

# Prevalence of dysmenorrhoea in College Students

Nidhi Sharma \*, M. Benjamin Sagayaraj \*\*, Balamma Sujatha \*\*\*, Abdul Rahman A. M. \*\*\*\*, Abirami M. \*\*\*\*  
,,Adhil Khan M. H. \*\*\*\*, Aditya. K. \*\*\*\*, Ajantha P. \*\*\*\*

\* Nidhi Sharma, Associate Professor, Department of Obstetrics and Gynaecology, Saveetha Medical College, Saveetha University  
\*\* M. Benjamin Sagayaraj, Associate Professor, Department of Paediatrics, Saveetha Medical College, Saveetha University  
\*\*\*Balamma Sujatha, Assistant professor, Department of Paediatrics, Saveetha Medical College, Saveetha University  
Abdul Rahman A. M., Abirami M., Adhil Khan M. H., Aditya. K. & Ajantha P.  
MBBS students, Saveetha Medical College, Saveetha University

**Abstract-** Background: Knowledge of physiology of reproduction is important for teenage girls to practice menstrual hygiene. We have estimated the prevalence of dysmenorrhoea and menorrhagia in adolescent population. The participants were given free medical care, sexual health education and counselling.

**Aim:** This study was designed to find the burden of Dysmenorrhoea and menorrhagia. We also assessed the factors related to gender disadvantage.

**Methodology:** This observational cross-sectional study includes the female students of Saveetha University. Inclusion criteria was all adolescent girls who had reached menarche, in the age group of 17-20 years, with no diagnosed pelvic pathology and those who gave consent to participate in the study. Girls with known organic pelvic pathology, bleeding disorders and hypothyroidism were excluded. The sample size was calculated as two hundred and fifty two. This was based on demographic percentage prevalence of dysmenorrhoea.

**Results:** The median age of menarche was 13-14 years. Regular menstrual cycles were apparent in 77.4% of our young adults. Irregular periods were present in 22.6% of teenage girls although the burden of dysmenorrhoea was estimated to be 70.4%. Menstrual cycle duration was more than 7days in 13.9% of individuals. Severe dysmenorrhoea was present in 9.5% of girls while 24.6 % and 36.5% experienced moderate and mild dysmenorrhoea respectively. Although 70.4% of girls experienced dysmenorrhoea only 3.6 % used pharmacotherapy due to fear of side effects. Dysmenorrhoea was assessed to be a part of a broader somatoform syndrome for which no discernable pathology could be identified.

**Conclusion:** The burden of dysmenorrhoea was found much more than menorrhagia and irregular cycles in our university. A large proportion of young girls suffer from dysmenorrhoea, though only a few seek treatment. High prostaglandin levels, psychosocial factors, young age at menarche, oppressive relationships, menorrhagia and premenstrual syndrome are found associated. However, there is little evidence to explain the aetiology of dymennorrhoea. Dysmenorrhoea is not a trivial complaint, as a result of high prevalence and adverse impact on mental health. It should be considered a target for reproductive health programme

**Index Terms-** Adolscence, Dymennorrhoea, Etiology, Epidemiology, Prevalence.

## I. INTRODUCTION

There is a rising incidence of premarital sex in both rural and urban settings. Young people start sexual activity early without adequate knowledge of reproductive issues. They are at a high risk of negative consequences like unwanted pregnancies, sexually transmitted infections and unsafe abortions. Nearly 50% of new HIV<sup>1</sup> infections occur in 15-24 age groups. The adolescent fertility is very high with 20% girls giving birth by the age of seventeen. The total fertility rate has 19% contribution by girls of 15-19 years. This early childbearing age contributes to high morbidity and mortality.

Dysmenorrhoea is a painful or cramping sensation in the lower abdomen often accompanied by other biological symptoms, including fatigue, dizziness, sweating, headache, backache, nausea, vomiting, diarrhoea, all occurring just before or during the menses. It also leads to loss of important classroom

hours during the formative teenage years of a young girl. National health policy (2002) has defined adolescent as an underserved vulnerable group that needs to be addressed especially by the provision of information on reproductive health. Adolescent reproductive health is especially important for our country where there are 331 million adolescents.

Between 1 and 10% of all abortion seekers are adolescents. Many of these are married adolescent. At least 50% of unmarried girls seeking abortions are adolescents and amongst these many are below 15 years of age. Hygiene related practices of adolescents during menstruation are of considerable importance as it has a health impact in terms of increased vulnerability to infection. Thus, the formal instruction is an important source of accurate information.

Formalized curricula for sexual education is much less common in developing countries than in developed ones and they are typically not implemented at national level.

There is often a strong religious and political opposition to sexuality education. This comes out of fear that it will encourage sexual activity. Data indicates, however, that sexual education does not encourage young people to engage in sex. Most studies show that education about reproductive and sexual health

contribute to postponement of sexual activity and to the use of contraceptives among sexually active teens. The aims of the present study were

- a) To assess the knowledge of reproductive health behaviour in the adolescent population in urban and rural areas
- b) To investigate the attitude of reproductive health behaviour among the adolescent girls
- c) To assess the knowledge on menstrual hygiene practise among the adolescent girls
- d) To estimate the prevalence of dysmenorrhoea in adolescent girls To assess the use of drugs for dysmenorrhoea

## II. BACKGROUND

Population projections by the registrar general of India state that there are 331 million young people in the age group of 10 to 24 years whose need for sexual and reproductive health information and services remain high(1). The Family welfare department, Government of India has introduced a strong adolescent reproductive and sexual service delivery component through the RCH II programme and the National Rural Health Mission (NRHM). UNFPA has introduced Family life education in school curricula in 79 countries over past three decades, with technical assistance from UNESCO.

The National AIDS Control Organization (NACO) has introduced a family health education for the adolescent girls. Adolescent Friendly Health Services are going to be set up in District Hospitals, to deliver Adolescent Reproductive and Sexual Health measures on a standard laid down by World Health Organisation. In a 2009 report ,Human rights Watch found that 1 out of 70 girls who reach reproductive age die of pregnancy, child birth, or unsafe abortion in comparison to 1 in 7300 in developed countries. The National statistics shows the importance and need for concentrating and delivering Adolescent reproductive and Sexual Health services in our country. Adolescent sexual activity is generally impulsive and unplanned initiated without adequate knowledge of sexual and reproductive issues and seldom with a practice of safe sex .More than 50% of new cases of HIV /AIDS are in the age group 13-19 years.

UNICEF has recommended 45 kg and 145 cm as the minimal prepregnancy weight and height of girls. Pre pregnancy weight and height are now well recognized important determinants of birth weight of future progeny. One iron tablet per day is recommended to prevent anaemia in menstruating young girls.

Especially in the present era, when adolescents are increasingly at a risk of STDs and AIDS, it is crucial that governments, educators, parents and community leaders recognize the reality and risks of premarital sexual activity among young people. It is imperative to work together to provide the sexual education to young people who need protection. Sexual education will not only warn teenage

population against AIDS/HIV but also encourage young people to plan their impulsive sexual behaviour.

There is an increased demand of reproductive and sexual health programmes for young people. However, little scientific based evidence exists about knowledge of reproductive anatomy and physiology in teenagers.

The approaches which will be effective in shaping healthy sexual behaviors need to be studied.

Health professionals have an important role in ensuring that the adolescents learn the correct information related to the consequences of unhealthy sexual behavior and lifestyle. We should encourage parents to be role models to reinforce good menstrual hygiene and sexual health in young girls through the Parent –Adolescent Relationship Education (PARE) programme (2).

The Sexual and Reproductive Health problems among unmarried adolescent girls are increasing. Early marriages, premarital sexual activity, unmarried adolescent pregnancy, unsafe abortions and menstrual problems are rampant in young girls (3). The adolescent girls are unaware of the dangers these problems and they do not adequate knowledge about sexual and reproductive health.

## III. MATERIALS AND METHODS

We articulated the research work with ideas gathered in above steps by studying the prevalence in our institute:

### *Types of dysmennorrhoea*

Dysmenorrhoea may be categorized into two distinct types: primary and secondary. Primary dysmenorrhoea is defined as painful menses in women with normal pelvic anatomy, usually beginning during adolescence. Primary dysmenorrhoea is seen only in ovulatory cycles usually developing within 6 to 12 months after menarche with no pathology or organic basis. The pain of primary dysmenorrhoea and the associated symptoms are due to high serum prostaglandin levels. Prostaglandins start accumulating in the endo-myometrium a few days before menstruation starts. The levels of prostaglandin F2 alpha ,Vasopressin and Leukotriene concentrations have been found to be higher in women with severe menstrual pain as compared to women who experience no or little menstrual pain.

Secondary dysmenorrhoea is a menstrual pain, associated with underlying pathology, and its onset may be years after menarche. It may be caused by a dozen or so disorders as endometriosis, pelvic inflammatory disease, intrauterine devices, infertility, ovarian cysts, adenomyosis, uterine myomas or polyps, intra uterine adhesions or cervical stenosis.

### *Premenstrual syndrome*

Premenstrual syndrome is a recurrent variable, somatic, psychological and emotional symptom that develops 7 to 14 days prior to the first day of menstrual period in women who are mostly aged 20-30 years. Over 150 different symptoms have been linked to premenstrual syndrome but the most common ones are bloating, breast pain, cyclical weight gain, fatigue, headache, aggressiveness, depression, irritability and inability to concentrate. . The symptoms in premenstrual syndrome are

thought to be due to variation in ovarian sex steroids and low circulating serotonin levels.

Both Primary dysmenorrhoea and Premenstrual Syndrome have no organic basis but the patho-physiology of each is different.

*Drug therapy for dysmenorrhoea*

Non –steroidal anti-inflammatory drugs, which inhibit the synthesis of prostaglandins, are highly effective in treating primary dysmenorrhoea, especially when they are started before the onset of menses and continued through the day 2. Emotional and behavioral problems may exacerbate menstrual cycle problems and dysmenorrhoea. Furthermore, dysmenorrhoea is a common cause of sickness absenteeism from both classes and work by the female student community. The aim of the present study was to evaluate the prevalence of dysmenorrhoea, knowledge of menstrual hygiene and use of drugs for pain relief. This observational cross-sectional study includes the female students of Saveetha University. Inclusion criteria was all adolescent girls who had reached menarche, in the age group of 17-20 years, with no diagnosed pelvic pathology and those who gave consent to participate in the study. Girls with known organic pelvic pathology, bleeding disorders and hypothyroidism were excluded. The sample size was calculated as two hundred and fifty two. This was based on demographic percentage prevalence of dysmenorrhoea.

*Assumptions*

1. There is dismal lack of knowledge about menstrual hygiene practises in adolescent population.
2. Adolescent girls do not have adequate knowledge about reproductive health behaviour
3. Mother lacks knowledge and is embarrassed to talk about reproductive health behaviour
4. Knowledge of menstrual physiology and hygiene practise will prevent reproductive tract infections and help in diagnosing adolescent anaemia.

*Ethical Considerations*

The study proposal received ethical approval (Appendix 1) from the ethical committee of the Saveetha University. There were no risks and no invasive tests involved the subjects. Confidentiality was maintained and informed written consent was obtained (Appendix 2).

*Study design*

An exploratory cross-sectional study was undertaken to analyze knowledge of reproductive anatomy and physiology in college students. Sample size was calculated using the formula  $Z^2 \cdot (P) \cdot (1-P)/C^2$  with confidence interval of 95%. A written informed consent was obtained from 252 subjects after a brief explanation about the study. The self administered questionnaire (Appendix 3) was given to all. They students were asked to complete the questionnaire in the presence of a member of research team. All students were told that participation in the study is strictly voluntary, and the data collected will not be used for anything except for the research study. The duration of completing the questionnaire was estimated to be 35-40 minutes per subject.

In the first part of the questionnaire, students were asked to state their socio-demographic and medical characteristics, menstrual characteristics and dysmenorrheal status and habits. The second part of the questionnaire includes visual analogue scale (VAS) questions and Multidimensional Scoring system (MSS) to assess the severity of dysmenorrhoea. The research setting was University campus and the project lasted for six months from June 2013 till November 2013.

*Multi dimensional Scoring system (MSS)*

*Grading of pain*

Grade 0: Menstruation is not painful and daily activities are not affected.

Grade 1(mild): Menstruation is painful but seldom inhibits normal activity. Pain killers are rarely required.

Grade 2 (moderate): Menstruation is moderately painful and it affects daily activities. Pain killers are required; however they give sufficient relief so that absence from class is unusual.

Grade 3(severe): Menstruation is extremely painful and associated with vegetative symptoms (headache, fatigue, vomiting and diarrhea). Daily activities are clearly inhibited. Pain killers provide no relief.

*Observations*

Two hundred fifty two cases were studied. The median age at menarche was found to be 13-14 years (Table 1). Seventy seven (77.4%) percent of students had regular menstrual cycles. The remaining (22.6%) had irregular periods (Table 2)

Table 1: Median age of menarche in subjects is 13-14 years

Age at menarche	Percentage
≤12 years	47
13-14 years	69.8
≥14 years	11.5
Total	100

Table 2: The total prevalence of dysmenorrhoea is 70.4%. Severe dysmenorrhoea is experienced by ten percent (9.5%) of subjects

Menstrual pain	Prevalence percentage
Mild	36.5
Moderate	24.6
Severe	9.5
No pain	29.4

Table 3: Regular cycles were present in 77.4 % of subjects

Menstrual regularity	Percentage
Regular	77.4
Irregular	22.6
Total	100

Table 4: Duration of menstrual flow was more than six days in 13.9% percentage of subjects

Menstrual bleeding	Percentage
≤ 6 days	86.1
>7 days	13.9
Total	100

Table 5: NSAID usage for pain relief was limited only 3.6% of subjects

Use of drugs	Population percentage
Yes	3.6
No	96.4

Menstrual flow lasted for more than six days in 13.9% of students (Table 3). Twenty nine percent (29.4%) of students experienced painless menstrual cycles. Thirty seven percent (36.5%) had mild pain which did not affect daily class room attendance. Twenty five percent (24.6%) had moderate pain. Ten percent of students (9.6%) suffered severe dysmenorrhea leading to loss of class hours (Table 4). The total prevalence of dysmenorrhoea was found to be 70.6%. Despite a 70.6 % prevalence of dysmenorrhoea only 3.6 % of students used Non steroidal anti-inflammatory drugs (NSAIDS) to alleviate pain (Table 5). The percentage prevalence of dysmennorroea in various strata of the menarche age was also evaluated. (Table 6).

Table 6: Dysmenorrhoea prevalence with age of menarche

Age at menarche	No pain	Mild	Moderate	Severe	Total
≤12 years	4.8	7.1	4.8	2	18.7%
13-14 years	22.2	26.2	16.7	4.8	69.8%
≥15 years	2.4	3.2	3.2	2.8	11.5%
Total	29.4%	36.5%	24.6%	9.5%	100

#### IV. DISCUSSION

The most common menstrual disorder in adolescent girls is dysmenorrhoea scoring over vaginal discharge or low abdominal pain. In our population of women aged 17-20 years, we found a high prevalence rate of dysmenorrhoea .This was reported by about 70.6% of our subjects. Moderate and severe intensity dysmenorrhoea was reported by thirty four percentages of patients. A number of studies have determined the prevalence of dysmenorrhoea with estimates ranging from 20-90% depending on the measurement tool used (4, 5). In this study the prevalence of dysmenorrhoea was found to be 70.6s vs. 74.4% by a survey of teenagers in Ghana (6), and 72% from Nigeria (7, 8). In a large study in Goa 73.6% of women report restrictions in their daily activities during the menstrual period although dysmenorrhoea was present in 54.6 % of women and menorrhagia only in 9.7 %( 9). In our study 13.6 % of teenager had menorrhagia .We propose a conceptual framework based on our study (Figure 1).

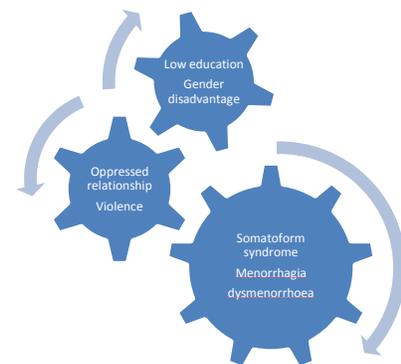


Figure 1: Conceptual Framework of Psycho-somatisation (social determinants resulting in dysmennorrhoea and menorrhagia)

Given the magnitude of problem it becomes imperative that we rise to the growing needs of our adolescent girls. This symptom should form an important target in our reproductive health programmes

The main limitation of our study is that we did not collect data on the possible causative factors of dysmenorrhoea, i.e. the prostaglandins .On the other hand our study being observational received full participation and consent and is well representative and generalisable. Other studies for investigating the cause may result in high dropout rates and selection bias. Since our study is a cross-sectional survey we cannot make definitive interpretations

#### APPENDIX

##### APPENDIX 1: ETHICAL APPROVAL

1. This project is to be undertaken as a Part of previously approved program grant, Grant Number, project title and Director. No

2. Does the project involve the administration of personality tests, inventory, or questionnaire? If YES, (provide the name of the standard tests or 3 copies of the proposed tests)  
No
3. Does the project involve the use / drawing of human blood products, tissue or body fluids? No
4. Does the project involve administration of Ionizing Radiation to subjects for other than Clinical purpose? No
5. Does the project involve the testing of Investigational drugs or devices? If YES, Provide Name of the drug or device, Name of the manufacturer, if the protocol involves. The administration of medications to humans for research. Purposes (not part of general clinical practice), You must obtain an authorization: No
6. Human subjects involved in the proposed activity would be either-minors, foetuses, abortuses, pregnant women, prisoners, mentally retarded, Disabled, HIV positive subjects, others specify. :No

4. Menstrual bleeding duration  
( $\leq 6 / \geq 7$ ) days
5. Grading of Menstrual pain
6. What do you do at the time of painful menstruation? Use of drugs / medicines

#### ACKNOWLEDGMENT

We acknowledge the work of Dr V. Patel on the Prevalence and determinants of dysmenorrhoea in Goa. With the help of his work we were able to calculate our sample size and estimate the burden of dysmenorrhoea and menorrhagia in our university. We were also able to educate the teenage population of our institution regarding sexual hygiene.

#### REFERENCES

- [1] Hamid R., Adolescent Sexual and Reproductive Health: Bangalore first to benefit from FIGO ASRH workshop. Adolescence Health Committee. FOGSI, 2011, issue 3, page 5. <http://adolescenthealthindia.org>
- [2] Lederman R.P. & Mian T.S.(2003), "The parent Adolescent relationship education programme(PARE): a curriculum for prevention of STD's and pregnancy in middle school youth", *Behav Med Spring* ,Vol 29(1),Pp 33-41
- [3] D. K. Dutta (2013), "Teenage pregnancy: problems and solutions", Chapter No. 2, *Jaypee publishers*, First Edition, Sanat printers, Kundli, Pp 32 –46.
- [4] Tavallaee M., Joffres MR, Corbes SJ, Bayenzadeh M, Rad M. M.(2011), "The prevalence of menstrual pain and associated risk factors among Iranian Women", *J Obstet Gynaecol Res*, Vol 37(5), Pp 442-51
- [5] Banikarim C, Chako M. R., Kelder S H, 2000, "Prevalence and impact of dysmenorrhoea on Hispanic female Adolescents.". *Arch Pediatr Adolesc Med* , Vol 154(12), Pp 1226-1229
- [6] Gumanga S. K. & Kwamme-Aryee R.(2012), "Menstrual characteristics in some adolescent girls in a secondary school in Accra ,Ghana", *Ghana Medical Journal*, Vol 46(1) , Pp 3-7
- [7] Thomas K. D., Okonofua FE & Chiboka O.(1990), "A study of the menstrual patterns of adolescents in Ile-Ife ,Nigeria" , *Int J Gynaecol Obstet*, Vol 33(1), Pp 31-34
- [8] Odujinrun O. M. & Ekinwe E. O.(1991). "Epidemiological survey of menstrual patterns amongst adolescents in Nigeria". *West Afr J Med*, Vol 10(3-4), Pp 244-249
- [9] V. Patel, V. Tanksale, M. Sahasrabhojane, S. Gupte & P. Nevrekar (2006), "The burden and determinants of Dysmenorrhoea: a population based survey of 2262 women in Goa ,India", *BJOG* , Vol 113, Pp 453-463

#### APPENDIX 2: CONSENT FORM

I -----agree to take part in the research, Prevalence of **dysmenorrhea among college students** conducted by the project investigators, been explained to me.

I acknowledge that the research has been explained to me and I understand that agreeing to participate in the research means I am willing to participate in the analysis of the program

- Make myself available for further analysis if required.
- I have been informed about the purpose, procedures and measurements involved in the research and my queries towards the research have been clarified.

I provide consent to the researcher to use the details obtained for research and educational purposes only. I understand that my participation is voluntary and can withdraw at any stage of the research.

Contact address:

Phone number:

Signature:

Date:

#### APPENDIX 3: QUESTIONNAIRE

##### DEMOGRAPHIC DETAILS

1. Age -
2. Education -
3. Family income ( monthly)
4. Family type - ( Nuclear / Large)
5. Marital status -

##### MENSTRUAL DETAILS

1. Age at menarche  
( $\leq 12 / 13 - 14 / \geq 15$ )
2. Menstrual regularity  
(Regular / Irregular)
3. Menstrual cycle duration  
( $\leq 20 / 21 - 34 / \geq 35$ ) days

AUTHORS

**First Author** – Nidhi Sharma, MBBS, MS, Saveetha University  
[drbonuramkumar@yahoo.co.in](mailto:drbonuramkumar@yahoo.co.in)

**Second Author** – Benjamin M Sagayaraj, MBBS, MD, Saveetha University  
[getdrben@yahoo.com](mailto:getdrben@yahoo.com)

**Third Author** – Balamma Sujatha, MBBS, MD, Saveetha University  
[suja1973@gmail.com](mailto:suja1973@gmail.com)

**Correspondence Author** – Nidhi Sharma, MBBS, MS, Saveetha University  
[drbonuramkumar@yahoo.co.in](mailto:drbonuramkumar@yahoo.co.in)  
+ 919445560392