

The Maternal Knowledge and attitude about Neonatal Jaundice: Narrative Review

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DOI: <https://doi.org/10.5281/zenodo.14643928>

Published Date: 14-January-2025

Abstract: Background: Jaundice in newborns is a risk factor for morbidity and death in newborns that can be avoided. It was the seventh leading cause of death worldwide, affecting almost 2.6 million infants, and It can affect anywhere from 60 % to 80 percent of preterm babies and term newborns.

Aim of this narrative review: is to determine the literature that focuses on, neonatal jaundice including definition, types, risk factors as well as maternal knowledge and attitude toward neonatal jaundice.

Methods: The research strategy involves a comprehensive search across platforms like Google Scholar, Saudi Digital Library, PubMed, and Science Direct from 2018 to 2023. This search is based on the following keywords: neonatal jaundice, maternal knowledge, and maternal attitude. The inclusion criteria for the articles were studies published between 2018-2023, in English Language, and full text.

Results: The review emphasizes neonatal jaundice as a global concern affecting millions yearly, with physiological and pathological manifestations requiring distinction. Risk factors, including neonatal sepsis, blood group incompatibilities, and G6PD deficiency, are identified, emphasizing the multifaceted nature of severe jaundice development. The intricate relationships between hyperbilirubinemia and blood count variables suggest potential predictors of jaundice severity.

Conclusion: Early diagnosis, particularly in G6PD deficiency cases, is very important to avoid the complications from neonatal jaundice. Also, maternal knowledge and attitudes significantly influence prevention and management. Studies suggest a lack of awareness, particularly regarding antenatal screening tests. The positive impact of educational programs on maternal awareness is highlighted, addressing the need for tailored health education.

Keywords: neonatal jaundice, severe jaundice development, G6PD deficiency cases.

1. INTRODUCTION

Neonatal jaundice was the seventh leading cause of death worldwide, affecting almost 2.6 million infants (Demis et al., 2021). Developing and refining ways to detect high-risk patients and optimize therapeutic tactics to avoid neonatal fatalities and disabilities and reduce the frequency of neonatal jaundice can be aided by raising knowledge and informing mothers about the condition (Demis et al., 2021). The most effective methods for preventing severe newborn jaundice are early identification and treatment. When we determine the degree of information that mothers have about newborn jaundice, we can identify the gaps in that knowledge and the areas that need to be targeted for care, which helps reduce chronic morbidity and neonatal death (Adoba et al., 2018). In term babies, most jaundice is benign and resolves in 7 to 10 days. However, 8% to 9% of neonates may experience severe hyperbilirubinemia during the first postnatal week (Omar et al., 2018).

The first week of a newborn's life is crucial for neonatal jaundice avoidance. The reaction of postnatal mothers to neonatal jaundice depends on their level of understanding of the illness and the intrinsic risk factors that might lead to complications in their babies if they are not handled effectively (Adoba et al., 2018). It is possible that a lack of sufficient knowledge or incorrect information concerning neonatal jaundice was the reason for bad judgment and a delay in seeking medical treatment (Demis et al., 2021).

2. METHODS

In this narrative review the researchers used several search engines to search for articles that focused on neonatal jaundice and the mother's knowledge and attitude about the subject, including Google Scholar, Saudi Digital Library, PubMed. This search is based on the following keywords: neonatal jaundice, maternal knowledge, and maternal attitude. The inclusion criteria for the articles were studies published between 2018-2023, in English Language, and full text .

Neonatal Jaundice

The term "jaundice" originates from the French word "jaune," meaning yellow. It is the most common medical issue in the first two weeks of life and a leading cause of postpartum readmissions to the hospital. In the first week following birth, 60% of term and 80% of preterm neonates experience clinical jaundice (Assoku et al., 2018). Characterized by yellowish discoloration of the skin, conjunctiva, and sclera, neonatal jaundice results from elevated serum or plasma bilirubin levels. While often mild and self-limiting, it can progress to severe hyperbilirubinemia (Belay et al., 2022). Physiological jaundice, a common, temporary condition, typically resolves without therapy. However, distinguishing it from pathological jaundice is crucial, as failure to do so can lead to complications such as bilirubin encephalopathy and related neurological consequences (Assoku et al., 2018).

Physiological jaundice manifests with increased serum bilirubin levels by the third or fourth day of life due to the immature liver's inability to manage bilirubin effectively. Pathologic jaundice, on the other hand, is characterized by elevated serum bilirubin levels within the first 24 hours and is associated with hemolytic diseases such as RH and ABO incompatibilities (Omar et al., 2018).

Unconjugated hyperbilirubinemia (UHB) is common in clinical jaundice, but some cases involve conjugated hyperbilirubinemia (CHB), indicating an underlying medical or surgical cause. Treatment options for UHB include intravenous immunoglobulin (IVIG), phototherapy, and exchange transfusions (Assoku et al., 2018). The etiology of CHB is more complex, and despite advancements in treatment, hyperbilirubinemia remains a significant cause of morbidity and mortality (Assoku et al., 2018). Known causes of jaundice include blood group incompatibility, infection, glucose 6-phosphate dehydrogenase deficiency, endocrine disorders, hypernatremic dehydration, polycythemia, congenital heart disease, occult bleeding, and Crigler-Najjar syndrome (Boskabadi et al., 2020).

Complications associated with jaundice increase with rising total bilirubin levels. The exact mechanism of bilirubin-induced neurological injury is unknown, but factors like lipid peroxidation, neuron inflammation, and chronic energy failure are implicated (Boskabadi et al., 2020). Prolonged exposure to unconjugated bilirubin may lead to irreparable neurological damage, particularly in premature infants (Boskabadi et al., 2020).

Severe jaundice (bilirubin levels >35 mg/dL) is associated with abnormal auditory brainstem response (ABR), and bilirubin levels can predict the prognosis of sensory-neural hearing impairments (Boskabadi et al., 2020). Timely detection and intervention are crucial in treating neonatal jaundice. Early therapies like exchange transfusions, IVIG, and phototherapy are often necessary to prevent potential consequences (Belay et al., 2022). Monitoring a neonate's bilirubin levels is essential, as prolonged nursing or exclusive breastfeeding can increase the risk of jaundice (Omar et al., 2018).

Neonatal Jaundice Risk Factors

Newborns often experience jaundice, characterized by skin and eye yellowing due to elevated blood bilirubin levels. While typically benign, excessive jaundice can lead to kernicterus, a brain disease caused by bilirubin (Srivastav & Prajapati, 2023). To comprehend and diminish the risks of severe newborn jaundice, it is essential to investigate the contributing factors. Neonatal sepsis, a bacterial or viral illness affecting newborns, stands out as a significant risk factor, impacting 68.4% of cases (Ershad et al., 2019). This condition can induce inflammation and jaundice, emphasizing the need for early detection and treatment to prevent severe jaundice.

Among the identified risk factors for severe jaundice, neonatal sepsis was the most prevalent, affecting 68.4% (52 babies) of cases. Other risk factors included ABO blood group incompatibility (14.5%, 11 babies), G6PD defect (10.5%, eight babies), macrosomia (3.9%, three babies), and rhesus blood group incompatibility (2.6%, two babies). Regarding the G6PD defect status of the mothers, 6.6% (5 mothers) had a partial defect, and 10.5% (8 mothers) had a complete defect, while the majority were normal. More than 70% (54 babies) presented with a total serum bilirubin (TSB) level of 25 mg/dl or higher, and approximately 12% (9 babies) had a TSB level exceeding 50 mg/dl (Abdul-Mumin, 2021).

International Journal of Novel Research in Healthcare and NursingVol. 12, Issue 1, pp: (30-35), Month: January - April 2025, Available at: www.noveltyjournals.com

Various studies have explored risk factors associated with neonatal jaundice. In the current study, mean levels of Hb (hemoglobin), Hct (hematocrit), PLT (platelet count), and WBC (white blood cell count) were significantly linked to hyperbilirubinemia. However, maternal and neonatal blood groups and Rh factors did not show significant associations (Mojtahedi et al., 2018). Previous research underscored the importance of blood type and Rh incompatibilities as significant causes of kernicterus. ABO incompatibility, idiopathic jaundice, G6PD deficiency, and Rh incompatibility were identified as crucial predisposing factors for acute kernicterus (Mojtahedi et al., 2018). ABO blood group incompatibility, observed in 14.5% of cases, increases erythrocyte deterioration and bilirubin levels. Rhesus blood group incompatibility, affecting 2.6% of cases, can also cause jaundice, emphasizing the need for maternal-fetal blood typing during pregnancy for risk identification and mitigation (Mehta & Petrova, 2021).

The study revealed a connection between G6PD deficiency and hyperbilirubinemia. Although the exact mechanism remains incomplete, early diagnosis of G6PD deficiency can effectively reduce the risk of hyperbilirubinemia. G6PD impairment causes premature breakdown of red blood cells and high bilirubin levels (Agarwal et al., 2023). The research also demonstrated significant relationships between hyperbilirubinemia and blood count variables such as hemoglobin, hematocrit, platelet count, and white blood cell count. This suggests that neonatal blood parameters may serve as predictors of jaundice severity, emphasizing the importance of prevention and timely treatment, particularly in cases of ABO and Rh incompatibility. As per WHO recommendations, screening for G6PD deficiency should be conducted for all neonates in regions with a prevalence of 3-5% for this condition. Proper care and diagnosis of mothers at risk for blood group incompatibility are essential interventions (Mojtahedi et al., 2018).

In conclusion, the development of severe newborn jaundice involves a multifaceted interplay of various variables. Key risk factors demanding thorough screening and intervention include neonatal sepsis, blood group incompatibilities, and G6PD deficiency. Monitoring blood count variables can be beneficial in evaluating jaundice severity and guiding therapeutic interventions. Timely adherence to World Health Organization (WHO) recommendations is crucial for mitigating the impact of severe newborn jaundice, especially in regions with a high prevalence of glucose-6-phosphate dehydrogenase (G6PD) deficiency.

Maternal Knowledge and Attitude About Neonatal Jaundice

With early hospital discharges, mothers play a vital role in identifying and managing jaundice. Research from the Trauma and Specialist Hospital in Ghana revealed insufficient knowledge among mothers about the causes of newborn jaundice. Education during routine prenatal visits, particularly by medical professionals, should emphasize the illness and its causes (Adoba et al., 2018).

Despite Ghanaian women's awareness of neonatal jaundice issues, there is a need to enhance knowledge, particularly regarding the relationship between neonatal jaundice and standard antenatal screening tests. Efficient screening techniques can reduce wait times for medical care, provided hospitals have adequate resources, especially phototherapy equipment (Seneadza et al., 2022).

Studies globally consistently indicate the necessity for improved education and awareness about neonatal jaundice, covering symptoms, etiology, and therapeutic interventions. Comprehensive health education during pregnancy is crucial for recognizing and promptly seeking medical assistance for neonatal jaundice. Pregnant women should learn about potential causes and treatment options from healthcare providers to prevent complications (Alhassan et al., 2022).

Health practitioners and midwives should emphasize breastfeeding for newborn jaundice prevention, diagnosis, and therapy, as it is cost-effective and safe. Additionally, educating mothers, especially those with lower education levels, about causes and treatments is essential (Huang et al., 2022). Studies on parental knowledge regarding neonates undergoing phototherapy emphasize the importance of providing information and educational materials to parents before childbirth. This can improve their understanding of neonatal care and potential complications (Joshi et al., 2023).

Research in the Bisha region highlights the need for customized health education programs targeting both males and females to address knowledge gaps regarding neonatal jaundice. The importance of raising awareness about potential outcomes and management strategies is emphasized (Alfaifi et al., 2023). A study suggests that enhancing educational programs for mothers, especially those attending antenatal care and residing in remote regions, could raise awareness of neonatal jaundice

International Journal of Novel Research in Healthcare and NursingVol. 12, Issue 1, pp: (30-35), Month: January - April 2025, Available at: www.noveltyjournals.com

prevention. Involving healthcare professionals in educational settings is recommended to ensure accurate information is provided (Demis et al., 2021).

Mothers' knowledge and attitudes toward jaundice significantly influence the disease's outcome. Lack of awareness about jaundice and related care emphasizes the need for training and awareness among mothers. Traditional jaundice treatment practices and beliefs play a significant role in mothers' behavior, suggesting a need for cultural interventions (Goli et al., 2020). In a study involving neonatal intensive care unit admissions, most term babies diagnosed with neonatal jaundice were male and had birth weights between 2.5 and 4.0 kilograms. Maternal knowledge of neonatal jaundice was generally low, with medical professionals identifying the condition in most cases (Abdul-Mumin, 2021). Thabit (2019), found that assessing maternal knowledge and beliefs about neonatal jaundice revealed varying levels of understanding. While some mothers had misconceptions about the duration of jaundice, most correctly identified treatment options. The study emphasizes the importance of providing accurate information to mothers to improve their understanding of neonatal jaundice and its management (Thabit, 2019). The study concludes that mothers often lack the skills and protocols to manage newborn jaundice care at home, thorough health education for mothers of infants with newborn jaundice is proposed to improve their knowledge and skills (Mohammad & Hasan, 2022).

In a study assessing maternal knowledge about neonatal jaundice, the average knowledge score was satisfactory, with mothers demonstrating varying levels of understanding. While knowledge about the onset, duration, causes, and treatment of jaundice was fair, more emphasis on other aspects may be beneficial (Fadil, 2021).

A study in, Pakistan, aimed to assess mothers' knowledge, attitudes, and practices related to neonatal jaundice. Approximately 55% of mothers held a neutral attitude, 30% expressed a positive attitude, and 15% a negative one (Saddozai et al., 2022).

Positive attitudes were observed regarding bringing the neonate to the hospital and the importance of continuing breastfeeding. Negative attitudes were reported regarding using fluorescent lighting at home and using medicinal herbs as a remedy. Overall, participants exhibited a positive outlook, emphasizing the importance of their attitude toward neonatal jaundice (Fadil, 2021).

3. SUMMARY

The literature review underscores a prevalent lack of knowledge and a preponderance of negative attitudes among maternal mothers regarding neonatal jaundice. To enhance maternal awareness and rectify misconceptions surrounding neonatal jaundice, it is imperative to implement various strategies, such as educational programs, which have demonstrated positive and immediate outcomes.

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