

Mothers' Knowledge and Practices Regarding Neonatal Jaundice in Ajdabiya City, Libya: A Cross-Sectional Study

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معرفة الأمهات وممارساتهن تجاه اليرقان الوليد في مدينة أجدابيا، ليبيا: دراسة مقطعية

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Abstract

Background: Neonatal jaundice is one of the most common conditions affecting newborns worldwide and remains a significant cause of neonatal morbidity when not properly recognized or managed.

Objective: To assess mothers' knowledge and practices regarding neonatal jaundice and to examine the relationship between socio-demographic characteristics and awareness and practice levels

Methods: A cross-sectional study was conducted over a three-month period (October–December 2025) in Ajdabiya City. Data were collected using a structured questionnaire administered to 499 mothers attending Mohammed Al-Muqrief Hospital, Al-Zaytouna Clinic, and Ajdabiya Martyrs Center. Data were analyzed using SPSS software. Descriptive statistics and inferential tests were applied.

Results: The majority of mothers were aged 20–40 years (64.7%). Higher educational level was significantly associated with higher awareness levels ($p<0.05$). Although 37.9% of mothers demonstrated high practice levels, a considerable proportion still exhibited low knowledge and unsafe practices.

Conclusion: Mothers' knowledge and practices regarding neonatal jaundice were suboptimal, particularly among those with lower educational levels. Targeted health education programs are strongly recommended.

Keywords: Neonatal jaundice, maternal knowledge, practices, education level, Libya.

الملخص:

يُعد البرقان الوليدي من أكثر الحالات شيوعاً التي تصيب حديثي الولادة على مستوى العالم، ولا يزال سبباً مهماً من أسباب المراضة بين المواليد إذا لم يُشخص أو يُعالج بشكل مناسب.

الهدف: هدفت هذه الدراسة إلى تقييم معرفة الأمهات وممارساتهن المتعلقة بالبرقان الوليدي، ودراسة العلاقة بين الخصائص الاجتماعية والديموغرافية ومستوى الوعي والممارسة.

المنهجية: أُجريت دراسة مقطعة خلال فترة ثلاثة أشهر (أكتوبر-ديسمبر 2025) في مدينة أجدابيا. جمعت البيانات باستخدام استبيان مُنظم طبق على 499 أمّاً من المراجعات لمستشفى محمد المقريف، وعيادة الزيتونة، ومركز شهداء أجدابيا. تم تحليل البيانات باستخدام برنامج SPSS ، مع تطبيق الإحصاءات الوصفية والاختبارات الاستدلالية.

النتائج: كانت غالبية الأمهات ضمن الفئة العمرية 20–40 سنة (64.7%). وُجد ارتباط ذو دلالة إحصائية بين ارتفاع المستوى التعليمي وارتفاع مستوى الوعي ($p < 0.05$) وعلى الرغم من أن 37.9% من الأمهات أظهرن مستوى مرتفعاً من الممارسات الصحيحة، فإن نسبة ملحوظة مازالت تعاني من انخفاض في المعرفة وممارسات غير آمنة.

الاستنتاج: كانت معرفة الأمهات وممارساتهن تجاه البرقان الوليدي دون المستوى المطلوب، خاصة لدى ذوات المستوى التعليمي المنخفض. وتحوّلي الدراسة بشدة بتنفيذ برامج تنقيف صحي موجهة للأمهات.

الكلمات المفتاحية: البرقان الوليدي، معرفة الأمهات، الممارسات، المستوى التعليمي، ليبيا.

1. Introduction

Neonatal jaundice is one of the most frequently encountered clinical conditions in newborns worldwide and remains a major public health concern, particularly in low- and middle-income countries. It is clinically characterized by a yellow discoloration of the skin and sclera resulting from elevated levels of unconjugated bilirubin in the bloodstream. Epidemiological evidence indicates that approximately 60% of term neonates and up to 80% of preterm infants develop some degree of jaundice during the first week of life (Dennery et al., 2001). While the majority of cases are physiological and self-limiting, failure to recognize and manage pathological jaundice in a timely manner may lead to severe complications such as acute bilirubin encephalopathy and kernicterus, resulting in permanent neurological damage or death (Maisels & McDonagh, 2008).

Early identification of neonatal jaundice relies not only on clinical screening but also on parental, particularly maternal, awareness. Mothers are usually the first caregivers to observe changes in their newborns and to decide whether and when to seek medical care. Consequently, maternal knowledge, attitudes, and practices play a pivotal role in preventing delays in diagnosis and treatment. Several studies have emphasized that inadequate maternal knowledge and inappropriate home-based practices—such as reliance on traditional remedies or delayed hospital presentation—significantly increase the risk of severe hyperbilirubinemia (Ogunlesi et al., 2014; Olusanya et al., 2017).

Globally, research has consistently demonstrated substantial variations in maternal knowledge of neonatal jaundice across different socioeconomic and educational contexts. Studies conducted in sub-Saharan Africa and parts of Asia report that a considerable proportion of mothers are unable to correctly identify the causes, danger signs, or potential complications of neonatal jaundice (Onyearugha et al., 2016; Endale et al., 2020). In Ghana, Salia et al. (2018) found that although many mothers had heard of neonatal jaundice, misconceptions regarding its etiology and management were widespread, leading to unsafe practices and delayed care-seeking behavior.

Maternal educational level has been repeatedly identified as one of the strongest predictors of awareness and appropriate practices related to neonatal jaundice. Mothers with higher levels of formal education tend to demonstrate better understanding of neonatal conditions, are more likely to follow medical advice, and show greater utilization of healthcare services (Olusanya et al., 2017). Conversely, mothers with limited or no formal education often depend on informal sources of information, including family members or cultural beliefs, which may perpetuate harmful practices (Adebami, 2015). This educational gradient in knowledge and practice has been documented in Nigeria, Ethiopia, and other developing settings (Ogunlesi et al., 2014; Endale et al., 2020).

Despite growing global attention to neonatal health, a persistent gap between knowledge and practice has been observed even among mothers who demonstrate moderate awareness of neonatal jaundice. Goodman et al. (2019) reported that in high-income settings, although maternal knowledge levels were generally higher, gaps in early recognition and appropriate response still existed. This discrepancy suggests that knowledge alone may not be sufficient to ensure safe practices, as behavioral, cultural, and systemic factors also influence maternal decision-making.

In the Libyan context, empirical evidence on maternal knowledge and practices regarding neonatal jaundice remains scarce. Most available data originate from larger urban centers or are embedded within broader maternal and child health studies. Medium-sized cities such as Ajdabiya have received limited research attention, despite potential differences in healthcare access, educational opportunities, and cultural practices. The lack of localized data hinders the development of targeted health education interventions and limits the ability of policymakers to address context-specific challenges.

Research Gap

Although international literature has extensively examined maternal knowledge and practices related to neonatal jaundice, several critical gaps remain, particularly in the Libyan setting. First, there is a notable lack of community-based studies assessing both knowledge and actual practices among mothers in Libya, especially outside major metropolitan areas. Second, while previous studies have highlighted the role of maternal education, few have systematically explored the relationship between educational level, awareness, and practice within a single analytical framework. Third, limited attention has been given to identifying discrepancies between awareness and practice, which is essential for designing effective behavioral and educational interventions.

Therefore, there is a clear need for localized, evidence-based research that evaluates mothers' knowledge and practices regarding neonatal jaundice and examines how socio-demographic factors, particularly educational level, influence awareness and behavior. Addressing this gap will contribute to a more comprehensive understanding of maternal preparedness in neonatal care and provide empirical evidence to inform targeted health education programs aimed at reducing preventable neonatal morbidity and mortality in Libya.

2. Materials and Methods

2.1 Study Design and Setting

A descriptive cross-sectional study was conducted in Ajdabiya City, Libya. Data collection took place at three healthcare facilities: Mohammed Al-Muqrif Hospital, Al-Zaytouna Clinic, and Ajdabiya Martyrs Center. The study was carried out by graduating students from the Zoology Department, Faculty of Science, Ajdabiya University.

2.2 Study Population and Sample Size

A total of 499 mothers participated in the study. Inclusion criteria included mothers who had at least one newborn and consented to participate.

2.3 Data Collection Tool

A structured questionnaire was used, consisting of:

Socio-demographic data (age, education level)

Knowledge questions on neonatal jaundice

Practice-related questions

Knowledge and practice scores were categorized as high, medium, or low based on predefined scoring criteria.

2.4 Statistical Analysis

Data were analyzed using SPSS (Version 26) as follows:

Descriptive statistics: frequencies, percentages

Cross-tabulation between education level and awareness level

Chi-square test (χ^2) to assess associations

Statistical significance set at $p < 0.05$

3. Results

Table 1. Age Distribution of Participating Mothers (n = 499)

Percentage (%)	Frequency	Age Group (years)
4.8	24	< 20
32.5	162	20–30
32.3	161	31–40
30.5	152	> 40
100	499	Total

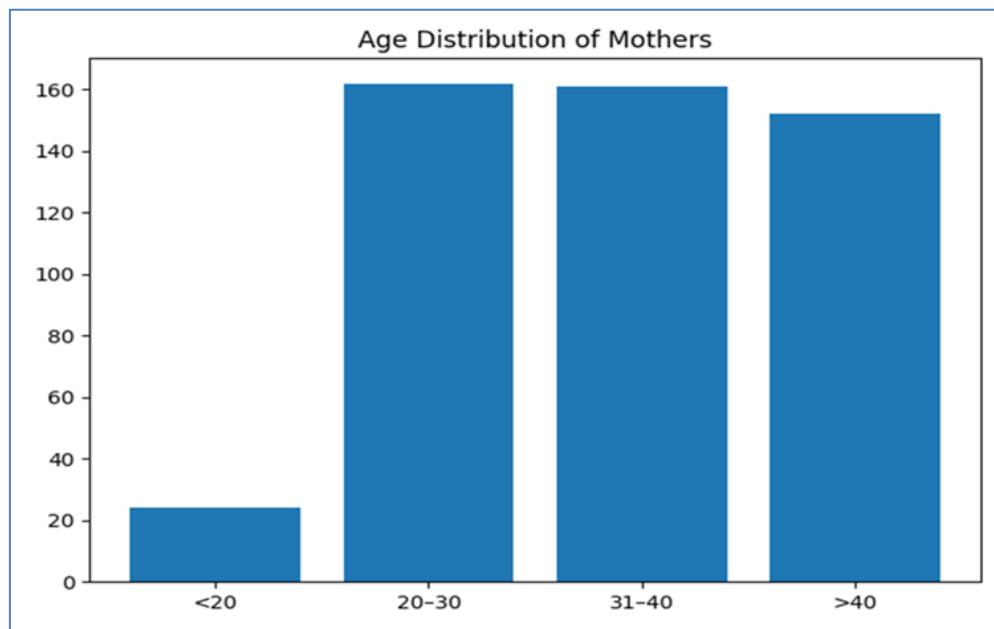
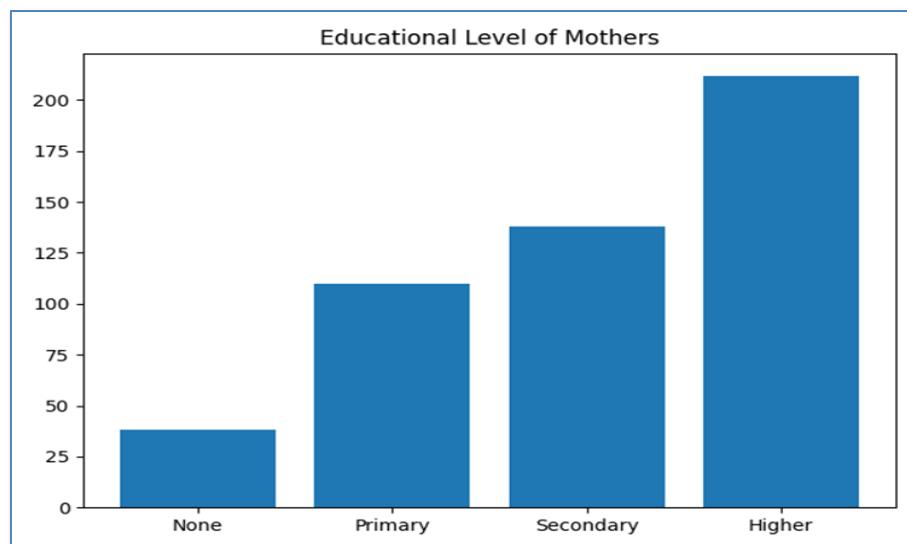
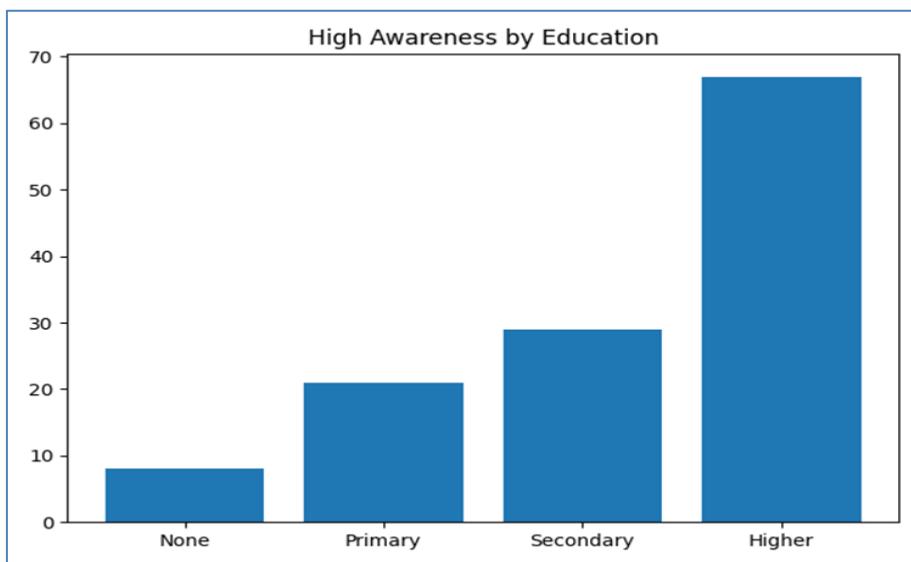


Figure 1. Age distribution of mothers.

Table 2. Educational Level and Awareness Level

Education Level	High	Medium	Low	Total
None	8	7	23	38
Primary	21	29	60	110
Secondary	29	54	55	138
Higher	67	95	50	212
Total	125	185	188	498

**Figure 2.** Educational level of mothers.**Figure 3.** High awareness by educational level.

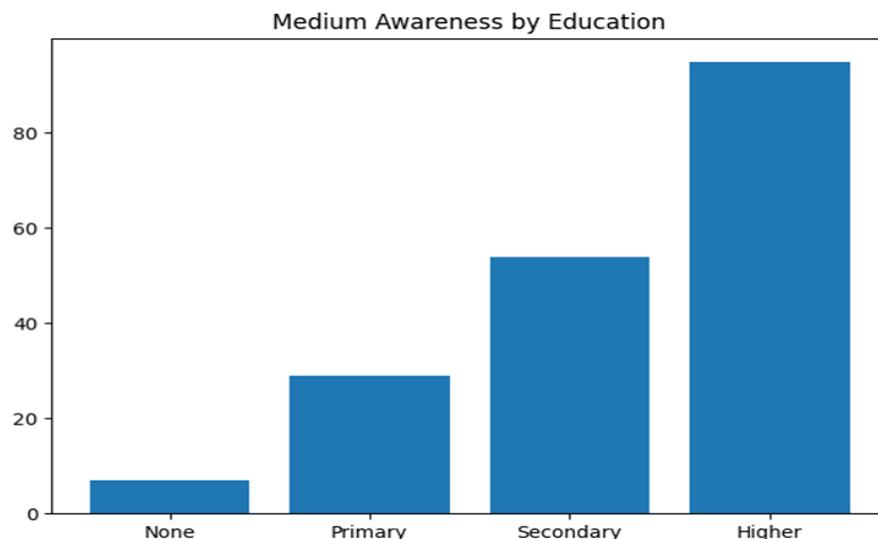


Figure 4. Medium awareness by educational level.

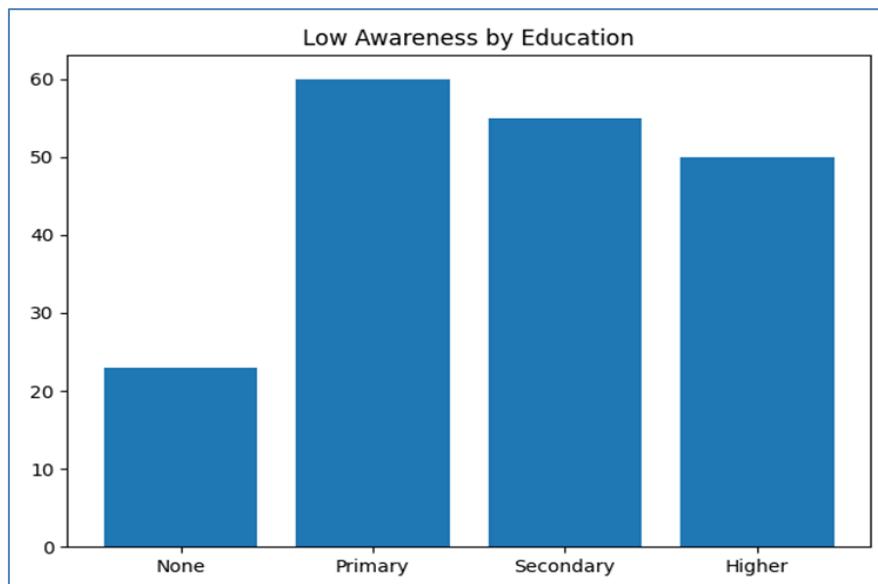


Figure 5. Low awareness by educational level.

Chi-square analysis revealed a statistically significant association between education level and awareness level (χ^2 , $p < 0.05$).

Table 3. Mothers' Practice Levels

Practice Level	Frequency	Percentage (%)
High	119	23.8
Medium	194	38.9
Low	186	37.3
Total	499	100.0

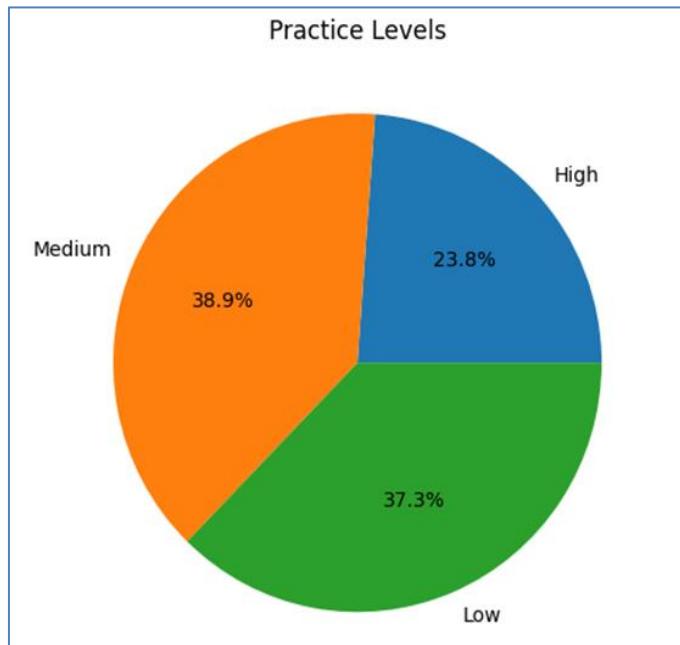


Figure 6. Practice levels among mothers.

4. Discussion

The present study assessed mothers' knowledge and practices regarding neonatal jaundice in Ajdabiya City, Libya, and explored the influence of socio-demographic factors, particularly educational level, on awareness and behavior. The findings revealed that maternal knowledge and practices were generally moderate to low, with a statistically significant association between educational level and awareness.

The predominance of mothers within the age range of 20–40 years reflects the most active reproductive age group, a finding consistent with studies conducted in Nigeria, Ghana, and Ethiopia (Ogunlesi et al., 2014; Salia et al., 2018; Endale et al., 2020). However, age alone did not appear to be a strong determinant of knowledge or practice levels, suggesting that experience gained through age does not necessarily translate into accurate health knowledge regarding neonatal jaundice.

Educational level emerged as the most influential factor affecting maternal awareness. Mothers with higher education demonstrated significantly better knowledge compared to those with primary or no formal education. This observation aligns closely with findings from both developing and developed countries, where maternal education has been consistently identified as a key predictor of neonatal health awareness (Olusanya et al., 2017; Onyearuga et al., 2016). Educated mothers are more likely to access reliable health information, understand medical advice, and seek early medical intervention when neonatal jaundice is suspected.

Despite a relatively acceptable proportion of mothers demonstrating high awareness, the level of appropriate practices remained suboptimal. This discrepancy between knowledge and practice has also been reported in several international studies (Adebami, 2015; Goodman et al., 2019), indicating that awareness alone may not be sufficient to ensure correct health-seeking behavior. Cultural beliefs, reliance on traditional remedies, and underestimation of the severity of neonatal jaundice may contribute to unsafe practices, particularly in low- and middle-income settings.

The proportion of mothers exhibiting low practice levels in the current study is concerning, as delayed presentation to healthcare facilities is a well-documented risk factor for severe hyperbilirubinemia and kernicterus (Maisels & McDonagh, 2008). Similar challenges have been reported in sub-Saharan Africa and parts of the Middle East, where lack of structured postnatal education contributes to preventable neonatal complications (Kaplan et al., 2018). Compared with studies from high-income countries, where maternal knowledge of neonatal jaundice is generally higher and early detection rates are improved (Bhutani et al., 2013), the findings from Ajdabiya highlight a persistent gap in maternal education and postnatal counseling services. This gap underscores the need for integrating neonatal jaundice education into routine antenatal and postnatal care programs.

Overall, the findings of this study reinforce global evidence that maternal education plays a pivotal role in improving neonatal outcomes. Strengthening health education strategies—particularly for mothers with low educational attainment—could significantly reduce the burden of neonatal jaundice-related complications in Libya.

5. Conclusion

Maternal knowledge and practices regarding neonatal jaundice in Ajdabiya City were variable and significantly influenced by educational level. Strengthening maternal health education programs is essential to enhance early detection and proper management of neonatal jaundice.

6. Recommendations

Implement structured maternal education programs during antenatal and postnatal care. Develop culturally appropriate and easy-to-understand educational materials on neonatal jaundice. Conduct further large-scale studies in other Libyan regions to support national health planning.

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Compliance with ethical standards**Disclosure of conflict of interest**

The authors declare that they have no conflict of interest.

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