor	Good	Total		
Age (years)					
18-25	9 (14.5%)	53 (85.5%)	62 (100%)		
26-30	19 (17.6%)	89 (82.4%)	108 (100%)		
31-35	11 (12.9%)	74 (87.1%)	85 (100%)		
36-40	4 (11%)	32 (88.9%)	36 (100%)		
40+	3 (33.3%)	6 (66.7%)	9 (100%)2		
Total	**46 (15.3%)**	**254 (84.7%)**	**300 (100%)**	***3.57***	***.47***
Education Attainment					
None	2 (16.7%)	10 (83.3%)	12 (100%)		
Primary	9 (34.6%)	17 (65.4%)	26 (100%)		
JHS	23 (15.4%)	126 (84.6%)	149 (100%)		
SHS	11 (12.1%)	80 (87.9%)	91 (100%)		
Tertiary	1 (4.5%)	21 (95.5%)	22 (100%)		
Total	**46 (15.3%)**	**254 (84.7%)**	**300 (100%)**	***10.17***	***.04***
Marital Status					
Married	38 (14.2%)	329 (85.8%)	267 (100%)		
Single	8 (24.2%)	25 (75.8%)	33 (100%)		
Total	**46 (15.3%)**	**254 (84.7%)**	**300 (100%)**	***2.27***	***.13***
Occupation					

Unemployed	40 (15.9%)	211 (84.1%)	251 (100%)		
Employed	6 (12.2%)	43 (87.8%)	49 (100%)		
Total	**46 (15.3%)**	**254 (84.7%)**	**300 (100%)**	***0.43***	***.51***

Source: Author's computation from primary data, 2020

4.2.4 Factors that Affect Postnatal Care Attendance

In order to accomplish the objectives of the research, some socioeconomic variables that were posited to influence the PNC attendance were incorporated in the regression model and the results are presented in Table 4.6. To test for normality, the graphical method was used. The graph shows that the distribution of normality in the data is fair. Appendix 2 shows a normality test conducted. The multi-collinearity test was also conducted to determine if one or more predicators or explanatory variables in the regression are correlated. This test was done using the Variance Inflation Factor (VIF) to measure the level of collinearity.

From the test, it is clearly indicated that there are no problems of collinearity in the data since none of the predictors has a Variance Inflation Factor greater than 10. Moreover, the level of tolerance or 1/VIF of the various independent variables are not greater than 1 which indicates that there are no problems of collinearity in the regression model that require serious investigation. Appendix 3 shows the multicollinearity test for various explanatory variables. To determine whether the data was homoscedastic, the Homoscedasticity test was done using both the Breusch-Pagan Test and the IM-test. From the results, the Breusch-Pagan / Cook- Weisberg test for heteroskedasticity has a null hypothesis of constant variance (Ho: Constant variance) and P-value of 0.38 and since the P-value (0.38) of the null hypothesis of constant variance is greater than the significant level of 0.05 then we reject the null hypothesis and conclude that the data is homoscedastic and free from

heteroskedasticity. Moreover, the Cameron & Trivedi's decomposition of IM-test for homoscedasticity shows a P-value of 0.00 which suggests that the data is free from Heteroskedasticity. Appendix 4 shows the IM-test for homoscedasticity.

From Table 4.6, the regression model shows the F-value of 2.72 of the model which explains how jointly significant the independent variables are in predicting the dependent variables. So, the higher the F-value statistics, the better the regression model. The Prob>F value which is 0.00 explains the significance of the F-value statistics. Since the P-value is less than the significance level of 0.05 then the model is considered to be better. The R-squared which is 0.06 explains the total variations of the dependent variables by the independent variables. Hence, the higher the R-squared the better the model. The Root MSE which is 0.68 explains the standard error of the entire regression model (Refer to Table 4.6). The results showed that explanatory variables such as income, occupational status of respondents, marital status of respondents, educational status of respondents, NHIS, and awareness are significant and have a positive influence on Postnatal Care Attendance. Also, explanatory variables such as distance to health facility and Cost of Postnatal Care were significant and have a negative influence on Postnatal Care Attendance. Contrary to earlier expectation, the results showed that attitude of health personnel, cultural beliefs, and age of respondents have no significant influence on Postnatal Care Attendance. Table 4.6 below presents the factors that affect Postnatal Care Attendance.

Table 4.6 Probit Regression on factors that affect PNC attendance

Variable	Coef.	Std. Error	t-value	P>t	95% C.I	
PNC Attendance (DV)						
Age of respondent	-0.01	0.01	-2.06	0.04		
Education Status (Years)	0.05	0.05	1.07	0.02	-0.15	0.04
Income	0.21	0.00	0.14	0.03	-0.00	0.00
Marital Status (Single)						
Married	0.17	0.14	1.26	0.21	-0.10	0.44
Occupation (Unemployed)						
Employed	0.19	0.11	1.61	0.01	-0.04	0.41
NHIS card (Expired)						
Valid	0.62	0.35	-1.78	0.05	-1.30	0.06
Attitude of health personnel (Good)						
Bad	-0.02	0.07	-0.21	0.83	-0.16	0.13
Distance to health facility (Close)						
Far	-0.29	0.09	-3.06	0.00	0.47	-0.10
Awareness (No)						
Yes	0.13	0.07	1.75	0.04	-0.02	0.28
_constant	1.54	0.71	2.16	0.03	0.14	2.94

Source	**SS**	**df**	**MS**	**Number of obs**		
				F(-11, 288)	=	**2.72**
Model	**13.95**	**11**	**1.27**	**Prob>F**	=	**0.00**
Residual	**134.43**	**2.88**	**0.47**	**R-squared**	=	**0.09**
				Adj R-squared	=	**0.06**
Total	**148.38**	**299**	**0.50**	**Root MSE**	=	**0.68**

Source: Author's computation from primary data, 2020

The regression results revealed that income has a positive and significant influence on the attendance of PNC (P=0.03). The coefficient of 0.21 indicated that an increase in income of women has the likelihood of increasing their PNC attendance by 21%. This is in line with the findings of Dahiru and Oche (2015) who reported that women from rich households attend PNC services three times more than those from poor households. This could be because poor households have to prioritize their resources and hence may want to cater for basic daily needs first before thinking of seeking health services from health facilities.

The results also indicated that the valid NHIS card has a positive and significant influence on the attendance of PNC (P=0.00). The coefficient of 0.62 indicated that, relative to mothers who do not possess valid cards, having a valid NHIS card can increase the probability of a mother's PNC attendance by 62%. This is in consonance with the findings of Browne et al. (2016) who reported that women who were covered with health insurance have the likelihood of using the use of ANC, skilled delivery and PNC services increased by 96%, 129% and 61% respectively, hence insurance plays a significant role in the utilization of PNC services. In a facility-based study conducted in Southwest Nigeria, it reports that women who are insured attended PNC services more compared with those who were not because those that are not insured pay OOP totally while those insured pay 10% OOP. In the study, only 10% of women were covered with health insurance and the remaining were not, another reason for having low PNC utilization. It was also reported in the study that women who were insured had no problem with transportation to the health facility as compared to those who were not insured.

The results also indicated that awareness has a positive and significant influence on the attendance of PNC (P=0.04). The marginal effect of the coefficient of 0.13 indicated that mothers that are aware of the postnatal care can increase PNC attendance by 13%. This is in consonance with the

findings of Abebo and Tesfaye (2018) who reported that reproductive age women who were not

aware for at least one danger signs of postpartum were 0.06 times less likely to utilize PNC as compared with women who are aware of at least one postpartum danger signs. Mothers who did not know childcare and had three ANC visits were 0.14 times less likely to utilize PNC services as compared with mothers who knew child care and had one ANC visit. Also, a health survey conducted by Rahman et al. (2011), revealed that giving birth at health facilities has direct significant association with postnatal care utilization. This might be due to the fact that women who gave birth at health institution have greater opportunity to be informed and educated about types, benefits, and availability of PNC services and danger signs of postpartum. This evidence showed that ANC attendance and adequate counseling of mothers is associated with increased postnatal care attendance (Rahman et al. 2011). This finding suggests the importance of improving knowledge about childcare during antenatal care visits.

The results also indicated that educational status has a positive and significant influence on the attendance of PNC (P=0.02). This is because the P-value of 0.00 is less than the significant level of 0.5. The marginal effect of the coefficient of 0.05 indicated that an compared to mothers without formal education, mothers with some formal education can increase a mother's probability of PNC attendance by 5%. The finding is consistent with Memon et al. (2019) observation that educated women have a good knowledge of newborn than women without education. Similarly, Meedya et al. (2010) observed a similar result on the impact of education on breastfeeding and the detection of early danger signs in newborn babies. It means that mothers who are educated have good knowledge of the danger signs in newborns and can report such dangers to health facilities to prevent escalation of danger to the point of death.

The results also indicated that occupation of the respondent has a positive and significant influence on the attendance of PNC (P=0.01). The coefficient of 0.19 indicated that compared to unemployed mothers, the probability of mothers who are employed attending PNC increases by 19%. The observation in this study is consistent with a study conducted by Appiah et al. (2021) on postnatal care attendance in Ghana where working women were more probable to attend PNC as compared with non-working mothers. Similarly, a study by Ndugga, Namiyonga and Sebuwufu (2019) revealed that unemployed women had lower odds of attending postnatal care compared with employed women in Uganda. The simple reason is that unemployed mothers are less likely to be resourced and as a result, may be unable to utilize PNC.

The results also indicated that marital status of the respondents has a positive and significant influence on the attendance of PNC (P=0.04). This is because the P-value of 0.00 is less than the significant level of 0.5. The marginal effect of the coefficient of 0.17 indicated that compared to single mothers, married mothers have an increased PNC attendance by 17%. This could be that a married woman is more likely to be assisted by the husband in getting postnatal care for the newborn baby compared with a single mother. The observation in this study is consistent with results obtained by Fekadu, Ambaw, and Kidanie (2019) in a study that explored facility delivery and postnatal care services in Ethiopia. The study showed that married women are more likely to seek postnatal care compared to their single counterparts.

On the contrary, the regression results revealed that the distance to health facility has a negative significant influence on the attendance of PNC (P=0.00). The marginal effect of the coefficient of

0.29 indicated that compared with mothers close to a health facility, women far from a health facility are more likely to reduce their PNC attendance by 29%. This is consistent with a study conducted in Malawi which also showed that women who did not perceive distance to a health facility as a barrier were more likely to attend early postnatal care than women who perceived distance to the health facility as a barrier (Kim et al., 2019). Similarly, a study conducted by Okafor and Bashir (2013) in the Southwest Nigeria reports that women who need less time to get to the nearest health facility attended PNC more compared with others with more remote homes. A study conducted by Dahiru and Oche (2015) revealed that 44% of urban settlers utilized PNC services compared with 21% who reside in rural areas. This could be as a result of poor access and long distance travelling to health services which trouble rural dwellers.

4.3 Discussion of Results

4.3.1 Knowledge of Postnatal Care

This study measured knowledge of mothers on postnatal care. A total of 57.67% agreed that postnatal care is important for a mother and a newborn; 80% agreed that postnatal care is received after birth; 90% agreed that inadequate postnatal care causes the death of the baby, and 98% agreed that postnatal care improves health and well-being of the baby. It can be observed from the present study that 89% of mothers have good knowledge of postnatal care. This finding is similar to a study in India by Castalino, Nayak and D'Souza (2014) which observed that 70% of mothers had good knowledge of postnatal care of newborns. This study, however, contradicts a study in Nepal by Timilsina and Dhakal (2015) which revealed that 36.73% of the respondents had good knowledge of postnatal care.

There were varying levels of poor and good knowledge by mothers. The differences could be attributed to different predisposing factors such as education, age, and occupation. Interestingly, there is no association between measured variables such as age (P = .12); educational level (P= .36), marital status (P=.34) and level of knowledge of mothers on postnatal care. It can thus be suggested that a mother's level of knowledge cannot be predicted by her age, education level or marital status. This might be related to the frequent facility-level postnatal care education given to mothers by midwives at the health care facilities. Additionally, this could also be as a result that interviews were carried out during mothers' visits to postnatal care. Further, this finding implies that age, level of education and marital status of mothers do not determine how knowledgeable they are regarding postnatal care. This indicates that knowledge of postnatal care as a predisposing factor has no relationship with other enabling and need factors in utilizing postnatal care.

4.3.2 Knowledge Level of Postnatal Care

This study revealed varying levels of poor and good knowledge of mothers with regards PNC. These differences could be attributed to different predisposing factors such as education, age, and occupation. Factors including knowledge influences a mother's readiness to utilize postnatal care services. The knowledge of mothers could also be related to enabling factors such as income, age, marital status, which indicates the capacity and organizational strength to utilize postnatal services. This study measured knowledge of mothers on postnatal care, and conducted chi- square test of independence on 300 mothers at a confidence interval of 95% to compare difference of difference across demographic variables on three indicators. These indicators include knowledge of mothers about newborn care; knowledge of mothers to danger signs in newborn, and knowledge of mothers about maternal care.

Generally, the study revealed that mothers have good knowledge across all demographic variables. Regarding knowledge about postnatal care for newborns, more than half of the mothers (64.7%) have a good knowledge; 84.3% of the mothers have a good knowledge about taking care of themselves during postnatal care and 93.0% of the mothers have good knowledge about responding to health risks in newborns. These findings reveal that mothers have good knowledge about responding to issues of illness or anomalies posing danger to newborns during postnatal care. Comparatively, mothers have low knowledge (64.7%) about newborn care, which WHO defines as hospital birth; receiving postnatal care for 6 weeks; breastfeeding within the first hour of birth; baby kept warm through skin-to-skin within the first hour; bathing done after 24 hours; umbilical cord kept dry and clean; communicating and playing with the baby and immunization baby against killer diseases.

On specific variables, this study revealed that there is no significant influence of educational level and knowledge of postnatal care of newborns (P= .68). This observation contrast what Memon et al. (2019) found that highly educated women have a better understanding of the implications of postnatal care and exhibits a good knowledge of newborn care as compared with women with low educational level (Memon, et al., 2019). Similarly, Meedya et al. (2010) stressed that education contributes to the positive knowledge of mothers in relation to postnatal care of newborns. A possible explanation for the contrasting findings could be the outreach and education for pregnant women and their commitment to antenatal visits in the different study settings.

This study revealed that there is a significant relationship between occupation and attitude to postnatal care for newborns (P< .01), where mothers with low income or unemployed are likely to have a poor knowledge of newborn care. This finding is consistent with Padiyath, Bhat and Ekambaram's (2010) study which concludes that the gap in the awareness and knowledge of postnatal mothers regarding neonatal care is higher especially for those with lower socioeconomic strength and similar to the report from Majumder et al. (2018) that unemployed mothers in Bangladesh have a poor knowledge of postnatal care in newborns (Majumder, Najnin, Ahmed, & Bhuiyan, 2018).

Overall, this present study revealed that there is no significant association between age and knowledge of newborn care (P= .10), but more than half (62.9%) of mothers aged 18-35 years have a good knowledge of newborn care, whereas 77.8% of those aged 40 years and above have a relatively poor knowledge of newborn care. This finding is dissimilar to the study by Majumder et al. (2018) who observed that age has a significant influence on the knowledge of mothers of

postnatal care though there is good knowledge about postnatal care among women within 15-30 years old (Majumder, Najnin, Ahmed & Bhuiyan, 2018). Additionally, this present study contradicts a study conducted in Pakistan which showed that age has a significant influence on knowledge about postnatal care of newborns though mothers within the age group of 20-29 scored high statistics in terms of positive knowledge of postnatal care (Memon, et al., 2019). This contrary finding may be as a result of young mothers' inexperience in postnatal care and their desire to ensure good health for themselves and their newborns.

4.3.3 Factors Affecting Postnatal Care Attendance

The results also indicated that occupation of the respondent has a positive and significant influence on PNC attendance (P=0.01). This is because the P-value of 0.00 is less than the significant level of 0.5. The marginal effect of the coefficient of 0.19 indicated that the probability of mothers who are employed attending PNC increases by 19% compared to their counterparts who are unemployed. The observation in this study is consistent with a Uganda based study by Ndugga, Namiyonga and Sebuwufu (2019) which revealed that unemployed mothers are less likely to utilize postnatal care. Under the educational level, the overwhelming majority of mothers who have attained post-secondary and tertiary educational levels of have good knowledge about danger in newborn babies compared with those with no formal education. The results also indicated that educational status has a positive and significant influence on the attendance of PNC (P=0.02). This is because the P- value of 0.00 is less than the significant level of 0.5. The marginal effect of the coefficient of 0.05 indicated that mothers with formal education has increased PNC attendance by 5%.

The finding is consistent with Memon et al. (2019) observation that educated women have a good knowledge of newborns than women without education. Similarly, Meedya et al. (2010) observed a similar result on the impact of education on breastfeeding and the detection of early danger signs in newborn babies. It means that mothers who are educated have good knowledge of the danger signs in newborns and can report such dangers to health facilities to prevent escalation of danger to the point of death.

This study found that the probability that a married woman had access to postnatal care is higher than that of single mother. The results also specified that marital status of the respondents has a positive and significant influence on the attendance of PNC (P=0.04). The marginal effect of the coefficient of 0.17 showed that married mothers have the probability of increasing PNC attendance by 17%. This study finds that the probability that a married woman will have access to postnatal care is higher than that of the single mother. A possible explanation that could be offered is that a married woman compared with a single mother, is more likely to be assisted by the husband in getting postnatal care for the newborn baby. This observation is in tandem with results obtained by Fekadu, Ambaw and Kidanie (2019) in a study that explored facility delivery and postnatal care services in Ethiopia. The study showed that married women are more likely to seek postnatal care compared to their single counterparts.

The regression results revealed that income has a positive and significant influence on the attendance of PNC (P=0.03). This is because the P-value of 0.03 is less than the significant level of 0.5. The marginal effect of the coefficient of 0.21 indicated that an increase in income of women has the likelihood of increasing their PNC attendance by 21%. This is in line with the findings of

Dahiru and Oche (2015) who reported that women from rich households attend PNC services three times more than those from poor households.

The results also indicated that the ownership of valid NHIS has a positive and significant influence on the attendance of PNC (P=0.00). The marginal effect of the coefficient of 0.62 indicated having a valid NHIS card can increase the probability of a mother's PNC attendance by 62%. This is in consonance with the findings of Browne et al. (2016) who reported the use of ANC, having skilled delivery, and utilizing PNC services increased by 96%, 129% and 61% among women who were insured, hence insurance plays a significant role in the utilization of PNC services. Similarly, in Southwest Nigeria, women who are insured attended PNC services more compared with women who were not insured because paid 100% OOP while those insured pay 10% OOP (Okafor and Bashir, 2013). In the study, only 10% of women were covered with health insurance and the remaining were not, another reason for having low PNC utilization (Okafor and Bashir, 2013).

The results also indicated that awareness has a positive and significant influence on the attendance of PNC (P=0.04). This is because the P-value of 0.00 is less than the significant level of 0.5. The marginal effect of the coefficient of 0.13 indicated that mothers with increased awareness of PNC can an increase PNC attendance by 13%. Likewise, support for this result in seen in the findings of Abebo and Tesfaye (2018) in Ethiopia, who showed that women of childbearing age who were unaware of at least one postpartum hazard indication had a lower likelihood of using PNC than those who were aware of at least one postpartum danger sign. In the same vein, Rahman et al. (2011) health survey found a direct and substantial correlation between using postnatal care and giving delivery in a medical facility. This may be because women who gave birth in a medical

facility have a higher opportunity to learn about the sorts, advantages, and disadvantages of PNC service availability and postpartum danger symptoms.

Contrarily, the regression results revealed that the distance to health facility has a negative significant influence on the attendance of PNC (P=0.00). This is because the P-value of 0.00 is less than the significant level of 0.5. The marginal effect of the coefficient of 0.71 indicated that mothers close to a health facility can increase PNC attendance by 71%. This is in line with discoveries made by Appiah et al (2021) in their study on women's utilization of postnatal care in rural Ghana. According to them, women who viewed distance to health facility as not a challenge were more likely to attend PNC as compared with those that perceived it as a challenge. Similarly, a study conducted in Malawi also indicated that women who responded to distance to health facility as less of a barrier to attend postnatal care were more likely to attend early postnatal care than women who perceived distance to the health facility as a barrier (Kim et al., 2019). In a study conducted in Tanzania, there was no significant association with distance of health facilities and PNC attendance (Mohan, 2015).

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

Postnatal care attendance is an important health concern. To safeguard the health of newborns and mothers, adequate postnatal care must be provided to ensure good health and well-being and reduce mortality rate of both mother and child. The study focused on the determinants of the postnatal care attendance in the Nsawam-Adoagyiri municipality in the Eastern region of Ghana. The objectives of the study are to assess the knowledge level of mothers on postnatal care in the Nsawam-Adoagyiri municipality, knowledge of mothers to postnatal attendance in the Nsawam-Adoagyiri municipality, and to determine factors that affect access to postnatal attendance it the Nsawam-Adoagyiri municipality.

5.2 Summary of Major Findings

The study examined determinants of postnatal care attendance of mothers in the Nsawam-Adoagyiri municipality. To ensure that the main research questions and objectives are achieved, the study focused on assessing level knowledge of mothers on postnatal care; assessing the knowledge of mothers to postnatal care, and identifying factors that affect the utilization of postnatal care.

Data was collected from 300 mothers across five health facilities in the Nsawam-Adoagyiri municipality. Respondents were purposively sampled to answer a questionnaire. Descriptive statistics were used to illustrate socio-economic demographic variables of mothers. A 5-point likert-type scale was dichotomized into poor and good to assess knowledge, and also chi-square

test of independence was used to test the knowledge levels and the knowledge of mothers on postnatal care of newborn care, danger signs in newborns, and mothers. Probit regression was used to determine factors that affect postnatal care attendance among mothers in Nsawam-Adoagyiri municipal.

For objective one, the dichotomized analysis showed that 89% of the responding mothers have good knowledge of PNC. The study revealed that middle aged women (31-35 years), mothers with tertiary level education, and both single and married women have good knowledge on postnatal care. The chi-square test showed that age, education level, and marital status of mothers have no significant influence on the knowledge of postnatal care.

For objective two, data on the knowledge of mothers regarding postnatal care on newborns, danger signs in newborns and mothers were analysed using bivariate analysis and chi-square test of independence. The bivariate analysis results showed that more than half of the mothers (64.7%) have a good knowledge about postnatal care for newborns; 84.3% of the mothers have a good knowledge about taking care of themselves as mothers during postnatal care, and 93.0% of the mothers have good knowledge about how to respond to danger signs in newborns. The chi-square test of independence on knowledge of mothers regarding newborns shows that unlike age, educational level and marital status, there is significant influence of occupation on knowledge of newborn care. In addition, the chi-square test of independence results on the knowledge of mothers to danger signs revealed that age, educational level, marital status, and knowledge have no significant influence of mothers' knowledge of postnatal care regarding newborns. Again, the chi-square test of independence results on knowledge of mothers about themselves reveal that besides

educational level, variables such as age, occupation, and marital status have no significant influence on the knowledge of mothers about themselves during PNC.

For objective three, the probit regression results on factors that affect mother's postnatal care attendance showed that explanatory variables such as income, occupational status of respondents, marital status of respondents, educational status of respondents, NHIS registration, and awareness have significant and positive influence on postnatal care attendance. Additionally, explanatory variables such distance to health facility and cost of postnatal services have a significant a negative relationship with postnatal care attendance.

5.3 Conclusion

This sub-section draws conclusion from the findings of the research questions and objectives. From the analysis on the knowledge of mothers on postnatal care, the study concludes that majority of mothers within the Nsawam-Adoagyiri municipality have good knowledge of postnatal care. The study concludes that mothers have good knowledge of postnatal care irrespective of the socio-economic variables such as age, educational level, and marital status which makes postnatal care attendance high among mothers in Nsawam-municipal.

The study shows that mothers in the Nsawam-Adoagyiri municipality generally have good knowledge regarding newborn care, danger signs in newborns and postnatal care. The study reveals that mothers who have attained higher education are more likely to have good knowledge about taking care of themselves during postnatal care. Also, the study reveals that occupation has significant influence on the knowledge of mothers on newborn care. The study reveals that though

there is no significant association between age and knowledge of newborn care (P= .10), young mothers have a good knowledge of newborn care than middle-aged mothers who have a relatively poor knowledge of newborn care.

The study found that explanatory variables such as income, health insurance, and awareness have a positive and significant influence on postnatal care attendance. Also, the study shows that mothers with high income, have registered for the NHIS and are aware of postnatal care are more likely to attend PNC more than mothers with low or income, no health insurance or lack of awareness of postnatal care. Also, the explanatory variables such distance to health facility and cost of postnatal care are significant and have a negative influence on postnatal care attendance, and inhibits mothers' attendance to postnatal care. The study concludes that attitude of health personnel has no significance influence on postnatal care attendance.

5.4 Recommendations

Based on the results obtained from the discussion of the analysis above, the following policies are recommended to the municipal health authorities for implementation to increase delivery of and attendance to postnatal care services.

First, given that awareness of postnatal care increases mothers' postnatal care attendance, there is the need for continuous counselling for pregnant mothers by midwives in health facilities and at the community level to promote utilization of postnatal care. Second, since NHIS membership positively influences postnatal care attendance, and high cost of postnatal care service negatively affects postnatal care attendance, it is recommended that the NHIS should be well managed and

financially resourced to ensure increased access and quality postnatal care. Third, since distance to health facilities negatively influence postnatal care attendance as found in this study, there should be increased efforts by municipal health directorates to expand postnatal outreach programs to mothers farthest from health facilities to enable them to readily get access to postnatal care services.

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APPENDICES

Appendix 1: Survey Questionnaire for Interview of Mothers

University of Ghana
Institute of Statistical, Social and Economic Research
Determinants of Postnatal Care Attendance in the Nsawam-

Adoagyiri municipality Informed Consent Form

Good day, Mrs./Miss…… My name ....., an MA Development Studies student from the Institute of Statistics, Social and Economic Research, University of Ghana. I am working on my research project concerned with determinants of postnatal care attendance in which you could participate.

The objective of this research is to find out the knowledge; attitudes of the mother towards postnatal care, as well as factors affecting access to postnatal care. The interview will take about 30 minutes.

All the information that will be obtained shall remain confidential, and your name and answers will never be revealed under any circumstance. This survey is not to judge or criticize you, so please do not feel pressured to give any specific response, and answer your questions honestly about what you know, how you feel, and what is affecting you on postnatal care. Feel free to go at your own pace, and stop it if you so wish.
At this point, you may ask any question you want

about this survey. Do you agree to participate in this interview? Please circle

Yes	No
1	2

Please proceed if the respondent agrees, if not discontinue the interview.

Part 1: Demographic Information
Please circle code, and write answers where appropriate

S/N	Question	Code	Response
1.	Name of Respondent		
2.	Age of Respondent (in years)	**1**	18-25

		2	26-30
		3	31-35s
		4	36-40
		5	Above 40
3.	Educational status		Number of years
4.	Marital Status	**1**	Single
		2	Married
		3	Divorced
5.	Occupation of Respondent		Housewife
			Service Holder
6.	Average Income of Respondent (Currency in Ghana cedi)	**1**	1.00-500
		2	501-1,000
		3	1,000+
7.	Have you given birth before? If No, skip **Q8**		Yes / No
8.	Number of Children Alive	**1**	1
		2	2-4
		3	5+
9.	When was your last birth (DD/MM/YYYY)		
10.	What was your delivery method	**1**	Normal Vaginal Delivery
		2	Caesarean Section
11.	Do you have a valid Ghana National Health Insurance Scheme (NHIS) card	**1**	Yes
		2	No

Part 2: Knowledge regarding Postnatal Care (*Please select by circling code as*

appropriate)

S/N	Statement	Yes	No
		1	2
12.	Inadequate postnatal care can cause the death of baby		
13.	Postnatal care is for the newborn and mother		
14.	Postnatal care maintains good health and well-being		
15.	Postnatal care is received after birth		

Part 3: Attitude towards Postnatal Care

Part 3.1 Antenatal Attendance

16. During pregnancy, did you go for antenatal care?

Yes	No
1	2

17. How many times did you receive antenatal care?

One	Two	Three	>Four
1	2	3	4

Part 3.2 Attitude Regarding Newborn Care

S/N	Statement	*Strongly Agree (1)*	*Agree (2)*	*Neither (3)*	*Disagree (4)*	*Strongly Disagree (5)*
18.	Hospital birth is important to the health of the baby					
19.	Postnatal care should be received for 6 weeks					
20.	Breastfeeding should be done within the first hour					
21.	The baby should be kept warm through skin-to-skin within the first hour					

22.	Bathing should be done after 24 hours					
23.	The umbilical cord should be dry and clean					
24.	Communicate and play with the baby					
25.	Baby should be immunized against killer diseases					

Part 3.3 Attitude to Danger Signs in Newborn

S/N	Statement	*Strongly Agree (1)*	*Agree (2)*	*Neither (3)*	*Disagree (4)*	*Strongly Disagree (5)*
26.	Baby not breastfeeding well					
27.	Difficulty in breathing					
28.	No spontaneous movement					
29.	High body temperature (Baby too hot)					
30.	Low body temperature (Baby too cold)					
31.	Yellow coloration of eyes, palms, and soles					
32.	Breathing fast					
33.	Vomiting					

Part 3.4 Attitudes towards Postnatal Care for Mothers

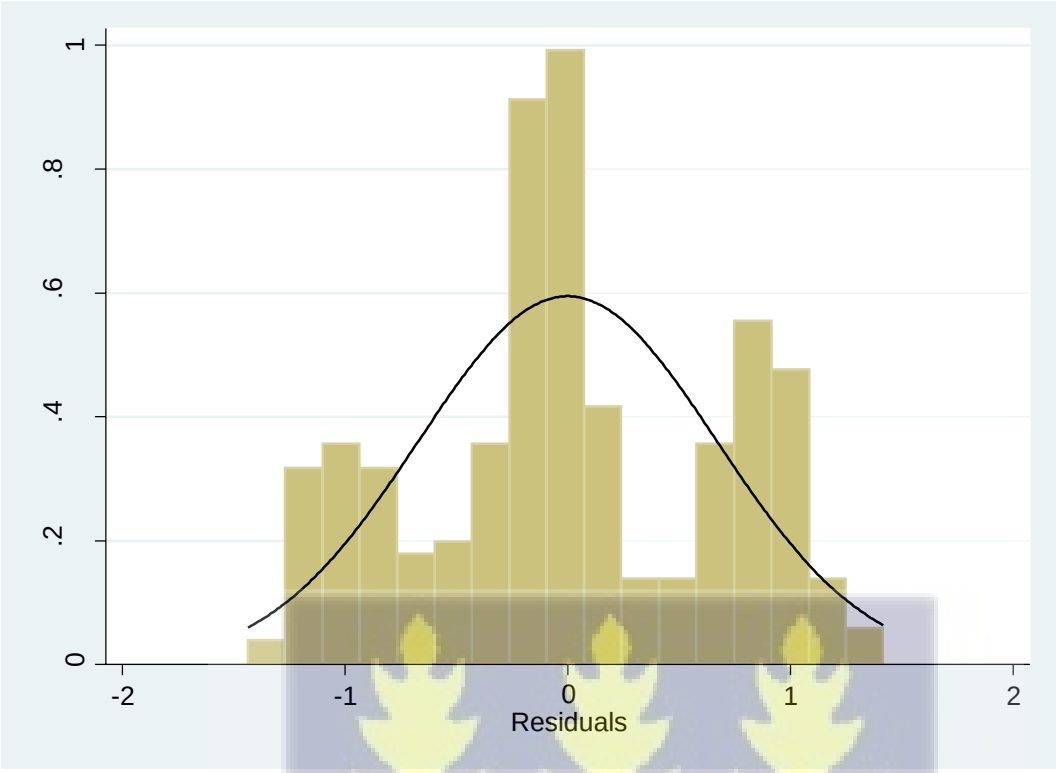
S/N	Statement	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
		1	**2**	**3**	**4**	**5**

34.	Maintaining blood pressure is important for the health of the mother					
35.	The heart rate (pulse) of the mother should be monitored before 24 hours					
36.	Should the mother feel back pains after 24 hours					
37.	Being able to respond to nature' call is important to the health of the mother					
38.	Feeling Fatigued/Stress					

Part 4: Factors affecting Postnatal Care Attendance *(Please tick appropriate box)*

	What factor affects you to receive postnatal service	**Most Likely**	**Likely**	**Not likely**
		55	**77**	**99**
39.	The attitude of Health personnel			
40.	Long Waiting Time			
41.	Distance to the health facility			
42.	Means of Transportation			
43.	Absence of NHIS Provision			
44.	High Cost of postnatal care			
45.	Busy/ Lack of Time			
46.	Lack of Awareness			
47.	Culture Beliefs			
48.	Other(specify)			

Appendix 2: Normality test



Appendix 3: Multi-collinearity test using VIF

Variable	VIF	1/VIF	
Attitude of health personnel	1.36	0.733844	
Awareness	1.35	0.743398	
Income	1.24	0.808201	
Cost of PNC	1.23	0.815921	
Age of respondents	1.22	0.82058	
Educational status	1.2	0.831126	
Distance to health facility	1.19	0.840623	
Occupation of respondents	1.17	0.858247	
Marital status	1.16	0.858379	
Culture beliefs	1.13	0.882973	
NHIS	1.02	0.981114	
Mean VIF	1.21		

Appendix 4: Cameron & Trivedi's decomposition of IM-test for homoscedasticity

Source	chi2	df	p	
Heteroskedasticity	63.99	65	0.05	
Skewness	16.4	11	0.13	
Kurtosis	15.5	1	0.00	
Total	95.89	77	0.00	

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of

PNC attendance chi2(1)

= 0.77

Prob > chi2 = 0.38