CHANGES IN THE HB LEVEL OF THE SELECTED FEMALE STUDENTS DURING STUDENTS DURING BEFORE & AFTER MENSTRURAL CYCLE

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ABSTRACT: This study was conducted to assess the changes in hemoglobin (Hb) levels among students over a period of three months. A total of 70 students participated in the study. Hb levels were measured every month and categorized as increased, decreased, or not changed. In the first month, the majority of students showed a decrease in Hb level. During the second month, a gradual improvement was observed in some students. By the third month, a significant number of students showed an increase in Hb level. Overall analysis showed that 46.6% of students had increased Hb levels, 48.6% showed decreased levels, and 4.8% had no change. The results indicate fluctuations in Hb levels over time. Proper nutrition and awareness may help improve Hb levels. This study highlights the importance of regular monitoring of hemoglobin among students.

KEY WORDS: Hemoglobin, Hb level, Anemia.

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INTRODUCTION: Hemoglobin is a conjugated protein found in red blood cells that contains iron and function as the transportation of oxygen from the lungs to all body tissue cell (Asfarainiet al., 2017). Menstrual cycle is the cycle that occurs in female between the age of menarche and menopause. The average length of cycle every month during this period is usually 28 days but may vary from 21 to 40 days with secretion of steroid hormones namely, estrogen and progesterone (Hall & Guyton, 2010,12th Edition). The phases of menstrual cycle can be divided in three viz. Menses (Bleeding), follicular phase or pre-ovulatory phase and post ovulatory phase or luteal phase (Yoshio Suzuki, 2018). Blood loss during menses may affect the iron status of a female which may indirectly affect the level of hemoglobin in blood as haem is iron group in hemoglobin (Kim I, Yetly EA and Calvo MS, 1993). Oxygen in blood is carried by hemoglobin level, may led to depletion in oxygen carrying capacity of blood to all tissues and organs, which may affect the energy level of body resulting in low aerobic capacity (Hall & Guyton,2010,12th Edition).

MATERIALS AND METHODS: This study was conducted to check haemoglobin (Hb) levels before and after periods among female students. A total of 70 voluntary students

participated in this study. The students were selected from our department and other departments. Only healthy students who were willing to participate were included. Blood samples were collected during the before-mensural cycle and after-mensural cycle for comparison. The blood groups of the participants were A^+, B^+, AB^+, and O^+. Among the 70 students, A^+ – 13 students, B^+ – 20 students, AB^+ – 8 students, and O^+ – 29 students participated in this study. Haemoglobin estimation was done using Sahli'shaemoglobinometer method. This method is simple, economical, and commonly used in laboratories. About 20 µL of capillary blood was collected using a sterile lancet and added to 0.1 N hydrochloric acid in the Sahli's tube. The blood was mixed well and allowed to stand for 10 minutes for the formation of acid haematin. Distilled water was then added drop by drop and mixed until the colour matched the standard comparator. The haemoglobin value was read directly from the graduated scale and recorded in g/dL. All readings were noted carefully for analysis.

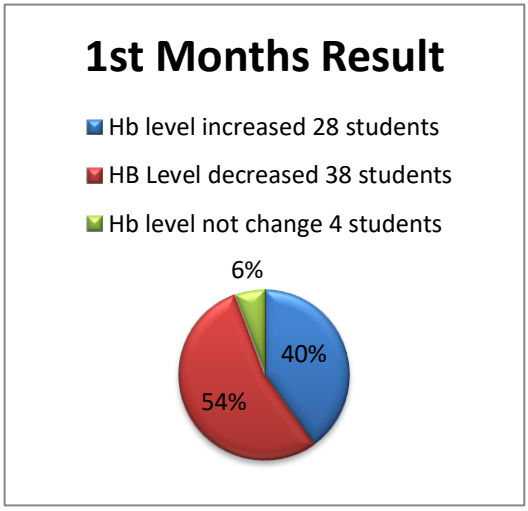
STUDY AREA The study was conducted at Adhiyaman Arts and Science College for Women, located inUthangarai, Tamil Nadu, India.The participants were female college students aged between 18–22 years.The study focused on assessing hemoglobin levels before and after menstruation among students within the college campus.

OBSERVATION: The study included 70 students and their hemoglobin (Hb) levels were monitored for three months.In the first month, most students showed a decrease in Hb levels.In the second month, slight improvement was observed in some students.By the third month, more students showed an increase in Hb levels.Overall, 46.6% showed increased Hb, 48.6% decreased, and 4.8% showed no change.

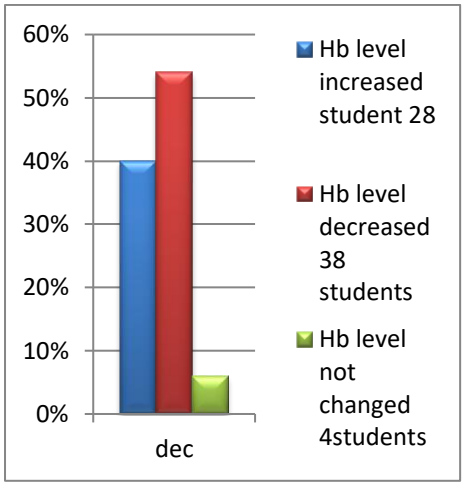
RESULT

DEC-1ST MONTH

S.NO	BEFORE HB LEVEL	AFTER HB LEVEL	S.NO	BEFORE HB LEVEL	AFTER HB LEVEL
1	12.0	11.0	36	10.5	9.5
2	12.5	11.5	37	10.8	10.5
3	10.0	8.2	38	9.8	9.5
4	12.0	9.5	39	9.0	8.8
5	8.0	10.5	40	8.5	7.8
6	11.2	11.0	41	9.0	8.5
7	10.5	10.2	42	11.5	11.5
8	8.0	7.8	43	12.8	12.0
9	9.0	8.9	44	12.5	12.1
10	12.0	11.8	45	13.1	13.0
11	8.2	8.1	46	10.8	8.9
12	11.3	10.5	47	8.5	8.2
13	10.1	8.2	48	11.8	11.5
14	13.1	12.0	49	12.5	12.0
15	9.8	9.5	50	8.8	8.5
16	10.0	8.2	51	12.8	8.5
17	10.8	10.5	52	11.9	11.5
18	12.8	11.8	53	8.2	8.5
19	11.2	11.0	54	9.8	9.5
20	8.2	7.2	55	10.8	11.8
21	10.2	9.8	56	9.9	10.8
22	12.2	11.1	57	10.8	11.0
23	11.5	10.8	58	11.8	11.5
24	12.5	11.8	59	11.9	11.5
25	12.0	11.8	60	12.9	12.5
26	9.8	9.5	61	11.9	11.5
27	8.5	10.7	62	8.9	8.5
28	7.4	9.8	63	12.6	12.5
29	12.5	11.2	64	8.8	8.5
30	11.8	11.5	65	9.8	9.5
31	8.7	8.5	66	8.8	8.5
32	11.0	10.0	67	12.5	12.2
33	8.0	7.8	68	11.8	11.1
34	7.9	7.5	69	9.8	9.5
35	11.0	10.8	70	10.9	10.5



Comparison of Hemoglobin Level Changes in the First Month

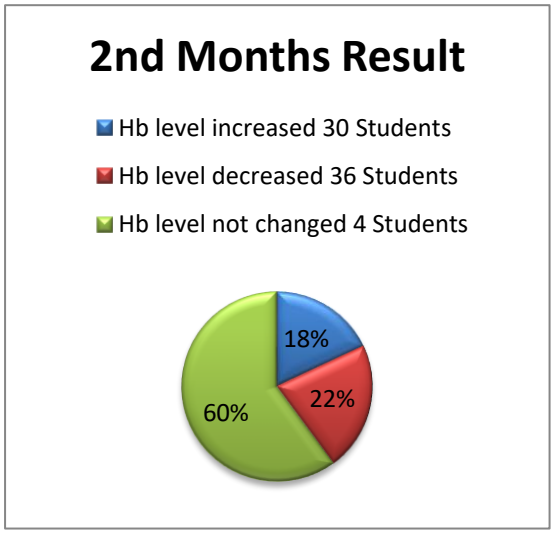


Percentage Distribution of Hemoglobin Level Changes in the First Month

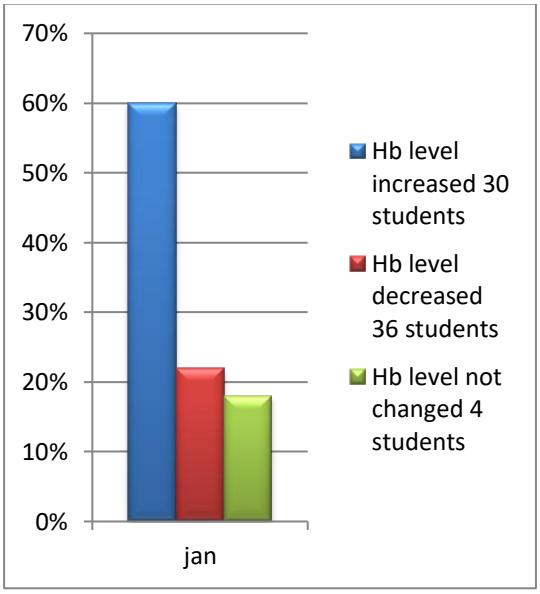
JAN-2ND MONTH

S.NO	BEFORE HB LEVEL	AFTER HB LEVEL	S.NO	BEFORE HB LEVEL	AFTER HB LEVEL
1	11.2	11.0	36	10.8	9.8
2	11.2	11.0	37	10.5	10.0
3	10.8	10.0	38	9.0	10.8
4	11.2	11.8	39	7.8	8.8
5	11.4	11.0	40	8.8	7.0
6	12.4	12.0	41	7.0	8.2
7	11.8	11.0	42	11.9	7.8
8	8.2	8.8	43	9.0	11.8
9	9.2	9.8	44	11.2	9.2
10	11.9	11.0	45	12.0	11.8
11	8.0	8.8	46	9.0	8.8
12	10.5	9.0	47	11.2	10.8
13	9.5	9.0	48	9.2	9.0
14	11.8	11.2	49	9.5	9.0
15	9.5	9.0	50	11.1	10.8
16	8.2	9.2	51	12.2	11.8
17	10.5	10.2	52	7.0	8.8
18	11.8	11.0	53	7.0	8.2
19	11.0	10.8	54	11.2	11.0
20	10.8	10.0	55	9.0	8.8
21	9.8	8.0	56	9.8	9.5
22	11.8	11.2	57	11.8	11.5
23	10.8	10.0	58	12.0	10.8
24	12.8	12.2	59	11.8	11.5
25	11.8	11.0	60	12.0	8.5
26	8.2	8.0	61	11.2	11.0
27	10.7	9.8	62	10.8	10.5
28	9.8	9.0	63	9.2	9.8
29	11.2	12.5	64	10.8	11.8
30	9.0	12.5	65	9.2	11.0
31	10.0	8.8	66	10.8	10.5
32	11.2	11.0	67	11.2	8.8
33	7.8	11.0	68	10.9	9.0
34	7.5	8.2	69	8.0	9.5
35	9.4	7.4	70	9.8	8.1

Percentage Distribution of Hemoglobin Level Changes in the Second Month



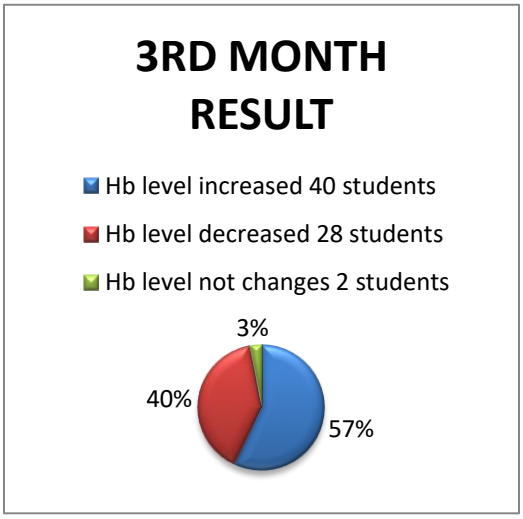
Comparison of Hemoglobin Level Changes in the Second Month



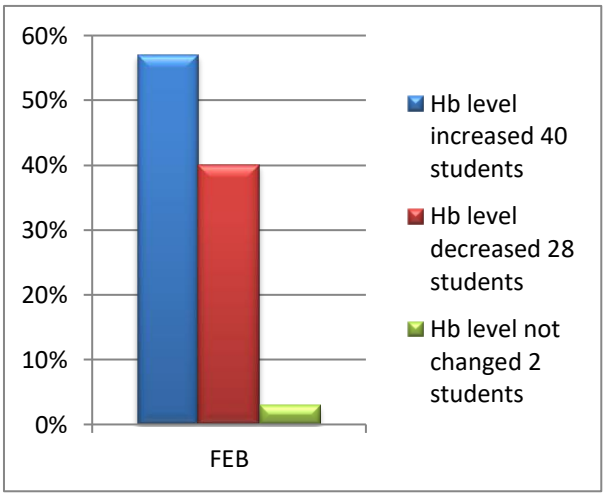
FEB-3rd MONTH

S.NO	BEFORE HB LEVEL	AFTER HB LEVEL	S.NO	BEFORE HB LEVEL	AFTER HB LEVEL
1	11.0	10.8	36	10.8	10.5
2	11.0	9.9	37	9.0	10.5
3	10.0	8.5	38	8.8	8.5
4	11.2	11.5	39	7.0	8.9
5	11.0	10.9	40	8.2	8.5
6	12.0	11.8	41	7.8	7.0
7	11.0	10.9	42	11.2	11.0
8	8.8	8.9	43	9.2	9.1
9	9.8	9.5	44	8.1	9.2
10	11.0	10.9	45	11.8	11.5
11	8.8	8.9	46	8.9	9.3
12	10.5	9.8	47	10.9	10.5
13	11.0	9.2	48	9.8	9.5
14	11.2	11.0	49	10.9	9.2
15	9.0	8.9	50	10.8	10.5
16	9.2	9.2	51	11.5	11.5
17	10.2	11.0	52	8.9	9.2
18	11.0	10.8	53	9.8	9.5
19	10.8	10.0	54	11.3	11.5
20	10.0	8.0	55	8.9	8.5
21	8.0	7.0	56	10.5	10.9
22	11.2	11.0	57	11.2	11.1
23	10.0	10.7	58	10.9	10.5
24	12.2	12.0	59	11.4	11.2
25	11.0	10.9	60	8.9	8.5
26	8.0	9.8	61	11.5	11.4
27	9.8	9.5	62	10.8	10.5
28	9.0	8.9	63	9.9	10.0
29	12.5	12.0	64	11.9	11.5
30	8.8	8.5	65	11.8	11.4
31	11.0	10.9	66	10.8	10.5
32	11.0	12.5	67	8.5	8.7
33	8.5	8.2	68	10.5	10.9
34	7.4	7.2	69	10.8	10.7
35	9.8	9.5	70	11.8	11.5

Percentage Distribution of Hemoglobin Level Changes in the Third Month



Comparison of Hemoglobin Level Changes in the Third Month



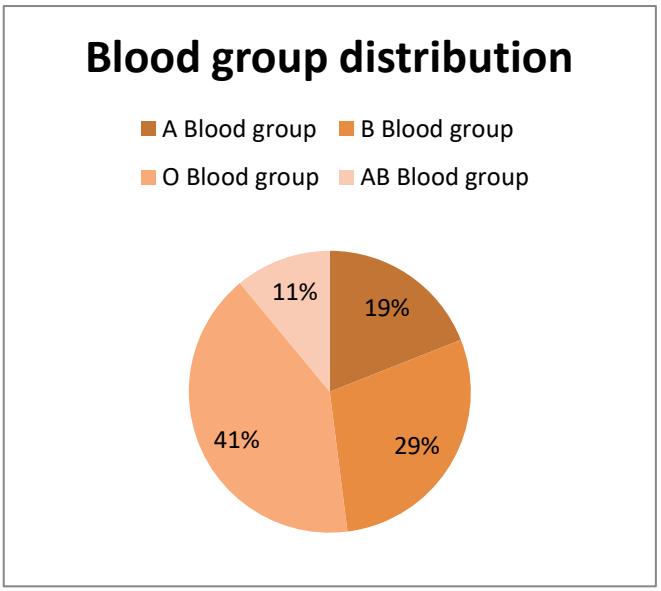
BEFORE HB LEVELS

RANGES	1st month Result	2nd month Result	3rd month result
7-9	26	27	29
10-12	42	53	41
12 above	2	-	-

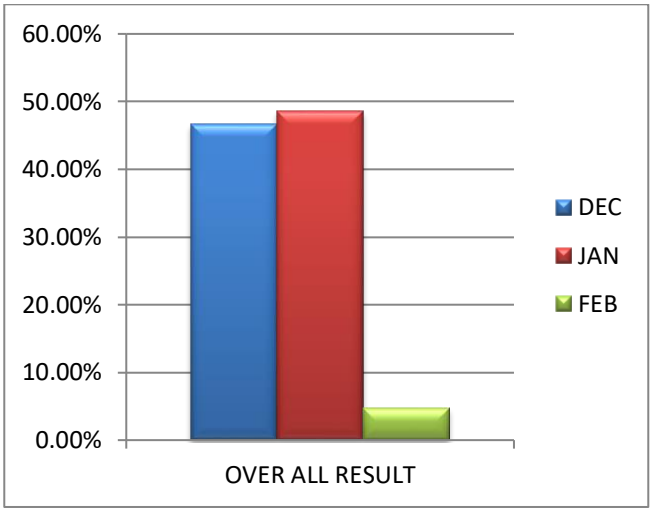
AFTER HB LEVELS

RANGES	1ST month Result	2nd month result	3rd month result
7-9	31	32	30
10-12	38	30	40
12 above	1	-	-

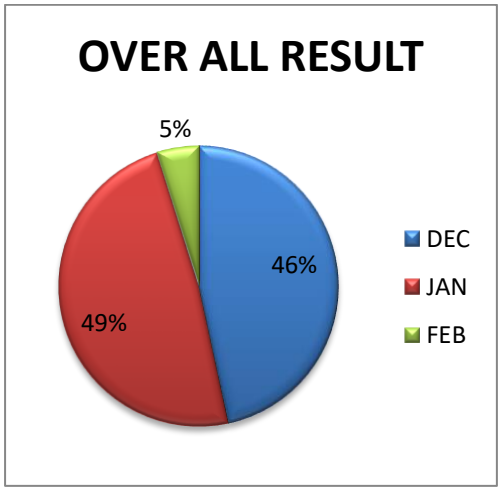
PERCENTAGE DISTRIBUTION OF HEMOGLOBIN LEVEL CHANGES AMONG STUDENTS



Overall Comparison of Hemoglobin Level Changes Over Three Months



Overall Percentage Distribution of Hemoglobin Level Changes Over Three Months



DISCUSSION

In our study evaluated the changes in hemoglobin (Hb) levels among 70 students over a period of three months. The results showed variations in Hb levels during each month. In the first month, a higher number of students had decreased Hb levels compared to those who showed improvement. In the second month, slight improvement was observed, but many students still had low Hb levels. By the third month, a significant increase in Hb levels was noted among more students.

Overall analysis revealed that 46.6% of students showed an increase in Hb levels, 48.6% showed a decrease, and 4.8% had no change during the study period. These findings indicate that Hb levels fluctuate over time due to various factors such as nutritional intake, menstrual cycle, lifestyle habits, and health status. Iron deficiency may be one of the major reasons for decreased Hb levels.

Regular monitoring and proper dietary management can help improve hemoglobin levels. This study emphasizes the importance of early detection of anemia and creating awareness among students about balanced diet and iron-rich foods. Further studies with a longer duration and larger sample size are recommended for more accurate results.

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