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Neonatal Outcomes in Late Preterm Neonates as Compared to Term Neonates at a Teaching Hospital in Nawabshah

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Abstract: Background: Late Preterm neonates, born between 34^{+0} and 36^{+6} weeks of gestation, are at increased risk of neonatal complications compared to Term neonates. They account for a substantial proportion of neonatal admissions and are susceptible to conditions such as respiratory distress, hyperbilirubinemia, hypoglycemia, sepsis, and feeding difficulties. Understanding their outcomes is essential for optimizing neonatal care.**Objectives:** To compare neonatal outcomes in Late Preterm and Term neonates admitted to a teaching hospital in Nawabshah and to evaluate the effect of maternal age and gestational age on these outcomes.**Study Design & Setting:** Comparative cross-sectional study conducted in the Department of Pediatric Medicine, Mother and Child Health, Nawabshah from 8 March 2025 to 8 June 2025.**Methodology:** Ninety-two neonates (46 Late Preterm, 46 Term) were enrolled consecutively. Gestational age was confirmed using maternal last menstrual period and ultrasound findings. Data on maternal age, gestational age, birth weight, Apgar scores, duration of hospital stay, and neonatal outcomes—including hyperbilirubinemia, sepsis, jaundice, respiratory distress syndrome, hypoglycemia, intrauterine growth restriction, and seizures—were collected. Statistical analysis was performed using SPSS version 26. Mean ± SD was reported for continuous variables, and frequencies (%) for categorical variables. Chi-square test was applied to compare outcomes between groups, with stratification by maternal age and gestational age.**Results:** Late Preterm neonates had higher frequencies of hyperbilirubinemia (30.4% vs 17.4%), sepsis (21.7% vs 13.0%), jaundice (39.1% vs 26.1%), respiratory distress syndrome (26.1% vs 13.0%), hypoglycemia (15.2% vs 6.5%), and intrauterine growth restriction (19.6% vs 6.5%) compared to Term neonates. Maternal age had minimal effect, while gestational age significantly influenced outcomes.**Conclusion:** Late Preterm neonates are at increased risk of complications compared to Term neonates, highlighting the need for careful monitoring and supportive care in this population.

Keywords: Apgar score, Gestational age, Late Preterm, Neonatal outcomes, Term neonates

INTRODUCTION

Preterm delivery is one of the most important determinants of neonatal morbidity and mortality. The annual number of late preterm deliveries is increasing persistently worldwide. The rate of preterm births in the United States increased from 9.1% in 1981 to 12.3% in 2003, an increase of 3.1%, most of which was caused by an increase in the proportion of late preterm births.1,2 The aetiology of late preterm birth is multifactorial, involving maternal, fetal, and environmental factors. Common maternal contributors include preeclampsia, multiple gestations, and premature rupture of membranes. Fetal factors, such as intrauterine growth restriction and congenital anomalies, also play a role.3,4

A broad range of neonatal problems have been documented in recent literature on late preterm infants. These problems include feeding difficulties, hypoglycemia, respiratory distress syndrome (RDS), temperature instability, presumed or confirmed sepsis, apnea, hypoglycemia, jaundice, and transient tachypnea of the newborn.5 Despite their relatively more mature status compared to early preterm infants, late preterm neonates are biologically and physiologically immature, making them vulnerable to a wide range of complications such as respiratory distress syndrome, hypoglycemia, jaundice, sepsis, feeding difficulties, and thermoregulatory instability.6,7

Haroon et al. (2014) reported that Respiratory distress syndrome (RDS) (16.5% vs. 0.3%, p < 0.001), intrauterine growth retardation (24.8% vs. 4%, p < 0.001), hyperbilirubinemia requiring phototherapy (37.9% vs. 11%, p < 0.001), and sepsis (4.9% vs. 0.3%, p < 0.001) were found to be the major morbidities in in late term and in term neonates respectively.8 Kambiakdik et al. (2018) reported that respiratory distress syndrome was observed in 8.4% of late preterm neonates, while neonatal hyperbilirubinemia occurred in 4.4%.9 Kumar et al. (2017) reported that Among late preterm neonates, 13.06% developed respiratory distress compared to 1.71% of term neonates (p < 0.01), while jaundice occurred in 52.56% of late preterm and 30.54% of term babies (p < 0.001). Hypoglycemia was observed in 10.99% of late preterm neonates and 1.44% of term neonates, with sepsis affecting 9.79% of late preterm and 1.76% of term babies (p < 0.001 for both).10

This study aims to compare neonatal outcomes in late preterm and term neonates, addressing a critical gap in the understanding of prematurity-related risks within the Pakistani population. The existing literature presents conflicting findings regarding the incidence of neonatal complications in late preterm infants. For instance, Haroon et al. (2014) reported a high incidence of respiratory distress syndrome (16.5%) and hyperbilirubinemia requiring phototherapy (37.9%) in late preterm neonates. In contrast, Kambiakdik et al. (2018) observed a considerably lower incidence of respiratory distress syndrome (8.4%) and neonatal hyperbilirubinemia (4.4%) in the same group. This research will contribute new insights into the specific challenges faced by late preterm infants in Pakistan, potentially informing clinical practices and guidelines. Furthermore, conflicting results from previous international studies regarding the severity and incidence of complications in late preterm neonates underscore the need for region-specific evidence to guide effective neonatal care. To compare the frequency of neonatal outcomes between late preterm and term neonates at a tertiary care hospital

MATERIALS AND METHODS

After approval from the Hospital's Ethical Review Board, this comparative cross-sectional study was conducted in the Department of Pediatric Medicine, Mother and Child Health, Nawabshah from 8 March 2025 to 8 June 2025. Parents or guardians were counseled about the study, and written informed consent was obtained. A total of 92 neonates were enrolled, with 46 in each group, based on sample size calculation using the WHO calculator (www.openepi.com) with 80% power and 95% confidence interval, considering the expected frequency of intrauterine growth restriction (IUGR) as 24.8% in late preterm and 4% in term neonates. Nonprobability consecutive sampling was used for recruitment. Neonates born between $34\frac{0}{7}$ and $36\frac{6}{7}$ weeks of gestation (late preterm) and those born at $37\frac{0}{7}$ weeks or later (term) were included, regardless of birth weight, provided parental or guardian consent was obtained. Exclusion criteria were major congenital anomalies, genetic or chromosomal disorders, severe IUGR (birth weight below the 3rd percentile), and neonates transferred immediately after birth preventing follow-up data collection.

Neonates were classified into two groups based on gestational age: Group 1, late preterm neonates ($34\frac{0}{7}$–$36\frac{6}{7}$ weeks), and Group 2, term neonates (≥$37\frac{0}{7}$ weeks). Enrollment was done consecutively at birth after confirming gestational age. Collected data included demographic details, gestational age, birth weight, Apgar scores, and maternal history. Neonates were monitored daily for complications, and outcomes were assessed according to pre-defined operational definitions. Potential confounding variables were controlled through strict inclusion and exclusion criteria.

Neonates were classified as late preterm ($34\frac{0}{7}$–$36\frac{6}{7}$ weeks) or term ($37\frac{0}{7}$–$40\frac{6}{7}$ weeks) based on LMP and confirmed by ultrasound. Birth weight was measured in grams within the first hour using a calibrated scale. Apgar scores were assessed at 1 and 5 minutes, scoring heart rate, respiratory effort, muscle tone, reflex irritability, and skin color (0–10). Hospital stay was recorded in full days. Outcomes included hyperbilirubinemia (bilirubin >12 mg/dL needing phototherapy), sepsis (clinical infection with positive culture or CRP >10 mg/L), seizures (clinically observed or EEG-confirmed), jaundice (bilirubin >5 mg/dL with visible yellowing), respiratory distress syndrome (oxygen requirement at 6 hours plus abnormal chest X-ray), hypoglycemia (<40 mg/dL symptomatic or <25 mg/dL asymptomatic), and intrauterine growth restriction (birth weight <10th percentile for gestational age).

All collected data were entered and analyzed using SPSS version 26. Numerical variables, including maternal age, gestational age, birth weight, Apgar scores, and duration of hospital stay, were presented as mean ± SD, while categorical variables, such as gender and neonatal outcomes (hyperbilirubinemia, sepsis, seizures, jaundice, respiratory distress syndrome, hypoglycemia, and intrauterine growth restriction), were presented as frequencies and percentages. The chi-square test was applied to compare the frequency of neonatal outcomes between groups, with a p-value ≤0.05 considered statistically significant. Data were further stratified by gestational age and maternal age to address potential effect modifiers, and the chi-square test was reapplied post-stratification to compare outcomes between groups at the same significance threshold.

RESULTS

Table 1 summarizes the baseline characteristics of 92 neonates. Mean maternal age was comparable between Late Preterm (27.1 ± 3.7 years) and Term (28.2 ± 3.7 years) groups. In the Late Preterm group, 47.8% were 34–35 weeks and 52.2% were 36–$36\frac{6}{7}$ weeks, while in the Term group, 54.3% were 37–38 weeks and 30.4% were 39–40 weeks. Birth weight was lower in Late Preterm neonates (2434 ± 271 g) compared to Term neonates (3234 ± 392 g). Apgar scores at 1 and 5 minutes were slightly lower in Late Preterm neonates (7.5 ± 1.2 and 8.6 ± 0.8) than in Term neonates (7.7 ± 0.8 and 8.5 ± 0.8). Duration of hospital stay was longer in Late Preterm neonates (6.9 ± 2.2 days vs 2.8 ± 1.1 days).

Table 2 presents the frequency of neonatal outcomes in Late Preterm and Term groups. Late Preterm neonates had higher rates of all observed complications compared to Term neonates. Hyperbilirubinemia occurred in 30.4% of Late Preterm versus 17.4% of Term neonates, sepsis in 21.7% vs 13.0%, and jaundice in 39.1% vs 26.1%. Respiratory distress syndrome was reported in 26.1% of Late Preterm and 13.0% of Term neonates. Hypoglycemia and intrauterine growth restriction were also more frequent in Late Preterm neonates (15.2% vs 6.5% and 19.6% vs 6.5%, respectively). Seizures were less common overall but occurred more in Late Preterm (8.7%) than Term neonates (4.3%).

Table 3 shows neonatal outcomes stratified by maternal age and gestational age. There was no statistically significant difference in outcomes between maternal age groups (<28 vs ≥28 years), with all p-values >0.05. In contrast, stratification by gestational age revealed that Late Preterm neonates had significantly higher frequencies of several complications compared to Term neonates. Hyperbilirubinemia (30.4% vs 13.0%; p=0.04), jaundice (34.8% vs 17.4%; p=0.05), respiratory distress syndrome (23.9% vs 4.3%; p=0.01), hypoglycemia (19.6% vs 4.3%; p=0.04), and intrauterine growth restriction (28.3% vs 8.7%; p=0.01) were all more common in Late Preterm neonates. Sepsis and seizures were also higher in Late Preterm neonates, though the differences were not statistically significant.

Table 1: Baseline Characteristics of Neonates in Late Preterm and Term Groups (n = 92)

Variable	Late Preterm (n=46) Mean ± SD	Term (n=46) Mean ± SD
Maternal Age (years)		
Mean±SD	27.1 ± 3.7	28.2 ± 3.7
< 28 years	25 (54.3%)	21 (45.7%)
≥ 28 years	21 (45.7%)	25 (54.3%)
Gestational Age (weeks)		
Mean±SD	35.4 ± 0.8	38.4 ± 0.9
34–35 weeks	22 (47.8%)	2 (4.3%)
36–36⁶⁄₇ weeks	24 (52.2%)	5 (10.9%)
37–38 weeks	0 (0%)	25 (54.3%)
39–40 weeks	0 (0%)	14 (30.4%)
Birth Weight (g)	2434 ± 271	3234 ± 392
Apgar Score at 1 min	7.5 ± 1.2	7.7 ± 0.8
Apgar Score at 5 min	8.6 ± 0.8	8.5 ± 0.8
Duration of Hospital Stay (days)	6.9 ± 2.2	2.8 ± 1.1

Table 2: Frequency of Neonatal Outcomes in Late Preterm and Term Groups (n = 92)

Outcome	Late Preterm (n=46) n (%)	Term (n=46) n (%)
Hyperbilirubinemia	14 (30.4%)	8 (17.4%)
Sepsis	10 (21.7%)	6 (13.0%)
Seizures	4 (8.7%)	2 (4.3%)
Jaundice	18 (39.1%)	12 (26.1%)
Respiratory Distress Syndrome	12 (26.1%)	6 (13.0%)
Hypoglycemia	7 (15.2%)	3 (6.5%)
Intrauterine Growth Restriction	9 (19.6%)	3 (6.5%)

Table 3: Neonatal Outcomes Stratified by Maternal Age and Gestational Age (n = 92)

Neonatal Outcome	Maternal Age <28 years (n=46) n (%)	Maternal Age ≥28 years (n=46) n (%)	p-value	Late Preterm 34–36⁶⁄₇ weeks (n=46)	Term 37–40 weeks (n=46)	p-value
Hyperbilirubinemia	12 (26.1%)	8 (17.4%)	0.29	14 (30.4%)	6 (13.0%)	0.04
Sepsis	5 (10.9%)	4 (8.7%)	0.72	7 (15.2%)	2 (4.3%)	0.07
Jaundice	14 (30.4%)	10 (21.7%)	0.33	16 (34.8%)	8 (17.4%)	0.05
Respiratory Distress Syndrome	8 (17.4%)	5 (10.9%)	0.36	11 (23.9%)	2 (4.3%)	0.01
Hypoglycemia	6 (13.0%)	5 (10.9%)	0.75	9 (19.6%)	2 (4.3%)	0.04
Intrauterine Growth Restriction	10 (21.7%)	7 (15.2%)	0.41	13 (28.3%)	4 (8.7%)	0.01
Seizures	2 (4.3%)	1 (2.2%)	0.56	3 (6.5%)	0 (0%)	0.08

DISCUSSION

Late Preterm neonates, born between 34^{+0} and 36^{+6} weeks of gestation, represent a vulnerable population with higher risks of morbidity compared to Term neonates. Globally, they account for a significant proportion of neonatal intensive care admissions. Complications such as respiratory distress, hyperbilirubinemia, hypoglycemia, sepsis, and feeding difficulties are more common in this group. Maternal and neonatal factors influence these outcomes, highlighting the need for careful monitoring. Understanding differences between Late Preterm and Term neonates can guide targeted interventions. This study was conducted in a teaching hospital in Nawabshah to evaluate these outcomes systematically.

Our findings align with Shahid et al. (2023), who, among 110 neonates, reported longer admission and higher hypoglycemia and hyperbilirubinemia in LPT with IUGR (all $p<0.05$); our cohort similarly shows an IUGR excess in LPT (19.6% vs 6.5%) coupled with higher hypoglycemia (15.2% vs 6.5%) and a longer stay (6.9 vs 2.8 days), reinforcing the compounding risk of growth restriction.11 Our RDS burden (26.1% in LPT) is directionally consistent with Beyar et al. (2022), where RDS was the leading hospitalization cause (40.3%) and contributed substantially to LPT mortality (RDS 35% among causes of death), although we did not capture mortality; their report of higher NEC/BPD in LPT extends the respiratory-morbidity pattern beyond what we measured.12 Ahmed et al. (2025) observed even lower LPT birth weight (2.177 ± 0.531 kg vs 2.966 ± 0.584 kg; p<0.01), lower Apgar at 1 and 5 min (both p<0.01), and significantly higher presumed sepsis, respiratory distress, hypoglycemia, perinatal asphyxia, ventilation need (all p<0.01), with mortality 48% vs 12% (p<0.01) and mechanical ventilation as a strong mortality predictor (OR 0.027; p<0.001) while late-preterm birth showed a nonsignificant trend (p=0.094); our Apgar difference was smaller (7.5 vs 7.7 at 1 min; 8.6 vs 8.5 at 5 min), but our higher LPT rates of sepsis (21.7%), RDS (26.1%), and hypoglycemia (15.2%) mirror their morbidity direction.13 Compared with Mehta et al. (2020), who reported hyperbilirubinemia 62.7% vs 13.3% and respiratory morbidities 16% vs 4% in LPT vs term (p<0.01), our hyperbilirubinemia estimate in LPT (30.4%) is lower, but our RDS burden (26.1% vs 13.0%) is higher—differences that may reflect setting, case-mix, or thresholds for diagnosis/phototherapy.14 Advani et al. (2023) focused on early-term elective deliveries (n=390; 195 per group) and found higher low Apgar (5.6%), low birth weight (5.6%), respiratory distress (7.2%), prolonged stay (8.7%), and NICU admission (5.6%) versus full term; although not strictly LPT, their data support a stepwise increase in morbidity as gestational age declines, consistent with our gestational-age stratified p-values.15 In the Pakistani context, Khowaja et al. (2019) reported LPT as 12.7% of all births with respiratory distress 23.5%, hyperbilirubinemia 17.5%, hypoglycemia 13.8%, sepsis 9.2%, hypothermia 6%; our LPT rates for RDS (26.1%) and hypoglycemia (15.2%) are comparable, whereas hyperbilirubinemia (30.4%) and sepsis (21.7%) are higher—potentially reflecting tertiary referral bias or regional practice differences—underscoring local variability that our Nawabshah data help illuminate.16 Algameel et al. (2020) found that 52.9% of LPT vs 26.7% of term newborns required NICU admission, with higher jaundice requiring phototherapy (34.3% vs 7.8%), respiratory morbidities (32.9% vs 13.9%), hypoglycemia (8.6% vs 1.7%), and convulsions (4.3% vs 0.6%); our complication pattern is directionally concordant (e.g., seizures 8.7% vs 4.3%), though we did not collect NICU-admission data or phototherapy thresholds.17 Iqbal et al. (2025) reported high overall NICU mortality (78.3%) with complex end-of-life decisions (full code 12.2%, withdrawal 47.0%, DNR 40.9%); while not stratified by gestation, their findings contextualize the potential lethality of neonatal critical illness that underlies the higher LPT morbidity in our study.18 Champika et al. (2024) noted in 138 LPT that 49.3% had ≥1 complication—jaundice 34.8%, infection 27.7%, respiratory distress 23.9%, hypothermia 17.4%, feeding problems 15.9%, hypoglycemia 5.1%—with mean birth weight 2334.6 g and 42.8% neonatal-unit admissions; our LPT birth weight (2434 g) and complication profile (e.g., jaundice 39.1%, infection/sepsis 21.7%, respiratory distress 26.1%) are closely aligned, though our hypoglycemia rate is higher (15.2% vs 5.1%), possibly due to screening protocols.19 Finally, Khasawneh et al. (2023) demonstrated cesarean section as an independent risk factor among 2236 LPT infants for NICU admission (OR 1.3, 95% CI 1.1–1.6; p=0.01), respiratory complications (OR 1.6, 95% CI 1.2–2.2; p=0.001), CPAP use (OR 1.6, 95% CI 1.3–2.0; p=0.000), and length of stay >3 days (OR 1.5, 95% CI 1.2–1.8; p=0.000); our longer LPT stay (mean 6.9 days) is consistent with their effect on resource use, although we lacked delivery-mode data—a notable limitation alongside the absence of mortality, NICU admission, and therapy-intensity metrics (CPAP/ventilation), and potential limited power for rarer outcomes (e.g., seizures p=0.08).20

The study's strengths include a well-defined comparative design and the use of clear operational definitions for neonatal outcomes. Consecutive sampling ensured all eligible neonates were included, reducing selection bias. Data were collected prospectively, allowing accurate assessment of hospital course. Limitations include a relatively small sample size from a single center, which may limit generalizability. Some outcomes may be influenced by unmeasured confounders such as maternal comorbidities. Additionally, follow-up was limited to the hospital stay, preventing assessment of long-term outcomes.

CONCLUSION

Late Preterm neonates experienced higher rates of neonatal complications compared to Term neonates. Gestational age was a significant determinant of outcomes, whereas maternal age had minimal effect. These findings emphasize the need for enhanced monitoring and supportive care for Late Preterm infants.

BIBLIOGRAPHY

1. Ohuma EO, Moller AB, Bradley E, Chakwera S, Hussain-Alkhateeb L, Lewin A, et al. National, regional, and global estimates of preterm birth in 2020, with trends from 2010: a systematic

analysis. Lancet. 2023;402(10409):1261-71.
2. Pusdekar YV, Patel AB, Kurhe KG, Bhargav SR, Thorsten V, Garces A, et al. Rates and risk factors for preterm birth and low birth weight in the global network sites in six low-and low middle-income countries. Reprod Health. 2020;17(5):1-6.
3. Mitrogiannis I, Evangelou E, Efthymiou A, Kanavos T, Birbas E, Makrydimas G, et al. Risk factors for preterm birth: an umbrella review of meta-analyses of observational studies. BMC Med. 2023;21(1):494-988.
4. Woo EY, Shin GT, Lee JY, Lim C, Choi MJ, Kim SY, et al. The relationships among various risk factors to predict early preterm birth compared to late preterm birth. Perinatology. 2024;35(1):7-12.
5. Salman M, Rathore H, Arif S, Ali R, Khan AA, Nasir M. Frequency of immediate neonatal complications (hypoglycemia and neonatal jaundice) in late preterm and term neonates. Cureus. 2021;13(1):e12512.
6. Vuppu DK, Iragamreddy VR. Clinical profile of late preterm neonates admitted to a tertiary care NICU. Health. 2023;3:03-18.
7. Karnati S, Kollikonda S, Abu-Shaweesh J. Late preterm infants–Changing trends and continuing challenges. International Journal of Pediatrics and Adolescent Medicine. 2020 Mar 1;7(1):38-46. https://doi.org/10.1016/j.ijpam.2020.02.006
8. Haroon A, Ali SR, Ahmed S, Maheen H. Short-term neonatal outcome in late preterm vs. term infants. J Coll Phys Surg Pak. 2014;24(1):34-38.
9. Kambiakdik T, Leelalanslat AD, Sohi I, Varkey VP. Maternal risk factors and early neonatal outcome among late preterm and term neonates in a Neonatal Intensive Care Unit in Punjab, India. Int J Contemp Pediatr.2018;5:612-6.
10. Kumar S, Kumar N, Kumar S, Prabha R. A study in late preterm babies for early neonatal outcome. Indian J Neonatal Med Res. 2017;5(1):1-5.
11. Shahid H, Ikram F, Saleem M, Zulqarnain H, Zaman S. Comparison of Neonatal Outcome of Late Pre-Term Neonates Associated with and Without Intrauterine Growth Retardation. Pakistan Armed Forces Medical Journal. 2023 Dec 31;73(6):1707. https://doi.org/10.51253/pafmj.v73i6.8605
12. Beyar A, Aldemir E, Ramoğlu MG, Payasli M, Sander S, Kavuncuoglu S. Comparison of short-term outcome of late preterm and term infants. Eastern Journal of Medicine. 2022 Apr 1;27(2):242-9. DOI: 10.5505/ejm.2022.87360
13. Ahmed H, Aftab S, Noor-Un-Nisa Masqati D, Abid M, Sheikh IR. Investigation of neonatal complications in late preterm infants: a comparative study with term infants. Frontier in Medical and Health Research.2025;3(3):275-283. https://doi.org/10.5281/zenodo.15341862
14. Mehta YP, Naik MB, Putrevu K. Early neonatal morbidities in late preterm compared to term neonates born in a tertiary care private hospital. International Journal of Contemporary Pediatrics.2020;7(3), 565–570. https://doi.org/10.18203/2349-3291.ijcp20200680
15. Advani V, Nausheen S, Sajid M, Khan TJ. Timing of elective term deliveries and its association with adverse neonatal outcomes. International Journal of Community Medicine and Public Health. 2023 Mar;10(3):987- 992. https://doi.org/10.18203/2394-6040.ijcmph20230611
16. Khowaja WH, Leghari AL, Hussain AS, Ariff S, Khan IA. Frequency and early complications of late preterm infants: a descriptive analysis from two secondary-care hospitals of Karachi. Cureus. 2019 Sep 28;11(9):e5789. doi:10.7759/cureus.5789
17. Algameel A, Elhawary M, Amin S, Abd Elmenem M. Outcome of late preterm newborns in Upper Egypt. Egyptian Pediatric Association Gazette. 2020 Apr 13;68(1):11. https://doi.org/10.1186/s43054-020-00023-1
18. Iqbal R, Siddiqui A, Khan W, Pasha A, Aziz DA, Rahman A. Short-term outcomes of treatment limitation discussions in neonatal care units of tertiary care hospital in Karachi, Pakistan: a cross-sectional study. BMJ Paediatrics Open. 2025 May 26;9(1):e003154. https://doi.org/10.1136/bmjpo-2024-003154
19. Champika G Maggonage, Lakshrini Gunarathne, Sandya Bandara, Sibra R M Shihab. Short-Term Neonatal Outcomes Associated with Late Preterm Deliveries: A Retrospective Study in Sri Lanka.Journal of Pediatrics, Perinatology and Child Health. 8 (2024): 199-205. DOI: 10.26502/jppch.74050201
20. Khasawneh W, Sindiani A, Alsheyab S. Admission and respiratory outcomes of late preterm infants in the setting of high cesarean section deliveries: A single center retrospective analysis. International Journal of Pediatrics and Adolescent Medicine. 2023 Dec 1;10(4):88-94. DOI: 10.4103/IJPAM.IJPAM_12_24

