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Original Article

Knowledge, Attitude and Practice Change about Anemia after Intensive Health Education among Adolescent School Girls of Delhi: An Intervention Study

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ABSTRACT

Background: Anemia is very common worldwide among adolescent girls. WHO Regional office for South-East Asia sketched that "Iron deficiency anemia is the most glaring nutritional deficiency, with no less than 25-40% of adolescent girls as victims of moderate and sometimes severe anemia. In countries of this region, at least 40-50% of adolescent pregnant girls are anemic". According to study conducted by Indian Council of Medical Research adolescent girls from 16 districts of 11 states of India showed that, the prevalence of anemia was 90.1% and 7.1% having severe anemia (Hb < 70 g/L). Adolescence being a rapid transition phase with high requirement of additional nutrition. Anemia among adolescent girls develops due to accelerated increase in the requirements for iron, coupled with poor dietary intake, menstrual loss high rate of infection and worm infestation. **Objectives:** This study was carried out to assess the knowledge, attitude, practice and health seeking behavior change regarding anemia after weekly iron folic acid supplementation and intensive health education among adolescent school girls of Delhi. **Materials and Methods:** This was an intervention study conducted among adolescent school girls of Delhi. The study was conducted among 106 adolescent school girls of XI class by administering a pre-tested questionnaire based on the following four domains – knowledge, attitude, practices and health seeking behavior regarding anemia. Weekly Iron Folic Acid Supplementation (WIFS) and intensive health education was given for six months as an intervention. Health education package included power point presentation, pamphlets and visual display of iron rich foods like green leafy vegetables, germinated pulses (sprouts), citrus fruits and jaggery. Data entry and analysis was done using SPSS software version 17. **Results:** Only 34.9 percent girls had heard about anemia and 38.9 percent felt that anemia is a health problem. When asked for the reasons for anemia, around 8 (7.5%) could answer correctly. There was change in knowledge, practices and health seeking behavior after the intervention and was statistically significant. **Conclusion:** WIFS and intensive health education intervention has an impact on improving knowledge, attitude, practices and health seeking behavior of adolescent school girls. Additional nutritional interventional research is needed to reinforce good practices to prevent anemia.
Key words: Knowledge, Anemia, Adolescent, Health education.

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INTRODUCTION

The magnitude of anemia as a health problem is enormous among adolescent girls worldwide especially developing countries.[1] Adolescent girls (10–19 years) are at a high risk of iron deficiency anemia due to accelerated increase in requirement, poor dietary intake, physiological losses like menstrual blood losses, high rate of infection and worm infestation as well as the consequence of early marriage and adolescent pregnancy.[2-4] Anemia in adolescent girls in future attributes to high maternal mortality rate, high incidence of low birth weight babies, high perinatal mortality as well as fetal wastage.[5,6] Hurdles related to the building of iron stores during pregnancy provide a strong rationale for health education concerning the iron status of women before pregnancy. Hitherto, adolescents remain a largely abandoned and hard -to-reach population, in which the needs of adolescent girls in particular, are often disregarded.[7,8]

It can be engaged by increasing awareness and the promotion of correct attitudes and practices about anemia. There is lack of appropriate knowledge and attitude regarding healthy eating among adolescents and consequent unhealthy eating behavior.[9-11] The majority of adolescents can be reached effectively through schools, which is an appropriate place for health education. This study was carried out to assess the Knowledge, Attitude and Practice (KAP) and health seeking behavior change regarding anemia after weekly iron folic acid supplementation and intensive health education among adolescent school girls of Delhi.

MATERIALS AND METHODS

This was an intervention study conducted among adolescent school girls of Delhi. All government senior secondary schools in that district were included

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in the sampling frame. One school was randomly selected from the list of schools. The study was conducted among 106 adolescent school girls of XI class by administering a pre-tested questionnaire based on the following four domains – knowledge, attitude, practices and health seeking behavior regarding anemia. Weekly Iron Folic Acid Supplementation (WIFS) and intensive health education was given for six months as an intervention. Data collection, health education was all done by principal investigator himself who was post graduate student in Department of Community Medicine. Health education package included power point presentation, pamphlets and visual display of iron rich foods like green leafy vegetables, germinated pulses (sprouts), citrus fruits and jaggery. Prior permission from school health services and Principal of the school was taken to carry out the study. Written informed consent was obtained from the parents of the adolescent girls. Change if any regarding the knowledge, attitude, practice and health seeking behavior regarding anemia was reassessed by the same questionnaire after a gap of 6 months.

The sample size was calculated using free software G* Power version 3.1.2. The combined intervention of WIFS and intensive health education should be able to improve mean knowledge score by 2 and more compared baseline knowledge was considered significant. This was converted into effect size of 0.56. Taking Confidence interval of 95%, Significance level (alpha) at 0.05%, Power of the study (1-beta) of 80% and effect size of 0.56 the required sample size was 100.

Data entry and analysis was done using SPSS software version 17. Parametric (paired *t*−test) and non-parametric (McNeamar Chi−square test) test were applied for pre− and post−test comparison.

RESULTS

KAP was assessed in adolescent school girls using semi structured questionnaire. Knowledge component included eight questions. Knowledge, first three questions were categorical questions, remaining had multiple options to choose as an answer (Table 1). Finally correct answers were given one mark each and summed up for calculating knowledge before and after intervention. Questions related practices and health seeking behavior were categorical in nature; one mark was given to each correct answer.

Only 34.9 percent girls had heard about anemia and 38.7 percent felt that anemia is a health problem. When asked for the reasons for anemia, around 8 (7.5%) could answer correctly. Pre and post intervention knowledge assessment was done by applying Mc Neamar's test. The overall score for knowledge assessment was 22, for practice five and for health seeking behavior was three. Mean scores obtained by girls before intervention was 9.3±3.76, 3.56±1.99 and 0.14±0.56 respectively for knowledge, practices and health seeking behavior. It was observed that there was significant change in the knowledge, practice and health seeking behavior after six months of intervention (Table 2). Health seeking behavior, only 8 girls had checked their hemoglobin in last one year. Only 3 girls had taken deworming tablet and Iron Folic Acid tablet (IFA) in last 6 months. Use of soap for washing hands after defecation by adolescent girls was 76 (71.7%), before consuming food 78(73.5%). These numbers were significantly raised post intervention. There was significant improvement in the practices after the intervention and was statistically significant.

Table 1: KAP regarding anemia in adolescent school girls before and after intervention.

Knowledge towards anemia	Pre-intervention No.(%)	Post-Intervention No.(%)	Mc neamar test value
Have you heard about anemia?	37 (34.9)	106 (100)	9.66
Anemia is health problem?	41 (38.7)	106 (100)	4.99
What do you understand by anemia	37 (34.9)	104 (98.1)	9.06
Reasons of anemia	8 (7.5)	94 (88.7)	74.72
Symptoms of anemia	10 (9.4)	94 (88.7)	68.16
Effects of anemia	14 (13.2)	90 (84.9)	55.93
How do you prevent anemia	13 (12.3)	88 (83.6)	58.87
How anemia can be treated	20 (18.8)	101 (95.3)	39.85
Practices towards anemia			
Do you wash your hands with soap after defection	76 (71.7)	102 (96.2)	19.10
Do you wash your hands with soap before consuming food	78 (73.5)	100(94.3)	22.65
Do you wash fruits and vegetables before consuming	72 (67.9)	102 (96.2)	12.91
Do you trim your nails regularly (weekly)	64 (60.4)	99 (93.4)	4.16
Walking barefoot outside the home	32 (30.2)	100 (94.3)	15.85
Health seeking behavior towards anemia			
Have you checked your Hemoglobin levels	8 (7.5)	106 (100)	74.72
Have you taken IFA tablets in last one year	3 (2.8)	106 (100)	92.46
Have you taken deworming tablet last 6 months	3 (2.8)	106 (100)	92.46

DISCUSSION

The present study being an intervention study carried on adolescent school girls for a period of six months revealed the change in KAP regarding anemia. Anemia especially Iron Deficiency (IDA) which is one of the principal causes of anemia among adolescent girls. IDA impairs physical and cognitive development that may cause weakness, inability to work, palpitation, learning disabilities, inattentiveness and repeated illness.[12,13]

The results of this study showed that knowledge about anemia was inadequate in the current study population. Similar observations were noticed in other studies.[14,15] On the contrary, one study showed that 90.7% of Indian adolescent girls had correct knowledge concerning the cause of iron deficiency anemia.[16]

Knowledge being poor, attitude being negative and practice being unsatisfactory were identified and health education was given through various forms. Similar results regarding knowledge attitude and practice was seen in the study conducted in urban slum of Karnataka among adolescent girls.[10]

Dietary knowledge in relation to prevention of anemia was poor among the school girls. More than seventy percent girls did not know increase

Table 2: Mean score change in KAP regarding anemia after intervention.

Variable	Mean ± SD		Mean Difference (95% CI)	Paired 't' test value
	Post-intervention	Pre-intervention		
Knowledge	19.89 ± 2.24	9.3 ± 3.76	1.05 (9.92 – 11.24)	31.58
Practice	4.83 ± 0.54	3.56 ± 1.99	1.27 (0.93 – 1.61)	7.38
Health seeking behavior	3.00 ± 1.20	0.14 ± 0.56	2.85 (2.75 – 11.24)	52.58

dietary iron will reduce the prevalence of anemia. One of the most important reasons of IDA is lack of nutritional knowledge and consequently improper practice to prevent anemia. It is a documented fact that inadequate and improper food intake adversely affects the growth of the adolescent girls coming from the unprivileged sections of the community.[17] Dietary knowledge plays important role in prevention of anemia.[11,18]

Significant number of adolescent girls showed poor hygiene practice in the current study. Similar observations were made in study conducted in Bangladesh.[19,20] There was significant improvement in the hygiene practices like washing hands with soap before eating, after defecation and avoiding bare foot walking outside home after intervention. Also some studies have emphasized on the importance of hand washing in their studies.[21,22] However, the study revealed that more than two thirds of the respondents did not wash their hands with soap and water neither before eating nor after defecation.[23] These observations are very convincing and optimistic toward the effective implementation of the existing national programs. The national health program to prevent Iron deficiency anemia under National Iron plus Initiative for Anemia control under which Weekly Iron Folic Acid supplementation will provided to adolescent girls aged 10-19 years in school and Anganawadi[24] can have better outcome if health education is given to along with iron supplementation.

CONCLUSION

In this study, adolescent school girls had inadequate knowledge on anemia prevention with regard to four domains including knowledge, attitude and practices (definition, causes, signs and symptoms, treatment) and health seeking behavior. There was a significant improvement in the knowledge regarding anemia among adolescent girls after health education as an intervention.

WIFS and intensive health education intervention has an impact on improving knowledge, attitude, practices and health seeking behavior of adolescent school girls. School can be an essential, effective and efficient place to implement a comprehensive health education program which would further facilitate in reducing the disease burden. Additional nutritional interventional research is needed to reinforce good practices to prevent anemia.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

ABBREVIATIONS

WIFS: Weekly Iron Folic Acid Supplementation; **IDA:** Iron Deficiency Anemia; **KAP:** Knowledge, Attitude and Practice.

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