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RESEARCH ARTICLE
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"EFFECTIVENESS OF PLANNED TEACHING PROGRAMME ON KNOWLEDGE AND BIOPHYSIOLOGICAL PARAMETERS OF ADOLESCENT GIRLS REGARDING MANAGEMENT OF MENSTRUAL DISORDERS AND NUTRITIONAL ANEMIA "

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Abstract:

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Background: With an estimated 190 million adolescents, 22% of whom are girls, India has one of the fastest-growing youth populations in the world. The majority of teenage females in India experience reproductive health morbidities, which may shorten their lifespans and those of young adults.[3]Adolescence is a time when nutritional anaemia, which affects people of all ages and sexes, is more likely to develop.[1] Adolescence is a time of growth and development in and of itself. The maintenance and promotion of health and wellness necessitate specific consideration.[2]

Martial & method: A one group pre-test post-design evaluative strategy was used. In Kolar Taluk, 400 adolescent girls were nominated from five government high schools using a straightforward random sampling technique—the lottery method. Data collection methods included a knowledge questionnaire, for biophysiological factors inch tape to confirm the height, and a haemoglobin metre for measuring haemoglobin levels.

Result: reveal that the majority (71.75%) of the adolescent girls had inadequate knowledge, while 28.25% of them had moderately adequate information and none of them had sufficient knowledge, according to the total knowledge scores of adolescent girls on managing menstruation problems.

Conclusion: The study's final finding was that the proposed training programme significantly improved the treatment of nutritional anaemia and menstrual abnormalities, but not biophysiological characteristics.

Introduction:

There are 1.2 billion people in the globe who are between the ages of 10 and 19; India has the most adolescents (243 million), followed by China (207 million), the United States (44 million), Indonesia, and Pakistan. (both 41 million each)[5]

Significant physical, psychological, and social shifts occur throughout the adolescent period, which serves as a crucial transitional stage between childhood and maturity. Menstrual abnormalities and difficulties are frequently linked to reproductive issues[6].

Teenagers frequently experience menstrual irregularities, particularly in the first two to three years following menarche[7] and in India, the majority of them experience both menstrual irregularities and other issues related to their reproductive systems, including dysmenorrhea, premenstrual syndrome, heavy menstrual bleeding, intermenstrual bleeding, white discharge from the vagina, UTI, anemia, etc.[8]

In general, menstrual issues are viewed as minor health issues and are therefore not relevant to the public health agenda, especially for women in underdeveloped nations who may have life-threatening conditionss[9].

Because they typically consume less than three meals per day and have inadequate vitamin intakes, especially iron, adolescent girls are especially susceptible to nutritional issues and anaemia. Adolescent girls are more likely to develop iron deficiency anaemia due to increased demand for iron for haemoglobin and myoglobin, as well as poor dietary practises and iron loss through menstruation[10].

Subjects and Methods: The study used a quasi-experimental approach with a single group pre- and post-test. The SDUAHER ethical committee provided the ethical clearance. A comprehensive knowledge questionnaire and lesson plan on the management of menstruation problems, nutritional anemia, and biophysiological parameters was created in English and then translated into Kannada based on the study's objectives. Research and subject specialists were consulted to ensure the authenticity of the tool's and lesson plan's content. Government high schools (GHS) in rural Kolar, including Devarayasamudhra GHS, Hanumanahalli GHS, Kembodi GHS, Mudhavadi GHS, Harati GHS, and Uthuru GHS, served as the study's setting. The researchers approached female students in the eighth, ninth, and tenth grades of the school with the headmaster's consent and conveyed the study's goals and characterization of the problem to them. Then, 400 teenage females who satisfied the inclusion requirements were chosen from five government high schools using a simple random sample approach and lottery procedure. Following this, characteristics related to biophysiology and knowledge were evaluated. On the same day, a planned educational programme on managing menstrual disorders and nutritional anaemia was carried out. It lasted for about 45 minutes and used charts, an LCD, and a blackboard. A post-test was administered using the same tool after the 30-day education programme. Data was gathered between November 1, 2017, and October 5, 2017. After then, descriptive statistics and inferential statistics were used to analyse the data that had been gathered

Results:

Results are presented in the following ways based on the study's objectives;

I: Distribution of the adolescent girls based on their socio demographic characteristics

Table 01: Distribution of samples based on socio demographic variables

Sl No	Variable	Frequency	Percentage
1	Age ;		
	13-14 years	257	64.25
	15-16 years	243	60.75
2	Type of family	240	60
	Nuclear	160	40
	Joint		
3	Type of food	127	31.75
	Vegetarian	273	68.25
	Mixed		
4	Education of father		
	Primary education	205	51.25
	SSLC	155	38.75
	PUC	30	7.5
	Degree	10	2.5
5	Occupation of father		
	Agriculture	281	70.25
	Daily wages	88	22
	Private employee	16	4
	Government employee	15	3.75
6	Education of mother		
	Primary education	203	50.75
	SSLC	161	40.25
	PUC	34	8.5
	Degree	02	0.5
7	Occupation of mother		
	Agriculture	220	55
	Daily wages	152	38
	Private employee	18	4.5
	Government employee	10	2.5
8	Source of information	143	35.75
	Family members	90	22.5
	Friends	94	23.5
	Teachers	73	18.5
	Mass media		

The socio-demographic data of adolescent girls revealed that Majority(64.25%) of them were in the age group of 13-14 years, most (60%)were them from nuclear family, majority (68.25%) of them were taking mixed diet, maximum (father-51.25% and mother-50.75%) of parents had primary education and most (father-70.25% and mother-50%) of them were formers and 30.75% of adolescent girls received information on menstrual disorders and nutritional anaemia from their family members.

II: Pre assessment of knowledge on management of menstrual disorders and nutritional anemia and biophysiological parameter.

Sl. No.	Knowledge score	Menstrual disorders		Nutritional anemia	
		Frequency	%	Frequency	%
1	Below 50%	287	71.75	323	80.75
2	50 – 75%	113	28.25	77	19.25
3	Above 75%	-	-		
	Total	**400**	**100**	**400**	**100**

Table-02: Pre-assessment knowledge scores on management of menstrual disorders and nutritional anemia

The majority of adolescent girls (71.75%) had poor information about **managing menstruation** disorders, whereas 28.25% had somewhat adequate knowledge and none had adequate knowledge, where as the majority (80.75%) of those who received overall knowledge scores on managing **nutritional anaemia** had insufficient knowledge, 19.25% had moderately adequate knowledge, and none had adequate knowledge.

Regarding the biophysiological parameter BMI, the majority of them (60.63%, 76.11%, and 59.3%) in all age groups (14 years, 15 years, and 16 years) were underweight, while 39.37%, 23.89%, and 40.63% had normal BMI and none had overweight.

In terms of **Hb%**, the majority of adolescent girls (86.63%, 76.99, and 89.37%) had normal Hb% in all age groups (14 years, 15 years, and 16 years), whereas 12.59%, 20.35%, and 10% of them had mild anemia, 0.78%, 2.66%, and 0.63% had moderate anemia, and none had severe anaemia.

Objective II: Evaluate the Effectiveness of Planned Teaching Programme on Level of Knowledge of Adolescent Girls on Management of Menstrual Disorders & Nutritional Anemia by comparing Pre-test & Post-test Knowledge Scores.

Slno	Variables	Pre test		Post test		t- value	P value	Inference
		Mean	SD	Mean	SD			
1	Knowledge scores on management of menstrual disorders and nutritional anemia.	24.24	2.98	38.09	2.37	72.44	0.00	SS
2	BMI	17.39	2.58	17.47	2.53	**2**.48	.13	SS
3	Hb%	12.94	8.55	11.36	1.17	3.63	.00	NS

Table-03:- Pre-test & Post-test Knowledge Scores on Management of Menstrual Disorders & Nutritional Anemia with biophysiological parameters

The overall the mean pre-test knowledge-score on managing of menstrual disorder and "nutritional anemia" was 24.24 with SD of 2.98 and mean post test score was 38.09 with SD of 2.37. The obtained t- test value was 72.44 which shows statistical significance at $p<0.05$.

There was numerical extensive difference in level of knowledge after implementation of planned teaching programm **therefore rejected null hypothesis**.

The pretest-mean BMI values of "adolescent girls" was 17.39 with SD of 2.58 whereas the average post-test scores was 17.47 with SD of 2.53. The paired t-test reading was 2.48 > (1.96) indicates significant difference in both pre-test& post-test scores *therefore* **rejected null hypothesis** and the mean pre-test score of Hemoglobin % in "adolescent girls" was 12.94 ± 8.55 and the mean post-test score was 11.36 with SD of 1.17.The paired t-test value is =3.63< (1.96) indicating that there no is considerable difference b/w pre and post test scores hence **accepting null hypothesis.**

Objective III: Association between knowledge scores with selected socio demographic variables

There was a strong correlation found between knowledge scores on the management of menstruation disorders with selected socio demographic variables are the kind of food (χ^2=25.04), the mother's work (χ^2=21.55), and the source of information (χ^2=72.14). As the calculated values was greater than the table value, hence **Null hypothesis was rejected**. Additionally, there was no correlation between age (χ^2=5.22), family type (χ^2=0.03), father's profession (χ^2=4.28), or mother's education (χ^2=0.76). As the calculated values was lesser than the table value, hence **Null hypothesis was accepted.**

Regarding the relationship between knowledge scores on nutritional anaemia and specific sociodemographic factors, it was shown that there was a significant relationship between mother's education (χ^2=21.5), occupation (χ^2=18.47), and information source (χ^2=6.55). As the calculated values was greater than the table value, hence **Null hypothesis was rejected.** While there was no correlation between age (χ^2=3.50), family type (χ^2=0.95), father's occupation (χ^2=6.48), or food type (χ^2=0.77). As the calculated values was greater than the table value, hence**Null hypothesis was rejected**

Association between Biophysiological parameter with selected socio demographic variables

Regarding the relationship between BMI and particular socio-demographic factors, as it was found that there was a substantial relationship between the type of food (χ^2=12.98) and the source of information (χ^2=9.94). Hence **Null hypothesis was rejected b**ecause of the calculated values are greater than table value. While there was no correlation between age (χ^2=7.39), family type (χ^2=3.57), mother's occupation (χ^2=1.75), father's occupation (χ^2=13.17), and mother's education (χ^2=0.76). So **null hypothesis accepted.**

Regarding the relationship between Hb% and sociodemographic factors, it was found that there was a significant relationship with food type (χ^2=46.38) with the exception of age (χ^2=4.11), family type (χ^2=0.04), father's occupation (χ^2=0.99), mother's education (χ^2=0.01), mother's occupation (χ^2=3.47), and information source (χ^2=1.91). **So null hypothesis accepted expect the variable type of food.**

Objective:IV . Correlation between BMI & Hb%

The co-relation involving overall knowledge scores on managing of menstrual disorders and nutritional anemia with BMI. The PCC (Pearson correlation co-efficien's 'r') of BMI was 0.16 with p- value of 0.00 and in Hb % it was (r value) 0.85 with p-value -0.00 indicating p value be < (1.98) the table-value at 399 DOF (degree of freedom). Which proved "there no inter-relation between knowledge scores with BMI and Hb% of adolescent girls". Therefore **null hypothesis was retained.** Whereas the relationship between teenage females' BMI and Hb% was less (r=-0.03) and not statistically significant (p=0.515), that correlation between **Hemoglobin and BMI.** The Pearson's 'r' value was -0.033with P value +/- 0.515. Which shows BMI & HB% of adolescent girls there not correlated. Therefore null hypothesis was retained

Discussion: Adolescents comprise nearly one-fifth (22%) of the India's total population. The country also has the world's largest adolescent girl population (20%). Menstruation and health issues related to reproductive-health which affects a large extent of females throughout their reproductive life from adolescence.[11] later the nutritional circumstance of "adolescent girls", the "future mothers" contributes appreciably to the nutritional position of the society. On this grounds present study considered as premier effort.

Pre assessment of knowledge and biophysiological parameters of adolescent Girls"

In present study the pretest overall knowledge score of adolescent girls on management of menstrual disorders reveals that, 71.75% of them had inadequate knowledge. This finding was supported by study Ashen Srinivasan impact of health education on menstrual irregularity among young girls, in

which 87% study participants were having inadequate knowledge on same health issue[11]. With regard to management of nutritional anemia 80.75% of them had inadequate knowledge. Niba Johnson, Nofeena D.Y et,al reveals in his study that only 5% of the participants had adequate knowledge.[12]

This may be reason that even-though "adolescent-girls" is interested to know about the menstrual issues due there shy nature they won't come forward to discuss or clarify regarding this matter and Insufficient awareness on nutritional diet , changing life style and increased physiological needs contributes to develop menstrual irregularities and nutritional deficient anemia. hence "adolescent girls" had deficient in knowledge.

EFFECTIVENESS OF PTP ON KNOWLEDGE AND BIOPHYSIOLOGICAL PARAMETERS

A vast majority of adolescent girls in India are suffering from reproductive health morbidities which may affect normal life of adolescent and young adult women, hence the study was under taken to assess the effectiveness of planned teaching programm on knowledge and biophysiological parameters of adolescent girls on management of menstrual disorders and nutritional anemia. The results reveals that pretest mean **knowledge score** was 24.24 with SD 2.98 & the posttest score was 38.09 with SD of 2.37. The paired t-test score is 72.44 which illustrate that there is major divergence in both pre & posttest results. The pretest-mean BMI values of "adolescent girls" was 17.39 with SD of 4.34 whereas the average post-test scores was 17.34 with SD of 4.36. The paired t-test reading was 2.48 > (1.96) indicates significant difference in both pre-test& post- test scores and the mean pretest score of **Hemoglobin %** in "adolescent girls" was 12.94 ± 8.55 and the mean post-test score was 11.36 with SD of 1.17.The paired t-test value is =3.63.< (1.96) indicating that there no is considerable difference b/w pre and post test scores. This was upholded by **a** study on Effectiveness of PTP on knowledge of l irregularity of cycles in adolescent girls at *Aurangangabad.* It exposed that, the average percentage of posttest knowledge level **(80.62%)** of "adolescent girls" was > their mean pre-test knowledge score **(23.42%)[13].**

This shows in-spite of number of health programmes exiting by government of Karnataka/ India still there is something lagging behind. Hence there is lot of research studies need to be conducted in this area.With regard to the **"association" with level of knowledge in "adolescent girls" on administration of "nutritional anemia" with selected sociodemographic data after implementation of PTP** reveals that the chi-square values were more than the table values for occupation of mother (χ^2=18.47), education of mother (χ^2=21.5) and source of information (χ^2=6.55 "Significant at 0.05" level whereas for age (χ^2=3.51), nature of family (χ^2=0.95), occupation of father (χ^2=6.48), and food type (χ^2=0.77), the calculated values < table value which was "not significant" at 0.05 level. Due to no ample of facts to accept or reject null hypothesis.

Most of adolescent girl's parents had education up-to primary level and comes from agriculture family. Major resource for information about menstruation was family members i.e. mother and sisters due to demographic variables influence even though PTP was efficient in improving the "scores of knowledge" no association was identified. other than this a shay in nature adolescent girls avoid them to discuss with her mother on menstrual disorder even if they are discussing nutritional problems because of this reason we could not associate socio-demographic variable with knowledge score.

With regard to BMI verses hemoglobin % the Pearson's 'r' value was -0.03 which was < (1.98) at 399 degree freedom. This indicate "weak relationship" B/w BMI and Hb%, which was not significant. It is support by a study on Correlation of "hemoglobin" "Hb" versus BMI "body mass index" and "body fat" among young adult female medical students Berhampur, Odisha, India. Correlation between Hb and BMI was r= −0.49, $P < 0.001$, which shows there was a significant negative correlation of Hb level with BMI *at* $P < 0.001$ level[15].

CONCLUSION

Findings can be concluded as below;

- PTP was effective in escalating the scores of knowledge among adolescent girls but not the biophysiological parameters.
- "No association" with knowledge score of post-test and socio-demographic data except type of food, mother occupation and resource for data in "adolescent-girls".
- Among knowledge and bio-physiological parameters of adolescent-girls a **week** correlation was identified.

Outcome of the study emphasised, we should educate adolescent-girls about medical handling of menstrual disorders and nutritional anemia.

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