

Correlation between Anaemia and Perceived Stress in Antenatal Women Attending Antenatal Clinics

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Abstract: Perceived stress is defined as the feelings or thoughts that an individual has about how much a stressful event or situation occurs at a given time or over a given period. Anemia has serious short- and long-term consequences during pregnancy and beyond, such as the increased risk of preterm birth, low birth weight, and delayed cognitive development in children. The aim of this study is to identify the correlation between anemia and Perceived stress in pregnant women. **Data and Methods:** A cross-sectional study, was conducted on pregnant women who attended the antenatal clinics. Women with a known history of psychiatric illness, Intellectual disability, or surgical or medical co-morbidities (Diabetes mellitus, Hypertension, Cardiovascular diseases, thyroid disorders), any stressful life events prior to pregnancy, and women who did not give consent for the study will be excluded from the study. Hemoglobin (Hb) concentration was measured by collecting a venous blood sample and applying it to aHb analyzer. Based on the hemoglobin concentration study subjects were divided into two subgroups: The anemic group (Hb <11 gm/dl) and the non-anemic group (Hb ≥11 gm/dl). Sheldon Cohen's Perceived Stress Scale was used to measure and assess the severity of stress in study subjects. The study subjects who scored less than 13 on Cohen's Perceived scale were considered as free from stress, 13-20 score was taken as mild to the moderate stress level, and the above 20 was taken as severe stress. The correlation between Anemia and Perceived stress in Pregnancy was calculated using the Pearson Chi-Square test. **Results:** Out of 100 study participants, 74 individuals were anemic and 26 individuals were non-anemic. The frequency of subjects with high perceived stress scores in the Anemic group was higher compared to the non-Anemic group. Anemia had a positive correlation with perceived stress scores. The level of significance was taken at a p-value less than 0.05. **Conclusion:** As anemia is associated with higher perceived stress levels, it should be carefully considered during pregnancy.

Keywords: Anemia, perceived stress, pregnancy, Hemoglobin Concentration

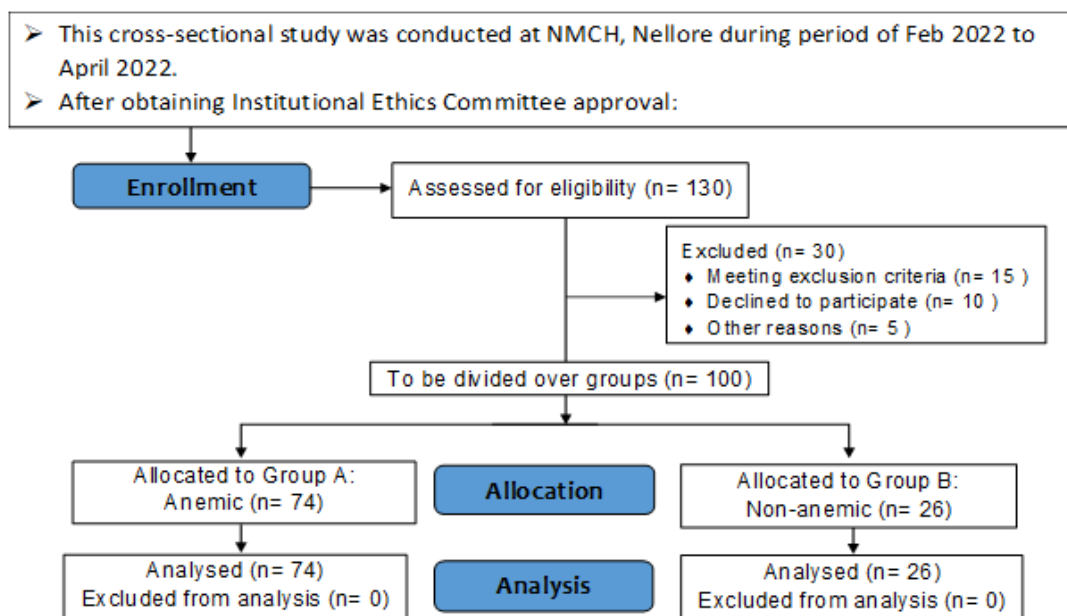
1. Introduction

Pregnancy is recognized as a stressful event in a woman's life that needs enormous psychological adjustment¹. Perceived stress during pregnancy is common but there have been few reports of the prevalence of antenatal perceived stress¹. Perceived stress during pregnancy is clearly known to be associated with poor obstetric outcomes, including preterm birth, low birth weight¹, and increased risk of iron deficiency in infants⁴.

Studies have been reported on the effect of psychological stress on levels of serum iron and erythropoietin², iron absorption³ but human studies are limited. Anemia is common during pregnancy, with iron deficiency being the most common, but studies regarding maternal perceived stress and iron deficiency are limited⁴.

In this study, we aim to know the correlation between anemia and perceived stress in antenatal women.

2. Methodology



- 1) Based on the hemoglobin concentration study subjects were divided into two subgroups:
 - Group A: Anemic group (Hb <11 gm/dl)
 - Group B: Non-anemic group (Hb ≥11 gm/dl)
- 2) Sheldon Cohen's Perceived Stress Scale was used to measure and assess the severity of stress in study subjects:

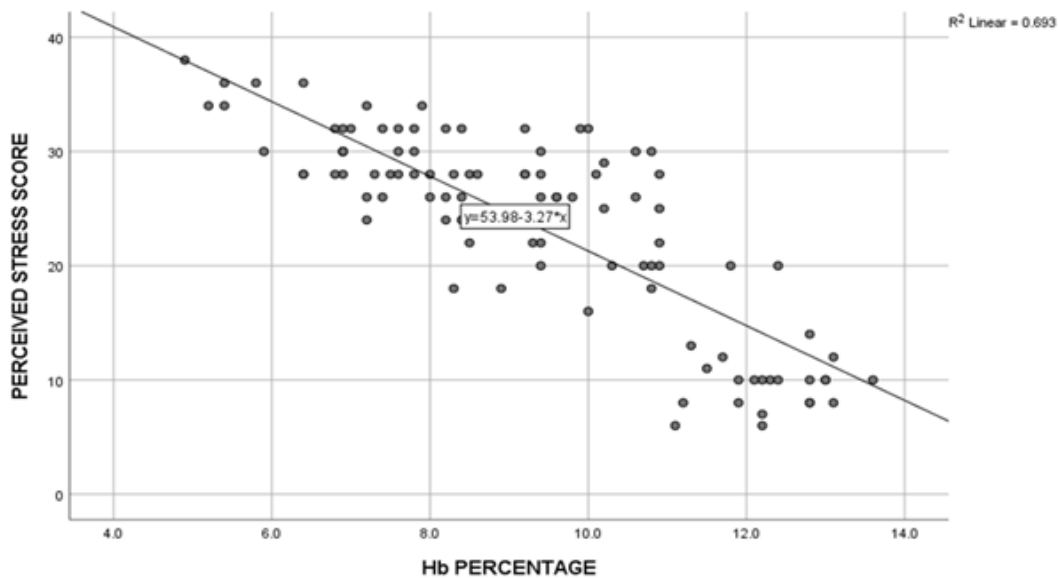
Score	Severity
<13	Free from stress
13 – 20	Mild to Moderate
>20	Severe

- Statistical analysis was done using Microsoft SPSS 25.0 software.

- Hemoglobin level and perceived stress score of both groups were represented in means and standard deviation.
- Student's t-test was used to know the statistical significance between both groups regarding the variables.
- The correlation between Anemia and Perceived stress in Pregnancy was calculated using Pearson correlation coefficient and P-value was calculated using Chi-Square test.
- P value <0.05 was taken as statistically significant.

3. Results

Correlation between hemoglobin and perceived stress:



Variable	Group A (n=74)	Group B (n=26)	Correlation Co-efficient (R)	P-value
Hemoglobin	8.39 ± 1.58	12.3 ± 0.67	-0.833	<0.01
Perceived stress score	27.59 ± 4.74	10.5 ± 3.55		

4. Discussion

Rendina et al.⁴ conducted a retrospective study regarding maternal perceived stress during pregnancy and risk for low neonatal iron at delivery and depletion of storage iron at one year. They concluded that maternal recall of stress during pregnancy was associated with lower iron stores at birth and high cord blood ZnPP/H (P<0.01).

Subbalakshmi NK et al.⁵ conducted a study regarding the influence of perceived stress on hemoglobin concentration. Their study showed that hemoglobin concentration was negatively correlated with perceived stress score (R= -0.26; P= 0.015).

In our study, we aimed to know the correlation between anemia and perceived stress in antenatal women. Our study showed that there was a negative correlation between hemoglobin concentration and perceived stress (R= -0.833; P<0.01), which is statistically significant.

Mean hemoglobin concentration and mean perceived stress score in both groups were compared, which was statistically significant (P<0.01).

5. Limitations

- Hemoglobin concentration was taken as a proxy for serum iron indices due to its relatively low cost and ease of determination.
- Women belonging to various trimesters were assessed, but not grouped accordingly.
- A more extensive prospective study with repeated reporting of perceived stress throughout all three trimesters of pregnancy has to be done by use of serum iron indices and diet patterns to establish co-relation.

6. Conclusion

We conclude that there is a negative correlation between hemoglobin concentration and perceived stress in antenatal women.

References

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