**Health-Seeking Behaviors Among Mothers of Babies with Neonatal Jaundice at Cape Coast Teaching Hospital, Ghana**

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**Abstract**

It appears that many unknowingly pregnant women and their infants have encountered the issue of hyperbilirubinemia on one or more occasions without receiving the necessary information about the risk factors, symptoms, and adequate treatment. This study is significant because it will advance understanding of neonatal jaundice's etiology, symptoms, and management at the Cape Coast Teaching Hospital, Central region, and Ghana. Mothers of babies with NJ would be educated on the need to send their neonates to hospital the moment they detect signs and symptoms on the baby as early detention and prompt treatment is a key to the neonatal outcome. With Ghana’s strategy of reducing the neonatal mobility and mortality rate to meet the SDG’s goal of WHO which is to reduce the neonatal mortality rate to 12% and 7% by 2030 and 2035 respectively, the study outcome would help the recommended education and awareness to be carried on in various social media such as WhatsApp platforms, in pictorial drawings and videos on signs and symptoms of NJ and the recommended care.

Keywords: health, seeking, behavior. Practices, beliefs, Neonatal Mothers, neonatal jaundice

1.0 Introduction

Neonatal jaundice (NJ) (hyperbilirubinemia) is a major cause of neonatal admissions to hospitals (Nkrumah, 2016). Neonatal hyperbilirubinemia is the yellowish discoloration of newborn infants' skin, sclerae, and deeper tissue caused by buildup of unconjugated bilirubin in the blood (Mitra & Rennie, 2017). The increased release of haemoglobin from red cell breakdown is due to high haemoglobin at birth, as well as a shortened lifespan of newborn red blood cells (70-80 days) in comparison to adults (90-120 days), and decreased hepatic bilirubin metabolism due to immature hepatocytes (Wong & Stevenson, 2015). Affected neonates may show the signs and symptoms such as fever, apnea, hypotonia, high pitched cry and seizure’s, poor feeding and lethargy (Wong & Stevenson, 2015).

Genetic disorders, liver failure, inability to breastfeed, jaundice in the breast milk, altered intestinal motility due to obstruction, infections including sepsis, rubella, and toxoplasmosis, occult bleeding, and erythroblastosis fetalis are all common causes of NJ (Wong & Stevenson, 2015). NJ can be physiological or pathological (Wong & Stevenson, 2015). Risk factors for hyperbilirubinemia include blood group ABO/ Rhesus incompatibility with mother and positive Coombs’s test (positive direct ant globin test), gestational age <38 weeks, and known hemolytic disease, maternal and neonatal factors including preeclampsia, G6PD deficiency, prematurity, intrauterine growth retardation, metabolic defects, previous affected sibling, presence of cephalohematoma, neonate’s gender and birth weight (Onyearugha, Onyire, & Ugboma, 2011). Around the world, up to 60% of healthy term babies and 80% of preterm babies experience NJ within the first week of life (Slusher, et al., 2017; Salia, et al., 2021). Sub-Saharan Africa and South Asia were identified as the principal contributors of the projected 1.1 million newborns who are anticipated to suffer from severe hyperbilirubinemia each year worldwide (Bolajoko, Folasade, Tina, & Waldemar, 2015). Western Africa, with a neonatal mortality rate of 49 fatalities per 1,000 live births, has the highest rates of neonatal mortality in the African region, where the risk is highest in Sub-Saharan Africa (WHO, 2011). In a Nigerian retrospective study, 35% of neonates managed in a neonatal intensive care unit over a 24-month period were diagnosed with jaundice (Onyearugha, Onyire, & Ugboma, 2011). Evidence however, suggests that low and middle-income countries (LMICs) disproportionately endure the burden of severe neonatal hyperbilirubinemia (Bolajoko, Folasade, Tina, & Waldemar, 2015). This trend is not different from Ghana.

In Ghana, a newborn dies every 15 minutes (Ghana Demographic and Health Survey, 2014). The estimated neonatal mortality rate in 2014 is 29 per 1000 live births, which is higher than the African average of 27 per 1000 live births and one of the highest neonatal mortality rates in West Africa (Ghana Demographic and Health Survey, 2014). In 2019, the infant mortality rate in Ghana was about 33.9 deaths per 1,000 live births (O’Nell, 2021). Reports from the Ghana Health Service (GHS) affirms that the prevalence of NJ among newborns has been on the rise in recent years (Salia, et al., 2021). A study conducted by (Nkrumah, 2016) reported that on each day of the year, at least one neonate was admitted for jaundice at the Korle Bu Teaching Hospital in Accra. The study also revealed a mortality rate of 8.6% as a result of kernicterus. If left untreated, the bilirubin can then accumulate in the [brain](https://nurseslabs.com/nervous-system/), where it causes long-term bilirubin encephalopathy or kernicterus with a significant risk of neonatal mortality (Bolajoko, Folasade, Tina, & Waldemar, 2015). Infants who survive may experience long-term neurodevelopmental consequences like cerebral palsy, mental retardation, sensorineural hearing loss, intellectual challenges or gross developmental delays, delayed speech, poor motor coordination, learning challenges, enamel hypoplasia or yellowish green stains on the teeth, or even death (Maulik & Darmstadt, 2007).

Pediatrics unit of the Cape Coast Teaching Hospital (CCTH) keeps recording high diagnosis of NJ with its associated complications (Cape Coast Teaching Hospital, 2020). Early detection of NJ and swift treatment with phototherapy for unconjugated hyperbilirubinemia, or exchange blood transfusion (EBT) in severe hyperbilirubinemia, and intravenous immunoglobulin (IVIG) for hyperbilirubinemia due to blood type incompatibility are effective in curtailing the adverse consequences in newborns (World Health Organization, 2002). The study aimed to investigate the health-seeking behaviors among mothers of babies with neonatal jaundice at Cape Coast Teaching Hospital in Ghana.

**1.2 Overview of Neonatal jaundice in Africa.**

Every year nearly 10.8 million children under the age of five years die worldwide (United Nations Inter-Agency Group for Child Mortality Estimation, 2015). Approximately 38% of these deaths occur in the first month of life. (United Nations Inter-Agency Group for Child Mortality Estimation, 2015). In Sub-Saharan Africa and Southern Asia, neonatal deaths account for almost 90% of all global infant mortality (United Nations Inter-Agency Group for Child Mortality Estimation, 2015). South Asia and Sub-Saharan Africa not only have the highest infant and child mortality rates in the world, they also have the highest proportion of developmentally disadvantaged children (Nkrumah, 2016). In resource-limited settings, jaundice has been found to be among the chief causes of neonatal admission and deaths (Kokeb & Desta, 2016). Severe NJ causes acute bilirubin encephalopathy or kernicterus, which increases the risk of neonatal mortality and long-term neurologic damage including cerebral palsy, sensory neural hearing loss, intellectual difficulties, or gross developmental delays (Slusher, et al., 2017). Global child health initiatives have focused exclusively on curbing under five mortality rate which is an important measure of population health (Unite for Children, 2013). According to UNICEF (2011), Newborn mortality is significantly impacted by severe or clinically significant neonatal jaundice, which frequently necessitates phototherapy or exchange blood transfusions. Neonatal jaundice is a main reason for hospital admission or readmission in the first week of life (Onyearugha, Onyire, & Ugboma, 2011). The burden is likely to be much higher in Africa, South Asia, and the Middle East, where Glucose-6-Phosphate Dehydrogenate (G6PD) deficiency is common (Slusher, Angyo, Bode-Thomas, McLaren, & Wong, 2014). This trend is not different in Ghana. A study conducted in Ghana by Adoba et al. (2018) on the knowledge and determinants of neonatal jaundice discovered that the prevalence of neonatal jaundice was 66.7%. Nonetheless, NJ remains one of the leading causes of neonatal mortality. Another study done by Nauzley and Abedini in 2013 at the mother’s baby unit (MBU) at the Okomfo Anokye Teaching Hospital in Kumasi, Ghana, recorded neonatal jaundice as the second most common diagnosis for neonatal admissions. Nkrumah, (2016), revealed a mortality rate of 8.6% as a result of kernicterus at Korle Bu teaching hospital in Accra. In Cape Coast Teaching Hospital in Ghana, NJ was the fifth most common cause of admission and the seventh most common cause of death in 2017, 2018 and 2019 (Cape Coast Teaching Hospital, 2020). Ghana's efforts to reach the worldwide neonatal death reduction targets and the World Health Organization (WHO) targets of 12 and 7 per 1000 live births by 2030 and 2035, respectively, are undermined by the prevalence of infant mortality owing to jaundice (Salia, et al., 2021). One of the measures of reducing neonatal morbidity and mortality is the early detection of neonatal jaundice for prompt treatment with phototherapy or exchange blood transfusion. Despite the high neonatal mortality resulting from NJ recorded in Cape Coast Teaching Hospital, little data exists on the health-seeking behaviors of mothers who have babies with NJ The study sought to determine the factors that influence the health-seeking behaviors of mothers of babies with NJ at Cape Coast Teaching Hospital in Ghana to provide evidence for planning interventions.

**2.0 Literature review on Neonatal jaundice and Neonatal Morbidity and Mortality**

Neonatal jaundice also known as hyperbilirubinemia is the yellowish discoloration of the skin, sclerae and deeper tissue of newborn infants as a result of accumulation of unconjugated bilirubin in the tissue and the plasma (Mitra & Rennie, 2017). Bilirubin is the product of heme catabolism, from old red blood cells. Most infants have an increase in hemoglobin release from red cell breakdown due to high hemoglobin at birth, as well as a shorter lifespan of newborn red blood cells (70-80 days) compared to adults (90-120 days) and a reduced hepatic metabolism of bilirubin due to immature hepatocytes. (Ansong-Assoku, Shah, Adnan, & Ankola, 2022). Unconjugated bilirubin can be caused by several genetic conditions as well as liver failure, breast milk jaundice, breastfeeding failure, impaired intestinal motility from obstruction (Wong & Stevenson, 2015). Numerous studies have been done on the knowledge of neonatal jaundice, for example, Adoba and colleagues in a study done in Effutu (Ghana) recoded low knowledge on the causes of neonatal jaundice, treatment modalities and associated complications (Adoba, et al., 2018).

Neonatal jaundice (NJ) is a common condition that affects up to 60% of term newborns and 80% of preterm newborns in their first week of life (Slusher, Angyo, Bode-Thomas, McLaren, & Wong, 2014). Newborn jaundice affects approximately 60% of the 130 million babies born each year around the world according to the WHO, with Asia having the greatest rate of neonatal fatalities (WHO, 2018). Ethiopia is one of the top ten countries with the higher neonatal jaundice and its related mortality, (Asefa, et al., 2020). A study done at Gondar University shows that neonatal jaundice was among the causes of the top neonatal admissions and death (Asefa, et al., 2020). Western Africa has the greatest rates of neonatal mortality in the African region, with a neonatal mortality rate of 49 fatalities per 1,000 live births. However, the probability is highest in Sub-Saharan Africa (SSA), and this region also has the highest rates of infection (WHO, 2011). This trend is not different from Ghana. According to UNICEF, the neonatal mortality rate increased from 30 to 32 per 1000 live births over the previous five years (2014–18). Following the UNICEF data from 2011, Ghana has a high newborn mortality rate of 32 per 1000 live births, which is higher than the global average of 20. As a result, neonatal mortality which accounts for 40% of under-five mortality in Ghana becomes a significant contributor to under-five fatalities. Neonatal hyperbilirubinemia affects too many newborns. Each year, approximately 900,000 babies are delivered in Ghana, with 14% and 11% of them being born prematurely and with low birth weight, respectively (Ghana Demographic and Health Survey, 2014). According the GDHS (2014), about a third (33%) of all annual neonatal deaths in Ghana is attributable to prematurity. Key risk factors for jaundice include low birth weight, ABO and Rhesus incompatibility, sepsis, having ever had a sibling who had the condition, and traditional practices including herbal ingestion and the use of dusting powder. Study done by Nauzley & Abedini, (2013) at the mother’s baby unit (MBU) at the Komfo Anokye Teaching Hospital in Kumasi, recorded neonatal jaundice as the second common diagnosis for neonatal admission.

**2.1 Causes and Risk factors of Neonatal Hyperbilirubinemia**

Many factors contribute to the development of the hyperbilirubinemia. It is categorized as maternal, prenatal and neonatal factors which may either act in separation or in conjunction with some other issues to bring about neonatal jaundice and accompanying complications (Sarici, Serdar, & Korkmz, 2014). The causes /risk factors are low birth weight, ABO and Rhesus incompatibility, sepsis, ever having a jaundiced sibling, traditional practice such as herbal consumption and application of dusting powder, camphor or naphthalene (Slusher, et al., 2017). Preterm babies are babies born before the 38 weeks of gestation and because of their immature liver may not be able to fully eliminate the bilirubin from the blood (Greco, et al., 2016). The immature liver and the process that leads to conjugation may be challenged, resulting in an increased amount of unconjugated bilirubin in the blood. Some preterm infants may have a malfunctioning liver. Sepsis may also prevent the neonate's liver from functioning properly, interfering with bilirubin metabolism and resulting in bilirubin accumulation in the blood and tissue. Numerous investigations have established a link between newborn jaundice and sibling history of the condition (Hemmati, Inaloo, Najib, & Saki, 2013). It is crucial to establish during the history taking that the expectant mother has previously delivered a baby with jaundice so that additional care may be given to the mother and infant with the necessary investigation and solution implemented (Asefa, et al., 2020).

Breast milk jaundice is a type of jaundice caused by chemicals found in breast milk. The chemicals interfere with the liver's metabolism of bilirubin. It is one of the milder types of jaundice that lasts beyond the second and third weeks of life (Memon, Weinberger, Hegyi, & Aleksunes, 2016). According to a study by Ullah, Rahman, and Hedayati, breastfeeding jaundice differs from breast milk jaundice in that the latter is brought on by inadequate breast milk production and consumption by the infant. Infants with breastfeeding jaundice frequently experience mild dehydration and early-life weight loss (Ullah, Rahman, & Hedayati, 2016). Low birth weight is defined as a newborn weighing less than 2500 g at birth and is one of the risk factors for neonatal jaundice (UNICEF, 2017). A study done by Adoba and colleague in Effutu (Ghana) shows that preterm, low birth weight, ABO and Rhesus incompatibility were associated with development of neonatal jaundice (Adoba, et al., 2018).

One of the main causes of hyperbilirubinemia in neonates is ABO and Rhesus incompatibility (Slusher, Angyo, Bode-Thomas, McLaren, & Wong, 2014). The neonate's blood may be different and incompatible from the mother's depending on the parent's blood group, and as a result, antibodies from the mother's incompatible blood may seep into the baby's blood circulation at birth through the placenta. Depending on how many antibodies snuck through, the antibodies induce some of the baby's red blood cells to agglutinate. The coagulation kills the erythrocytes, releasing bilirubin into the newborn's blood as a result (Onyearugha, Onyire, & Ugboma, 2011). Using camphor or naphthalene balls, methylated powder, dusting powder is a risk factor of hyperbilirubinemia. The study done in Nigeria recorded high prevalence with the use of camphor (Olusanya, Osibanjo, Mabogunje, Slusher, & Olowe, 2016). Another review finding is in Ghana recoded 1% of the households use camphor balls to child items and to purify water for the baby uses (Ghana Demographic and Health Survey, 2014). Jaundice, which manifests as yellow eyes, skin, sleepiness, poor feeding, brown urine, high-pitched crying and occasionally vomiting, poor muscle coordination, and lethargy, is not a disease but rather a sign that something is wrong with the liver or the processes of eliminating bilirubin from the blood or too fast breakdown of bilirubin leading to the excess bilirubin in the blood and the tissue (Seneadza, et al., 2022; Bolajoko, Folasade, Tina, & Waldemar, 2015).

The treatment of neonatal jaundice cases is based on the bilirubin test performed to check the levels, as well as the amount of directly reacting bilirubin of the newborn; the two together inform the decision as to whether this neonate is reasonably suffering hyperlipidemia or a severe form of the ailment. For a neonate with hemolytic jaundice, the recommended treatments may include promoting feeding and hydration, phototherapy, exchange blood transfusions, and intravenous immunoglobulin. The underlying cause of this condition may be blood group incompatibility between the mother and the child, which results in frequent and rapid erythrocyte breakdown. Study done by Baskabadi, Maamouri, & Mafinejad, (2011) in Iran and Bolajoko and co-eques (2015) study on the part of the mother’s knowledge regarding treatment of neonatal jaundice in lower middle income countries, found that the mother who practice herbal preparations may lead to delay in diagnosis and treatment with its related complications, due to delay in taking the neonate to hospital for prompt and appropriate treatment (Baskabadi, Maamouri, & Mafinejad, 2011: (Bolajoko, Folasade, Tina, & Waldemar, 2015)

The complications arise when the bilirubin levels have reached toxic levels and the bilirubin crosses the blood brain barrier into the brain and the central nervous system (Greco, et al., 2016). This occurrence begins to impair the brain. The immediate effect of bilirubin poisoning of the brain is reversible, but it can cause brain damage known as acute bilirubin encephalopathy. Lethargy, hypotonia, and poor sucking are typical symptoms, which may progress to hypotonia with a high-pitched cry and fever, and, eventually, seizures and coma (Greco et al., 2016). The condition known as complete bilirubin and encephalopathy or kernicterus is caused when the excessive level of bilirubin continues to harm the brain in a more severe and irreversible manner. Cerebral palsy, intellectual disability, learning difficulties, sensory hearing loss, severe developmental delays, poor muscle tone, and enamel hypoplasia can all result from permanent injury. Neonatal life may eventually be lost if the child's condition fails to improve over time.

**2.2 Treatment outcomes of the neonatal jaundice** and **Health care seeking behavior (HSB)**

Early identification and the delivery of appropriate and prompt medical care are essential to the management of infants with hyperbilirubinemia. The intervention process begins with an investigation to determine the underlying cause, is followed by its classification and the implementation of the necessary measures. The majority of physiologic breastfeeding failure and breastmilk jaundice naturally resolve within weeks without requiring invasive medical treatment. Additionally, when treatment is initiated on time and without difficulties, infants with pathologic jaundice and rising bilirubin levels (85 mol/l per hour) have a possibility of being successfully managed with phototherapy and exchange blood transfusion (Bolajoko, Folasade, Tina, & Waldemar, 2015). Van der Hoeven, Kruger, & Greeff (2012) cited factors and processes which determine or influence stages of health seeking medical treatment. Health seeking behaviors (HSB) are described as any action made by people who believe they have a health issue or are ill in order to discover a suitable treatment or actions taken to maintain good health, prevent illness, as well as deal with any deterioration in their state of health. Any member of a household's health seeking behavior is preceded by a decision-making process that is further influenced by household and/or individual behavior, community expectations and norms, and the behaviors and traits of the medical professional. (Ali & De Muynck, 2015). The desired HSB is responding to an illness by pursuing help from a well-trained health personnel from a renowned health care center (Ali & De Muynck, 2015). From studies, health seeking behaviour can be categorized into two (Abdul-Aziz, 2015). The first group of studies highlight the utilization of formal system, that is the health care seeking behaviour of people, which describes the steps people take towards health care by the use of health “path way” models such as health belief model and the socio-demographic characteristics.

**3.0 Cultural,** **socio-demographic, health system factors that influences the health seeking behaviors of mother of neonates with neonatal jaundice**

The second group of studies comprises the studies demonstrating that the decision to engage with a particular medical channel which may be influenced by variety of factors such as age, sex, social status, the individual’s social life and social status, autonomy, liability and networks. How caring, embarrassing, feasible, and appropriate her options are within the physical configuration of that location access to services and perceived quality of service (Latunji & Akinyemi, 2018). Under these second group of category focuses on specific determinants, which lie in between services and patients that influences health seeking decisions, such as social economic status, cultural/education levels beliefs and perceptions, geographical area, access to health service, perceived quality of the service, organizational factors, have been found to have positive or negative influence of health seeking behaviours in some population. According to Adu-Gyamfi & Abane (2013), a study finding on the factors that influence health seeking behaviour were gender, marital status, literacy or educational level, regular income and age as well as communications, mode of transport, proximity, medical facility type, travel time to nearest health or medical facility, health insurance and advice from influential others are key factors that influence healthcare seeking behaviour. Another finding from Adu -Gyamfi & Abane (2013) study review that the severity of the symptoms of illness, distance, socio-cultural influences, income, place and cost of treatment, level of education and quality of health care facilities have impact of health seeking behaviors. Inappropriate health seeking behaviour has also been linked to negative health outcomes with increases morbidity and mortality. Chadoka-Mutanda & Odimegwu (2017), found that maternal health-seeking behavior prior to, during, and after pregnancy affects the likelihood of under-five mortality among children. According to Chadoka-Mutanda and Odimegwu study, the general health seeking behaviour and the health status of the mother have effect on the mother and the child. Studies have shown that women go through a lot of challenges in most of the low-income countries where the men are the family heads of the households. At the center of decision making and source of financial support to the family. In such families, the women fully depend on their male counterparts who is the family head to be able to get financial access and medical services. Support is also needed from the larger family, community to help in caring for the children and to perform all domestic duties. Due to long geographical access, may need to travel to seek medical services which also end with long waiting times for healthcare from providers (Ali & De Muynck, 2015).

According to a study conducted in Pakistan, households with average incomes below the minimum wage were less likely than those with average incomes above the minimum wage to seek out formal medical care for their illnesses (Slusher, et al., 2017). A study result from Abdul Aziz (2015), stated that poverty was the most significant determinant of health seeking behavior, with individuals from poor households nearly twice as likely to practice self-care. Additional study done in Kenya also revealed 70% of pregnant women with upper socio-economic status were found to have their deliveries in the health facilities whiles other 42% among the pregnant women in the middle socio-economic stratum and 38% in the low socio-economic stratum have their deliveries in the health facilities wages and with view that rural dwellers have reported inappropriate health seeking behaviour whiles the urban dwellers reported inappropriate health seeking behaviour (Latunji & Akinyemi, 2018).

**3.1 The beliefs, perceptions, causes and practices of mothers regarding neonatal jaundice**

The management and outcome of jaundice largely depend on the elders in the family, especially the mother-in-law, who had a significant impact on the mothers' practices and insights on neonatal jaundice, according to studies led by Dehghani & Efazati (2015) that look into the cases of cholestasis in neonates' jaundice. Additionally, other people have a direct or indirect impact on the severity of the illness and any potential repercussions. It mentions that one of the largest obstacles and a well-known cause of problems is a delay in diagnosis. The community health volunteers, health professionals, and religious healers who are concerned with the baby's health and wellness had a significant impact on several elements of mother's practice. Furthermore, it was stated that unconventional therapies, certain cultural customs, and other factors can prevent jaundice from being detected and treated (Hemmati, Inaloo, Najib, & Saki, 2013). In Hemmati , Inaloo ad Saki study the common causes the neonatal jaundice found were sepsis and G6PD deficiency, previous born siblings with jaundice and the risk factors been more of the ethnic background and training level than the education level in management and prevention of complications. According to an American survey, the majority of individuals, regardless of social standing, believe in the existence and power of the supernatural and hence turn to spiritual healers as a solution to their medical issues. These individuals only turn to hospitals as a last choice, particularly when the patient's illness has gotten worse and is now more challenging to cure. This is predicated on their conviction that their health issues are spiritual (Slusher, Angyo, Bode-Thomas, McLaren, & Wong, 2014). Study results from Egyptian mothers in Egypt by Moawad and groups (Moawad, Abdallah, & Ali, 2016) shows that delay of the mothers to bring their neonates with jaundice to the health facility was due to belief that there are a lot of alternate practices which improve neonatal jaundice and may try all this alternatives first till they fail before bring their neonates to access hospital care which causes delay and associated complication but they still believe that the effect can be harmful to their neonates. Quality healthcare providers is another important factor that affects people’s perceptions and belief in accessing health care to solve their health problems. This is because when people believe that a health provider is proficient of solving their health needs, they easily recourse to the person for healthcare when the need arrives. Therefore, nurses among other health personnel need to have patience, explain things to them in the language they understand best and ask for feedback when necessary. This will encourage their participation in the utilization of the available health care (Abdul-Aziz, 2015). Another study revealed that many Africans preferred their services over orthodox medicine and cultural customs that extended the time required to report to the health facility because they believed the supernatural was to blame for their illnesses (Adoba, et al., 2018). Inappropriate health seeking behaviour has been linked to the bad health outcomes, with high mobility and mortality with an increase health statistics records (Latunji & Akinyemi, 2018) study done in in the lower middle income countries by Latunji and Akinyemi further observed high inappropriate health seeking behaviour among the participants from a larger family size and with severe economic hardship which prevent them to seeking care, using the suitable health care facilities to assess the needed care Baskabadi, Maamouri and Mafinejad, (2011) study in Iran on the part of the mother’s knowledge regarding treatment of neonatal jaundice , found that the mother who practice herbal preparations were found to having low knowledge and lead to delay in diagnosis and treatment with its related complications. (Baskabadi, Maamouri, & Mafinejad, 2011)

**4.0 Results and discussions**

This study recruited a total 93 mothers who had their neonates with neonates’ jaundice at Cape Coast Teaching Hospital during the period of the study.

**4.1 Socio-demographic characteristics of caregivers**

The socio-demographic characteristics of caregivers are presented Table 1. Majority of respondents were aged 30–39 years (43.0%) and 20–29 years (41.9%). Also, majority of caregivers had secondary school education (34.4%), were married (68.8%), or self-employed (55.9%) (Table 1).

Table 1: Socio-demographic characteristics of caregivers (n = 93)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Number (n) | | Percentage (%) | |
| Age group (years) |  | |  | |
| <20 | 12 | | 12.9 | |
| 20-29 | 39 | | 41.9 | |
| 30-39 | 40 | | 43.0 | |
| 40-49 | 2 | | 2.2 | |
| Education |  | |  | |
| None | 7 | | 7.5 | |
| Primary | 12 | | 12.9 | |
| Secondary | 32 | | 34.4 | |
| Diploma | 19 | | 20.4 | |
| Tertiary | 23 | | 24.7 | |
| Marital status |  | |  | |
| Single | 16 | | 17.2 | |
| Married | 64 | | 68.8 | |
| Separated/Divorced | 3 | | 3.2 | |
| Co-habiting | 10 | | 10.8 | |
| Employed status |  |  | |  |
| Full-time employment | 33 | 35.5 | |  |
| Part-time employment | 3 | 3.2 | |  |
| Self-employed | 52 | 55.9 | |  |
| Unemployed | 5 | 5.4 | |  |
| Occupation |  |  | |  |
| Trading/Business | 19 | 20.4 | |  |
| Healthcare worker | 10 | 10.8 | |  |
| Teaching | 13 | 14.0 | |  |
| Artisan | 19 | 20.4 | |  |
| Fishing/farming | 12 | 12.9 | |  |
| Student | 5 | 5.4 | |  |
| Food vending | 10 | 10.8 | |  |
| Office clerk | 5 | 5.4 | |  |

**4.2 Knowledge of caregivers and causes of neonatal jaundice**

In assessing the knowledge of caregivers, questions on causes, signs and symptoms, complications, and treatment and management of neonatal jaundice were asked. Results are shown in Table 2-5. The majority of the caregivers identified infections (71%, 66/93), feto-maternal ABO or rhesus incompatibility (48.4%, 45/93) and prematurity (43.0%, 40/93) as the main causes of neonatal jaundice. Low birth weight less than 2500 g was the least known causes of neonatal jaundice among the caregivers (Table 2).

Table 2: Knowledge of caregivers on the causes of neonatal jaundice

|  |  |  |
| --- | --- | --- |
| Causes of neonatal jaundice | Correct responses | |
|  | Number (n) | Percentage (%) |
| Feto-maternal ABO /rhesus incompatibility | 45 | 48.4 |
| Prematurity | 40 | 43.0 |
| Infections | 66 | 71.0 |
| low birth weight less than 2500g | 20 | 21.5 |
| Exposure to substances such as menthol, sulfisoxazole acetyl, camphor bath, Poor maternal feeding | 33 | 35.5 |
| Deficiency glucose -6-phosphate dehydrogenase (G6PD) | 24 | 25.8 |
| Poor maternal feeding | 40 | 43.0 |

Common signs and symptoms of the neonatal jaundice reported by caregivers were lethargy (51.6%, 48/93) and poor feeding (47.3%, 44/93). Only 7 (7.5%) knew of yellowish eyes, skin sclera and mucous membranes (Table 3).

Table 3: Knowledge of caregivers on the Signs and symptoms of the neonatal   
 jaundice

|  |  |  |
| --- | --- | --- |
| Signs and symptoms of the neonatal jaundice | Correct responses | |
|  | Number (n) | Percentage (%) |
| Brown Urine | 19 | 20.4 |
| High pitch crying | 24 | 25.8 |
| Poor feeding | 44 | 47.3 |
| Poor muscle coordination | 29 | 31.2 |
| Sleepiness | 25 | 26.9 |
| Lethargy | 48 | 51.6 |
| Yellowish eyes, skin sclera and mucous membranes | 7 | 7.5 |
| Death | 76 | 81.7 |

Complications of the neonatal jaundice. Most of the caregivers cited the death of a baby (81.7%, 76/93) and cerebral palsy (65.6%, 61/93) as complications of jaundice. Equal proportion of the caregivers (36.6%, 34/93) noted mental retardation and sensorineural hearing loss to be complications of the neonatal jaundice. Again, enamel hypoplasia or yellowish green staining of teeth was noted by only 7(7.5%) of the caregivers (Table 4).

Table 4: Knowledge of caregivers on the Complications of the neonatal jaundice (n = 93)

|  |  |  |
| --- | --- | --- |
| Complications of the neonatal jaundice | Correct responses | |
|  | Number (n) | Percentage (%) |
| Cerebral palsy | 61 | 65.6 |
| Mental retardation | 34 | 36.6 |
| Sensorineural hearing loss | 34 | 36.6 |
| Intellectual difficulties or gross developmental delay | 23 | 24.7 |
| Poor muscle coordination | 41 | 44.1 |
| Learning difficulties | 30 | 32.3 |
| Enamel hypoplasia or yellowish green staining of teeth | 7 | 7.5 |
| Death | 76 | 81.7 |

Treatment and management of neonatal jaundice

On treatment, majority identified feeding/hydration (53.8%, 50/93), phototherapy (50.5%, 47/93) and sun bath (48.4%, 45/93) as most appropriate choice of treatment for neonatal jaundice. Few, 7(7.5%) of the caregivers knew intravenous immunoglobulin to be a treatment for neonatal jaundice (Table 5).

Table 5: Knowledge of caregivers on the treatment and management of neonatal jaundice

|  |  |  |
| --- | --- | --- |
| Treatment and management of neonatal jaundice | Correct responses | |
|  | Number (n) | Percentage (%) |
| Feeding/hydration | 50 | 53.8 |
| Phototherapy | 47 | 50.5 |
| Exchange transfusion | 25 | 26.9 |
| Intravenous immunoglobulin | 7 | 7.5 |
| Sun bath | 45 | 48.4 |
| Herbal preparation for bath | 5 | 5.4 |

**4.3 Attitude, Beliefs and Perceptions of caregivers towards neonatal jaundice**

The attitude, beliefs and perceptions of caregivers towards neonatal jaundice are as shown in Table 6. Majority (47.3%, 44/93) of the respondents agreed that negative attitude of health care providers discourages them from accessing health, 46.2% (43/93) agreed distance to health facility discourages healthcare accessibility, and 59.1% (55/93) were of the view that cost of health care prevents them from accessing healthcare. On the other hand, a significant proportion (39.8%, 37/93) cited that neonatal jaundice can be caused by spiritual eyes.

Table 6: Attitude, Beliefs and Perceptions of caregivers towards neonatal jaundice

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Statement | Response, n(%) | | | | |
| SA | A | N | DA | SD |
| Negative attitude of health care providers discourages health accessibility | 25 (26.9) | 19 (20.4) | 42(45.2) | 2 (2.2) | 5 (5.4) |
| Distance to health facility discourages healthcare accessibility | 19 (20.4) | 24 (25.8) | 40 (43.0) | 3 (3.2) | 7 (7.5) |
| Cost of health care prevents you from accessing healthcare | 16 (17.2) | 42 (45.2) | 23 (24.7) | 6 (6.5) | 6 (6.5) |
| Long queues discourage you from accessing healthcare | 16 (17.2) | 39 (41.9) | 29 (31.2) | 5 (5.4) | 4 (4.3) |
| Neonatal jaundice can be cause by spiritual eyes | 6 (6.5) | 31 (33.3) | 22 (23.7) | 13 (14.0) | 21(22.6) |
| Neonatal jaundice can be transferred to the neonate through birth | 3 (3.2) | 12 (12.9) | 56 (60.2) | 9 (9.7) | 13 (14.0 |
| I believe jaundice make neonates skin look more beautiful | 5 (5.4) | 7 (7.5) | 48 (51.6) | 14 (15.1) | 19 (20.4) |
| I believe jaundice is cures from the gods | 3 (3.2) | 11(11.8) | 43(46.2) | 15(16.1) | 21(22.6) |
| I will drop breast milk on the neonate eyes as the means of jaundice management | 4 (4.3) | 16 (17.2) | 38 (40.9) | 15 (16.1) | 20 (21.5) |
| I will not feed the neonate with the first breast milk as the means to prevent jaundice | 3 (3.2) | 5 (5.4) | 50 (53.8) | 15 (16.1) | 20 (21.5) |
| I will drop sea water on the neonate eyes as the mean of cure jaundice | 5 (5.4) | 10 (10.8) | 41 (44.1) | 16 (17.2) | 21 (22.6) |
| I will keep the neonate away from light to prevent jaundice | 3 (3.2) | 6 (6.5) | 51 (54.8) | 18 (19.4) | 15 (16.1) |

SA= Strongly Agree, A= Agree, N=Neutral, SD= Strongly Disagree, D= Disagree

**Conclusions:**

Neonatal jaundice is among the most common causes of neonatal admissions at hospitals. Studies have proven that low and middle-income countries (LMICs) disproportionately bear the greatest burden of severe neonatal hyperbilirubinemia. In the Pediatric unit of the Cape Coast Teaching Hospital (CCTH), Central region of Ghana, high numbers of neonates with hyperbilirubinemia are admitted yearly, some with associated complications due to delayed presentation for health care. The aim of the study is to assess the factors that influences the health- seeking behaviors among mothers of neonates with neonatal jaundice, quantitative study was conducted, descriptive cross-sectional design and convenience method was used to select the respondents. Yamane formula was used for sample size determination where ninety-three participants (93) for the study was identified and selected. Statistics Package for Social Science (SPSS) was used for data analysis. The study population was mothers of neonates admitted to the Pediatric unit during the months of February to April, 2022 at Cape Coast Teaching Hospital. The reveals that mothers with high level of education understand the neonatal jaundice causes and management practices and easily identify the signs and symptoms unlike the low lever educated once hence pictures should be used in the child health record books and pictorial posters at the ANC as well as videos to explain these management practices to helpful the low lever educated mothers to better identify the signs and symptoms and understand the management

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