

Impact Study of Hygiene Counselling on Hygiene Practices- As A Controlling measure of Anaemia among Anaemic Rural Women

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Abstract: Anaemia is a worldwide problem especially in rural women of reproductive age. The most common form of anaemia is iron deficiency anaemia. More frequently it coexists with a number of other causes, such as malaria, parasitic infection, nutritional deficiencies, and haemoglobinopathies. These infection condition primarily prevails in conditions where hygiene conditions is very poor, such as conditions like open defecations walking barefoot, no proper knowledge about hand washing before taking food, which aggravated worms infections leading to iron deficiency anaemia. Hence this study was undertaken to assess the impact of counselling regarding proper hygiene among anaemic women of reproductive age. A total of one thousand one hundred and forty eight anaemic women were randomly selected from five villages. fifty percent of the women constitute our experimental group while the rest forms the control group where no interventions will be done. In the experimental group counselling was done for proper hygiene practices. After intervention the results of the experimental group shows improvement in their personal hygiene with decrease cases of anaemic women whereas women in the control group hardly shows any improvement. Hence conclusion can be drawn that personal counselling is indeed beneficial for rural women for improvement of their personal hygiene which in turn helps in controlling anaemia

Keywords: anaemic women, hand washing, personal hygiene, latrine use, shoe/slipper use.

I. Introduction

Almost 800 million women are affected by anaemia worldwide. In India, it is classified as a major public health problem as it is estimated that 52% of nonpregnant women of reproductive age are anaemic¹.

In India alone, depending on age and sex, Iron Deficiency Anaemia (IDA) has been reported to range between 38-72 per cent while majority of them are being women and children.² According to National Health Family survey (NFHS)-3 the prevalence of anaemia among married women in the age group of 15-49 years has risen from 51.8 percent in 1998-99(NFHS-2) to 56.1 percent in 2005-06 and no less than 57.9 percent of pregnant women suffer from anaemia. Anaemia, characterised by decreased levels of circulating haemoglobin and tissue iron contents, is known to lead to several functional abnormalities with health consequences.

Anaemia is defined as having haemoglobin below a specific level i.e. less than 12 grams of haemoglobin per decilitre of blood [g/dl] in non-pregnant women. Although the primary cause of anaemia is iron-deficiency, it is seldom present in isolation. More frequently it coexists with a number of other causes, such as malaria, parasitic infection, nutritional deficiencies, and haemoglobinopathies. The proportion of anaemia caused by iron-deficiency, increases to over 70% among premenopausal women in India^{3,4}.

In context of parasite infection intestinal infections, such as hookworms, can lead to iron deficiency and anaemia by causing intestinal blood loss, malabsorption of micronutrients, abdominal pain and anorexia. The prevalence of hookworm infection lies in the range 7-25%⁵. Underlying causes of anaemia in developing country like India, many of which stem from poverty, include household food insecurity (including a lack of dietary diversification), poor caring practices, inadequate health services and an unhealthy environment. Economically poor households lack resources to obtain sufficient micronutrient rich-foods, micronutrient supplements, treatment for parasitic disease, shoes, insecticide treated bed-nets, and other preventative commodities or services. They also lack knowledge on how to make their diet more nutritious and appropriate cooking methods. Iron deficiency can result from a failure to consume high amounts of iron required for growth and also failure to replace losses during menstruation and pregnancy; a low intake of either total iron or absorbable (bioavailability) iron; or excessive iron losses due to parasitic infections⁶.

As parasitic infection are transmitted orally either by eating foods with unclean hands or eating of unclean food, it is important to note these factors, and correct them as a controlling measure to check iron deficiency anaemia. Hand washing with soap also reduces the incidence of skin diseases, eye infections like trachoma and intestinal worms, especially ascariasis and trichuriasis⁷.

Indeed, Center for Disease Control and Prevention (CDC) has stated: "It is well documented that one of the most important measures for preventing the spread of pathogens is effective hand washing." As a general

rule, hand washing protects peoples, best against diseases transmitted through faecal-oral routes⁸. Individual hygiene behaviours can be affected by many factors, including beliefs, values, habits, socio-economic and cultural factors, level of knowledge, personal preferences, family characteristics and physical and social characteristics of the work and living environments. Therefore, the hygiene habits of each individual differ; meaning that these habits are unique to individuals⁹.

II. Aims & Objectives

This study was undertaken with the following aims as follows.

To study the impact of proper hygiene counselling among anaemic rural women on

1. Rate of use of latrine and use of shoes/slippers during defecations and encourage them to avoid open defecation.
2. To assess the improvement of personal hygiene practices.
3. To assess the impact of hygiene counselling as a controlling measure of anaemia.

III. Methodology

A total of five villages selected randomly were taken for this study. Screening test was done first done to identify all anaemic women in these villages as per WHO criteria. Haemoglobin estimation was done by Cyanmethaemoglobin method¹⁰. The age range of these women was from 14years to 45 years. After screening a total of one thousand one hundred forty eight women were included in the study. Fifty percent of the women were randomly selected for experiment group and the rest form the control group who received no intervention. A pre tested questioner was prepared to collect the baseline date regarding use of latrine and open defecation, regular use of shoes /slipper during time of defecation, personal hygiene in terms of brushing teeth, trimming of nails ,regular washing of hand before taking food and washing of hands with soap after defecation . In the experimental group participants who were found not maintaining proper hygiene standards were counselled, whereas no counselling was given to control group.

The impact of counselling was assessed after six months and those women still found anaemic and not maintaining proper hygiene were again counselled in the experimental group. The procedure was again followed in 12 months and finally in 18th months final report of the effect of counselling was compare between the experment and control group to find out the impact of counselling on improvement of hygiene practices and reduction of anaemia. Chi square test was performed between non anaemic women of control and experimental group after the end of the study and was compared with hygiene indicators. The collected data was first edited, organized, coded and entered into Statistical Package for Social Science (SPSS) version 17¹¹. A P value of <0.05 was considered to be statistically significant. . Prior ethical clearance was taken before the study.

Exclusion criteria:

Those women who are pregnant or lactating were not included in the study. Women reported to have any history of hemoglobinopathies were also excluded from the study.

IV. Observations and Results

Table 1. Shows the percentage distribution of regular uses of latrine and uses of slipper/shoe during defecation among anaemic women in different period of intervals between experiment and control group N= no of women.

Base line			After six months		After twelve months		After eighteen months	
Experimental Total anaemic women= 574	Control Total anaemic women= 574		Experime ntal	control	Experimen tal	control	Experimental	control
Latrine use	N=153 26.7%	N=152 26.5%	N=161 28.0%	N=159 27.7%	N=298 51.9%	N=174 30.3%	N=374 65.2%	N=207 36.1%
Open defecation	N=421 73.3%	N=422 73.5%	N=413 72.0%	N=415 72.3%	N=276 48.1%	N=400 60.7%	N=200 34.8%	N=367 63.9%
Shoe use During defecation	N=80 13.9%	N=78 13.6%	N=124 21.6%	N=84 14.6%	N=215 37.5%	N=87 15.2%	N=401 69.9%	N=90 15.7%
No Shoe use During defecation	N=494 86.1%	N=496 86.4%	N=450 78.4%	N=490 85.4%	N=359 62.5%	N=487 84.8%	N=173 30.1%	N=484 84.3%

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From the table 1 it can be stated that after the end of the study that is eighteen months from the baseline 65.2% of women regularly uses latrine in experimental group while in the control group it is only 36.1% and the rate of shoe /slipper use during defecation was 69.9% in experimental group and 15.7% in control group. So we can state that there is a 38.5% increase in latrine use and 30% increase in shoe /slipper use during defecation at the end of the study in experimental group. While in control group the changes from baseline to the end of study is only 9.6% in latrine uses and 2.1% only in terms of shoe /slipper use during defecation.

Figure 1: Rate of latrine uses at different intervals of time between experiment and control group

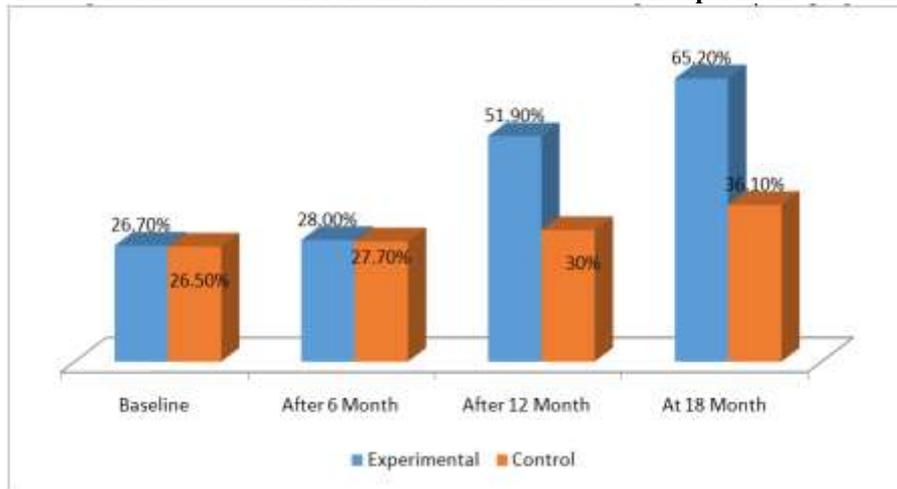


Figure 2: Rate of shoe/slipper use during time of defecation at different intervals of time between experiment and control group

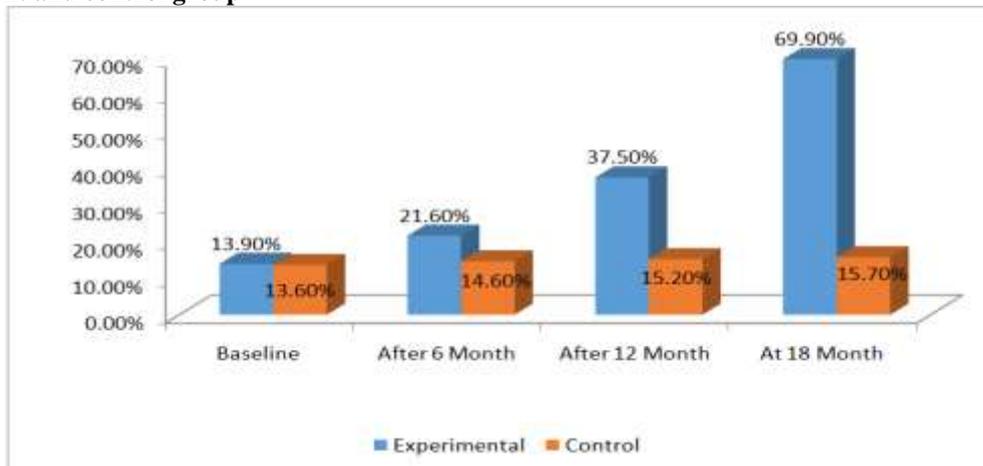


Table 2. Shows the percentage distribution of regular trimming of nails and brushing of teeth among anaemic women between baseline and end of study in experiment and control group

	baseline		After eighteen months		baseline		After eighteen months	
	Regular Trimming of nails	No regular Trimming of nails	Regular Trimming of nails	No regular Trimming of nails	Regular Brushing of teeth	No Regular Brushing of teeth	Regular Brushing of teeth	No Regular Brushing of teeth
experimental	N=260 45.3%	N=314 54.7%	N=375 65.3%	N=199 34.7%	N=565 98.4%	N=9 1.6%	N=571 99.5%	N=3 0.5%
control	N=275 47.9%	N=299 52.1%	N=284 49.5%	N=290 50.5%	N=560 97.6%	N=14 2.4%	N=564 98.3%	N=10 1.7%

As personal hygiene is concern in terms of regular trimming of nails it was found from **table 2** that in experimental group there is increase from 45.3% in baseline to 65.3% at the end of the study and in control group in baseline it was 47.9% and 49.5% at the end of study. In terms regular brushing of teeth it was found that in experimental group 98.4% of women brush their teeth regularly at the baseline while after intervention it was 99.5% at the end of the study.

Comparing with control group, 97.6% of women brush their teeth regularly in the baseline while after eighteen months it was 98.3% of women who regularly brush their teeth.

Table 3. Shows the percentage distribution of regular washing of hands before taking of food and washing of hands with soap after defecation among anaemic women between baseline and end of study in experiment and control group

	baseline		After eighteen months		baseline		After eighteen months	
	Regular washing of hands before taking food	No Regular washing of hands before taking food	Regular washing of hands before taking food	No Regular washing of hands before taking food	Regular Washing of hands after defecation	No Regular Washing of hands after defecation	Regular Washing of hands after defecation	No Regular Washing of hands after defecation
experimental	N=180 31.4%	N=394 68.6%	N=481 83.8%	N=93 16.2%	N=140 24.4%	N=434 75.6%	N=410 71.4%	N=164 28.6%
control	N=215 37.5%	N=359 62.5%	N=240 41.8%	N=334 58.2%	N=139 24.2%	N=435 75.8%	N=154 26.8%	N=420 73.2%

From **table 3** observing the hand hygiene practices among anaemic women in terms of regular washing of hands before taking food and after defecation it was observed that in experimental group hand washing before taking food at the baseline was 31.4% which after intervention improved to 83.8% at eighteen months. While in control group it was 37.5% at the baseline and 41.8% at the end of the study. Hand washing with soap after defecation was found to be 24.4% and 71.4% at the baseline and at the end of the study respectively in experimental group. While in control group it was 24.2% and 26.8% at the baseline and at the end of the study respectively.

Fig 3: personal hygiene practices in experimental group at baseline and after eighteen months

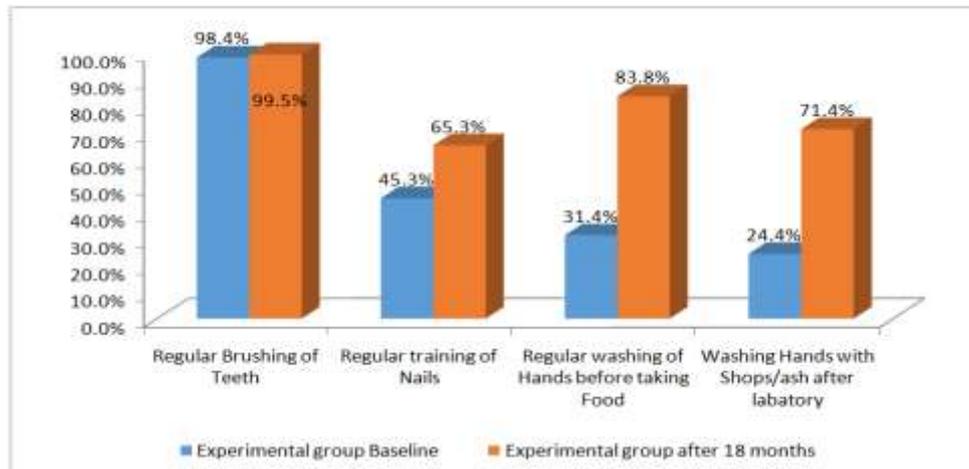


Fig 4: personal hygiene practices in control group at baseline and after eighteen months

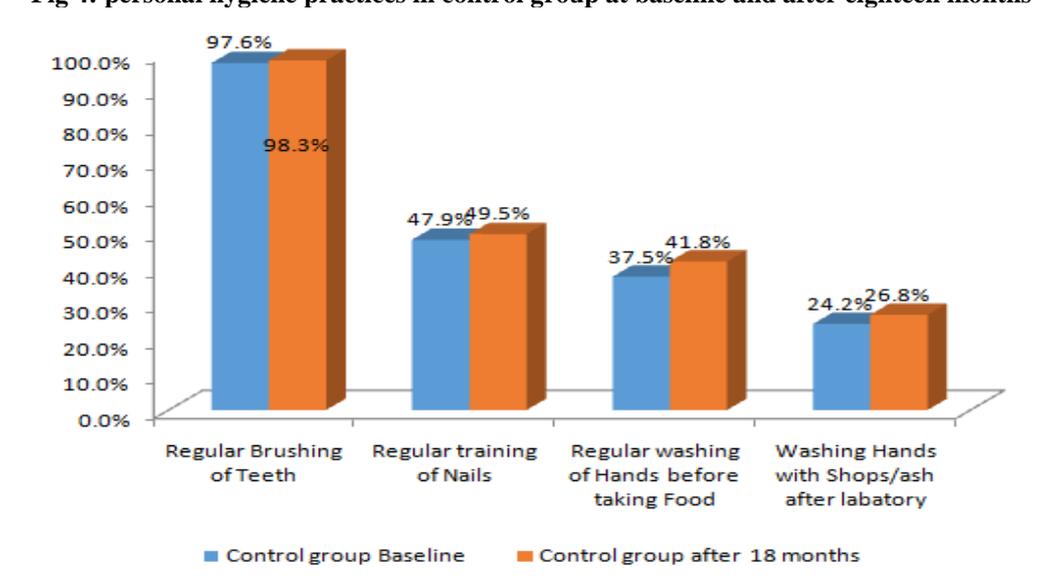


Table 4. Comparison of total non anaemic women in experimental and control groups at the end of study and their association with hygiene practice indicators

N= Total non-anaemic women

Indicators of hygiene practice	Experimental	control	P value
Latrine use	N=304 99.3%	N=72 92.3%	P<0.05
Open defecation	N=02 0.7%	N=06 7.7%	
Use of shoe	N=305 99.7%	N=68 87.2%	P<0.05
No use of shoe	N=01 0.3%	N=10 12.8 %	
Regular brushing of teeth	N= 303 99.0%	N=72 92.3%	P<0.05
No Regular brushing of teeth	N=03 1%	N=06 7.7%	
Regular trimming of nails	N=216 70.6%	N=41 52.6%	P<0.05
No Regular trimming of nails	N=90 29.4%	N=37 47.4%	
Regular washing of hands before taking food	N=273 89.2%	N=33 42.3%	P<0.05
No Regular washing of hands before taking food	N=33 10.8%	N=45 57.7%	
Regular Washing of hands after defecation	N=240 78.4%	N=20 25.6%	P<0.05
No Regular Washing of hands after defecation	N=66 21.6%	N=58 74.4%	
Total women with no anaemia after 18 months	N=306	N=78	

When comparing the total non anaemic women in experimental and control groups at the end of study and their association with hygiene practice indicators ,it was found that there is statistically significant ($p<0.05$) difference in experimental and control group in respect to their hygiene practice indicators .In the experimental group who were given proper intervention out of five hundred seventy four anaemic women at the baseline three hundred and six women were found to be non anaemic at the end of the study . While in the control group out of five hundred seventy four anaemic women at the baseline and who did not receive any kind of counselling as intervention only seventy eight women were found to be non anaemic at the end of the study .

V. Discussion

From the study results it is evident that personal counselling to women regarding their personal hygiene in terms of use of latrine for defecation and wearing shoes/slippers during defecation has a very major impact on reducing cases of anaemia as evident from comparing results between experimental group and control group after the end of the study.

Personal hygiene plays a very important role in minimising worm infection which results in loss of blood consequently leading to iron deficiency anaemia. At the end of 18th months 65.2% of women was using latrine that were given counselling while only 36.1% of women in control group were using latrine.

Regarding use of shoes/slippers during defecation it has been observed that after 18th months in the experimental group 69.9% women were using shoes/slippers whereas it is only 15.7% in control group.

Major changes were observed in experimental group regarding hand washing after defecation. Hand washing with soap after defecation in experimental group increase to 71.4% from 24.4% after 18th months while in control group there is a marginal rise of 2.6 % .Hand washing before taking food as observed in experimental group versus control group there is an increasing 52.4% and 4.3 % respectively.

VI. Conclusion

It is obvious from this study that personal counselling indeed proves effective in improvement of personal hygiene which ultimately helps in controlling anaemia and it is hence highly recommended for the better health of individuals and society.

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