

Prevalence of Anaemia and Reproductive Health status of Adolescent girls in Thoothukudi District.

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Abstract : In countries like our India, adolescent girls face serious health problem due to socio-economic, environmental conditions and gender discrimination. According to the World Health Organisation (WHO, 2011 a), anemia is a haemoglobin (Hb) concentration < 130 g/l in men and <120 g/l in women. Anemia not only affects the present health status of adolescents; but also has deleterious effects in the future. In order to prevent high maternal mortality and high incidence of low birth weight babies in India, there is a need to combat anemia during adolescence. The present study, in this context, is proposed to study the prevalence of anemia and reproductive health problems of adolescent girls in Thoothukudi District who are more vulnerable to health risks.

IndexTerms – Anaemia, Reproductive Health, Adolescent girls, Thoothukudi.

I. INTRODUCTION

Adolescent girls constitute one fifth of the female population in the world. Generally this group is considered healthy and has not been given adequate attention in health programmes. The reason is age specific mortality is comparatively low in this age group as compared to others. Adolescent girls are also subjected to various gender based inequalities. They are often forced into household work and sibling care, school dropout and low education attainment, child marriage and early child bearing, trafficking for sexual exploitation, risk of HIV/AIDS and discrimination even in terms of nutrition and food. According to NFHS-3, 2005-06, 21% adolescent girls and 8% adolescent boys have no education. It also states that girls are more at risk of malnutrition than boys and 56% adolescent girls are anemic as compared to 30% adolescent boys. Anemic adolescent mothers are at a higher risk of miscarriages, maternal mortality and stillbirths and low-weight babies. However, the Government is taking initiatives for meeting the requirements of the adolescents.

Anemia not only affects the present health status of adolescents; but also has deleterious effects in the future. In order to prevent high maternal mortality and high incidence of low birth weight babies in India, there is a need to combat anemia during adolescence, and this is the motive behind 12 by 12 initiative. It was intended that by 2012 all adolescents across the country should have atleast 12gms of Hb by 12 years of age. (ICRW, 2007). When young girls suffer from anemia their education and daily activities are also affected. Hence, it becomes necessary that adolescent girls are educated well on anemia.

So, the present study aims to study the haemoglobin levels of adolescent girls of Thoothukudi district and the reproductive health status of adolescent girls.

II. RESEARCH QUESTIONS

1. To screen the prevalence of anaemia among adolescent girls of Thoothukudi District.
2. To study the reproductive health status of anaemic adolescent girls.
3. To find if significant difference exists in the reproductive health of adolescent girls based on their anaemic status, Fathers' Education, Mothers' Education and Age of Puberty.
4. To find if there exists significant association between socio-economic profile of anaemic adolescent girls and their reproductive health status.

III. REVIEW OF RESEARCH

A young woman in adolescence is at a high risk of anemia and infants born to iron-deficient mothers also have a higher prevalence of anemia in the first six months of life (Perziosi *et al.*, 1997). It is found that maternal mortality is increased in women whose haemoglobin levels fall below 6-7 g/dl (Bothwell *et al.*, 1979). From medical and social perspective Menarche is considered as the central event of female puberty. It suggests the possibility of fertility. The age of onset of the menstrual cycle varies from 9-18 years, with the average age in the United States being about 12 years and 8 months, whereas in India, it is slightly lower and has been reported to be around 12 years. (Ghirri *et al.*, (2001); Khadilkar *et al.*, (2006); Chumlea *et al.*, (2003). The menstrual cycle is a normal monthly function of a healthy female body but becomes a major concern when women experience delayed mensuration, irregular cycles pertaining to hormonal fluctuations and pain during menses. The study by Patil *et al.*, (2009) confirmed that about 93.5% of adolescent girls were found to be anemic. Dysmenorrhea has been reported to be the commonest menstrual problem of adolescents by other researchers.

The study conducted by Geetha *et al.*, (1996) on General and Reproductive health of Adolescent Girls in Rural South India revealed that adolescent girls experience headaches, body pains, and fatigue as common physical problems. The study also brought to limelight weight loss, domestic problems, alcoholism in fathers and family conflicts to be vital factors that have impact in adolescent girls' health. Several studies on adolescent girls' health revealed menstrual irregularities and the most common of them is white discharge. From the critical review it is understood that adolescent girls' experience fatigue, headaches, common cold, flu and some of them have Hypertension, High blood glucose levels and low Hemoglobin level. Other than this anxiety, suicidal tendencies, depression and frustration are quite common among adolescent girls'. Several studies revealed menstrual irregularities.

IV. METHODOLOGY

The present study followed the descriptive research method. Survey technique was used to collect data. Adolescent girls is the population and adolescent girls of Thoothukudi region becomes the sample of the study. Simple Random sampling technique was adopted to collect sample. Girls between 10-19 yrs of age, those willing to be examined were the inclusion criteria of the sample whereas girls above 20 yrs and those who are not willing to be examined were the exclusion criteria. Sample size was 1000. Data collection of the sample was carried out during May 2017 to May 2018. The investigator further confirmed that adolescent girls of Thoothukudi district participated. The information on age, socioeconomic status, menstrual problems were assessed with the standardized tools prepared by investigator. Following were the tools used:

1. General information Data sheet to gather data related to their family environment.
2. Adolescent Girls' Reproductive Health Questionnaire.

Pilot study was performed to standardize the tool. Validity and reliability was established. Content Validity, Construct Validity and empirical validity was established for all the three tools. Reliability of the tools was established using Split-Half Method. The reliability coefficients of Adolescent Girls' Reproductive Health scale was 0.79

Hb was estimated by Sahli's method using a haemoglobinometer.

3. Description of Keywords used

Anemia

Anaemia is a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet physiologic needs, which vary by age, sex, altitude, smoking, and pregnancy status. (WHO 2011)

Table 01

Anemia – Severity Classification (Hemoglobin values in grams per deciliter)

Hb value	Degree of anemia
<8.0 g/dl	Severe
8.0 to 10.9 g/dl	Moderate
11.0 to 11.9 g/dl	Mild
>12 g/dl	Not anemic

Dysmenorrhoea – A cramping lower abdominal pain which radiated to the back and lower legs during or before onset of menstruation was classified as Dysmenorrhoea. (Drief & Magowan 2004).

Premenstrual Syndrome (PMS) – It is recurrent, which is a variable cluster of troublesome physical and emotional symptoms that develop 7-14 days before the onset of menstruation and subsides when menstruation occurs. The symptoms of PMS include low backache, fatigue, breast heaviness, abdominal bloating, increased weight, headache, irritability, gastrointestinal symptoms and loss of appetite (Howkins & Bourne).

Normal menstrual cycle – A normal cycle is one which is regular, with an average amount of flow and that which lasts for an average amount of flow and that which lasts for an average duration of 2-7 days (Mackay 2005).

Menorrhagia – Menorrhagia is the medical term for menstrual periods with abnormally heavy or prolonged bleeding (Mackay 2005).

Amenorrhoea – No menstrual bleeding - Amenorrhoea is when menstruation is absent during the reproductive years, between puberty and menopause. It is not a disease, and it does not mean that a person is infertile, but it can be a sign of a health problem that needs some attention (Drief & Magowan 2004).

Irregular menstrual bleeding – Having irregular periods mean a variation in the number of days one have her period or that her period arrives early, late or even skips a few months. There may also be bleeding between periods (Mackay 2005).

Statistics used.

1. Percentage Analysis
2. Differential Analysis – t-test and ANOVA
3. Test of Association – Chi-square test

The investigator used IBM SPSS Version 20 for statistical calculation.

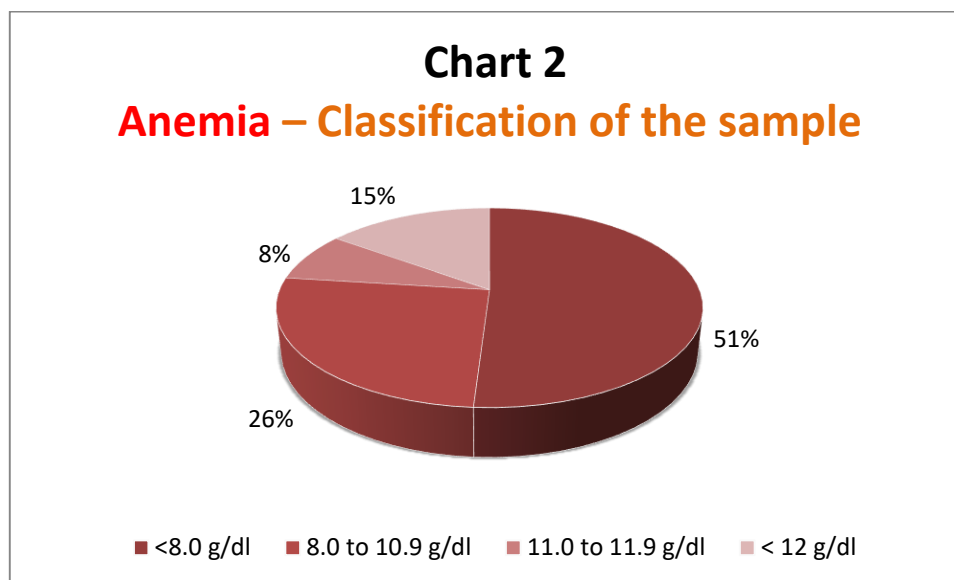
IV. RESULTS

Anemia

Table 02

Anemia – Severity Classification of the sample (Hemoglobin values in grams per deciliter)

Hb value	% of sample	Degree of anemia
<8.0 g/dl	51%	Severe
8.0 to 10.9 g/dl	26%	Moderate
11.0 to 11.9 g/dl	8%	Mild
< 12 g/dl	15%	Not anemic



It is found from this study that 51% of the sample of adolescent girls is severely anemic, 26% moderately anemic, 8% are mild anemic and 15% are not anemic.

1. Percentage Analysis

In percentage analysis, the response either 'yes' or 'No' where nearly 50% and/or more than 50% of the sample have made tick are considered.

Table 03
Reproductive Health Details of the sample

Reproductive Health Details	Response 'Yes' in %	Response 'No' in %
1. Do you get your periods regularly every month?	57	43
a) If regular how long is your menstrual cycle – 18-22 days – 6% 23-28days – 81% 29-35 days – 7% More than 35days – 6%		
b) If irregular how long – frequent periods – 51% delayed periods – 49%		
2. Do you suffer from Migraines or severe headache during periods?	14	86
3. Do you have chest pain during periods?	8	92
4. Do you get abdominal bloating during periods?	25	75
5. Do you feel tightness in chest?	8	92
6. Do you suffer from white discharge?	73	27
7. Do you suffer from any of the following menstrual disorders?	Response 'Yes' in %	
a) Menorrhagia – Heavy Menstrual trouble	11%	
b) Amenorrhea – No menstrual bleeding	5%	
c) Irregular menstrual bleeding – Bleeding between periods	47%	
d) Dysmenorrhea – Painful menstrual periods (Menstrual cramp)	85%	
e) Premenstrual Syndrome(PMS)	26%	

57% of the sample of adolescent girls has said they get their periods regularly every month. It is also found from the present study that 25% of the sample suffer from abdominal bloating during periods, 14% suffer migraines or severe headache during periods, 8% undergo tightness of chest and chest pain during periods. It is found that 73% of the sample suffer from white discharge and 85% of the sample of adolescent girls suffer from Dysmenorrhea (Painful menstrual periods) and 47% from irregular menstrual bleeding and 26% of the sample experience Premenstrual syndrome (PMS).

2. Differential Analysis – t-test and ANOVA

Table – 04
Differential Analysis – Anova and t-test

	Variables	Mean-Rep.Health
Fathers' Education	Illiterate	23.28
	School Edn	22.53
	College Edn	23.17
	Anova	0.84
	ρ	.43
Mothers' Education	Illiterate	22.51
	School Edn	22.65
	College Edn	23.6
	Anova	0.75
	ρ	.47
No of Siblings	2 & Less than 2	22.82
	3 to 4	22.57
	>5	22.87
	Nil	21.93
	Anova	0.24
	ρ	.87
No. of sisters	2 & Less than 2	22.56
	3 to 4	22.4
	>5	22.08
	Nil	23.22
	Anova	0.64
	ρ	.63
Annual Income	Rs 5K and >than 5K	22.85
	Rs.5K to 10K	22.7
	> than Rs.10K	22.75
	Anova	2.24
	ρ	2.24
Family Type	Nuclear Family	22.63
	Joint Family	23.05
	t test	0.5
	ρ	.48
Age	13 yrs to 15yrs	21.76
	16 to 19 yrs	23.08
	t test	2.38
	ρ	.02*

** Significant at .01 level (2 tailed)

The 't' test between adolescent girls who are 13 yrs to 15yrs and that of 16 to 19 yrs show significant difference in the mean score of reproductive health. The mean score of sample of adolescent girls of 16 to 19 yrs is higher than the adolescent girls of 13 to 15 yrs of age in Reproductive Health.

Significant difference existed in the mean score of Reproductive Health with respect to variables Fathers' Education, Mothers' Education, No. of sisters, Annual Income and Family Type.

3. Test of Association – Chi-square test

Table – 05
Chi-Square Test

Variables	Rep.Health		
	χ^2	df	Sig
F.Edn	22.8	32	0.88
M.Edn	46.35	32	0.05*
Family Type	32.2	16	0.01*
Total Members	26.91	48	0.99
No.of Siblings	46.72	48	0.53
No.of sisters	54.46	64	0.81
Annual Income	186.01	48	0.001*

** Significant at .01 level (2 tailed)

- i) Significant association exists in Reproductive Health of adolescent girls with regard to mothers' Education.
- ii) Significant association exists in the reproductive health and type of family.
- iii) Significant Association exists in the Reproductive Health of adolescent girls with regard to Annual Income.

V. DISCUSSION

The present study finds that 51% adolescent girls are anemic. This shows that prevalence of anemia is prevalent in adolescent girls in the study area. The study by Joshi *et al.*, 2006 it is found that 93.5% of adolescent girls in urban area are anemic. The study on nutritional status of adolescents by Kunt and Johnson (1994) carried out by the International Centre for Research on Woman (ICRW) found that anemia is a widespread nutritional problem and its prevalence ranged from 32-55%. This is in contrast to the study of Kappor *et al.*, 1992; Sharma *et al.*, 2000; Gawarika *et al.*, 2006). Also 47% of the sample of adolescent girls in Thoothukudi district have expressed that they feel tired all the time. Being anemic becomes the major cause of them being tired all the time.

Headaches such as migraines start to become evident in their adolescent period. This is due to their biological effects of hormonal progression and the expression of menstrual-related migraine (Hershey *et al.*, 2012). More than 50% of women suffer from migraine during their menses. It is learnt from several studies that decreasing levels of estrogen activate menstrual migraine (Silberstein, 1992).

So it becomes imperative from the present study to educate adolescent girls on the importance of reproductive health. Adolescent girls should be educated about this physiological condition and they should be helped to cope up with this problem. They should be encouraged to perform normal activities without any restriction.

73% of the sample reported to have white discharge. Further research in this to know the actual reasons for this discharge – whether normal or abnormal discharge will help researchers a long way to know about the life style of adolescent girls and their personal hygiene. The complaint of abnormal vaginal discharge is common among women in the reproductive age (Zaher *et al.*, 2017). The vaginal discharge may be due to physiological or pathological condition. The physiological discharge is healthy and normal for the women of the reproductive age. During the menstrual cycle, the type and the quantity of the cervical mucus changes (Sobel, 2011). Vaginal discharge that differs in odor, color, consistency or significantly decreases or increases in amount may be due to an underlying problem like an infection (Hirsch, 2013). Abnormal vaginal discharge is not a disease for itself but it is a symptom of other diseases as reproductive tract infections and sexual transmitted diseases, and if it is not treated well it may lead to severe complications as pelvic inflammatory disease, ectopic pregnancy, congenital anomalies, prognosis of genital tract malignancy. So early detection and treatment of abnormal vaginal discharge decreases the maternal morbidity and mortality (Maria *et al.*, 2013).

The test of difference (t test and ANOVA) shows significant difference in the Reproductive Health of adolescence with regard to the type of family and no.of siblings. Chi-square test also shows significant association between the type of family, Mothers' Education, Total members in the family, No.of siblings and Annual Income of the family. Nuclear family and only daughters seem to suffer more mentally. Also significant difference exists in the reproductive health of adolescent girls with regard to their age. Adolescent girls in the age group of 16-19 yrs of age tend to suffer more than the adolescent girls of 13 to 15 yrs of age. So, it is obviously felt that parents have greater responsibility in guiding their children. Because of the cultural barriers parents neglect to talk about physical and physiological changes, in consequence of this, growing children learn about sexuality and secondary sex characteristics from their peer groups or other inappropriate sources leads to abnormal social behaviour. Most of the children's psychiatric disorders were unidentified because of parent's ignorance and negligence. So, in all perspective i.e physical, psychological and social context Adolescent Friendly Health Services (AFHS) becomes necessary to address all the health needs of adolescent girls.

CONCLUSION

The present study highlights that a significant proportion of adolescent girls in Thoothukudi district have health impacting behaviours and conditions that affect their growth and development. It is also found from the study that the problems tend to increase. Of the several health problems adolescent girls' face, malnutrition and anemia occupies the prime place that needs immediate attention. Malnourishment and obesity are often seen in affluent adolescents predispose them to health problems like polycystic ovary and metabolic syndrome. Emphasizing the importance of a well-balanced healthy diet and adequate physical activity at this age can go a long way in ensuring good health later. Reproductive health issues of adolescent girls also need to be addressed. Adolescent girls should be educated about the physiological condition of menstruation. Maintenance of good hygiene during menstruation is very important. Good relationship with parents, other family members, teachers and easy access to adolescent friendly health facilities will help adolescent girls enjoy a positive health leading to healthy adulthood. Strategic investments in health, nutrition, education, employment and welfare are critical for healthy growth of young people and these programmes need to be monitored and evaluated for their efficacy and effectiveness using public health approaches.

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REFERENCE

- Bothwell, T., Charlton, R., Cook, J., & Finch, C. (1979). *Absorption of non-haem iron from food during pregnancy. Iron Metabolism in Man*. Oxford, UK: Blackwell Scientific Publications.
- Chumlea, W., Schubert, C., Roche, A., Kulin, H., Lee, P., Himes, J., et al. (2003). Age at Menarche and Racial Comparisons in US Girls. *Pediatrics*, 111, 110-113.
- Drief, J., & Magowan, B. (2004). *Normal Menstrual cycle. Clinical Obstetrics and Gynecology*. Saunders Publication.
- Gawarika, R., Gawarika, S., & Misra, A. (2006). Prevalence of Anaemia in Adolescent girls belonging to different Economic Group. *Indian Journal of Community Medicine*, 10-12.
- Ghirri, P., Bernardini, M., Vuerich, M., & Coccoli. (2001). Adrenarche, Pubertal development, age at menarche and height of full term, born small for gestational age (SGA) girls. *Gynecology Endocrinology*, 15, 91-97.
- Hirsch, L. (2013). *Vaginal Discharge: What's Normal, What's not*. Retrieved Dec 20, 2018, from <https://kidshealth.org/en/teens/vdischarge2.html?view=ptr>
- Howkins, & Bourne. (2014). *Shaw's Textbook of Gynaecology*. Elsevier.
- Joshi, B., Chauhan, S., Donde, U., Tryambake, V., Gaikwad, N., & Bhadoria, V. (2006). Reproductive and Health Problems and Help Seeking Behaviour Among adolescents in Urban India. *Indian Journal of Pediatrics*, 73, 509-513.
- Kappor, G., & Aneja, S. (1992). Nutritional Disorders in adolescent girls. *Indian Journal of Pediatrics*, 29(8), 969-73.
- Khaldilkar, V., Stanhope, R., & Khaldikar, V. (2006). Secular Trends in Puberty. *Indian Journal of Pediatrics*, 43, 475-78.
- Kumar, S., & Singh, A. (2014). Menstrual Practices and Hygiene among Adolescent: A Cross-sectional study in urban area of garhwal, Uttarakhand. *International Journal of Interdisciplinary and Multidisciplinary Studies (IJIMS)*, 2(2), 157-162.
- Kunt, K., & Johnson, W. (1994). The nutrition and lives of adolescents in developing countries. *International Centre for Research n Women*. Washington D.C.
- Mackay, H. (2005). *Abnormal Menstrual Bleeding: Current Medical Diagnosis and Treatment*. New Delhi: McGraw Hill.
- Maria, M., Juraci, A., Cesar, J., Raul, A., Mendoza-Sassi, R., & Schmidt, E. (2013). Pathological Vaginal Discharge among Pregnant Women: Pattern of occurrence and Association in a population Based Survey. *Obstetrics and Gynecology International*, 7.
- Minhas, S., & Sekhon, H. (2014). A Comparative study biopsychosocial factors influencing the anthropometric parameters of adolescent girls in a rural and urban area of india. *Scholars Journal of Applied Medical Sciences(SJAMS)*, 2(1B), 157-161.
- Mitali, L., Modi, K., Tabiyar, J., & Bhatt, R. (2014). A comparative study on menstrual hygiene and practices among adolescent school going girls in Ahmedabad District, Gujarat, India. *International Journal of Innovative Research and Studies*, 3(9), 297-310.
- Nidhi, G. (2014). A study to assess the effectiveness of video assisted teaching on knowlwdge regarding iron and folic acid deficiency anaemia among adolescent girls residing in hostel at Bangalore. *Obstetrics And Gynaecological Nursing* (pp. 1-22). Rajiv Gandhi University of Health Sciences.
- Netravati, M., Yattinamani, Bharati, P., & Ashalatha, K. (2014). Nutritional Status of adolescents of Dharwad Taluk, Karnataka. *Journal of Agricultural Sciences*, 27(1), 56-59.
- Patil, S., Wasnik, V., & Wadke, R. (2009). Health Problems Amongst Adolescent Girls in Rural Areas of Ratnagiri District of Maharashtra India. *Journal of Clinical and Diagnostic Research*, 1784-1790.
- Preziosi, P., Prual, A., Galan, P., Daouda, H., Boureima, H., & Hereberg, S. (1997). Effect of Iron Supplementation on the iron status of pregnant women: Consequences. *Am J Clin Nutr*, 66, 1178-1182.
- Sharma, A., Prasad Rao, K., & Visweswara, K. (2000). Identification of an appropriate strategy to control anaemia in adolescent girls of poor communities. *Indian Pediatrics*, 37, 261-267.
- Shilpa, S., Biradar, S. P., Biradar, C., Alalagi, S., Wantamutte, & Malur. (2012). Prevalence of anaemia among adolescent girls: a one year cross-sectional study. *Journal of Clinical and Diagnostic Research*, 6(3), 372-377.
- Silberstein, S. (1992, march). The Role of Sex hormones in Headache. *Neurology*, 42((3Suppl 2)), 37-42.

- Sivagurunathan, G., Umadevi, R., Rama, R., & Gopalakrishnan, S. (2015, March). Adolescent Health: Present Status and Its Related Programmes in India. Are We in the Right Direction? *Journal of Clinical and Diagnostic Research*, 9(3), LE01-LE06.
- Sobel, D. (2011). Diagnostic Approach to Women with vaginal discharge or vulvovaginal symptoms. www.uptodate.com.
- Yogender, P., Sujatha, R., Rangaswamy, R., Sreekantha, & Avinash, S. (2014). The study of iron related parameters in iron deficiency anaemia in pregnancy. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 5(1), 980.
- Zaher, E. H., Khadr, N. F., & Elmashad, H. A. (2017, Feb). Awareness of Women Regarding Vaginal Discharge. *IOSR Journal of Nursing and Health Sciences (IOSR-JNHS)*, 6(1), 01-12.

International Reports

International Institute for Population Sciences (IIPS) and Macro International. (2007). National Family Health Survey (NFHS-3), 2005-06:India: Volume I. Mumbai IIPS.

UNICEF 2011 Retrieved from https://www.unicef.org/adolescence/files/SOWC_2011_Main_Report_EN_02092011.pdf

World Health Organization (2011). *WHO*. Retrieved March 18, 2017, from www.who.int

World Health Organization (2011 a). *WHO*. 'WHO guidelines on preventing early pregnancy and poor reproductive health outcomes among adolescents in developing countries'. www.who.int. Accessed March 13, 2016

