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Effectiveness of Behavioural Intervention Regarding Anaemia and Its Prevention among Postnatal Mothers: An Interventional Study

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Research Article

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EFFECTIVENESS OF BEHAVIOURAL INTERVENTION REGARDING ANAEMIA AND ITS PREVENTION AMONG POSTNATAL MOTHERS: AN INTERVENTIONAL STUDY

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ABSTRACT

Anaemia is a public-health concern that may persist after childbirth and affect maternal recovery and well-being. This study assessed the effectiveness of a behavioural intervention regarding anaemia and its prevention among postnatal mothers. A quantitative approach and quasi-experimental one-group pre-test–post-test design were used in the postnatal unit of Jalpaiguri Government Medical College and Hospital, West Bengal. Of 83 mothers initially enrolled/interviewed, 55 postnatal mothers with haemoglobin below 11 g/dL were included in the final analysis. Knowledge was assessed before and after structured teaching, and haemoglobin was reassessed 30–42 days after delivery. The mean knowledge score increased from 15.45 (SD 3.37) to 19.69 (SD 1.76), with a statistically significant difference (paired $t=8.27$, $df=54$, $p<0.001$). Mean haemoglobin increased from 9.55 (SD 0.98) g/dL at first contact to 10.72 (SD 0.75) g/dL at follow-up (paired $t=10.444$, $df=54$, $p<0.001$). At follow-up, 25 mothers (45.45%) had haemoglobin levels of at least 11 g/dL. The findings indicate improved knowledge and haemoglobin levels between baseline and follow-up. Because the study had no control group, the haemoglobin change cannot be attributed to the intervention alone. Structured teaching may support postnatal care alongside appropriate treatment, nutrition and follow-up.

KEYWORDS

Keywords: postnatal mothers; anaemia; behavioural intervention; knowledge; haemoglobin;

BACKGROUND OF THE STUDY

Anaemia is an important public health problem among women of reproductive age and may continue after childbirth. Blood loss during delivery, depleted iron stores, inadequate dietary intake and inconsistent use of prescribed iron–folic acid (IFA) supplements can contribute to low haemoglobin levels during the postnatal period. Anaemia may affect maternal recovery, energy, daily functioning and well-being. Evidence reviews describe anaemia as a multifactorial public-health problem, and national survey data document a substantial burden among women in India (1–3,6,7).

The postnatal period provides an opportunity for nurses to educate mothers about the causes, signs and consequences of anaemia, iron-rich foods, adherence to prescribed IFA supplementation, hygiene and infection prevention, and the importance of postnatal follow-up. WHO guidance discusses postpartum iron supplementation and emphasizes consistent, person-centred postnatal care (4,5,10). The present study assessed the effectiveness of a behavioural intervention regarding anaemia and its prevention among postnatal mothers in West Bengal.

STATEMENT OF THE PROBLEM

“Effectiveness of behavioural intervention regarding anaemia and its prevention among postnatal mothers admitted in different health care settings in West Bengal – an interventional study.”

OBJECTIVES

1. To assess the effectiveness of behavioural intervention regarding anaemia and its prevention among postnatal mothers in terms of change in haemoglobin level.
2. To determine the effectiveness of behavioural intervention on knowledge regarding anaemia and its prevention by comparing pre-test and post-test scores.
3. To determine the association between pre-intervention knowledge and selected demographic variables.

HYPOTHESES

H1: There is a significant difference between pre-test and post-test knowledge scores regarding anaemia and its prevention among postnatal mothers.

H2: There is a significant difference in haemoglobin levels before and after the behavioural intervention/follow-up.

H3: There is a significant association between pre-intervention knowledge and selected demographic variables.

MATERIALS AND METHODS

Research design and setting

A quantitative approach and quasi-experimental one-group pre-test–post-test design were used. The study was conducted in the postnatal unit of Jalpaiguri Government Medical College and Hospital, West Bengal. Follow-up haemoglobin assessment was performed 30–42 days after delivery.

Population, sample and sampling technique

The study population comprised postnatal mothers with haemoglobin levels below 11 g/dL. A total of 83 mothers were initially enrolled/interviewed, and 55 mothers were included in the final analysis. Simple random sampling was reported as the sampling technique. The exact sampling frame and random-selection procedure should match the procedure documented in the approved protocol and study records.

Tools and intervention

The study used a demographic and obstetric information schedule, a structured knowledge questionnaire regarding anaemia and its prevention, and haemoglobin values obtained from clinical records and follow-up testing. The behavioural intervention consisted of structured teaching with educational aids. The teaching content included the definition, types, causes, risk factors, signs and symptoms and effects of anaemia; dietary modification and iron-rich foods; adherence to prescribed IFA supplementation; hygiene and infection prevention; and postnatal follow-up.

Data collection and analysis

Knowledge was assessed before and after the intervention. Haemoglobin was recorded at first contact/admission and reassessed 30–42 days after delivery. Frequency, percentage, mean and standard deviation were used for descriptive analysis. Paired t-tests were used to compare pre- and post-intervention scores and haemoglobin levels; chi-square tests were used to examine associations between pre-intervention knowledge and selected demographic variables.

Ethical considerations

Ethical approval was obtained from the Institutional Ethics Committee of North Bengal Medical College and Hospital (Approval No. IEC/NBMCH/M-22/002/2025), dated 18 January 2025. Administrative permission was obtained from the concerned authority. Written informed consent was obtained from each participant before data collection. Participation was voluntary, and participants' privacy and confidentiality were maintained throughout the study.

RESULTS AND DISCUSSION

The final analysis included 55 postnatal mothers with haemoglobin below 11 g/dL. The study reported improvement in knowledge scores after the behavioural intervention. Before intervention, the mean knowledge score was 15.45 (SD=3.37); after intervention, it increased to 19.69 (SD=1.76). The mean difference was 4.24 points, and the paired t-test was statistically significant (t=8.27, df=54, p<0.001).

Knowledge outcome	Mean ± SD	Mean difference	Paired t-test
Pre-test	15.45 ± 3.37	—	—
Post-test	19.69 ± 1.76	4.24	t=8.27; df=54; p<0.001

These findings indicate that participants achieved higher knowledge scores after the teaching programme. The improvement suggests that structured, locally appropriate teaching may be a useful part of postnatal health education. The result is consistent with the rationale for structured postnatal education and follow-up described in WHO postnatal-care guidance (10); however, this study did not include a control group.

The mean haemoglobin level increased from 9.55 ± 0.98 g/dL at first contact to 10.72 ± 0.75 g/dL at follow-up 30–42 days after delivery. The mean difference was 1.17 g/dL, and the paired t-test was statistically significant (t=10.444, df=54, p<0.001). Postpartum iron supplementation is addressed in WHO guidance, and treatment approaches for postpartum iron-deficiency anaemia have been evaluated in systematic reviews (4,8,9).

Haemoglobin outcome	Mean ± SD (g/dL)	Mean difference	Paired t-test
At first contact	9.55 ± 0.98	—	—
30–42 days after delivery	10.72 ± 0.75	1.17	t=10.444; df=54; p<0.001

Haemoglobin status at follow-up

Haemoglobin category	Frequency (n=55)	Percentage
≥11.0 g/dL	25	45.45%
10.0–10.9 g/dL	24	43.64%
7.0–9.9 g/dL	6	10.91%

At follow-up, 25 mothers (45.45%) had haemoglobin levels of at least 11 g/dL, while 30 (54.55%) remained below 11 g/dL. Continued clinical assessment and management are therefore important. The observed increase in haemoglobin cannot be attributed to education alone because routine treatment, iron supplementation, dietary changes and postpartum recovery may also have contributed. WHO guidance supports appropriate postpartum assessment and care, including attention to maternal recovery and follow-up (4,10).

The study objective also included examining associations between baseline knowledge and selected demographic variables. The corresponding association results should be reported from the verified original statistical tables before journal submission.

A limitation of this study is its one-group pre-test–post-test design without a control group, which limits causal interpretation. Changes in haemoglobin may also reflect prescribed treatment, iron supplementation, dietary changes, or physiological recovery after childbirth. The study records should be checked to document why 28 of the 83 initially assessed/enrolled mothers were not included in the final analysis.

SUMMARY

Among 55 postnatal mothers with haemoglobin below 11 g/dL, the mean knowledge score increased from 15.45 to 19.69 after the behavioural intervention. Mean haemoglobin increased from 9.55 g/dL at first contact to 10.72 g/dL at follow-up 30–42 days after delivery. Both differences were statistically significant in paired analyses.

CONCLUSION

The findings show improvement in knowledge and haemoglobin levels between baseline and follow-up among the postnatal mothers studied. Structured behavioural education may be a useful component of postnatal nursing care alongside prescribed treatment, nutritional guidance and follow-up. As this was a one-group quasi-experimental study without a control group, the findings should be interpreted cautiously and cannot establish that the intervention alone caused the haemoglobin improvement. Further controlled studies involving larger and more diverse samples are recommended.

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