J. INDIAN DIETETIC ASSOCIATION - VOL 42, No. 1, pp. 35-47, 2019

EFFECTIVE COUNSELING AN IMPORTANT STRATEGY FOR IMPROVING KNOWLEDGE AND PRACTICES ABOUT ANEMIA AND ITS PREVENTION AMONG UNMARRIED ADOLESCENT GIRLS OF SELECTED URBAN HEALTH CENTER(UHC) AREA IN VADODARA-GUJARAT.

Hemangini Gandhi*, Meenakshi Mehan, *Vishwa Rathi.*** Taruna Dhannalal*****

Department of Foods and Nutrition,
Faculty of Family and Community Sciences,
The Maharaja SayajiRao University of Baroda
Vadodara- Gujarat, India.
Assistant Professor, Professor and Head, Research student*****

Background: Adolescents face a range of health challenges, including malnutrition and anemia. Improving home diet, especially iron rich foods, and improved utilization of available public health services to prevent anemia in unmarried adolescent girls aged (15-19 years) is need of the our which is included in the currently launched National Nutrition Mission (NNM). **Objective:** The major objective was to assess the impact of counseling by health functionaries on knowledge and practices about anemia and its prevention among adolescent girls of urban Vadodara. **Methods:** After obtaining required permission from Vadodara Mahanagar Seva Sadan, total 250 unmarried adolescent girls aged 15-19 years were enrolled from randomly selected 7 anganwadis under one Urban Health Center (UHC). Mahila Arogya Samiti (MAS) member under Nutrition Health Mission (NHM) **can help as a community mobilizer/ change agent to help adolescent girls to improve their nutritional status, prevalence of anemia and optimal utilization of government program/services and preconception care. MAS members were sensitized about anemia and its aspects and provided with the counseling cards. Each MAS member was assigned 4-5 girls and were asked to counsel 2 times in a week for 3 months.** Knowledge and practices about various aspects of anemia was collected using pretested semi structured questionnaire at the baseline and after the 3 months duration of counseling. (8 sessions per month) **Result:** It was observed that girls who got greater than 8 sessions of counselling, showed improvement in their knowledge level for anemia and its prevention. Compliance of Iron Folic Acid (IFA) improved in girls who were counselled for more than 8 sessions. **Conclusion:** To improve the prevalence of anemia in unmarried adolescent girls (15-19 years) of urban slum area, sensitization on causes and preventive measures of anemia should be reinforced by grassroot health and Integrated Child Development Scheme (ICDS) functionaries on regular basis.

Key words: Adolescent girls, Anemia, prevention

Introduction

The World Health Organization has defined adolescence as the age period between 10 to 19 years of age for both genders (Married and unmarried). The word adolescence is derived from the Latin word, "adolescere," which means "to grow, to mature."

Worldwide there are more than 1.2 billion adolescent that is roughly one in every six persons is an adolescent. More than half of all adolescents live in Asia and India has the highest adolescent population; it is home to around 243 million (21% of population) than any other country. Hence adolescent health is of particular concern given the sheer number of young people especially in India [1].

This is the formative period of life when the maximum amount of physical, psychological and behavioural changes take place. This is a vulnerable period in the human life cycle for the development of nutritional anaemia, which has been constantly neglected by public health programs. Adolescents are at high risk of iron deficiency and anaemia due to accelerated increase in requirements for iron, poor dietary intake of iron, high rate of infection and worm infestation as well as the social norm of early marriage and adolescent pregnancy. During this stage the requirement of nutrition and micronutrients is relatively high. Therefore, adolescents, especially girls are vulnerable to iron deficiency mainly because requirements are at a peak [2].

Anemia is a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet the body's physiological requirements, which vary by age, sex, altitude, smoking habits, and during pregnancy. Anemia is an indicator of both poor nutrition and poor health.

According to the National Family Health Survey 4 [3], 2015-16, prevalence of anemia among adolescent girls 15-19 years (Hemoglobin (Hb) <12 g/dl) is 54% while in Gujarat it is 56.5%. As per the NFHS-4 Gujarat data, the prevalence of anemia among women of 15-49 years of age in urban Vadodara was 47.9%.

Anemia during adolescence affects the growth and development of girls, diminishes their concentration in daily tasks, limits their learning ability, increases their vulnerability to dropping out of school, causes loss of appetite resulting in reduced food intake and irregular menstrual cycles, and reduces physical fitness and future work productivity. Moreover, anemia during adolescence influences women's entire life cycle since anemic girls will have lower pre pregnancy iron stores. As pregnancy is too short a period to build the iron stores required to meet the needs of the growing fetus, women who

enter pregnancy anemic are at an increased risk of giving birth to children with a low birth weight (below 2,500 grams), delivering pre-term newborns, and/or dying while giving birth. Additionally, children born to anemic women are more likely to die before the age of one year and be sick, undernourished and anemic, thus perpetuating the intergenerational cycle of maternal and child undernutrition [4].

To improve nutritional and health status of the adolescent girls, community sensitization and mobilization is a key strategy. Community based organizations (CBO's) are non-profit groups that work at a local level to improve life for residents. CBO's are almost necessarily, staffed by local-community members who experience first-hand the needs within community and various CBO's are Mahila Arogya Samiti (MAS), Self-help group, Mahila mandal, Mother support group, Sakhi Mandal etc.

Mahila Arogya Samiti (MAS)

MAS in one of the interventions under National Health Mission aimed at promoting community participation in health at all levels, including planning, implementing and monitoring of health programmes. There are total 10-12 members in a committee as a whole they cover approximately 50-100 households in slum by addressing local issues related to Health, Nutrition, Water, Sanitation, utilization of untied funds and social determinants of health at slum level, facilitated by the ASHA who acts as the Member Secretary [5]. MAS members who are sensitized about various nutritional and health aspects including anemia can serve as a link between adolescent girls and ASHA/health system. She can help as a community mobilizer/ change agent to help adolescent girls to improve their nutritional status, prevalence of anemia and optimal utilization of government program/services and preconception care. Improving home diet, especially iron rich foods, and improved utilization of available public health services to prevent anemia in unmarried adolescent girls (aged 15-19 years) is need of the hour which is included in the currently launched National Nutrition Mission. Thus the study was planned where the major objective was to assess the impact of counseling by health functionaries on knowledge and practices about anemia and its prevention among adolescent girls of urban Vadodara.

Consent of the ethical committee was taken prior for conducting the study. **Department of Medical Ethics Committee, The Maharaja Sayajirao University of Baroda, Vadodara approved the study (No. IECHR/2017/17).**

Methodology

From the total 4 zones of Vadodara Mahanagar Seva Sadan (VMSS) i.e. East, West, North and South. One zone i.e. East Zone was purposively selected and from that one Urban Health Center (UHC) Sawad was purposively selected. Under Sawad UHC there are total 12 Anganwadi center's (AWCs) from that 7 AWCs were randomly selected after obtaining required permission from Vadodara Mahanagar Seva Sadan. The number of girls to be enrolled for the study was 250 unmarried adolescent girls aged 15-19 years who showed willingness to participate in the study and who had given written consent and Assent form the study group. There were total 10 Mahila Arogya Samities under 6 Accredited Social Health Activists (ASHAs) enrolled in the study. Two MAS representatives per MAS formed the study group who gave written consent. Based on their knowledge gaps, Training module was developed i.e. training cum monitoring module (for ASHA workers and MAS representatives) and counselling cards (ASHAs and MAS members). Training modules broadly covers nutrition and health related aspects. **MAS members were sensitized about anemia and its aspects and provided with the counseling cards.**

In all 46 community workers were trained for the study out of which 19 were oriented as master trainers for remaining 27 community workers, 2 days training programme was planned. Master trainer trained this community workers using training module. As part of the study the main job of community workers was to counsel adolescent girls of their respective areas. A detail action plan was developed during the training each community workers was assigned 5-6 girls of their area. 2 contact points per week for 3 months was decided. Total 8 sessions per month were fixed to counsel adolescent girls at community level. Since, these community workers were beginners, to get their feedback and to support them one day refresher training was conducted for all the community workers. This was done after a gap of one month from the orientation training.

To carry out the impact analysis of community engagement strategy, post data was collected on number of sessions conducted by each MAS member per month, number of girls who got counselled. Post data on knowledge regarding anemia, change in dietary practices and IFA compliance was also assessed.

Result and Discussion

The main focus of the study was to assess knowledge of adolescent girls about anemia before and after

counselling to them by MAS members. Total of 24 sessions (8 sessions per month) were planned for adolescent girls for the 3 months after the orientation of MAS members. At the baseline and after 3 months, data on Impact on knowledge of adolescent girls on Anemia was collected.

Knowledge of school going and out of school adolescent girls about Anemia

Data on knowledge of adolescents girls on Anemia was collected which is depicted in **(Table 1.1, 1.2, 1.3)**

Regarding the knowledge of the adolescent girls on anemia it was found that nearly 38 percent of the girls had heard the term anemia in both the school going (SG) and out of school going (OSG) group but after the counselling it was improved by almost 90 percent in both the groups. However with regards to its term anemia it was found that almost 50-60 percent of the adolescents could answer correctly which was less than 10 percent during its baseline survey in both the groups. Almost 76 percent of the adolescent girls could answer correctly regarding the causes on anemia whereas it was only 28 percent who didn't know about it causes. Knowledge regarding the signs and symptoms of anemia was better in SG adolescent girls (43 percent) during its baseline but after counselling the change was seen much in OSG adolescents (62 percent) as compared to SG. There was an improvement in the knowledge of the adolescent girls regarding consequences of anemia by 30-40 percent in both the SG and OSG group whereas there was only 10 percent who didn't know about it during the post evaluation. Forty two percent of the OSG did not know about preventive measures of anemia which got reduced to 7 percent during post evaluation, also 90 percent of the adolescents from both the group knew the preventive measures of anemia after the counselling. As seen in Table (1.1) there was not much difference in the knowledge regarding the iron rich food sources among the adolescents of both the groups during pre and post evaluation. Overall there is a positive shift in the knowledge of the adolescent girls of both the groups after the counselling.

Table: 1.1 Knowledge of school going and out of school adolescent girls about Anemia

PARTICULARS		SCHOOL GOING		OUT OF SCHOOL		TOTAL	
		Pre N= 155 (%)	Post N=150 (%)	Pre N= 95 (%)	Post N= 85 (%)	Pre N=250 (%)	Post N=235 (%)
Heard the term anemia	Yes	71 (45.8)	129 (86.0)	23 (24.2)	77 (90.6)	94 (37.6)	206 (87.7)
	No	84 (54.2)	21 (14.0)	72 (75.8)	08 (9.4)	156 (62.4)	29 (12.3)
What is anemia	Correct answer	10 (6.5)	71 (47.3)	02 (2.1)	50 (58.8)	11 (4.4)	121 (51.5)
	Partially correct answer	78 (48.4)	58 (38.7)	37 (38.9)	26 (30.6)	116 (46.4)	84 (35.7)
	DNK	67 (43.2)	21 (14.0)	56 (58.9)	09 (10.6)	123 (49.2)	30 (12.8)
Causes of anemia	Correct answers	25 (16.1)	110 (73.3)	11 (11.6)	69 (81.2)	36 (14.4)	179 (76.2)
	DNK	130 (83.9)	40 (26.7)	84 (88.4)	16 (18.8)	214 (85.6)	56 (23.8)
Signs and symptoms	Correct answers	66 (42.5)	80 (53.3)	24 (25.3)	53 (62.4)	90 (36)	133 (56.6)
	Partially correct answers	81 (52.3)	45 (30.0)	31 (32.6)	19 (22.4)	112 (44.8)	64 (27.2)
	DNK	8.0 (5.2)	25 (16.7)	40 (42.0)	13 (15.3)	48 (19.2)	38 (16.2)

Consequences of anemia during pregnancy	Correct answers	104 (67.1)	134 (89.3)	53 (55.8)	79 (92.9)	157 (62.8)	213 (90.6)
	DNK	51 (32.9)	16 (10.7)	42 (44.2)	06 (7.1)	93 (37.2)	22 (9.4)
Preventive measures of anemia	Correct answers	115 (74.2)	134 (89.3)	55 (57.9)	79 (92.9)	170 (68.0)	213 (90.6)
	DNK	40 (25.8)	16 (10.7)	40 (42.1)	06 (7.1)	80 (32.0)	22 (9.4)
Iron rich food sources	Correct answers	100 (64.5)	113 (73.6)	70 (82.1)	76 (89.4)	170 (68.0)	189 (80.4)
	Partially correct answers	40 (25.8)	28 (29.5)	12 (4.2)	08 (9.4)	52 (20.8)	36 (15.3)
	DNK	15 (9.7)	09 (6.0)	13 (13.7)	01 (1.2)	28 (11.2)	10 (4.3)

*Values in Parenthesis indicates percentage

Knowledge and practices of adolescent girls about IFA

As shown in Table (1.2) knowledge was elicited regarding cut off points for normal Hb, about IFA compliance and counselling on anemia by Anganwadi Worker (AWW)/school teacher from all the girls during pre and post survey.

Before the survey 60 percent of girls out of 250 didn't know about the normal percentage of Hb status whereas after counselling during its post survey it was found that 69 percent knew about the correct percentage of Hb level (12gm/dl).

Further, a change was observed in receiving the IFA tablets. During pre-survey it was found that only 12 percent of the girls had received IFA tablets from AWW whereas it was 99 percent during post survey. It was inspiring to know that after counselling during post survey 100 percent of the girls knew about the colour of IFA that is red. **(Table 1.2)**

Information on compliance of IFA and about side effects was also collected which is presented in **Table 1.3**. It was discouraging to know that 56 percent of the girls were receiving IFA tablets irregularly during pre-survey which got increased. 90 percent of girls reported that they get IFA tablets monthly. A

change of 20 percent was reported in consumption of IFA tablets from pre survey to post survey. During pre-survey it was found that 60 percent of the girls had not received IFA tablets whereas after counselling during post survey it was found that 87 percent of the girls had received ten tablets of IFA on monthly basis. After counselling 87 percent of the girls had started consuming IFA tablets which was only 56 percent during presurvey. It was good to know that almost 80 percent of the girls during pre and post survey did not had any side effects after consuming IFA tablets. Ninety eight percent of girls reported **ASHA worker/school teacher counselled them about consumption of IFA** during post survey. **Overall, it can be said that compliance as well as the consumption level of IFA had been enhanced among the adolescent girls in the post-survey due to counselling.**

The study conducted by USAID 2012 in Jharkhand also reported awareness about preventive measures against anaemia in adolescent girls. It was highlighted that awareness about preventive measures for anemia increased at the endline in AGs. Also reported increase in the knowledge among AGs, when adolescent girls were asked about the measures that can be taken to prevent anaemia, more than 95 percent were aware that eating green leafy vegetables would help. In addition, around half of adolescents interviewed knew that IFA supplementation could prevent or reduce anaemia, an increase from baseline. They also knew that IFA supplementation could prevent or reduce anaemia. Access to IFA increased at endline, despite a long period of supply shortages [6].

Table: 1.2 Knowledge and practices of adolescent girls about IFA

PARTICULAR	Pre N=250 (%)	Post N=235 (%)
Knowledge of Hb cut-offs		
Don't Know	151 (60.4)	47 (20.0)
Above 12 mg/dl	49 (19.6)	162 (68.9)
Any other	50 (20.0)	26 (11.1)
Received IFA		
Yes	41 (16.4)	107 (45.5)
No	190 (76.0)	128 (54.5)
NA	19 (7.6)	0 (0.0)

IFA		
AWW	31 (12.4)	107 (99.1)
ASHA	00 (0.0)	0 (0.0)
School	10 (4.0)	0 (0.0)
NA	209 (83.6)	0 (0.0)
Colour of IFA		
Blue	07 (2.8)	0 (0.0)
Red	34 (13.6)	107 (100.0)
NA	209 (8.36)	0 (0.0)

* Values in Parenthesis indicates percentage

Table: 1.3 Compliance of IFA and side effects

PARTICULAR	Pre N=250 (%)	Post N=107 (%)
Frequency of receiving IFA		
Weekly	03 (7.3)	8 (7.5)
Monthly	15 (36.6)	96 (89.7)
Irregular	23 (56.1)	3 (2.8)
NA	209 (83.6)	0 (0.0)
Girls consumed IFA		
Yes	31 (75.6)	99 (92.5)
No	10 (24.4)	8 (7.5)
NA	209 (83.6)	0 (0.0)
Number of tablet received last month		
4 tablets	14 (34.1)	5 (4.7)
2 tablets	00 (0.0)	1 (0.9)
Not received	25 (60.1)	5 (4.7)
Any other	02 (4.9)	93 (86.9)
Not Applicable	209 (83.6)	3 (2.8)

Consumed IFA tablets received		
Yes	23 (56.1)	93 (86.9)
No	18 (43.9)	10 (9.3)
NA	209 (83.6)	4 (3.7)
Any side effects of consuming IFA tablets		
Yes	05 (21.7)	12 (11.2)
No	18 (78.3)	92 (86.0)
NA	227 (90.8)	3 (2.8)
Kind of side effects		
Dizziness	00 (0.0)	3 (2.8)
Vomiting	04 (80)	9 (8.4)
Other	01 (20)	0 (0.0)
NA	244 (97.6)	95 (88.8)
ASHA worker/school teacher counsel girls about consumption of IFA		
Yes	24 (9.6)	105 (98.1)
No	16 (6.4)	0 (0.0)
NA	210 (84.0)	2 (1.9)
Counselling points		
Consume after taking food	15 (62.5)	106 (99.1)*
consume with citrus food	02 (8.3)	43 (40.2)*
It should be taken with sufficient water	03 (12.5)	16 (15.0)*
Do not consume with Tea	00 (0.0)	2 (1.9)*
Any other	04 (16.7)	0 (0.0)*
NA	226 (90.4)	2 (1.9)*

*Multiple responses, *Values in Parenthesis indicates percentage

Impact of number of sessions counselled by MAS members about anemia was also elicited **(Table 1.4).**

It was observed that knowledge about term anemia, its causes, signs and symptoms, consequences, preventive measure and iron rich food sources improved after 8 sessions. It was also noticed that as frequency of contact points increases knowledge of adolescent girls also improved. Also, knowledge about Hb, IFA received place, from where to get IFA, consumption of IFA was elicited. Similar, trends was observed i.e. as number of session increased knowledge also seemed to be increased.

Regarding IFA tablets for adolescent girls, compliance improved in girls who were counselled for more than 8 sessions. **(Table 1.5)**

Table: 1.4 Impact of counselling by MAS on knowledge and practices of adolescent girls about anemia

PARTICULARS	No counselling at all (N=49)	Total < 8 counselling sessions (N=85)	Total 8-15 counselling Sessions (N=95)	Total 6-23 counselling sessions (N=6)
Heard the term anemia				
Yes	30 (61.2)	75 (88.2)	95 (100.0)	06 (100.0)
No	19 (38.8)	10 (11.8)	00 (0.0)	00 (0.0)
't' value = 4.62				
What is anemia				
Correct answer	32 (65.3)	74 (87.1)	95 (100.0)	06 (100.0)
DNK	17 (34.7)	11 (12.9)	00 (0.0)	00 (0.0)
't' value = -3.98				
Causes of anemia				
Correct answer	13 (26.5)	65 (76.5)	95 (100.0)	06 (100.0)
DNK	36 (73.5)	20 (23.5)	00 (0.0)	00 (0.0)
't' value = -9.27				
Signs and symptoms				
Correct answer	21 (42.9)	76 (89.4)	94 (98.9)	06 (100.0)
DNK	28 (57.1)	09 (10.6)	01 (1.1)	00 (0.0)
't' value = -7.06				

Consequences of anemia during pregnancy				
Correct answer	35 (71.4)	77 (90.6)	95 (100.0)	06 (100.0)
DNK	14 (28.6)	08 (9.4)	00 (0.0)	00 (0.0)
't' value = -3.63				
Preventive measures of anemia				
Correct answers	41 (83.7)	75 (88.2)	95 (100.0)	06 (100.0)
DNK	08 (16.3)	10 (11.8)	00 (0.0)	00 (0.0)
't' value = -1.55				
Iron rich food sources				
Correct answer	27 (55.1)	63 (74.1)	93 (97.9)	06 (100.0)
Partially correct answer	19 (38.8)	15 (17.6)	02 (2.1)	00 (0.0)
DNK	03 (6.1)	07 (8.2)	00 (0.0)	00 (0.0)
't' value = 3.09				

*Values in Parenthesis indicates percentage *p< 0.05 significant

Table: 1.5 Knowledge and practices of adolescent girls about prevention of anemia

PARTICULARS	No counselling at all (N=49)	Total < 8 counselling sessions (N=85)	Total 8-15 counselling Sessions (N=95)	Total 6-23 counselling sessions (N=6)
Knowledge - percentage of Hb				
Don't Know	36 (73.5)	09 (10.6)	02 (2.1)	00 (0.0)
Above 12 mg/dl	09 (18.4)	57 (67.1)	90 (94.7)	06 (100.0)
Any other	04 (8.2)	19 (22.4)	03 (3.2)	00 (0.0)
Received IFA				
Yes	02 (4.1)	19 (22.4)	80 (84.2)	06 (100)
No	47 (95.9)	66 (77.6)	15 (15.8)	00 (0.0)
NA	00 (0.0)	00 (0.0)	00 (0.0)	00 (0.0)

From where received IFA				
AWW	02 (100.0)	18 (94.7)	80 (100.0)	06 (100.0)
ASHA	00 (0.0)	01 (5.0)	00 (0.0)	00 (0.0)
School	00 (0.0)	00 (0.0)	00 (0.0)	00 (0.0)
NA	00 (0.0)	00 (0.0)	00 (0.0)	00 (0.0)
Colour of IFA				
Blue	00 (0.0)	00 (0.0)	00 (0.0)	00 (0.0)
Red	02 (100.0)	19 (100.0)	80 (100.0)	06 (100.0)
NA	00 (0.0)	00 (0.0)	00 (0.0)	00 (0.0)

*Values in Parenthesis indicates percentage

Conclusion

To improve the prevalence of anemia in unmarried adolescent girls (15-19 years) of urban slum area, sensitization on causes and preventive measures of anemia should be reinforced by grassroot health and ICDS functionaries on regular basis.

Acknowledgment

We acknowledge financial support by health branch of VMSS and Dr. Devesh Patel Chief Health Officer, for cooperation and permission to carry out the study.

References

1. Trivedi PK, Saxena D, Puwar T, Yasobant S, Savaliya S, Fancy M. (2016)

Assessment of Nutritional Status of Adolescents: Field Experience from Rural Gujarat, India. Ntl J Community Med 2016; 7(12):926-930

2. Dulipala P, Gujjarlapudi C. (2016)

Prevalence of anaemia among adolescent school going children in Guntur. J. Evolution Med. Dent. Sci. 2016;5(49):3132-3135, DOI: 10.14260/jemds/2016/727

3. National Family Health Survey 4 (NFHS-4) (2015-2016)

4. Gupta et.al. (2017)

Prevalence of Anemia among Adolescent Girls in Rural Population of Rajnandgaon, Chhattisgharh, India. JMSCR Volume 05 Issue 02 February 2017

5. www.nhm.nic.in

6. UNICEF (2013)

Adolescents in India: A desk review of existing evidence and behaviours, programmes and policies.