

IMPACT OF EDUCATIONAL INTERVENTION ON THE PREVALENCE OF ANAEMIA AMONG GIRLS AND WOMEN OF REPRODUCTIVE AGE GROUP IN AN URBAN SLUM OF BHOPAL

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ABSTRACT

BACKGROUND

Anaemia is one of the most important health problems throughout the world. It is a global public health problem affecting both the developing and developed countries. Anaemia affects mainly the women of child bearing age group, young children and adolescent girls. In India, Nutritional anaemia is a major public health problem and is primarily due to iron deficiency, which is because of low intake of dietary iron. Considering the gravity of situation in India, the present study was planned. This is a small step to implicate the concept of preventive and social medicine through educational intervention to help the women combat anaemia. Intellectual investment in females will ultimately lead to intergenerational impact. This study aimed to examine the effect of educational intervention at door step.

Aim of the study is to study the prevalence of anaemia in the study population and to assess the effectiveness of educational intervention on Anaemia.

MATERIALS AND METHODS

The present interventional study included 336 girls/women of 15-45 years of age, non-probability purposive sampling technique was adopted for study.

Duration of the study period was December 2014 to March 2015. Study tool of semi-structured questionnaire with open ended questions was used to obtain the data regarding age, anthropometric measurements, socioeconomic status, their dietary habits and knowledge regarding awareness.

Statistical analysis - data obtained were collated and analysed statistically by mean±standard deviation (S.D.), percentages and simple proportions and were reported in the form of descriptive statistics. The Chi-square test was used for statistical analysis of qualitative data. The significance of the results was computed at the level of $p < 0.05$.

RESULTS

Overall, before intervention 43.15% participants were having normal haemoglobin status and after intervention it significantly increased to 77.40%. The mean haemoglobin before intervention was found to be 10.20 gm% (± 0.089) and after intervention mean haemoglobin was significantly increased to 11.69% (± 1.206) and P value < 0.05 .

CONCLUSION

The overall improvement in anaemia status among the study subjects is 22.6% from 56.84%. The results of this study revealed that educational intervention approaches increase knowledge, health beliefs and behaviour.

KEYWORDS

Anaemia, Iron Folic Acid, Education, Community, Nutrition Problem.

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INTRODUCTION

Anaemia is one of the most important health problems throughout the world.^[1] It is a global public health problem affecting both the developing and developed countries.

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Anaemia affects mainly the women of childbearing age group, young children and adolescent girls.^[2,3,4,5] Women of reproductive age are most at risk with global anaemia prevalence estimates of 42 percent in pregnant women and 30 percent in non-pregnant women aged 15–49 years.^[6] Anaemia has major consequences on human health as well as social and economic development.

It is the world's second leading cause of disability and is responsible for about more than 115,000 maternal deaths and 591,000 perinatal deaths globally per year, of which three-quarters occur in Africa and South-East Asia.^[4]

The very high prevalence of anaemia in South Asia to a large extent is due to predominantly vegetarian population. The causes of anaemia are diverse and multifactorial, but

among the developing countries the leading aetiologies are mainly nutritional deficiencies (Especially of iron, folate and vitamin B12).^[7] In India nutritional anaemia is a major public health problem and is primarily due to iron deficiency, which is because of low intake of dietary iron. The National Family Health Survey-4 (NFHS-4) data suggests that anaemia is widely prevalent among all age groups and is particularly high nearly 52.4%, amongst them the most vulnerable are the women of Reproductive age group (15-49 years).^[8] Considering the gravity of situation in India, the present study was planned. This is a small step towards the concept of preventive and social medicine through educational intervention to help the women combat anaemia. Intellectual investment in women will ultimately lead to intergenerational impact. This study aimed to examine the effect of educational intervention at doorstep.

OBJECTIVE

To study the prevalence of anaemia in the study population and to assess the effectiveness of educational intervention on Anaemia.

MATERIALS AND METHODS

The present study is a community based educational intervention, this quasi-experimental study conducted door to door in girls/women of 15-45 years of age selected from Idgah Slum area (which was selected from total slums of Bhopal by random sampling) and the participants included all girls/women that were present during the visits. Those having severe anaemia were excluded, because they require supervised parenteral therapy and were advised to visit nearby hospital for appropriate treatment. The present interventional study included 336 girls/women of 15-45 years of age, non-probability purposive sampling technique was adopted for study. Participants were explained the purpose of the study and rapport was built up among community members and verbal consent was obtained from them. This study was carried out in phases, the first of which was questionnaire-based assessment, the second institution of audio-visual modules and the third was again a questionnaire-based assessment. An educational intervention was given in the form of audio-visual aid imparted with images, cartoons, videos using you tube and Microsoft Picture Manager were liberally used in order to convey the intended messages.



Fig. 1: Quick Look of the Visual Module. All the Images Used in this Module were in the Open Domains

Duration of Study

The study period was December 2014 to March 2015.

Study Tool

A semi-structured questionnaire with open ended questions was used to obtain the data regarding age, anthropometric measurements, socioeconomic status, their dietary habits and knowledge regarding awareness. Validity of the

questionnaire can be judged by the impact of research design and the consistency of findings, analysis has been undertaken by a team of researchers rather than single researchers (inter-rater reliability). The developed questionnaire is revised by researchers and public health experts and then has been translated into both languages (Hindi and English).

Data Collection and Procedure

The anthropometric measurements such as height and weight were recorded using measuring tape and weighing machine with maximum accuracy. The Body Mass Index (BMI) was classified according to CDC guidelines.^[9] The percentile BMI of participants was calculated at 5th, 85th and 95th percentile and the values of BMI for these percentiles were 13.2, 19.9 and 23, respectively. The socioeconomic status classification suggested by B. G. Prasad was adopted.^[10] Haemoglobin estimation by using digital haemoglobin meter (portable, fully automated, measuring range: 5-25 gm/dL) and the diagnosis is established as anaemia according to WHO guidelines.^[11] All the girls/women were given a supervised single dose antihelminthic drug (Tab Albendazole 400 mg) and advice on healthy dietary practices with available resources such as use of jaggery, green-leafy vegetables, meat. The girls/women who were anaemic were given iron and folic acid tablets (ferrous sulphate 335 mg \approx 100 mg elemental iron and folic acid 500 μ g) for daily consumption at home after meals and also were advised to take citrus fruits (lemon, amla, imli). The regular consumption of iron, folic acid tablets was assessed by periodic visits to their household and correcting faulty dietary practices. Counselling of each and every anaemic individual was done through interviews assisted with audio-visual aid. The consumption of iron tablets was ensured by collecting empty blister packs and then giving new tablets every 15 days. After 4 months of completion of treatment, haemoglobin (Hb) was estimated by the same method for all anaemic girls/women.

Statistical Analysis

Due clearance was obtained and after taking departmental permission the community members were explained the purpose of the study and written informed consent was

obtained from participants. Rapport was built up among them during initial visits. Data obtained were collated and entered in Microsoft Excel 2007 and analysed statistically using Epi Info⁷ by mean \pm standard deviation (S.D.), percentages and simple proportions and were reported in the form of descriptive statistics. The Chi-square test was used for statistical analysis of qualitative data. The significance of the results was computed at the level of $p < 0.05$.

RESULTS

In our study, prevalence of anaemia was 56.84% as shown in Figure 2 and was significantly higher in participants of low socioeconomic (III, IV, V) class 88 (69.29%) as compared to anaemic participants belonging to upper socioeconomic (I, II) class (49.28%) (Table 1). Anaemia was found to be significantly [P value = 0.0055], higher in illiterate (65.71%) as compared to literate (50.51%) participants. Prevalence of anaemia on the basis of the weight and height were found to be insignificant. Prevalence of anaemia were found to be significantly [P value = 0.0425] higher among vegetarian (62.42%) as compared to the non-vegetarian. Prevalence of anaemia was found to be significantly [P value < 0.05*(0.345)] higher among the participants of nuclear family as compared to the joint family. Out of total 191 girls/women who received intervention, 76% consumed it regularly and 24% consumed it irregularly due to the side effects of iron folic acid tablets such as metallic taste, nausea, fullness of abdomen and abdominal pain after its consumption. At the end of 3 months of intervention, four girls were lost for followup, thus it was possible to estimate haemoglobin level of 187 girls/women only. These four girls/women were absent even after repeated visit. [Figure 3] There was a significant post-intervention improvement in anaemia status among all the study subjects who were moderately anaemic and prevalence of moderate anaemia was reduced from 15.48% to 1.81% (i.e. the reduction of 13.67%) and those study subjects who were mildly anaemic also significantly improved and prevalence of mild anaemia was reduced from 41.36% to 20.79% (i.e. the reduction of 20.57%). Overall, before intervention 43.15% participants were having normal haemoglobin status and after intervention it significantly increased to 77.40%.

Sl. No.	Socio-Economic Status	Anaemia	Normal	P - value
1	I,II	103 (49.28%)	106 (50.72%)	0.00033*
2	III, IV, V	88 (69.29%)	39 (30.71%)	
Education				
1	Illiterate	92 (65.71%)	48 (34.29%)	0.0055*
	Literate	99 (50.51%)	97 (49.49%)	
BMI				
1	Underweight	16 (64%)	9 (36%)	0.863
2	Normal	149 (55.80%)	118 (44.20%)	
3	Overweight	14(58.33%)	10(41.67%)	
4	Obese	12 (60%)	8 (40%)	
Diet				
1	Vegetarians	103 (62.42%)	62 (37.58%)	0.0425*
2	Non-Vegetarians	88 (51.46%)	83 (48.54%)	
Type of Family				
1	Nuclear Family	127 (61.35%)	80 (38.65%)	0.0345*
2	Joint Family	64 (49.61%)	65 (50.39%)	
Total		191 (56.84%)	145 (43.15%)	
Table 1: Distribution of Respondents According to their Socio-Demographic Profile				

Table 1: Distribution of Respondents According to their Socio-Demographic Profile

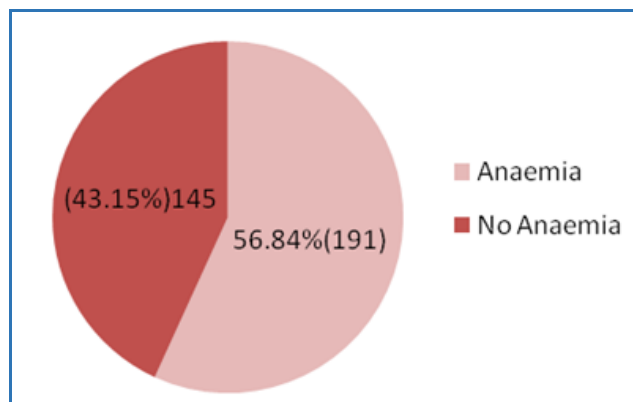


Fig. 2: Prevalence of Anaemia

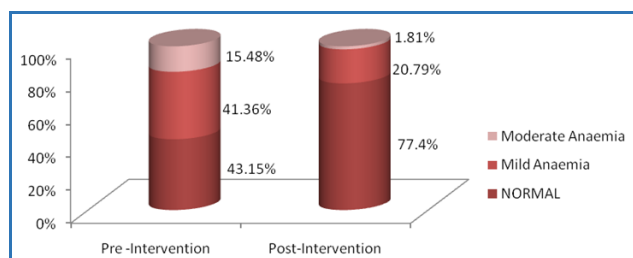


Fig. 3: Status of Anaemia of Study Group Before and After Intervention

DISCUSSION

In our study out of 336 girls/women 191 (56.84%) girls/women were anaemic, 139 (41.15%) participants were having mild anaemia and 52 (15.48%) with moderate anaemia. These results were comparable with NFHS3, NFHS4 and similar results were reported by Singh et al^[12] 50%, Jawarkar AK et al^[13] 54.8%, Kaur S et al^[14] 59.8% and Rana et al^[15] 60%. Whereas higher prevalence has been reported in various study namely Devi S et al^[16] 73%, Chaturvedi et al^[17] (73.7%) and Toteja GS et al^[18] found 90.1% may be due to the difference in the study area. Out of 336 participants, 103 (49.28%) anaemic participants belonged to upper socioeconomic (I, II) class and 88 (69.29%) anaemic participants to lower socio-economic (III, IV, V) class [P-value = 0.00033]. Though anaemia is widely prevalent among females belonging to lower socio-economic strata of the society, it is not rare among the well-to-do classes of the society. Similar results were reported by Jawarkar et al^[13] and Chaturvedi et al.^[15] Anaemia were found to be significantly [P value = 0.0055] associated with illiteracy (65.71%) as compared to literate (50.51%) participants. Similar results were reported by Jawarkar et al^[13] and Chaturvedi et al.^[15] Prevalence of anaemia on the basis of the weight and height were found to be insignificant. Similar results were reported by Jawarkar et al.^[13] Prevalence of anaemia in the participants was unaffected, either they were underweight, normal or obese. Prevalence of anaemia were found to be significantly [P value = 0.0425] higher among vegetarian (62.42%) as compared to the non-vegetarian. Similar findings were reported by Jawarkar et al^[13] and Kaur et al.^[16] The main cause of the dietary anaemia is inadequate food intake as well as poor availability of dietary iron in the habitual cereal based diets. Prevalence of anaemia found to be significantly [P value = 0.0345] higher among the participants of nuclear family as compared to the joint family. Similar results were also reported by Jawarkar et al.^[13]

The results of the present study also indicate that there is remarkable improvement. The mean haemoglobin before intervention were found to be 10.20 gm% (± 0.089) and after intervention mean haemoglobin was significantly increased to 11.69% (± 1.206) and P value < 0.05.

CONCLUSION

The overall improvement in anaemia status among the study subjects is 22.6% from 56.84%. In our study participants were more prone to be anaemic since they belonged to low socioeconomic status, illiterate, small family size and had vegetarian habits. There was an overall decrease in number of cases of anaemia after educational intervention.

To put an end towards it, important steps should be taken at individual and community level like education of the girls/women as regards anaemia, its causes and health implication. Imparting nutritional education with special emphasis on strategies based on locally available food stuffs to improve the dietary intake iron. The results of this study revealed that educational intervention approaches increase knowledge, health beliefs and behaviour. The results indicate that nutrition counselling in community level or door step can improve dietary intake and the concerned authority should mould their strategy through education based rather like programmatic implementation.

RECOMMENDATIONS

1. Need of healthy nutrition, necessity of balanced diet should incorporate in the education system in the form of Health topic/subject, so that adolescent age groups get maximum benefit of our education system.
2. The motivational educational session should be conducted in community with involvement of both community persons and health workers to bring awareness regarding healthy diet and about cheap sources of iron to improve nutritional deficiency.
3. There should be need of food fortification with iron such as salt, flour or oil; this will help to increase the iron in the food for long term in a sustainable manner. National cost effective strategies should be developed for the fortification of common people food.

Relevance of the Study

The study gives the glimpse that the anaemia is still high and draws the attention of the policy makers to review the gaps in existing policies for correcting anaemia.

LIMITATIONS

1. The cross-sectional nature of the study does not extend to the information on complete iron intake.
2. The data did not provide any information on food intake of respondents and therefore haemoglobin level of the population could not be correlated directly with the dietary regime.

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