

Spectrum of Respiratory Distress in the Neonates in a Rural Medical College of Central India-A Prospective Observational Study

Minal Ambade^{1*}, Smita Jategaonkar², Manish Jain³

¹Assistant Professor, Department of Pediatrics, Government Medical College, Nagpur, India

²Professor, Department of Pediatrics, Mahatma Gandhi Institute of Medical Sciences, Wardha, India

³Professor & Head, Department of Pediatrics, Mahatma Gandhi Institute of Medical Sciences, Wardha, India

*Address for Correspondence: Dr. Minal Ambade, Assistant Professor, Department of Pediatrics, Government Medical College, Nagpur, India

E-mail: minalambade5@gmail.com & ORCID ID: <https://orcid.org/0000-0001-8458-520X>

Received: 23 Oct 2025/ Revised: 26 Nov 2025/ Accepted: 14 Feb 2026

ABSTRACT

Background: Neonatal respiratory distress (RD) is the most common reason for admission to the neonatology intensive care unit (NICU) and is a prominent cause of mortality and morbidity in preterm and term neonates. Timely intervention is necessary to prevent damage and improve outcomes. The study aimed to determine the prevalence and to identify the causes and associated factors of respiratory distress in the neonatal intensive care unit (NICU) and to observe the outcome of these babies.

Methods: The study was a hospital-based prospective observational study, which was conducted in the neonatal intensive care unit (NICU) in the Department of Paediatrics, Medical College in Central India over a period of one and a half years. All neonates admitted to the NICU with respiratory distress during the study period were included and evaluated for etiology, maternal risk factors, and clinical outcome.

Results: The incidence of respiratory distress in neonates was 4.19%. The most common etiology causing mortality was respiratory distress syndrome (RDS), which was seen in 16.89% of total neonates, followed by MAS (5.41%), Birth asphyxia (4.05%), Sepsis (3.72%), Pneumothorax (3.04%), Pneumonia (2.03%), and congenital anomalies. Leaking PV, meconium staining, and postdate were significant maternal factors leading to respiratory distress. The mortality due to respiratory distress was found to be 37.16% in our study.

Conclusions: Early detection of etiology and appropriate immediate management are of utmost importance to ensure overall better outcomes in newborns with respiratory distress. Early identification of risk factors can further help in reducing morbidity and mortality in these neonates.

Key-words: Birth asphyxia, Downe score, Mortality, Neonatal intensive care unit, Respiratory distress

INTRODUCTION

Respiratory distress is one of the most common disorders causing morbidity in newborns. It is defined as the presence of tachypnoea (RR 60 /min) with subcostal /intercostal retractions, expiratory grunting/ groaning. The presence of nasal flaring, suprasternal retractions, decrease air entry on chest auscultation also indicates the presence of respiratory distress.

Gasping or stridor, apnoea or poor respiratory effort, bradycardia, poor perfusion and cyanosis are life-threatening signs that require prompt intervention.^[1] Respiratory distress occurs in 0.96 to 12% of live births and is responsible for about 20% of neonatal mortality.^[2] Early diagnosis of the aetiology of distress is crucial in managing neonatal respiratory distress to achieve better clinical outcomes. If not recognized at the earliest, it can progress to respiratory failure and life-threatening sequelae.

The causes of respiratory distress in neonates include transient tachypnea of newborn (TTN), respiratory distress syndrome (RDS), meconium aspiration syndrome (MAS), congenital pneumonia, congenital heart disease (CHD), perinatal asphyxia (PNA), and congenital

How to cite this article

Ambade M, Jategaonkar S, Jain M. Spectrum of Respiratory Distress in the Neonates in a Rural Medical College of Central India-A Prospective Observational Study. SSR Inst Int J Life Sci., 2026; 12(2): 9424-9431.



Access this article online
<https://ijls.com/>

anomalies such as tracheo-oesophageal fistula and congenital diaphragmatic hernia.^[3]

Several scoring systems, like the Downes score and Silverman Andersen score, focus on assessing respiratory distress in the neonate, so that early clinical assessment of the severity is done, leading to better management. The severity of respiratory distress assessed by Downe's scoring system includes parameters such as respiratory rate, cyanosis, retractions, grunting and air entry in both lungs.^[4]

Therefore, it is very important for any health care professional catering to neonates to recognize early signs of distress, distinguish amongst various etiologies, and initiate management accordingly to prevent complications or mortality. We aimed to find out the most common aetiology, differentiate pulmonary and non-pulmonary causes, look for maternal factors associated with them and the outcome of respiratory distress in our NICU.

MATERIALS AND METHODS

The study conducted was a prospective observational study, conducted in the Department of Pediatrics in Mahatma Gandhi Institute of Medical Sciences (MGIMS), Sevagram, a 920-bedded tertiary care Rural Medical College located in Central India over a period of one and half years from November 2021 to April 2023 in the NICU (Level IIB) which is 24 bedded and is catered round the clock by Pediatric residents under the supervision of attending Pediatricians.

All consecutive live births with respiratory distress requiring admission to the NICU during the study period were included. Required sample size=293 (population proportion=0.067, sample proportion=0.030, power (%)=80, alpha error (%)=5, sided=2).

Inclusion Criteria- All newborns delivered in the hospital are admitted to the NICU with the criteria defined below. According to the National Neonatal Perinatal Database 2002-03, respiratory distress was defined as the presence of at least two of the following criteria:

Respiratory rate >60/minute, subcostal or intercostal recessions/retractions, expiratory grunt, or groaning.

Respiratory rate was recorded for at least 1 minute, and the baby was evaluated between feeds and in a quiet state.^[5]

Exclusion Criteria- Outborn neonates, neonates requiring referral, and all parents or relatives unwilling to be a part of the study.

Causes of Neonatal Respiratory Distress- The causes of neonatal respiratory distress were defined- Respiratory distress syndrome (RDS), Meconium aspiration syndrome (MAS), Pneumonia, Perinatal/Birth Asphyxia, Transient tachypnea of newborn (TTN), Sepsis, Persistent pulmonary hypertension of newborn (PPHN), congenital heart disease (CHD), anemia, polycythemia and congenital malformations like Congenital diaphragmatic hernia (CDH), Tracheoesophageal fistula ^[6], pneumothorax, congenital anomalies, etc.

Methodology- Neonatal history was taken regarding sex, weight, gestation, Apgar score and days of hospitalization. General & systemic examination was done. Neonate weight was recorded on an electronic weighing scale; gestational age was calculated using the New Ballard method. Those with suspected respiratory distress underwent chest X-ray, complete blood count, C-reactive protein, serum electrolytes, blood culture, etc., as part of the routine protocol in our setting. When needed, X-ray of the abdomen, ultrasonography of the abdomen, neurosonography, and echocardiography were performed.

Maternal factors like age, gestational age, type of delivery, history of pre-labor rupture of membranes (PROM), meconium staining of liquor, and use of antenatal steroids were taken into consideration. Every baby was observed for signs of respiratory distress on admission or later during hospitalization. Detailed history, comprehensive examination, and investigations were undertaken to identify different etiologies.

The etiologies of respiratory distress were defined according to the National Neonatal-Perinatal Database 2002-03.^[5] Of the total 7270 deliveries in the hospital, 305 of the inborn neonates had respiratory distress. Three neonates were referred (2 with CHD, 1 with TEF), and DAMA was obtained from two parents; the remaining four parents were non-consenting. Below is the study's flowchart (Fig. 1).

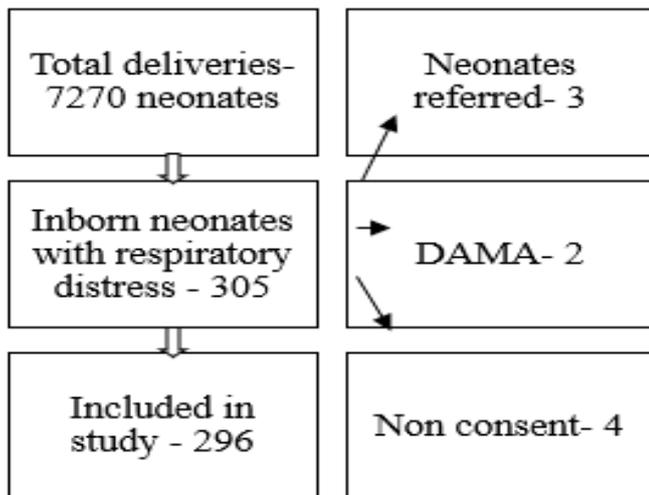


Fig. 1: Flowchart of the study

Statistical Analysis- Data were collected using a structured proforma. The severity of respiratory distress was assessed using the Downes scoring system, in which a score ≥ 7 indicated impending respiratory failure. Supportive management included oxygen by hood, Continuous Positive Airway Pressure (CPAP), or mechanical ventilation. SpO₂ was monitored using pulse oximetry. Outcome was assessed in terms of aetiology and mortality. Recovery was defined as discharge from NICU with improvement in respiratory distress, SpO₂ $>95\%$ on room air, and adequate breastfeeding. Data were analysed using SPSS version 22.0 and GraphPad Prism 7. Continuous variables were expressed as mean \pm SD, while categorical variables were presented as proportions and percentages. Chi-square (χ^2) test was used for comparison, and $p < 0.05$ was considered statistically significant.

Ethical Approval- Ethical approval for the study was obtained from the Institutional Ethics Committee of Mahatma Gandhi Institute of Medical Sciences (MGIMS), Sevagram, Wardha, Maharashtra (Reference No. MGIMS/IEC/PED/121/2021). The study protocol was reviewed and approved during the Ethics Committee meeting held on 05 October 2021.

RESULTS

Among 7270 newborns delivered during the study period, 305 met the inclusion criteria; of these, 296 were included. One hundred and seventy-seven neonates (59.8%) were males, while one hundred and nineteen (40.2%) were females. Male: Female ratio was 1.5:1. The neonates had a mean weight of 2108.32 grams ± 752.21

grams (576-3860 grams). 22 neonates (7.43%) were <1000 grams, 59 (19.93%) were 1001 to 1500, 49 (16.55%) were between 1501 and 2000, 56 neonates (18.92%) were between 2001 and 2500, 56 neonates (18.92%) were between 2501 & 3000. Respiratory distress was common in babies weighing 2500-3000 grams.

The mean gestational age was 36.04 ± 4.02 weeks (25 weeks of gestation to 42 weeks of gestation). The neonates with respiratory distress were mostly having term gestation of more than 37 weeks, 188 neonates (63.52%) and the preterm constituted 108 neonates (36.49%) of the study population. A score of >4 was considered clinically significant respiratory distress, and ≥ 7 was considered impending respiratory failure. Those having impending respiratory failure were given respiratory supportive measures like CPAP or a ventilator. Almost 85.81% of the neonates had the onset of distress within 24 hours. 14.19% of the neonates developed later in life.

The neonates were kept on Oxygen by hood (85.8%) in mild cases; about 13.18% required support with CPAP; about 32% of all neonates required mechanical ventilation, and some required multiple measures. In our study, 66 neonates (22.3%) had RDS; of these, 42 (63.64%) received surfactant, and 24 (36.36%) did not receive surfactant due to non-affordability. Of the 42 neonates who received surfactant, 33 expired, and 9 (13.64%) were discharged. Among those not receiving surfactant, 17 expired, and 7 (10.61%) were discharged.

The mean maternal age was 24.58 years (18-38 years). The maximum number of mothers were in the age group of 18 to 27 years (80.74%), followed by 53 in the age group of 28-35 years (17.91%), and four females were elderly mothers (1.35%). Around 167 mothers delivered vaginally (56.4%), followed by Caesarean section in 115 mothers (38.9%) and in 14 (4.7%), forceps or vacuum were required for delivery.

In mothers who delivered prematurely (108 mothers), every mother was given at least one dose of steroids before delivery. In 37 mothers (35%) received the complete dose of steroids, in 71 mothers (65%), steroid doses were incomplete, as most of them came in emergency in preterm labour or were un-booked patients. PROM, meconium-stained liquor, postdate and twin pregnancy were significant factors leading to respiratory distress. Below are the characteristics of maternal factors (Table 1).

Table 1: Comparison of characteristics and clinical profile of maternal factors in neonates with respiratory distress

		Etiology of Respiratory Distress							Total	χ^2 -value
		RDS	MAS	TTN	Sepsis	Birth Asphyxia	Pneumonia	Others*		
PROM	No leaking	33	51	45	34	38	25	13	239	59.85 $p=0.0001$, S
	<18 hrs	25	1	2	5	3	3	1	40	
	≥ 18 hrs	8	0	1	3	3	1	1	17	
Hypertension	Yes	15	6	12	9	6	6	2	56	4.96 $p=0.54$, NS
	No	51	46	36	33	38	23	13	240	
Meconium Stain	Present	0	52	0	0	0	0	2	54	284.37 $p=0.0001$, S
	Absent	66	0	48	42	44	29	13	242	
Post Date	Present	0	7	1	1	3	1	3	16	18.79 $p=0.002$, S
	Absent	66	45	47	41	41	28	12	280	
Hypothyroidism	Present	6	2	5	5	2	3	0	23	4.91 $p=0.55$, NS
	Absent	60	50	43	37	42	26	15	273	
Oligohydramnios	Present	13	9	5	6	7	8	6	54	9.15 $p=0.16$, NS
	Absent	53	43	43	36	37	21	9	242	
Twin Pregnancy	Present	9	0	0	6	0	1	0	16	24.52 $p=0.0001$, S
	Absent	57	52	48	36	44	28	15	280	
Antepartum Haemorrhage	Present	6	1	2	1	2	1	1	14	4.47 $p=0.61$, NS
	Absent	60	51	46	41	42	28	14	282	
Diabetes	Present	0	1	0	0	0	1	0	2	5.99 $p=0.42$, NS
	Absent	66	51	48	42	44	28	15	294	
Total		66	52	48	42	44	29	15	296	

Respiratory distress syndrome (RDS), Meconium aspiration syndrome, Transient tachypnoea of newborn (TTN), Pre-labor rupture of membranes (PROM)

*Others include Birth asphyxia, Sepsis, Pneumonia, Pneumothorax, Congenital diaphragmatic hernia (CDH), cyanotic critical congenital heart diseases (CHD), trachea-oesophageal fistula^[6] and hypoplastic lungs.

** p -value <0.05 was considered significant, S-significant, NS- not significant

Table 2 shows the clinical profile and outcomes of newborns with respiratory distress, including factors such as gender, birth weight, gestational age, mode of

delivery, and diagnosis in relation to survival and mortality.

Table 2: Clinical profile of outcome of newborns with respiratory distress

Variable	Neonates affected	Neonates who survived	Neonates who died	χ^2 -value	p-value
Gender					
Male	177(59.80%)	119(40.20%)	58(19.59%)	3.64	0.05, NS
Female	119(40.20%)	67(22.64%)	52(17.57%)		
Birth Weight					
<2500 gm	184(62.16%)	94(31.76%)	90(30.41%)	28.75	0.0001, S
≥2500 gm	112(37.84%)	92(31.08%)	20(6.76%)		
Gestational Age					
<37 weeks	108(36.49%)	35(11.82%)	73(24.66%)	67.43	0.0001, S
≥37 weeks	188(63.51%)	151(51.01%)	37(12.50%)		
Mode of delivery					
Vaginal	167(56.42%)	88(29.73%)	79(26.69%)	17.80	0.0001, S
Caesar	115(38.85%)	89(30.07%)	26(8.78%)		
Forceps/vacuum	14(4.73%)	9(3.04%)	5(1.69%)		
Diagnosis					
RDS	66(22.3%)	16(5.41%)	50(16.89%)	12.37	0.0004, S
MAS	52(17.6%)	36(12.16%)	16(5.41%)	3.15	0.07, NS
TTN	48(16.2%)	48(16.22%)	0(0%)	17.39	0.0001, S
Sepsis	42(14.2%)	31(10.47%)	11(3.72%)	3.76	0.09, NS
Birth Asphyxia	44(14.9%)	32(10.81%)	12(4.05%)	3.53	0.06, NS
Pneumonia	29(9.8%)	23(7.77%)	6(2.03%)	3.78	0.05, NS
CDH	2(0.7%)	0(0%)	2(0.68%)	-	-
TEF	1(0.3%)	0(0%)	1(0.34%)	-	-
Pneumothorax	9(3%)	0(0%)	9(3.04%)	-	-
CHD	2(0.7%)	0(0%)	2(0.68%)	-	-
Hypoplastic Lungs	1(0.3%)	0(0%)	1(0.34%)	-	-

Respiratory distress syndrome (RDS), Meconium aspiration syndrome, Transient tachypnoea of newborn (TTN), Congenital diaphragmatic hernia (CDH), trachea-esophageal fistula^[6] and cyanotic critical congenital heart diseases (CHD)

* p-value<0.05 was considered significant, S-significant, NS- not significant

DISCUSSION

In the NICU, clinically the neonate can have various combinations of tachypnea, retractions, nasal flaring, grunting and cyanosis, so when facing with a neonate with respiratory distress, it becomes inevitable to categorise the management and prioritise depending on the degree of respiratory compromise, whether requiring any resuscitation and a plan subsequently to clarify the subtle differences in the etiology, definitive management and follow up.

Therefore, it is of paramount importance to recognise and initiate management of neonates at the earliest,

otherwise they may progress to respiratory failure. Given the limited data, the study was undertaken to elucidate the most common etiologies, maternal factors, and outcomes of various causes of respiratory distress. The study was a prospective hospital-based study of neonates with respiratory distress. A total of 7270 babies were delivered in the study period. Neonates having distress constituted 23.9 % of the total inborn admissions to the NICU, which was comparable to a study by Raha *et al.* (19.2%).^[3] Bajad *et al.* in India in 2016 reported 32% admissions to the newborn unit to have respiratory distress.^[7] It comprised 4.19% of all

cases admitted to the NICU during the period, which was comparable to the 4.6% incidence reported by Rijal *et al.* in 2018 in a study conducted in Nepal.^[8]

Of the total of 296 neonates, one hundred and seventy-seven babies (59.8%) were males, while one hundred and nineteen (40.2%) were females. Male: Female ratio was 1.5:1. No significant gender differences were found. The most common causes of respiratory distress in neonates were RDS (66; 22.3%), followed by MAS (52; 17.6%), Transient tachypnoea of the newborn (48; 16.2%), Birth asphyxia (44; 14.9%), Sepsis (42; 14.2%), Pneumonia (29; 9.8%). Other miscellaneous causes included pneumothorax (9, 3%), tracheoesophageal fistula (1, 0.3%), congenital heart disease (2, 0.7%), congenital diaphragmatic hernia (2, 0.7%), and hypoplastic lungs (1, 0.3%).

In the study by Mishra *et al.*, the common cause of respiratory distress was TTN, which was 35.3%, hyaline membrane disease (HMD) was 27%, followed by meconium aspiration syndrome 18.4%, pneumonia 3.3%, pneumothorax 1.8% and other congenital anomalies were 14.2%.^[1] Respiratory distress syndrome was the most common etiology in our study. It constituted 22.3 % of the cases and accounted to 16.89% of the total mortality amongst neonates with respiratory distress. It occurs in preterm neonates; therefore, preterm delivery should be managed by rest, providing intensive obstetric care, tocolytic agents and utilising steroids for lung maturity of the fetus antenatally.

In neonates of RDS, 42 (63.64%) out of 66 received surfactant therapy, out of which 33 (78%) died and amongst those not receiving surfactant, i.e. 24 neonates, 17 died (70%). In those receiving surfactant therapy, pulmonary haemorrhage was significantly higher than in those not receiving surfactant therapy ($p < 0.0001$). The mortality of neonates with RDS decreased by around 50% with the advent of surfactant therapy^[4]. Still, our study found that complications of pulmonary haemorrhage were more common after surfactant therapy and mortality was higher in that group. The difference may be due to the surfactant use technique, birth weight, gestational age, and the severity of RDS and sepsis.

Meconium-stained liquor was a significant factor ($p < 0.0001$). Postdate in mothers was a significant factor for MAS ($p < 0.002$). Bajad *et al.*^[7] In the Udaipur study in 2016, MAS was reported in 7.09% of neonates, and Rijal

et al.^[8]. In 2018, reported a high rate of 21.1%. TTN was the third most common etiology, accounting for 16.2%. This was lower compared to Sonawane *et al.* (60.25%).^[9] Birth asphyxia was the next common etiology constituting 14.9 % of cases and accounting 4.05% of the total mortality. About 88.6% of them were full-term neonates. TTN, surgical causes and birth asphyxia were predominant in the early term, while CHD, MAS, and sepsis were common in the late term in a study by Guzzarlamudi *et al.*^[10]

The maternal characteristics included age, with a minimum age of 18 years and a maximum of 38 years (24.58 ± 3.66 years). About 98.65% were between 18 and 35 years old. We found that 56.42% vaginally delivered newborns had distress, compared to 38.85% newborns born by caesarean section and 4.73% by instrumentation (forceps/vacuum) ($p < 0.0001$), which was comparable to a study conducted by Rijal *et al.*^[8] Premature pre-labour rupture of membranes (PROM) ($p < 0.0001$), meconium-stained liquor ($p < 0.0001$), post-date mothers ($p < 0.002$), and twin pregnancy ($p < 0.0001$) were significant factors leading to respiratory distress. The Downes score was used to assess the severity of distress. In a study by Shashidhar *et al.*, the Downes score was found to be more accurate, reliable, and easier to use by primary health personnel for assessing respiratory distress in newborns.^[11]

About 254 neonates (85.81%) had the onset of respiratory distress within 24 hours and 42 (14.19%) after 24 hours. The neonates were kept on oxygen via hood (85.8%) in mild cases; about 13.18% required CPAP support, and about 32% required mechanical ventilation. Some of them required multiple measures.

Mortality was highest (67.59%) among the neonates with gestational age below 37 weeks, and mortality was 19.68 % among neonates with gestational age 37 weeks or above. Mortality was high in cases of RDS (16.89%), followed by MAS (5.41%), birth asphyxia (4.05%), sepsis (3.72%), pneumonia (2.03%), pneumothorax (3.04%), congenital diaphragmatic hernia (0.68%) and cardiovascular diseases (0.68%), other causes like trachea-oesophageal fistula (0.34%), hypoplastic lungs (0.34%). There was no mortality in neonates with TTN.

The mortality rate of neonates with respiratory distress in our study was 37.16%, which was higher than that reported by Kommawar *et al.* (21.5%) in the study^[2], Harshini *et al.* 4.66%.^[12]

There have been tremendous advances in the management of respiratory distress, such as ventilator therapy with different modes, such as CPAP, conventional mechanical ventilation, ultra-high frequency jet ventilation, liquid ventilation, surfactant replacement therapy, sophisticated monitoring and extracorporeal membrane oxygenation, all of which have improved the outcome among the babies with respiratory distress.^[13]

Thus, the present study highlights that respiratory distress is a significant neonatal concern contributing to considerable mortality. Prevention of premature deliveries, early recognition of fetal distress, and prevention of perinatal asphyxia and sepsis are essential to reduce mortality. Adequate antenatal care, appropriate obstetric management, early identification of risk factors, and prompt neonatal management can help reduce the incidence, morbidity, and mortality associated with neonatal respiratory distress.

CONCLUSIONS

The incidence of respiratory distress in neonates was 4.19%. The most common cause of mortality was RDS which was 16.89% of the total neonates enrolled, followed by Meconium aspiration syndrome (5.41%), birth asphyxia (4.05%), Sepsis (3.72%), Pneumothorax (3.04%), Pneumonia (2.03%), congenital diaphragmatic hernia and congenital heart disease (0.68%) and trachea-oesophageal fistula and hypoplastic lungs (0.34%). Leaking PV, meconium staining, and postdate were significant maternal factors leading to respiratory distress. The mean duration of stay in hospital was 8.64 days \pm 8.56 days (1-75 days). The total mortality due to respiratory distress was found to be 37.16% in our study. No mortality was observed in cases of transient tachypnoea of the newborn. Good obstetric care and knowledge of the risk factors of prematurity, birth asphyxia, foetal distress among foetuses and mothers, along with appropriate follow-up of pregnancy and labour may lead to early detection of factors causing respiratory distress and timely intervention to improve the outcomes of neonatal respiratory distress.

CONTRIBUTION OF AUTHORS

Research concept- Minal Ambade, Smita Jategaonkar, Manish Jain

Research design- Minal Ambade, Smita Jategaonkar, Manish Jain

Supervision- Smita Jategaonkar, Manish Jain

Materials- Minal Ambade

Data collection- Minal Ambade

Data analysis and interpretation- Smita Jategaonkar, Manish Jain

Literature search- Minal Ambade

Writing article- Minal Ambade, Smita Jategaonkar

Critical review- Minal Ambade, Smita Jategaonkar, Manish Jain

Article editing- Minal Ambade, Smita Jategaonkar, Manish Jain

Final approval- Minal Ambade, Smita Jategaonkar, Manish Jain

REFERENCES

- [1] Mishra KN, Kumar P, Gaurav P. Aetiology and prevalence of respiratory distress in newborns delivered at DMCH, Darbhanga, Bihar, India. *J Evol Med Dent Sci.*, 2020; 9: 3655–60.
- [2] Kommawar A, Borkar R, Vagha J, Lakhkar B, Meshram R, Taksandae A. Study of respiratory distress in newborn. *Int J Contemp Pediatr.*, 2017; 4: 490–94.
- [3] Raha BK, Alam MJ, Bhuiyan MAQ. Spectrum of respiratory distress in newborn: A study from a tertiary care military hospital. *J Bangladesh Coll Physicians Surg.*, 2021; 39: 4–8.
- [4] Singh M. *Care of the newborn.* 8th ed. New Delhi: CBS Publishers & Distributors; 2017.
- [5] National Neonatal Perinatal Database Network. National neonatal-perinatal database report 2002–2003. New Delhi: Department of Pediatrics, AIIMS; 2005.
- [6] Enriquez-Geppert S, Smit D, Pimenta MG, Arns M. Neurofeedback as a treatment intervention in ADHD: Current evidence and practice. *Curr Psychiatry Rep.*, 2019; 21: 1–7.
- [7] Bajad M, Goyal S, Jain B. Clinical profile of neonates with respiratory distress. *Int J Contemp Pediatr.*, 2016; 3: 1009–13.
- [8] Rijal P, Shrestha M. Scenario of neonatal respiratory distress in tertiary hospital. *J Nepal Health Res Council.*, 2018; 16: 131–35.



- [9] Sonawane R, Patil A, Sonawane S. Clinical profile of respiratory distress in newborn. *MVP J Med Sci.*, 2018; 5: 151–55.
- [10] Guzzarlamudi D, Ulli R, Tarun J, Bano S. Study of respiratory distress in term neonates in early neonatal period in a tertiary care hospital. *Eur J Cardiovasc Med.*, 2023; 13: 1–5.
- [11] Shashidhar A, PN SR, Jose J. Downes score vs Silverman Anderson score for assessment of respiratory distress in preterm newborns. *Pediatr Oncall J.*, 2016; 13: 66–68.
- [12] Harshini B, Ananda Kumar T, Kumar G, Khan I. An etiological study of respiratory distress in neonates in a tertiary care medical college hospital. *Pediatr Rev Int J Pediatr Res.*, 2020; 7: 22–26.
- [13] Rao GC, Rao MSP. Etiological profile of respiratory distress in first day of life of a newborn baby. *Int J Contemp Pediatr.*, 2017; 4: 210–14.

Open Access Policy:

Authors/Contributors are responsible for originality, contents, correct references, and ethical issues. SSR-IJLS publishes all articles under Creative Commons Attribution- Non-Commercial 4.0 International License (CC BY-NC). <https://creativecommons.org/licenses/by-nc/4.0/legalcode>

