

ORIGINAL ARTICLE

Frequency of skin disorders associated with pregnancy at a tertiary care hospital of Karachi: A cross sectional study.

Shabnam Nadeem¹, Amna Begum², Sumaira Mehmood³, Atia Kazim⁴, Kishwer Naz⁵, Afifa Inayat⁶

ABSTRACT... Objective: To determine the frequency of skin disorders associated with pregnancy at a tertiary care hospital of Karachi. **Study Design:** Cross sectional study. **Setting:** OPD, Abbasi Shaheed Hospital Karachi. **Period:** 1st April 2023 to 31st March 2025. **Methods:** The data was collected through filling proforma contains demographic information; any complains related to skin disorder. The skin lesion was diagnosed clinically and confirmed after getting dermatological opinion and relevant laboratory / other investigations. The participants were divided in to two groups. Group 1 was included women with physiological skin changes in pregnancy. Group 2 included skin disorders specifically related to pregnancy and any skin disorders. **Results:** A total of 335 participants were enrolled. Pruritus was the commonest complain experienced by our participants 94 (28.1%). Fungal infection and scabies accounted for the main reason of pruritus. Group I showed normal physiological changes in pregnancy 196(58.50%). Among the specific skin lesions in pregnancy, 30 (9%) were found with Intrahepatic cholestasis of pregnancy. Other skins lesions results showed scabies cases were 8(2.4%), herpes simplex was seen in 3(0.9%) cases, 7(2.1%) participants had fungal infection and Tinea corpora was 5(1.5%), Two (0.6%) case had diagnosed Lichen plannus and 2(0.6%) had Psoriasis. **Conclusion:** The study concluded that Physiologic skin changes were commonly observed during pregnancy and Pruritus was the commonest complain. A significant number of scabies and fungal infection were observed.

Key words: Pregnancy, Skin Disorders, Tertiary Care Hospital.

Article Citation: Nadeem S, Begum A, Mehmood S, Kazim A, Naz K, Inayat A. Frequency of skin disorders associated with pregnancy at a tertiary care hospital of Karachi: A cross sectional study. Professional Med J 2026; 33(09):1759-1765. <https://doi.org/10.29309/TPMJ/2026.33.09.10721>

INTRODUCTION

Skin disorders during pregnancy represent a significant yet often underappreciated aspect of antenatal care, with up to 90% of pregnant women experiencing some form of dermatological change during gestation.¹ Pregnancy induces profound hormonal, immunological, and vascular alterations that directly affect the skin. These changes include elevated levels of estrogen, progesterone, and melanocyte-stimulating hormone, along with a shift from Th1 to Th2 immune dominance, all of which contribute to the spectrum of observed dermatological manifestations.¹

Dermatologic problems in pregnancy can be divided into three categories: Physiological changes of the skin (hyperpigmentation, striae gravidarum, vascular alterations); pre-existing dermatologic conditions that are affected by pregnancy (atopic dermatitis, psoriasis, autoimmune disorders); and pregnancy-specific dermatoses (intrahepatic cholestasis of

pregnancy, pemphigoid gestationis, polymorphic eruption of pregnancy, and atopic eruption of pregnancy).^{1,2}

The significance of correct diagnosis can't be overstated. Intrahepatic cholestasis of pregnancy (ICP) and pemphigoid gestationis (PG) have been shown in a systematic review that included 8,490 pregnant cases to be significantly associated with adverse fetal outcomes, including stillbirth, fetal distress and preterm delivery, with serum concentrations of bile acids exceeding 100 $\mu\text{mol/L}$.³ In contrast, atopic eruption of pregnancy (AEP) and polymorphic eruption of pregnancy (PEP) is reported to cause significant morbidity to the mother, although it does not significantly affect the fetus.¹

In addition, many dermatologic disorders are altered during pregnancy.³ In addition to this, the impaired cell-mediated immunity necessary to prevent fetal

1. MBBS, FCPS, Incharge Gynaecology/Obstetrics, Abbasi Shaheed Hospital and Karachi Metropolitan University.

2. MBBS, MCPS, FCPS, Chairperson Gynaecology/Obstetrics, Karachi Metropolitan University/ Abbasi Shaheed Hospital, Karachi.

3. MBBS, MCPS, MS, FCPS, Senior Registrar Gynaecology/Obstetrics, Karachi Metropolitan University/ Abbasi Shaheed Hospital, Karachi.

4. MBBS, FCPS, Senior Registrar Obstetrics & Gynaecology, Karachi Metropolitan University (Abbasi Shaheed Hospital).

5. MBBS, FCPS Trainee Gynaecology & Obstetrics, Karachi Metropolitan University (KMU) /Abbasi Shaheed Hospital (ASH), Karachi.

6. MBBS, Postgraduate Trainee FCPS, Karachi Metropolitan University (KMU) /Abbasi Shaheed Hospital (ASH), Karachi.

Correspondence Address:

Prof. Dr. Shabnam Nadeem

Department of Gynaecology/Obstetrics, Abbasi Shaheed Hospital and Karachi Metropolitan University.

banoshabnam@hotmail.com

Article received on:

10/03/2026

Accepted for publication:

25/05/2026



allogenic rejection also renders pregnant women more susceptible to fungal infections, scabies and viral dermatoses.⁴

Skin changes brought about by pregnancy are important and often neglected in terms of their psychosocial effects. This indicates that melasma is a psychiatric burden, and the prevalence of depression among melasma patients during pregnancy is 43.4% or about 12 times the estimated depression rate worldwide⁵, which emphasizes the importance of integrated dermatological and mental health care in antenatal care.

A 2025 Indian study of 445 pregnant women reported that pigmentary changes were the most frequent physiological alterations (82.9% for secondary areola changes, 38.2% for linea nigra), while atopic eruptions (3.6%) and intrahepatic cholestasis (2.6%) were the commonest specific dermatoses.⁶ A recent Pakistani study from Rawalpindi (2026) found that specific dermatoses of pregnancy affected 12.5% of women, with PEP being the most common pattern (6.7%), followed by PG (3.3%), AEP (1.7%), and ICP (0.8%).⁷

Despite the frequency and potential severity of dermatological conditions during pregnancy, they often receive insufficient attention in routine antenatal care. The paucity of region-specific data and lack of awareness regarding complications associated with certain skin disorders highlight the necessity for dedicated research in this field. The present study aims to determine the frequency and patterns of skin disorders among pregnant women attending a tertiary care hospital in Karachi, thereby contributing to improved clinical awareness and maternal-fetal outcomes.

METHODS

This descriptive cross-sectional study was conducted over a period of two years from 1st April 2023 to 31st March 2025 in the Department of Gynaecology & Obstetrics (Unit I) at Karachi Medical & Dental College (KMD&C) / Abbasi Shaheed Hospital, enrolling a total of 335 pregnant women calculated with a 5% margin of error, with the sample size referenced from a study published in the Journal of Systemic Review in Pharmacy

(citation 10). Using non-probability consecutive sampling, the study included all pregnant women presenting to the outpatient department for routine antenatal visits or to the emergency department, while excluding those with pre-existing diagnosed skin disorders or those who did not provide consent.

Participants meeting the inclusion criteria were divided into two groups: Group 1 comprised women with physiological skin changes related to pregnancy, and Group 2 comprised women with skin disorders specifically related to pregnancy. Written and verbal informed consent was obtained from all participants, and a structured proforma was used to collect demographic data (age, parity, history of medical disorders such as thyroid disease, diabetes, or any skin disorder) as well as any skin-related complaints. A clinical examination was done to detect visible lesions on the skin of the body, which were diagnosed clinically and confirmed by dermatological opinion from Dermatology Department of Abbasi Shaheed Hospital and relevant lab tests and only after obtaining the consent of the participants, photographs were taken. Given the multiethnic population, the proforma was translated from English into the national language of the participants and completed by the principal investigator or one to two trained postgraduate students. Ethical approval was obtained from the Ethical Review Board of Karachi Medical & Dental College (Reference No. 030/22).

Data analysis

Data were entered and analyzed using SPSS version 17, with continuous variables (e.g., age) presented as mean, standard deviation, median, range, and 95% confidence interval, and categorical variables (e.g., parity, complaints, examination findings) presented as frequencies and percentages; a chi-square test was applied to evaluate associations between skin disorder variables and demographic characteristics, with a p-value < 0.05 considered statistically significant.

RESULTS

A total of 335 participants were enrolled. As shown in Table-I, the mean age was 26.5 ± 4.81 SD. Most subjects were educated 137 (40.9%) and 99 (29.6%) were illiterate. Most of our participants

were mother of more than one child 235 (75.07%). As far as medical disorders were concerned majority had no co-morbid, 263 (78.5%) and 40 (11.9%) of our participants were diabetic and 19 (5.07%) asthmatics respectively. There were 39(11.6%) cases were found with pre-existing skin disorders, 30(9%) were reported for treatment, 22(6.6%) were found with drug history and allergies, and 15(4.5%) were reported for family history of skin disorders.

As shown in Figure-1. Pruritis was the commonest complaint reported by the participants 94(28.1%) Pie chart 1 is report the descriptive on dermatologic complain, there were (28.1%) females were found with Pruritus, (10.7%) were found pain with skin lesion, (8.1%) were found pain with redness (3.3%) were found with skin lesion, (1.5%) were found with redness, (0.6%) were found with pain and (0.3%) were found with burning dermatologic complain.

As shown in Table-II majorities of our participants belong to Group I showed normal physiological changes in pregnancy 196(58.50%) while 88(26.2%) had pathological and Group II skin lesions. Rest of 51 did not exhibit any skin changes.

Table-III showed that Among Group II 30 (9%) were found with Intrahepatic cholestasis of pregnancy, 2 (0.6%) were found with Pemphigoid gestations, 4(1.2%) were found with Polymorphic eruptions of pregnancy, 10(3%) were found with Prurigo of pregnancy and 10 (3%) were found with Pruritus' Folliculitis.

Figure-2 showed frequency on other skin lesions, results showed scabies cases were 8(2.4%) the commonest cause ,herpes simplex was seen in 3(0.9%) cases , 7(2.1%) participants had fungal infection and Tinea corpora was 5(1.5%) ,Two (0.6%)case had diagnosed Lichen plannus and 2(0.6%) had Psoriasis.

Figure-3 has shown that specific skin disorders during pregnancy have significant association with pre-existing skin disorder, past treatment, drug history and allergies and dermatologic complaints with $p < 0.05$ was obtained using Pearson Chi Square test.

TABLE-I

Baseline Characteristics of Samples Studied (n=335)

Characteristics		n	%
Parity	Primi	100	29.9
	Multi	137	40.9
	Grand multi	98	29.3
Education	Illiterate	99	29.6
	Primary	99	29.6
	Secondary	137	40.9
Age (years)	Mean $\pm$ SD	26.5	$\pm$ 4.8
	Asthma	19	5.7
Medical disorders	Diabetes	40	11.9
	Thyroid	4	1.2
	PIH	9	2.7
	No	263	78.5
Pre-existing skin disorder	No	296	88.4
	Yes	39	11.6
Any Treatment	No	305	91.0
	Yes	30	9.0
Drug history and allergy?	No	313	93.4
	Yes	22	6.6
Family history of skin disorders	No	320	95.5
	Yes	15	4.5

FIGURE-1

Frequency of dermatologic complain (n=335)

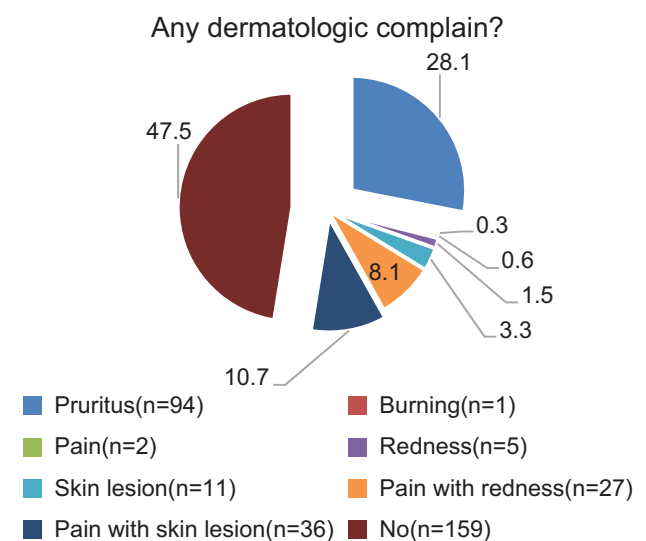


TABLE-II

Distribution of Normal Physiological Changes and Pathological Skin Lesions (n=335)

Group	n	%
Normal Physiological Changes (Group-I)	196	58.50
(Group II) + Pathological Skin Lesions	88	26.2

TABLE-III

Description of skin disease of Group II (n=335)

		n	%
Intrahepatic cholestasis of pregnancy (any skin excoriation)	No	305	91.0
	Yes	30	9.0
Pemphigoid gestation (Erythematous urticarial plaques, vesicles, bullae)	No	333	99.4
	Yes	2	0.6
Polymorphic eruptions of pregnancy (Urticarial papules and plaques)	No	331	98.8
	Yes	4	1.2
Prurigo of pregnancy (Excoriated papules)	No	325	97.0
	Yes	10	3.0
Pruritus' Folliculitis (Red follicular papules)	No	325	97.0
	Yes	10	3.0

FIGURE-2

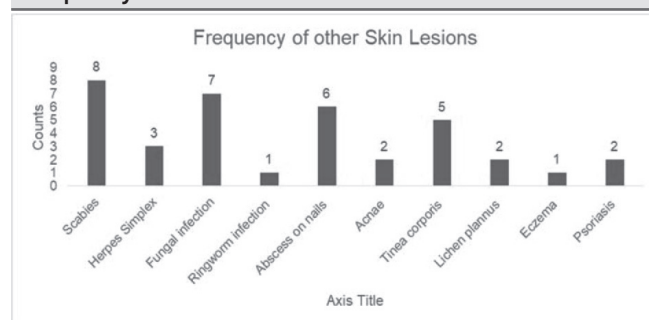
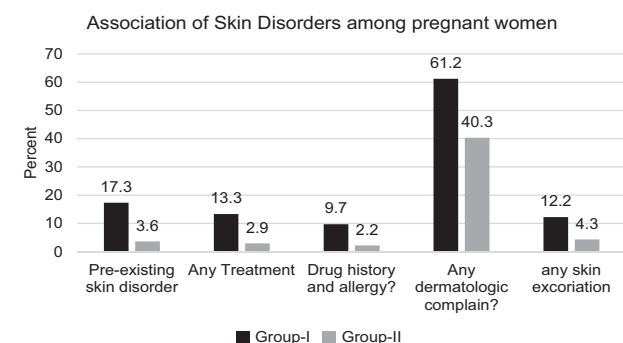
Frequency of other skin lesions (n = 335)

FIGURE-3

Association of skin disorders among pregnant women (n = 335)**DISCUSSION**

This study aimed to assess the prevalence and the pattern of skin disorders among pregnant women at tertiary care hospital, Karachi to provide a significant insight about the dermatological burden in the pregnant women. Our results indicate that pruritus was the most frequent symptom, and was reported by 94 participants (28.1%). This prevalence is consistent with the literature of the present time, which reports pruritus as a very common symptom of various cutaneous diseases during pregnancy.^{3,8} A systematic review performed in 2025 highlighted that itchy skin disorders are a major cause of maternal morbidity, and excessive itchiness can have a marked impact on sleep quality and the patient's quality of life.¹

Fungal infections and scabies were the leading etiologies of pruritus noted in our study population. These results are similar to those who found in a 2025 Indian study consisting of 114 pregnant females which found scabies to be present in 6.1% of patients and reports fungal infections to be one of the most common non-specific dermatoses in pregnancy.⁹ Factors that attribute to these infective causes include pregnancy related immunosuppression, low socioeconomic status, and poor hygiene. These findings underscore the critical need for healthcare providers to maintain a high index of suspicion for these treatable infections in pregnant women.

Physiological skin changes were observed in 196 participants (58.5%), with striae gravidarum being the predominant finding (23.1%). A 2025 Indian study of 445 pregnant women found that areolar and nipple hyperpigmentation (82.9%) were the most frequent physiological alterations, followed by striae gravidarum (58.2%) and linea nigra (38.2%).¹⁰ A 2025 Korean review similarly reported that hyperpigmentation (melasma, linea nigra), striae gravidarum, and vascular changes (spider angioma, palmar erythema) represent the most common physiological skin changes during pregnancy, all of which typically resolve postpartum.³

Pregnancy-specific dermatoses were observed in 88 participants (26.2%) in our study — higher than the previously reported range of 2% to 14%

in the literature. However, a 2026 Pakistani study from Rawalpindi reported specific dermatoses in 12.5% of 120 pregnant women, while a 2025 Indian study reported 18.4%.^{2,8} The elevated frequency in our study may be explained by referral bias at our tertiary care center, where complicated cases are preferentially managed.

Among specific dermatoses, intrahepatic cholestasis of pregnancy (ICP) was diagnosed in 30 cases (9%) in our cohort. This prevalence rate is considerably greater than previously estimated in our region (0.8% in Rawalpindi and 2.6% in Tamil Nadu).^{2,8} This variance has clinical implications as it was recently reviewed in 2025 that ICP is linked to antepartum spontaneous and iatrogenic preterm birth, meconium stained amniotic fluid, respiratory distress syndrome, and stillbirth in severe cases where bile acids were found to be $>100 \mu\text{mol/L}$.¹¹ It was further reviewed in 2025 that delivery by 36–37 weeks is indicated for severe cholestasis to reduce fetal risk, and therapies on the horizon such as Volixibat, FXR agonists, and Nor UDCA may be superior to ursodeoxycholic acid.⁸

Pemphigoid gestationis (PG) was observed in 2 cases (0.6%) in our study. A 2025 Korean review classified PG as a rare autoimmune blistering disease (incidence approximately 1:50,000 pregnancies) characterized by anti-BP180 autoantibodies, with direct immunofluorescence showing complement C3 deposition along the basement membrane. PG is associated with preterm birth and low birth weight, requiring close antepartum surveillance.^{2,3} The 2026 Pakistani study similarly reported PG in 3.3% of affected women, with a highly significant association with history of cutaneous eruption in previous pregnancy ($p < 0.001$).²

Polymorphic eruption of pregnancy (PEP), also known as PUPPP, was observed in 4 cases (1.2%). This condition typically presents in the third trimester, especially in primigravidas or multiple gestations, with pruritic erythematous papules and plaques originating within striae gravidarum on the abdomen.³ Treatment includes moisturizers, topical corticosteroids, antihistamines, and narrowband UVB phototherapy for refractory cases.³

Prurigo of pregnancy and pruritic folliculitis were each observed in 10 cases (3.0%). A 2025 systematic review on prurigo in pregnancy characterized it as intensely pruritic papulonodules primarily affecting extensor surfaces, typically beginning around 25–30 weeks' gestation. Unlike other pregnancy dermatoses, prurigo of pregnancy is considered benign with no adverse fetal outcomes, and management typically includes topical corticosteroids and oral antihistamines.^{3,9}

Among incidental dermatological conditions, scabies (2.4%), fungal infections (2.1%), and tinea corporis (1.5%) were the most prevalent. A 2025 Indian study similarly reported scabies in 6.1% of pregnant women, confirming that infective dermatoses remain common during pregnancy.⁹ The burden of infective dermatoses necessitates intensified personal hygiene education and provision of dermatological care services during antenatal clinics. Additionally, skin diseases have psychological correlates that should be acknowledged. For example, a 2026 review found that skin changes throughout pregnancy have detrimental effects on women's physical comfort, body image, emotional well-being, and overall health-related quality of life. Psychological distress (mainly anxiety and depression) was strongly associated with moderate-to-severe skin symptomatology.¹² In individuals with melasma, depression prevalence was 43.4%, nearly 12 times the global prevalence.¹² Our analysis showed significant correlations between certain skin diseases and history of dermatoses, previous treatment, drug allergies, and skin disease complaints ($p < 0.05$). These findings align with the 2025 systematic review evidence that pregnancy interacts complexly with pre-existing dermatological conditions, and that a history of cutaneous eruption in a previous pregnancy is strongly associated with recurrence ($p < 0.001$).^{2,9}

Clinical Implications: Given that ICP was observed in 9% of our participants—a condition now recognized to have dose-dependent and duration-dependent risks for fetal compromise—we recommend routine screening for pruritus and liver function tests with bile acid measurements in the third trimester.^{8,11} typically presenting in the third trimester. It is characterized by pruritus, elevated serum bile acids, and abnormal

liver function tests. While maternal symptoms resolve postpartum, ICP poses significant risks to fetal health, including spontaneous preterm labor, meconium-stained amniotic fluid, and stillbirth. This review aims to synthesize current knowledge on the pathogenesis, diagnosis, and management and highlight emerging research and possible therapy directions in ICP. A comprehensive review of recent literature was conducted, focusing on molecular mechanisms, clinical management guidelines, fetal outcomes, and novel therapeutics under investigation. Ursodeoxycholic acid (UDCA) Furthermore, the high prevalence of scabies and fungal infections (5.9% combined) suggests that improved personal hygiene education and preventive health measures should be integral components of antenatal care.

LIMITATIONS

This study was conducted at a single tertiary care center, which may limit generalizability to primary care or community settings. Additionally, the cross-sectional design precludes assessment of causal relationships between skin disorders and pregnancy outcomes. Future prospective studies with long-term maternal and fetal follow-up are warranted, particularly longitudinal research examining the full arc of hormonal transitions on skin outcomes across diverse populations.¹²

CONCLUSION

This study concludes that the Pruritus and Physiologic skin changes are commonly observed during pregnancy and are generally benign in nature. However, among specific skin disorders in pregnancy, intrahepatic cholestasis was more observed, a condition may lead to fetal complication like fetal distress, still birth.

Furthermore, a significant number of scabies and fungal infection were observed which highlights the need for improved personal hygiene, patient education, and preventive health care measures during ante-natal care. A detailed history and awareness of clinical presentation can be helpful for confirmation of diagnosis and most appropriate laboratory evaluation is helpful to diminish the maternal and fetal morbidity.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

SOURCE OF FUNDING

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Copyright© 25 May, 2026.

REFERENCES

1. Alhomieed MF, Al Hartany LO, Alghorab MA, Alsharif A, Kaleemullah A, Wasaya HI, et al. **The effect of pregnancy on dermatological disorders: A systematic review.** Clin Pract. 2025; 15(4):68.
2. Reesham Zulkiffal Bhatti AH. **Frequency and clinical patterns of pregnancy-specific dermatoses at a Tertiary Care Hospital.** JCPSP Postgrad. 2026; 2(2):232-35.
3. Her Y. **Dermatoses of pregnancy: Clinical features, diagnosis, and management.** J Korean Matern Child Heal. 2025; 29(4):203-10.
4. PrabhuDas M, Piper JM, Jean-Philippe P, Lachowicz-Scroggins M. **Immune regulation, maternal infection, vaccination, and pregnancy outcome.** J Women's Heal. 2021; 30(2):199-206.
5. Chen W, Wan Y, Sun Y, Gao C, Li J. **Prevalence of depression in melasma: A systematic review and meta-analysis.** Front Psychiatry. 2024; 14:1276906.
6. Shukla N, Rai H, Sharma P, Nema P. **Skin changes associated with pregnancy: Insights from a Tertiary Care Hospital.** J Pharm Bioallied Sci. 2025; 17(Suppl 1):S849-S851.
7. Anderson HJ, Correale D, Lee JB. **Dermatoses of pregnancy.** In: **Maternal-Fetal Evidence Based Guidelines.** CRC Press; 2022:458-68.
8. Jasak K, Gajzlerska-Majewska W, Jabiry-Zieniewicz Z, Litwi-ska-Korcz E, Litwi-ska M, Ludwin A, et al. **Intrahepatic cholestasis of pregnancy: Diagnosis, management, and future directions—a review of the literature.** Diagnostics. 2025; 15(16):2002.
9. Khuvung PE. **A hospital-based clinical study of various cutaneous and venereal diseases in pregnancy.** Indian J Dermatol. 2025; 70(5):223-29.
10. Shukla N, Rai H, Sharma P, Nema P. **Skin changes associated with pregnancy: Insights from a Tertiary Care Hospital.** J Pharm Bioallied Sci. 2025; 17(Suppl 1):S849-S851.
11. Niculae LE, Petca A. **Intrahepatic cholestasis of pregnancy: Neonatal impact through the lens of current evidence.** Biomedicines. 2025; 13(9):2066.
12. Sharifi S, Gulati J, Shah V, Barr K, Jafferany M. **Psychodermatology of the Female: Hormones, Skin and Mental Health Across the Lifespan.** JEADV Clin Pract. Published online 2026.

AUTHORSHIP AND CONTRIBUTION DECLARATION

1	Shabnam Nadeem: Conceptualized and designed the study, supervised data collection, performed data analysis and interpretation, drafted the initial manuscript, and critically revised the manuscript for important intellectual content. Approved the final version for publication and agrees to be accountable for all aspects of the work.
2	Amna Begum: Contributed to study design and methodology, conducted literature search, designed the data collection proforma, coordinated and performed data acquisition in the ICU, assisted in data analysis, and contributed to writing and revising the manuscript.
3	Sumaira Mehmood: Contributed to the study concept, assisted in data interpretation, provided critical revision of the manuscript for important intellectual content, Approved the final version for publication and agrees to be accountable for all aspects of the work.
4	Atia Kazim: Contributed to the study for proof reading and technical correction.
5	Kishwer Naz: Validated the statistical analysis.
6	Afifa Inayat: Helped in results interpretation and generated result tables, searched references for discussion writing.