Effectiveness of Menstrual Health, Hygiene and Nutrition Educational (MHHNE) intervention among adolescent girls in urban Bengaluru.

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Abstract:

The lifestyle diseases of the present era compels us to understand the importance of eating right among millions of adolescents in India. Ignorance of relation between health and hygiene is the main reason for the prevalent extreme situations of malnutrition ,obesity and anaemia. Aim of the study was (i) To assess knowledge and practices of nutrition, hygiene and menstrual health before intervention (ii) To assess the effectiveness of Menstrual Health, Hygiene and Nutrition Educational (MHHNE) intervention among adolescent girls in Urban Bengaluru. A descriptive, cross-sectional study was conducted among 1287 adolescent girls from 7 schools in Urban Bengaluru. Self-administered questionnaire was used to assess knowledge and practices before intervention. A health and nutrition education interactive session MHHNE of 40 minutes was delivered to respondents and were asked to fill the questionnaire again. Pre and Post intervention data collected through the questionnaire was analysed. Descriptive statistics (Number and percentages) were calculated. MHHNE was successful in improving the knowledge of the participants in the domains of nutrition . The four domains ``Importance of enough sleep", "water `,"less stress" and "reducing junk food", to reduce PMS awareness of the participants was good. The 2 domains that need more effort to change their knowledge and practice are "Cause for anaemia", and "the importance of eating nuts and seeds". MHHNE to great extent was successful to improve the overall knowledge of mentioned domains in adolescent girls.

Introduction:

The lifestyle diseases of the present era compels us to understand the importance of eating right. Millions of adolescents in the country speak for the lack of knowledge on nutrition and exercises which explain the extreme situations of malnutrition and obesity, significant prevalence of anaemia and ignorance of relation between health and hygiene .

Adolescence is the most important period of transition in life. It requires proper knowledge of health, diet, and hygiene. Lack of timely information and guidance on these matters may cause complications for individuals in adulthood.1 .During this period

individuals move towards physical and psychological maturity, and economic independence and acquire their adult identity.2 In this growing age nutrition plays a very important role. Improving the nutritional status and correcting poor nutritional practices will help in building a healthy society. Adolescence is a period puberty sets in, typically between the ages of 10 and 13 years in girls. It is characterised by the growth spurt, a period in which growth is very fast. During this time, physical changes affect the body's nutritional needs, while changes in one's lifestyle may affect eating habits and food choices. Adolescent nutrition is therefore important for supporting the physical growth of the body and for preventing future health problems. Poor health or risky behaviours during adolescence can have negative impacts on health in adult life.

It is well established that low iron intake and low bioavailability of dietary iron are crucial in the development of iron deficiency . The bioavailability of non-haem iron, the main source of iron from most diets, is affected by the presence of several dietary components. Another important factor that contributes to a negative iron balance in women at fertile age is menstruation.3 Studies have also indicated that nutritional deficiencies exert an influence over menstrual regularity; therefore, nutritional deficiencies are considered as one of the most significant factors resulting in menstrual irregularity in women and girls.4 Dysmenorrhea is one of the most prevalent gynaecological disorders, experienced by approximately two third of young women during menstruation. According to literature, nutrition can play a key role in the prevalence and severity of dysmenorrhea.5 Undernutrition is directly caused by inadequate dietary intake and/or disease and indirectly related to many factors, including poor water, sanitation and hygiene (WASH).6

Creating awareness about the nutritional status and healthy practices is the first step towards bringing change in the society. In certain classes of society there is access to nutrition but a gap of unawareness. According to the Society for Nutrition Education and Behaviour, nutrition education is any combination of educational strategies, accompanied by environmental supports, designed to facilitate voluntary adoptions of food choices and other food and nutrition related behaviours conducive to health and well being. Nutrition education is delivered through multiple venues and involves activities at the individual, community and policy levels.7 The importance of nutrition education as a means for improving the nutrition of the community in the developing countries, has been increasingly realized during recent years.8

Hence to address this gap menstrual health, hygiene and nutrition education invention(MHHNE) program was designed.

The objectives of the study were to:

(i) To assess knowledge and practices of the nutrition, hygiene and menstrual health

before and after the educational intervention. (ii) To assess the effectiveness of Menstrual Health, Hygiene and Nutrition Educational (MHHNE) intervention among adolescent girls in Urban Bengaluru.

Methods:

A descriptive, cross-sectional study was conducted among 1287 adolescent girls from 7 schools in Urban Bengaluru. The age of the respondents was between 10 years and 17 years. Prior permission was obtained from the school authorities and parents of the girls to start the study. Table 1 shows the distribution of the number of girls from the respective schools . All those who were willing to participate were included as the cohort representing the respective school. The study was conducted in 2 phases. Phase1 was collection of baseline data. Self-administered questionnaire was used to assess the knowledge and practices of menstrual health, hygiene and nutrition before intervention. The questionnaire was self-designed , validated and pre-tested. One school was selected for pilot testing. Initially there were 15 questions which were reduced to 10 after pilot testing and were used as the final questionnaire for the data collection.

The selected girls were made to sit comfortably in the classroom giving them some time to relax. 10 minutes of time was given to them to complete it. They were asked to reply frankly and also were assured that it is not a test and they will not be judged. After completing Phase 1, they participated in the 40 minutes MHHNE program which was done using a powerpoint presentation by a nutritionist and a gynaecologist. The content of this program was self-designed, validated and pilot tested. It covered topics on menstrual health, hygiene , importance of healthy diet in growing age, avoiding junk food , causes and prevention of anaemia , iron rich foods, role of exercise in growing age. Later, all the respondents were approached again to fill the questionnaire and get data for post intervention. All the collected data was filled in Microsoft Excel 2007. Descriptive statistics (Number and percentages) were calculated for all the correct answers. The overall effectiveness of MHHNE was assessed by finding the difference in the percentage of correct knowledge and practice of pre and post intervention.

Results:

Over all 1287 adolescent girls participated in the study but only 1228 girls (96%) completed the questionnaire fully.

Table 1:Distribution of the sample according to the schools

Sample size		
School	**N**	**%**
School A	64	5.0%
School B	355	27.6%
School C	35	2.7%
School D	171	13.3%
School E	220	17.1%
School F	342	26.6%
School G	100	7.8%
Total	**1287**	**100.0%**

Table 2: Correct responses for Pre and Post intervention.

Statements	Pre – Intervention	Post intervention	Difference in percentage
KNOWLEDGE			
To reduce pre - menstrual syndrome			
I should not eat junk foods	82.2	89	6.8
I should sleep enough	86.4	86.6	0.2
I should drink enough water	91.8	94.1	2.3
I should reduce stress	85.9	86	0.1
Complex carbohydrates are good for my health	66.3	92.8	26.5
Skipping breakfast reduces your concentration and makes you obese	68.3	81.6	13.3
A girl can become anaemic because of Poor dietary habits, Worms in the stomach or Excessive menstrual bleeding.	49.7	55.4	5.7
Vitamin C required for the absorption of iron	27	66.9	39.9
PRACTICE			
I exercise everyday as it helps me to be fit and healthy	85.7	95.5	9.8
I eat Nuts and seeds as they are good source of proteins, iron and fats	30.3	33.1	2.8

Table 2 describes the pre and post intervention correct responses. For the knowledge domain the pre intervention correct responses were as follows. To reduce premenstrual syndrome: one should not eat junk food (82.2 %) ; one should sleep enough (86.4%); one should drink enough water (91.8%.); one should reduce stress (85.9%). Further, complex carbohydrates are good for my health (66.3%); skipping breakfast reduces your concentration and makes you obese (68.3%); a girl can become anaemic because of poor dietary habits, worms in stomach or excessive menstrual bleeding (49.7 %) and only 27% answered correctly that vitamin C is required for absorption of iron. For the practise domain 85.7% answered correctly that one should exercise everyday as it helps to be fit and healthy. One should eat nuts and seeds as they are good sources of protein , iron and fats was correctly answered by 30.3%.

Post intervention, the score for knowledge domain had risen as follows: "One should not eat junk food" (89 %) ;"One should sleep enough" (86.6%); "one should drink enough water" (94.1%.); "one should reduce stress" (86.%). There was also a significant raise in knowledge on "Complex carbohydrates are good for my health" (92.8%); "skipping breakfast reduces your concentration and makes you obese" (81.6%); "a girl can become anaemic because of poor dietary habits, worms in stomach or excessive menstrual bleeding" (55.4 %) and 66.9% answered correctly that vitamin C is required for absorption of iron. For the practise domain, scores improved as follows: was

95.5% that "one should exercise everyday as it helps to be fit and healthy". One should eat nuts and seeds as they are good sources of protein , iron and fats showed comparatively less rise with 33.1%. .

Post intervention, the maximum knowledge improvement was seen in the responses that complex carbohydrates are good for health(26 .5 %) and vitamin C is required for the absorption of iron (39.9%).However the girls already had good knowledge on how to reduce premenstrual syndrome and that exercise helps them to be fit and healthy. The increase in knowledge in these areas was marginal .

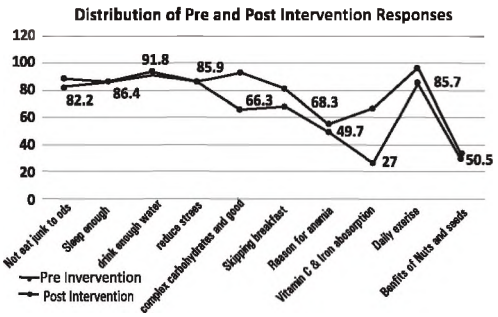


Figure 1: Pre & Post intervention responses

Discussion:

Premenstrual syndrome among adolescent can be reduced by having a healthy diet and lifestyle. Study conducted by Nastaran Najafi et al 5 shows that adherence to "snacks" pattern is associated with an increased risk of moderate to severe dysmenorrhea during menstruation among young women. Knowledge about healthy diet and lifestyle will help the girls for better practises. The respondents understood the importance of complex carbohydrates obtained from the whole grains , vegetables and fruits will help them to stay healthy. They became aware that vitamin C plays a important role in absorption of iron. Breakfast being the first meal in the morning is the fuel to the brain and helps in concentration. The study conducted by Renjini in Kottayam Kerala in 2014 also had the similar content of the intervention program as MHHNE.8 The study showed that mean nutrient intake of samples shows that there is a deficit intake in case of vitamin C and Iron by -13 and -8.33 respectively. Most of the subjects had the habit of skipping meals especially breakfast (89%). Anaemia was prevalent in a small number of subjects; the requirement for iron is higher in adolescent girls than boys' to combat the menstrual loss. So the importance of the inclusion of locally available iron rich foods like green leafy vegetables was emphasized during lectures. MHHNE program also highlighted the source of iron and vitamin C. The respondents were educated on the causes for anaemia. One of the cause being menstrual bleed . Study conducted by Ruth Blanco-Rojo et al showed that Menstrual blood loss as an important determinant of iron status in young women. 3 Hygiene plays an equally important role in improving the nutritional status of an individual . Hence the respondents were told about healthy practises of hand wash, disposal of the sanitary pads and changing of sanitary napkins. Study conducted by Aparajita Chattopadhyay et al in pockets of eastern India showed that Poor WASH

practices like water facility outside the household premise, unimproved sanitation facility, non-use of soap after defecation had significant association with poor nutritional status of adolescent girls. 6

However the MHHNE intervention was not able to give 100% correct responses post intervention. It was not able to improve the knowledge on why a girl can become anaemic and the importance of seeds and nuts. The MHHNE program was effective for 8 domains out of 10 domains. But more understand the reason for being anaemic and the health benefits of nuts and seeds. Reinforcement should be given in this area to make girls know the correct knowledge. This can be considered as a preliminary study. It is recommended that while doing the large study the educational content should be modified to give better results. A more detailed nutrition invention, over a longer period with appropriate post gap assessment, for the programme can be made more interesting with better association using comic characters and videos.

Conclusion:

MHHNE to great extent was successful to improve the overall knowledge of the above mentioned domains in adolescent girls. Empowering the youth to understand the lifestyle patterns and associations of health and hygiene would go a long way in building a healthy generation next.

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