A Dissertation on

A CROSS SECTIONAL STUDY ON MENSTRUAL HYGIENE PRACTICES AMONG ADOLESCENT GIRLS IN TRIBAL POPULATION IN TAMILNADU

Submitted to

THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY CHENNAI – 600032

In partial fulfilment of the regulations

For the award of the Degree of

M.D. BRANCH – XV COMMUNITY MEDICINE



THE TAMIL NADU DR. M.G.R MEDICAL UNIVERSITY CHENNAI,

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MAY - 2020

CERTIFICATE

This is to certify that dissertation titled "A CROSS SECTIONAL STUDY ON MENSTRUAL HYGIENE PRACTICES AMONG ADOLESCENT GIRLS IN TRIBAL POPULATION IN TAMILNADU" is a bonafide work carried out by Dr S RAMYA, Post Graduate Student in the Department of Community Medicine, Government Stanley Medical College, Chennai- 600 001, under the guidance of Dr. J. ANAIAPPAN, M.D, D.C.H., towards partial fulfilment of the requirements for the degree of M.D. Branch XV Community Medicine and is being submitted to the Tamil Nadu Dr. M.G.R Medical University, Chennai

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LIST OF ABBREVIATIONS

ARSH- Adolescent Reproductive and Sexual Health

ASHA- Accredited Social Health Activist

AWC- Anganwadi Centre

df – degree of freedom

HIV – Human Immunodeficiency Virus

ICDS – Integrated Child Development Services

IEC – Information Education and Communication

MHM- Menstrual Hygiene Management

MDWS – Ministry of Drinking Water and Sanitation

MoHFW – Ministry of Health and Family Welfare

MoHRD – Ministry of Human Resources Development

NHM – National Health Mission

RDD – Rural Development Development

RTI – Reproductive Tract Infection

SBM-G – Swachh Bharat Mission Guidelines

SHG – Self Help Group

TDD – Tribal Development Department

UNICEF – United Nations International Children Emergency Fund

WASH – Water Sanitation and Hygiene Scheme

WHO – World Health Organisation

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A CROSS SECTIONAL STUDY ON MENSTRUAL HYGIENE PRACTICES AMONG ADOLESCENT GIRLS IN TRIBAL POPULATION IN TAMILNADU INTRODUCTION

The term adolescence comes from Latin word meaning" to grow to maturity" World health organisation defines adolescents as young people between 10 and 19 years of age ². Around 16% of world's population are adolescents³. Transition period from childhood to adult life is termed as adolescents. It is an important and a very sensitive period in the human life cycle. Many developments like physical, mental and social development occur in this adolescent period Currently, one in every five person on the earth is an adolescent and 85% of these adolescents live in developing countries. In India, 20.07% of the total population are adolescents ⁵.

Menstruation is an important change that occurs in an adolescent girl⁶. Menstruation begins with menarche and ends in menopause. Menstruation is a regular cyclical process which occurs throughout child bearing period with the exception of pregnancy and lactation. It is a physiological process, which occurs in girls. It is important that every girl knows about the changes that occurs during menstruation.

Menstrual hygiene related practices are still clouded by socio-cultural restrictions, taboos in India ⁴. Misconception and malpractices about menstrual hygiene

could result in adverse health problems like reproductive tract infection and urinary tract infection ⁷.

Knowledge about menstruation and its hygiene among adolescent girls is grossly inadequate. Various restrictions are imposed on adolescent girls during the menstruation period. These restrictions have reinforced negative attitude in the minds of adolescent girls. Several studies have reported about these restrictions which include restrictions to go to school, play, work, to enter holy places and also dietary restrictions.

Also adolescents are hesitant to seek help during menstrual period from parents, friends and health care providers, which in turn leads to ignorance of hygienic menstrual practices among adolescent girls⁶. Adolescent girls are at risk of many diseases due to poor personal hygiene. A common cause of gynaecological diseases is poor personal hygienic practices during menstruation. There is an inter relationships between socioeconomic status, menstrual hygiene practices and reproductive tract infection. Reproductive tract infections lead to increased incidence of cervical cancer. Also it leads to increased incidence of HIV/AIDS, infertility, ectopic pregnancy, and a myriad of other symptoms ⁸.

As a result, they suffer intense mental stress due to lack of proper guidance and support regarding proper menstrual hygiene practices⁷. Health needs of adolescent girls have seldom been addressed in an adequate manner. Majority of girls acquire knowledge about menstruation and menstrual hygiene mostly through their parents, relatives and friends. Knowledge about menstrual hygiene and its practices plays a vital part of health education for adolescent girls^{9, 10}. Safe menstrual hygiene practices will

avoid risk of RTI and its consequences. This would lead to improvement in adolescent health and maternal health in the future.

Although many studies had been done on reported menstrual practices among adolescent girls in India, very few were conducted among those who belong to most backward classes, scheduled caste and scheduled tribes.

OBJECTIVES OF THE STUDY:

- 1. To assess the menstrual hygiene practices among tribal adolescent girls in Salem district.
- 2. To determine the factors influencing the menstrual hygiene practices among the same study population

JUSTIFICATION

Adolescent growth is a sequence of development. WHO defines adolescence as the segment of life between the ages of 10-19 years ¹¹.

Menstruation is natural phenomenon for girls. In India, menstruation is regarded as something unclean or dirty and itis linked with misconceptions. Over 21.4 % population in India are adolescents. A sizeable proportion of the Indian mothers are adolescents. In tribal population, children are not being sent to school because parents utilise their services to improve the family income. In India poor nutrition, early child bearing and complications associated with reproductive health problems. As per WHO, 20% of health problems in adolescent girls are due to reproductive and sexual ill health¹².

Every girl and woman need to practice menstrual hygiene in their life and it's essential to practise good menstrual hygiene for healthy life because it is an important risk factor for reproductive tract infection. There is lack of awareness regarding menstrual hygiene knowledge, practices and awareness. Social taboos have made the problems of menstrual hygiene ignored or misunderstood. Although studies were done regarding menstrual hygiene awareness, practices, very few studies are conducted in tribal population. Hence this study is indented to know about menstrual hygiene practices in tribal population in Salem district.

REVIEW OF LITERATURE

Adolescent girls experience marked anxiety and eagerness to know about menstruation. During adolescence the physical, mental, social, psychological and reproductive problems which are often associated with menstrual irregularities and menstrual problems. Majority of adolescents suffer from reproductive tract morbidities affecting the normal life.

Talks on menstrual hygiene are regarded as taboos by traditional Indian society. Open discussion on such topics are also discouraged. Available literatures highlights the problems faced during menstruation among adolescent girls residing in rural and urban areas.

ADOLESCENTS

The World Health Organization defines adolescents as young people between the ages of 10 and 19 years^{2.} They constitute a major building block to the world's population². Globally more than half of the adolescents are in Asia.

India is home to 253 million adolescents, accounting for 20% of India population as per census 2011. 20% of the world's (1.2 billion) adolescents are from India⁴. In addition, more than 1 in 10 children in India are currently experiencing puberty, and more than a quarter of all children will undergo transition to adolescence and puberty within the next decade^{7, 8, 13}. Adolescence is a time for preparing greater responsibilities and to ensure healthy development ². Adolescent period is spread over a decade.

Of the total adolescent population, 10.1 percent belong to 10-14 years age group and 9.4% are in the 15-19 years age group Girls constitute 9.8% of adolescents in 10 to 14 years age group and 9.2% in 15 to 19 years age group (NFHS 4 India).

CHANGES DURING ADOLESCENT

Profound biological, morphological and psychological changes occur during adolescent period leading to full maturity and eventual fertility².

Physical changes in girls

Physical changes like increase in growth rate, gonadal growth, sexual changes, and spurt in growth may begin at 10 years or even earlier in girls. A general readjustment of the endocrine balance results in establishment of menstruation and ovulation in girls. Puberty refers to the whole period of time during which secondary sexual characteristics develop, menstruation begins and changes in the psychosexual outlook occurs¹⁴.

Physical feature of Puberty	Years
1. Breast growth	10-16
2. Pubic hair	9-13
3. Axillary hair	10-14
4. Growth in height	10-16
5. Menstruation	10-16

There may be a difference in the age of onset, time of full development and order of their appearance. Any two girls cannot be the same¹⁴.

MENSTRUATION

Menstruation is a part of female reproductive cycle and it is unique to girls. It starts at puberty¹⁵. Menstruation is a normal process in which there is discharge of blood from uterus. First menstruation is called menarche. Menstrual bleeding lasts for 3-5 days in a month regularly every 28 days. In a study done by P B Verma et al in

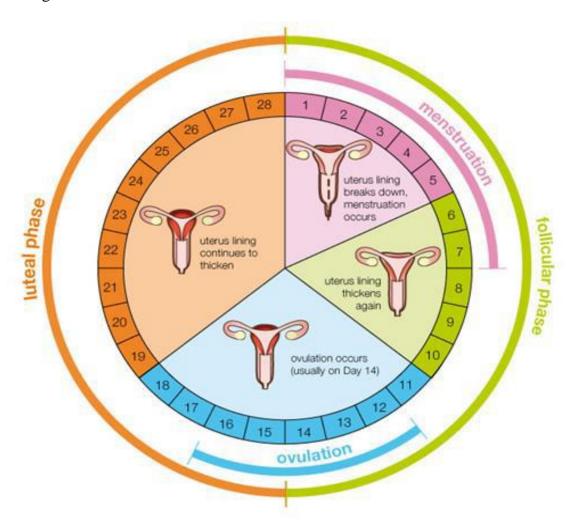
Bhavnagar (2011) suggested most common menstrual pattern among girls was 30/3-5 days followed by 28/5-7 days with 75.76% girls having regular menstrual cycle and 24.24% girls having irregular cycles.

MENARCHE

Menarche is a normal physiological process. Menarche occurs between 11 and 15 years of age¹⁶. In India, girls attain menarche between the ages of 10 to 16 years with an average age being 12 years. Girls experience feelings of fear and guilty due to inadequate / poor knowledge of menstruation during their first menstruation¹⁷.

Age of onset of menarche is influenced by race, heredity and nutritional status ^{18, 19.} Menarche signals that sexual maturation has occurred and they are capable of supporting pregnancy²⁰. Menarche shows many socio-economic, environmental, nutritional and geographical differences in the societies. In this phase girls experience menstruation related problems. This is marked by feeling of anxiety and eagerness to know about it.

Figure 1: PHASES OF MENSTRUAL CYCLE



Source: Shaw text book of Gynaecology.

Phases in menstrual cycle include menstrual, follicular, ovulatory and luteal phase. Menstrual cycle starts at menarche and ceases at 45-50 years of age. During her lifetime, a woman spends approximately 2100 days in menstruation which is about 6 year²¹. Average blood flow during menstruation is 80-90 ml per cycle.

Table 1: NFHS 4 DATA ON MENSTRUAL HYGIENE PROTECTION

Percentage using hygienic method of menstrual protection

Background characteristics	Tamil Nadu (%)	India (%)
Age		
15 – 19 years	93.8	57.7
20 – 24 years	89.3	57.4
Residence		
Urban	93.5	77.5
Rural	89.5	48.2
Scheduled Tribes	85.9	40.3
Total	91.4	57.6

Source: NFHS 4 data

MENSTRUATION HYGIENE MANAGEMENT (MHM):

Menstrual hygiene deals with the special health care needs and requirements of women during monthly menstruation. Practical strategies for coping with monthly periods are focused in menstruation hygiene management.

MHM, deals with ways, a woman can keep herself clean and healthy and also about procurement usage and disposal of blood absorbing material²². This is a problem in middle and low income countries for adolescent girls going to school²³.

United Nations defines adequate menstrual hygiene management as "women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials. Particularly in poor countries, girls and women face substantial barriers to achieve adequate menstrual management ²⁴.

POOR MENSTRUAL HYGIENE:

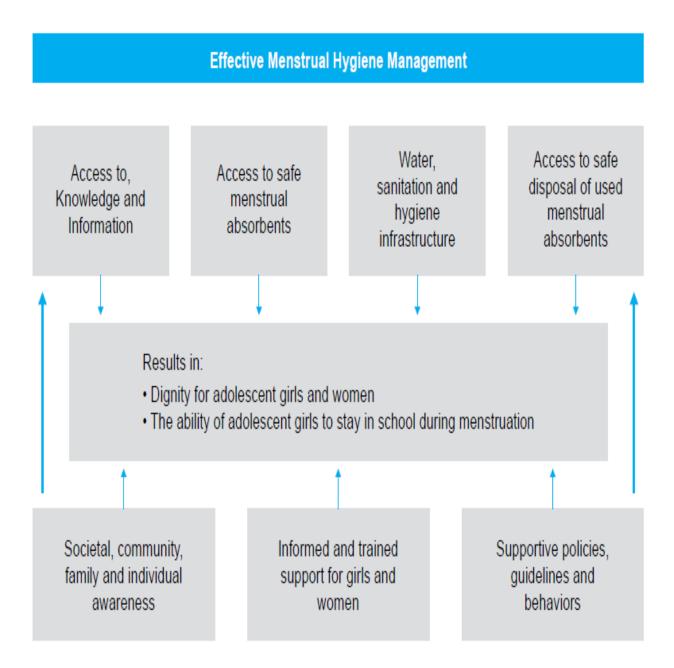
Beliefs and practices regarding menstrual hygiene varies irrespective of socioeconomic status, rural and urban areas²⁵. Many girls lack appropriate information on hygienic practices during menstruation. Many studies have reported infection due to poor hygienic practices. In addition studies also reveal that adolescent girls have incomplete information about physiology of menstruation. Most of the information obtained by adolescent girls was through mothers, friends, television, teachers and relatives⁶. Some of the problems of poor hygiene includes urinary tract infection, abdominal pain, absence from school and complications during pregnancy ^{26,27,28,29}.

FRAMEWORK FOR MHM IN INDIA

Menstruation hygiene management is issued by the Ministry of Drinking Water and Sanitation to support all adolescent girls and women. Menstrual hygiene management is included under Swachh Bharat Mission Guidelines (SBM-G). Guidelines are in three parts main guidelines, action guides, and technical guides. The guideline highlights the work to be done by state government, district administrator and school head teachers.

Essential elements of a menstrual hygiene management programme are highlighted in the framework.

Figure 2: Effective Menstrual Hygiene Management



Source: Ministry of Drinking Water and Sanitation, Government of India, Menstrual Hygiene Management Guidelines, December 2015.

Table 2: ADOLESCENT GIRLS AND MENSTRUATION

Serial no	Characteristics	Percentages
1	No discussion on the process of menstruation	100%
2	Unaware of the importance of washing menstrual cloth	90%
3	Used old cloth as menstrual absorbent	87%
4	Completely unprepared	86%
5	Low self confidence	79%
6	Felt scared	64%
7	Missed school on account of menstruation	60%
8	Mothers did not agree with girls knowing about it before onset	47%
9	Felt embarrassed and humiliated over restrictions	44%
10	Never washed cloth before using first time	33%
11	Had never heard of sanitary napkins	6%

Source: UNICEF (2012): Girls today, Women tomorrow study. Other studies include: A.C. Nielsen and Plan India (2010). Sanitation protection: Every Women's Health Right

ROLE OF SOCIAL TABOOS

It is a well-known fact that cultural factors are deeply involved in all the affairs of women. Menstruation and its related issues are surrounded by a culture of silence. This leads to lack of appropriate and sufficient information related to menstruation^{25, 30.} These cultural factors are followed for years together without any

scientific explanation. Also they have their own explanation in relation to their cultural practices. Myths and taboos on socio cultural factors regarding menstruation were explained in many studies ^{31, 32}.

One such taboo is the significance attached to the day and time of menarche. The day, date and time including month will be noted. They feel morning is good to attain menarche. Also at the time menarche, wearing white colour is considered as lucky. She seeing the mark is considered to be unlucky. These customs seem to be a reflection of the South Indian tradition³³. Restrictions commonly practised during menstruation include prohibition from religious activities, attending functions, cooking etc. As a result daily routine activities are limited in women. This is widely practiced in India leading to poor menstrual hygiene²¹ in adolescent girls.

RESTRICTIONS DURING MENSTRUATION

During menstruation restrictions include restriction in daily activities and dietary restrictions. Daily activity restriction includes not to take bath, comb hair and entry into holy places. Dietary restrictions include taboos on consumption of food like rice, curd, potato and sugarcane are also imposed³⁴.

Certain taboos are followed in culture in Hindus. Some of these taboos are superstitious such as isolation from participating in day to day activities once menstruation begins, taking bath soon after awaking from sleep, using separate place to sleep and washing used clothes every day morning.

Hindus consider menstruation as religiously impure but no scientific reason has been given. These are more common in rural areas when compared to urban areas and these practices are also observed in other religious communities' also⁴.

PRE MENSTRUAL SYMPTOMS

Premenstrual symptoms occur commonly occur before the start of menstrual bleeding. Most of the females suffer from this premenstrual symptoms. These symptoms vary from cycle to cycle and stress increases the severity of these symptoms. Symptoms are fatigue, headache, back pain, tenderness in breast, constipation. Mood and behaviour symptoms include sad or depressed mood, anger irritability, anxiety, mood swings etc.

IMPORTANCE OF TOILETS

Some people still practice "open defecation", which means toileting in fields, roadsides or by train tracks. India, Indonesia, Nigeria, Ethiopia, Pakistan, account for 75% of open defecation.

Recent reports have shown that in India, 597 million people, or 48 per cent of the total population, practice open defecation. Although open defecation has been reduced by 31 % since 1990, about 300 million women and girls in India still have no other choice³⁵.

About half of the Indian households use improved toilet facilities (48%). 39% of households practice open air defecation (NFHS4) which is decreased from 55% in NFHS3. While open defecation is more prevalent in rural areas, it is much more concentrated in urban areas, particularly in urban poor settlements where residents live in close quarters and sanitation facilities are severely lacking. In rural areas, underground sewers are almost non-existent; urban areas are only marginally better.

A recent report shows that only 6% of India's cities have partial sewerage network, fewer than 20% of roads have storm water drains, and 86% of waste water is

left untreated and often ends up polluting natural resources and highly populated urban environments. In a study conducted by Anupama Nallari, poor adolescent girls in urban Bengaluru say, "All we want are toilets inside our homes³⁶.

Lack of latrine, water supply seriously affects menstrual hygiene management and jeopardizes physical, psychological health of school adolescents.

WATER, SANITATION AND HYGIENE (WASH) SCHEME

The Global Goals have set an ambitious new agenda for sustainable development. The new goal for the water sector, Goal 6, aims to achieve universal, sustainable and equitable access to safe drinking water, sanitation and hygiene by 2030.

In response to the global goals, UNICEF has developed a new Strategy for Water, Sanitation and Hygiene (WASH) 2016-2030 that provides a framework to guide our work related to water, sanitation and hygiene over the next 15 years^{35,37}.

WASH facility in schools are important considerations for school-going girls, both for their educational attainment and their health²⁵. Qualitative studies report that school absenteeism is associated with poor MHM interventions, but so far only WASH studies have shown an association between toilet improvement and absenteeism, and improved enrolment of adolescent girls when girls-only toilets were constructed ²³.

India, has an array of policies and schemes developed to provide pads, counselling from frontline workers, and the construction of toilets for girls also number of separate usable toilet facilities for girls has increased in India²³.

MENSTRUAL ABSORBENTS

It's an absorbent item worn during menstruation or after delivery. It could be a sanitary cloth, napkin, towel or pads. This absorbent absorbs the blood flow from

vagina.

SANITARY NAPKINS

Absorbent pads are an important need for adolescent girls for absorbing menstrual blood loss. In high income countries, sanitary pads are used universally.

Studies in India shows that only 12% of menstruating women are using sanitary pads

and cost was cited as major barrier to use by 70% of women³⁸.

A study conducted by Tegegne and Sisay in Northeast Ethiopia¹⁵ among 574

students showed 86.75% had heard about menstruation before menarche and the leading

of source of information was from sisters (42.68%). but in the same study utilisation of

disposable sanitary pad was 35.38% only¹⁵. This is due to lack of money, unavailability,

feeling ashamed to get it and lack of knowledge about how to use it. Girls in the study

used clothes, rags other than sanitary napkins.

MENSTRUAL ABSORBENTS

ADVANTAGES AND DISADVANTAGES³⁹

Table 3: Unhygienic menstrual absorbents – Advantages and Disadvantages

	Menstrual absorbent	Advantages	Disadvantages	
Un-hygienic	Natural materials (e.g. mud, cow dung, leaves)	Free, locally available	High risk of contamination; Free, locally available negative health impact; difficult and	, ,
	Newspaper, plastic bags		uncomfortable to use; less absorbent	
	Strips of sari, towel, bed sheets, or other types of cloth	Easily available, washable; re-usable	Requires laundering in a private space with a water supply and soap and a sun-lit place to dry and air the cloths; odour risk if reused without adequate laundering; chaffing if used while damp	
	Tissue, toilet paper	Easily available in the local market; average absorption	Loses strength when wet and can fall apart; difficult to hold in place	
	Cotton wool	Good absorption properties; easily available locally	Difficult to hold in place; an expensive commodity	

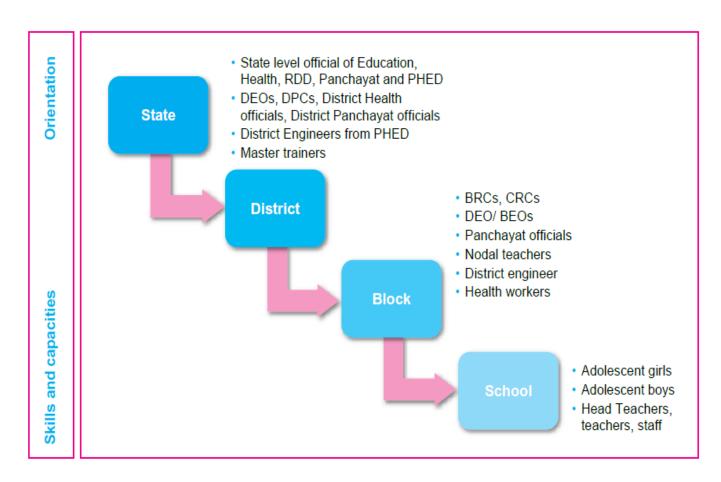
Table 4: Hygienic menstrual absorbents – Advantages and Disadvantages

	Menstrual absorbent	Advantages	Disadvantages
Hygienic	Locally made reusable napkins	Can be used for 6-12 cycles; more cost-effective than disposable options; income generation opportunity; Environment-friendly as degrade on disposal	Not always absorbent enough or the correct shape; requires adequate laundering in a private space with a water supply and soap and a sun-lit place to dry and air the cloths
	Commercial reusable sanitary napkins	Can be used for up to 12 cycles; cost- effective, yet more expensive than locally made; environment-friendly compared to disposable napkins; a high standard and hygienic product quality	Costs may be prohibitive to potential users; requires adequate laundering in a private space with a water supply and soap and a sun-lit place to dry and air the cloths; not widely available
	Commercial disposable sanitary napkins	Often available, except in remote locations; range of sizes and types available in some locations; Well-designed through research and development	Costs are prohibitive to many potential users; generate a lot of waste and not environment-friendly; Need to assure proper disposal.

Source: Mahon T Cavill S & House S (2012) "Menstrual Hygiene Matters, a resource for improving

Menstrual Hygiene around the world" Water Aid

Figure 3 TRAINING AND ORIENTATION IN MHM



Source: Mahon T Cavill S & House S (2012) "Menstrual Hygiene Matters, a resource for improving Menstrual Hygiene around the world" Water Aid

Table 5: Roles of various ministries on MHM

Training of Anganwadi supervisors and workers

MAVIM: Access to absorbents via Self Help Groups; production of Sanitary Napkins at the village level by Self Help Group run units; marketing and demand generation of Sanitary Napkins

Reaching out to out of school girls through SABLA, Integrated Child Development Services, Self Help Groups under Mahila Arthik Vikas Mahamandai

Shelter Homes: Menstrual
Hyglene Management
promotional activities and
supply of sanitary napkins;
disposal mechanisms
established; trained staff;
Water, Sanitation and
Hyglene related facilities
supporting Menstrual Hyglene
Management

Adolescent Resource Centers (ARCs): Counseling of adolescent girls on puberty and Menstrual Hyglene Management Training of Nodal teachers for providing support to girls and boys on puberty related issues; and support to girls with regards to Menstrual Hygiene Management in schools and Kasturba Gandhi Balika Vidvalavas

Access to absorbents at the school level and teaching to make absorbents for self-use in schools and Kasturba Gandhi Balika Vidyalayas

Water, Sanitation and Hygiene related facilities supporting Menstrual Hygiene Management

School Management
Committee sensitized to
enable gender sensitive
decisions supporting coping
of girls to puberty and
menstruation; reaching out to
fathers and sensitizing them
on Menstrual Hyglene
Management so they can be
supportive and make
appropriate decisions

MRMs Trained on Menstrual Hygiene Management and act as peers to promote menstrual hygiene practices and management Menstrual Hygiene Management promotional activities

Water, Sanitation and Hyglene related facilities supporting Menstrual Hyglene Management

Provision of disposal mechanisms

Provision of funding for IEC and training

MoHFW TDD RDD Training of teachers and Access to absorbents via Rashtriya Kishor Swasthya residential staff in Ashram Self Help Groups under the Karyakram & Adolescent schools and madarasas fold of National Rural Reproductive Sexual Health: Livelihoods Mission Counseling of adolescent girls on puberty and Menstrual Menstrual Hyolene Hygiene Management Production of Sanitary Management promotional Napkins at the village level activities by Self Help Group run unit; Educational sessions with marketing and demand school going girls and boys generation of Sanitary Regular supply of sanitary by the medical teams of Naokins napkins Rashtriya Bal Swasthya Karyakram visiting the schools Menstrual Hyglene Disposal mechanisms Management awareness established among women and mothers The Adolescent Girls to be oriented; Water, Anaemia Control Programme: Sanitation and Hygiene as Water, Sanitation and Counselling and support to part of the agenda of the Self Hyglene related facilities adolescent girls on how to Help Groups and Voluntary supporting Menstrual improve their diets; weekly Organizations under National Hyglene Management iron and folic acid. Rural Livelihoods Mission supplementation for out of school airls through Integrated Child Development Services and school girls within educational institutions Menstrual Hyglene Scheme: Menstrual Hygiene Management promotional activities in the community; distribution and supply of sanitary napkins; disposal mechanisms established; training of ASHA.

Source: Mahon T Cavill S & House S (2012) "Menstrual Hygiene Matters, a resource for improving Menstrual Hygiene around the world" Water Aid

ROLE OF SCHOOL IN MHM

In shaping the behaviours, developing the skills and providing the correct information, schools play an important role. In order to provide psycho-social support and promoting regular hygiene to adolescent girls, at least one female teacher to be trained for every school. MHM should be included in curriculum.

Following subjects to be considered

- 1. Puberty and menstruation biological aspects
- 2. Menstruation- myths and misconception

3. Menstrual hygiene

In order to provide peer to peer support, discreet student MHM council, for girls can be established. When the adolescent girls are provided support at school, they can deal menstrual issues more confidently.

Teachers should have right information and confidence to break the silence about menstrual issues, stigma and shame associated with menstrual hygiene can be easily overcome by adolescent girls. Hence it's essential to train the school teachers. This could be done by individual exercise, quiz, group work, role play, drawing, poem writing, and case studies which helps the girls to have more positive attitude towards menstrual hygiene.

GOVERNMENT INITIATIVES:

For below poverty line girls, under Free days scheme envisaged supply of a pack of six sanitary napkins at a nominal cost of Re 1 per pack. A charge of rupees 5/- per pack of sanitary napkins is charged of girls above poverty line. Free days scheme was approved by NRHM Mission steering group⁵.

SCHEME FOR PROMOTION OF MENSTRUAL HYGIENE

Under this scheme, the aim is to ensure about adequate knowledge and information about the hygiene during menstruation. It also ensures high quality sanitary napkin usage, availability of safe products and environmentally safe disposal mechanisms. Under RCH II, as a part of Adolescent Reproductive and Sexual Health (ARSH), this scheme was launched. This scheme was planned to be executed in a phased manner. First phase was expected to cover 25% of the adolescent girl. First phase covers 152 districts across 20 states in the country.

Initially a central supply mode of sanitary napkins was envisaged in 107 districts by Government of India. In the remaining 45 districts supply of sanitary napkins was envisaged in a Self Help Group mode. Sanitary napkins were to be manufactured by the Self Help Groups which are sold to the adolescent girls.

The brand under which these sanitary napkins are distributed by NHM is Freedays. Accredited Social Health Activist have been selling these sanitary napkins at a rate of Rs 6 per pack of six sanitary napkins. An incentive amount of Rs 1 per pack is given as an incentive to ASHA. Also ASHA gets a free pack of sanitary napkins every month. She has to deposit remaining rupees 5/- in treasury. Through Central procurement, the scheme has been implemented in 107 district, 17 states⁴⁰.

Government of Tamil Nadu initiated distribution of sanitary napkins 'Pudhu Yugam' at free of cost. Two packets of sanitary napkins are given to each adolescent girls who had attained menarche for three months. Each pack contains 6 sanitary pads. Beltless sanitary napkins with wings are distributed to adolescent girls and belt sanitary napkin are distributed to postnatal mothers.

Figure 4a: Sanitary napkin Pudhu yugam



Figure 4b: Sanitary Nakin Pudhu Yugam

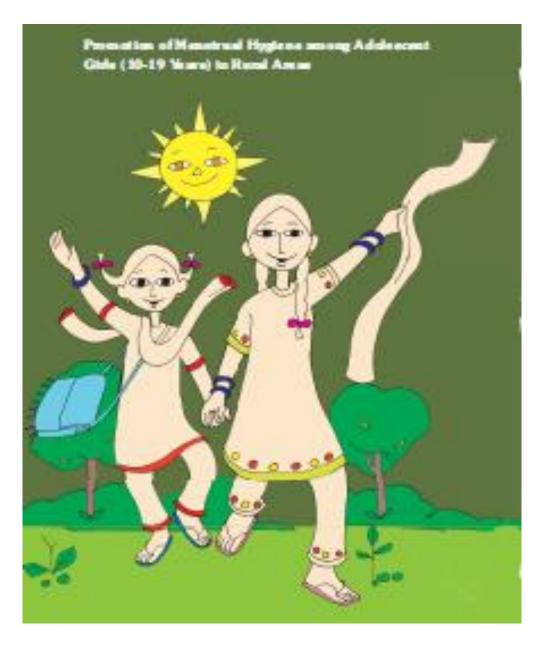


ADOLESCENT REPRODUCTIVE AND SEXUAL HEALTH

Reproductive health problems in adolescents affect the normal life of adolescent girls and young women. They suffer from physical, mental, social, psychological and reproductive problems which are often associated with menstrual irregularities and problems related to menstruation. The menstrual problems, issues related to menstruation, reproductive problems among adolescent girls in rural and urban are highlighted in literatures in India and abroad. During menarche and subsequent menstrual periods in adolescent period, girls experience problems which are marked by anxiety and eagerness. In Indian traditional society, talks on such topics are regarded as taboo and open discussion are also discouraged on such issues 40,41.

Common health issues faced by the adolescent girls during menstruation include excessive bleeding, lower abdominal pain, polymenorrhoea etc. On the other hand only very few of them seek treatment for the same. As a result of inadequate treatment, there is school absenteeism, leading to poor school performances. Due to socio-cultural factors, politico-religious factors, lack of inter-ministerial collaboration, a comprehensive ARSH policy is yet to be developed in our country. Adolescent health in India is in infant stage still. It's still a long way to go from 'health for the adolescents' to health with the adolescents ⁴².

Figure 5: Promotion of Menstrual Hygiene among Adolescent Girls (10-19 Years) in Rural Areas



Source: Promotion of Menstrual Hygiene among Adolescent Girls (10-19 Years) in Rural Areas, NHM Operational Guidelines.

Under this programme, adolescent girls in the age group of 10-19 years residing in rural areas are the targeted group. This programme aims that the adolescent girls should have adequate information and knowledge about sanitary napkin usage. Also good quality safe sanitary products are made available with readily accessible environmentally safe mechanisms to dispose the sanitary napkins.

This will be rolled out in a phased manner in selected districts initially and includes the following components.

- 1. Health education at community level for promoting menstrual health
- 2. Sanitary napkins to be available regularly
- 3. Sanitary napkins Sourcing and procurement
- 4. ASHA workers to be trained in menstrual hygiene
- 5. Behaviour Change Communication
- 6. How to dispose sanitary napkins safely.

Table 6: FRAME WORK FOR SERVICE DELIVERY:

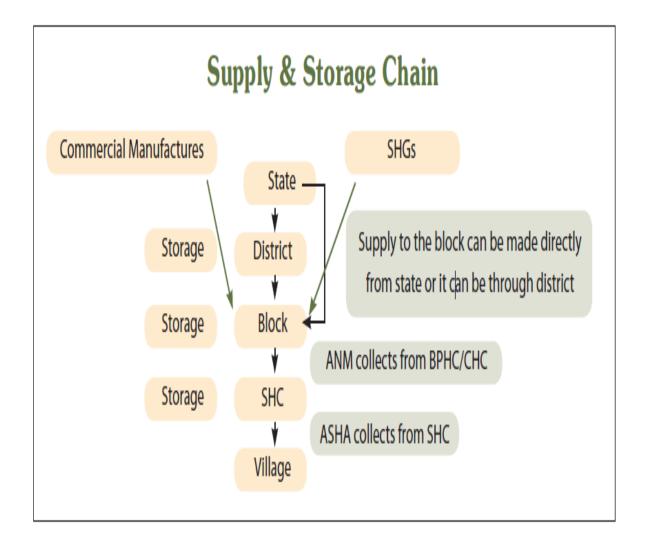
Roles and Responsibilities at Various Levels

Level of Care	Service Provider	Service Package
Village	ASHA/SHGs/CBOS	 Mobilise adolescent girls. Conduct monthly meetings. Provide health education to adolescent girls. Conduct women's group meetings. Distribute sanitary napkins to adolescent girls. Ensure regular refill and supply of sanitary napkins to the village from the Sub-Centre. Sell sanitary napkins and maintain accounts. Track supplies and estimate requirement for the following month. Submit progress report on key indicators.
Sub- Centre	ANMS	 Training of the ASHA on menstrual hygiene booklet, and conduct periodic refreshers. Monitor the monthly meetings periodically. Transport the sanitary napkin stock from block PHC to Sub-Centre. Ensure safe storage of the sanitary napkin stock. Supply requisite number of sanitary napkin packs to ASHA in her Sub-Centre area. Provide imprest funds and transportation costs to ASHA. Conduct spot checks during regular field visits and Village Health and Nutrition Day (VHND). Review and validate ASHA tracking system and accounts register. Maintain inventory, tracking and accounts register.

PHC	MO/Block Accounts Officer	 Ensures that ASHA training on menstrual hygiene takes place. Ensure safe storage of sanitary napkins. Conduct spot checks during regular field visits. Maintain inventory, tracking and accounts-register.
District	Collector/Additional Collector	 Serve as the nodal point for the programme. Engage the services of a bookkeeper on a contractual basis to train MO/Block Accounts Officer and ANM in all blocks on maintaining inventory and accounts for the scheme. Ensure remittance of funds obtained to District Health Society through the block. Ensure safe storage of sanitary napkins. Monitor the programme on a regular basis. Monthly programme and financial review of the scheme along with other health programmes. Manage convergence of various depts.
State	Mission Director, NRHM	 Organise sourcing of sanitary napkins from SHGs/bidding process. Set up quality cell to ensure conformity with prescribed standards. Ensure sound logistics systems for smooth supply to district and below.

Source: Promotion of Menstrual Hygiene among Adolescent Girls (10-19 Years) in Rural Areas, NHM Operational Guidelines.

Figure 6: Structure of management



Source: Promotion of Menstrual Hygiene among Adolescent Girls (10-19 Years) in Rural Areas,
NHM Operational Guidelines.

TRIBAL POPULATION IN TAMILNADU^{43, 44}

In Tamil Nadu as per 1991 census, there are about 36 tribes with a population of 5.74 lakhs, representing 1.03 % of population of Tamil Nadu. - Ninth Five Year plan Tamil Nadu (1997-2002)

Tribes in Tamil Nadu:

Following are the major tribes in Tamil Nadu - Sholagar, Kadar and Veddar. Except Malayali and Irular tribes, most of the tribal communities are small in size. Tribal are found in all the districts in Tamil Nadu with major concentration in North, Central, and Western region of the state.

Two taluks which don't have tribal population in Tamil Nadu are Devakottai taluk in Sivagangai district and Thiruchuli taluk in Virudhunagar district. Of the 5.74 lakh tribal population, 2.10 lakhs of tribal people live in Tiruchi, Villupuram, Tiruvannamalai, Vellore, Dharmapuri and Salem districts.

Policy Note on Forest Department 1999-2000.

With the exception of Irular in Kancheepuram and Tiruvallur district, tribal live in forests. Viz Eastern Ghats, Western Ghats and discontinuous hill tracts. In Kanchipuram and Tiruvallur districts, tribal are found to live in the plains.

TRIBES IN YERCAUD⁴⁵

In Tamilnadu, tribes reside in hills like Jawadhu and Yelagiri hills of Thiruvannamalai, the Kalrayan hills of Vellore district, the Pachamalai, Kollimalai and Yercaud of Salem District, Anaimalai of Coimbatore District, Sitteri hills of

Dharmapuri and Palani of Madurai District. Due to many mountainous regions suitable for inhabitation, many tribes reside in Salem.

Yercaud which means "Lake Forest" derives its name from the two Tamil words, 'Eri-Lake' and Kadu- Forest respectively. Yercaud is a beautiful Hill station situated in the southern part of the Shevaroy ranges in the eastern ghats of Salem District.

In Yercaud Malayalis are the original inhabitants. These Malayalis are Tamil speaking. They live in huts which are circular with the walls made of bamboo split, clay daubed. The huts have thickly thatched conical roof. Usually they use kambu straw, paddy straw, stalks of cholam and keeths from coconut to thatch the roof. Malayali tribes mostly live in nuclear family. Turban and a brown kambli is the traditional dress. The kambli serve as overcoat, a rain coat and sometimes as umbrella. Men and women usually wear two yard long dhoti. Many hilly tribes have changed their dressing style as plain people as a result of increase in contact with people in plains and also as a spread of literacy. Staple food for them is millets like kambu, cholam, samai. Sometimes they consume rice, ragi and their delicious food is chendhu kazhi.

MENSTRUATION AND MENSTRUAL HYGIENE PRACTICES – STUDIES

A school based health education study (interventional study) was conducted in Arihazar area, Bangaladesh by Haque et al⁶. In this study 416 adolescent girls in the age group 11-16 yrs studying in grade 6-8 living with the parents were the participants. Haque et al reported that the adolescent girls involved in the study had a significant improvement in knowledge and beliefs when compared to baseline (51% vs

82.4%). It was also observed that there was significant improvement in good menstrual practices (28.8% vs 88.9%) which includes improvement in usage of sanitary pads (22.45 change after the intervention), changing pad or clothes per day (68.8%), place of drying of used absorbent (97.6%), disposable of used absorbents (25.5%) and cleaning the genitals (19.2%). When these adolescent girls were followed up, a significant improvement in menstrual cycle regularity (94.5% vs 99.5%) and reduction in complications were reported (97.86% vs 59.6%)

In 2013, in Northeast Ethiopia, Tegegne and Sisay et al¹⁵ conducted a mixed method research by randomly selecting 595 adolescent school girls. They conducted nine in depth review among dropout girls from five schools. They have four female teachers and four focus group discussions. Mean age at menarche was 13.98 years (± 1.17 years) and 51% of girls had knowledge about menstruation and its management. Sanitary napkins were used as menstrual absorbent during last menstrual cycle by only a third of the participants. It was also observed that the usage of sanitary napkins was more among girls from urban areas, girls with mothers of secondary or higher education and among families with higher monthly income. School absenteeism during menstrual period was observed in more than half of the girls. School absenteeism was more in girls who did not use sanitary napkins (AOR -95% C15.37 (3.02-9.55). It was reported by girls that their school performance had declined after they had attained menarche. School dropout was common among girls who were teased and humiliated by their classmates when their clothes were blood stained as they did not use sanitary napkins.

A self-administered semi structured questionnaire study was conducted by Robyn Boosey et al⁴⁶ in Uganda among school girls in six government run schools. A

semi-structured interview was also conducted with the female teachers and head teacher in the study schools with toilet assessment in each school. One hundred and forty girls completed the questionnaire. Lack of access to resources, toilet and information related to menstrual hygiene management were reported. Eighty six girls (61.7%) were missing the school during menstrual period due to menstruation related issues (mean 1.64, range 0-10, SD 1.84).

A school based cross sectional study using multistage sampling technique was conducted at Amhara Province, Ethiopia by Gultie et al⁴⁷. By lottery method the participants were selected after clustering the schools into grade and sections. Gultie et al used pretested and structured questionnaire involving 492 students and making a response rate of 100%. Menarche was attained at a mean age of 14.16 years. A high level of knowledge about menstrual hygiene management was observed in four hundred forty six respondents (90.7%). It was observed that teachers were the main source of information about menstrual hygiene management for 212 students (43.1%). Four hundred and fifty seven (92.9%) respondents had access to water facility and four hundred and seventy five (96.5%) respondents had access to toilet facility.

A study to assess the impact of health education on knowledge, attitude and practice on menstrual hygiene among female college students in urban area of Belgaum was designed by Pokhrel et al²¹. All the PUC girls who attained menarche and willing to participate in the study were included. The descriptive data which was collected were displayed in mean, percentage and proportion and the test of significance was applied with the significant level set at 5%. There was significant improvement in knowledge in post-test on nearly all menstrual relevant issues. Significant improvement was

observed in practices like washing the genitals during every visit to toilet (p< 0.001) and practice of bathing during menstruation p value(p<0.001)

Ghongdemath et al⁴ conducted a school based educational interventional study in the age group of 11 to 19 years of grade 6th to 10th and among pre-university and first year degree colleges from surrounding rural areas. The study involved 1249 students in Karnataka from January 2012 to February 2014. The study was done with pre-test and post-test along with health education relating to adolescent health. It was observed that knowledge about menstruation and menstrual hygiene improved significantly from 69.3% to 96.9% and 64.9% to 100% following health education. Practice of bathing during menstruation increased from 75.9% to 100% among participants following health education.

In Tamil Nadu a descriptive cross sectional study was conducted by Zaidi et al²⁵ among 150 adolescent school going girls in Thiruporur government girls higher secondary school in Tamilnadu from April to October 2012. Provisional sampling was used and face to face interview with structured pretested questionnaire was used as tool for survey. It was observed that only 18.67% of adolescent girls had known about menstruation before menarche. About 67% of girls did not know the cause for menstruation. Usage of sanitary pad during menstruation was reported by 96.67% and clothes were used by 1.33%. It was also observed that 51.3% girls changed the pad after completely soaked whereas 48.7% girls changed on timely interval. 54.7% of girls changed the pad twice daily, 18% once a day and 27.3% changed more than twice a day. During menstruation, 96% of girls used to take showers. The restrictions practiced during menstruation in the study are as follows. About 66% of the girls i.e. nearly two-

third were secluded during menstruation, 38.7% girls were restricted from cooking, 64.7% slept separately, 38.7% were restricted from household work, 92% were restricted from playing, 81.3% were restricted from going to school and 26% girls were restricted from touching men during menstruation. Source of knowledge related to menstruation is the mother (38%), relatives 3.3%, and health professionals 3.3%, teacher 0.4%. Regarding cause for menstruation, 46.67% girls did not know the cause, 42% believed it is due to physiological process, 8% considered it as sin, 0.67% as a disease. Most of them (81.3%) knew about menstruation after menarche only, and only 18.67% had knowledge before menarche. First experience of onset of menarche was frightening in 78% of girls, confusing in 14.7% and expectant in 7.3% girls.

A cross sectional descriptive study among 160 adolescent secondary school girls in West Bengal by Das gupta et al²⁷. It was done in the field practice area of rural health unit and training centre in Singur, using predesigned and pre- tested questionnaire from 15.12.2006 to 15.01.2017 in relation to knowledge about menstruation, menstrual hygiene practices and restricted activities. In the present study mean age of menarche was 12.8 years. Source of knowledge was mothers (37.5%), friends (28.75%), and relatives (1.25%). About 67.5% girls had knowledge about menstruation before menarche. Regarding cause of menstruation, 86.25% girls believed it a physiological process, 5% girls as disease, 6.25% girls believed it to be curse of god and 2.5% girls believed it as a result of sin. Majority of the participants (97%) did not know the source of menstrual bleeding. Regarding the practice of menstrual hygiene, more than half of the participants were not aware about the use of sanitary pads, 11.25% girls used

sanitary pads during menstruation, 42.5% used old clothes and 6.25% used new clothes whereas 40% girls used both sanitary pads and clothes during menstruation. Regarding cleanliness of external genitals, 2.5% girls used only water, 97.5% used soap and water. More than half (51.25%) participants did not possess covered toilet. Regarding disposal of used materials, 57.5% girls disposed cloth piece or sanitary pads properly but 73.75% girls reused cloth pieces. Restrictions during menstruation was practised among 85% participants. Among them, 70.59% girls did not attend any religious function, 50% girls had food restrictions, 42.65% did not play, 33.82% were restricted from house hold works, 16.18% girls were absent to school and 10.29% girls did not attend marriage functions during the menstrual period.

An epidemiological cross sectional study conducted by Ramachandra K et al²⁸ in Bangalore. The study was done among 550 adolescent school going girls in the age group of 13-16 years using pre-designed pre-tested semi-structured questionnaire. The study showed the mean age of menarche was 12.39 years (SD \pm 0.908) in the urban schools. The study also showed that 33.27% participants had awareness relating to menstruation before menarche. It was also observed that there was no significant difference regarding menstrual awareness between urban and rural participants. Regarding the source of information, mothers (85%) were the most common informant followed by friends (30%), teachers (12%), health professionals (6%), and mass media (2%). About 49% girls experienced fear at the onset of menarche, and 21% experienced anxiety. In the study, sanitary pad usage was higher in urban area (75.9%), followed by new cloth (14%), old cloth (11%) and 6% used both. Here

teachers were not a good source of information and they did not prefer to provide menstrual education too.

A cross sectional descriptive study conducted among 155 adolescent female rural and urban school students in Howrah district of West Bengal by Datta et al³⁰ using pre-designed pre-tested semi-structured questionnaire included awareness about menstruation, sources of information and menstrual hygiene practices in the year 2011. Mean age of menarche among urban girls was 12.1 years and 12.2 years among rural girls. Average duration of menstrual cycle was 29.3 days and mean duration of last menstrual period was 5.4 days. About 72.1% urban participants and 39.1% rural participants had awareness about menstruation before menarche and friends (65.3%) were the main source of information followed by mothers (36.7%) in urban areas and school curriculum (55.9%) was the most common source of information in rural areas. Regarding the cause of menstruation, 60.3% urban girls and 54% rural girls mentioned menstruation as a normal phenomenon and 32.4% urban girls and 42.5% rural girls did not know the cause of menstruation. Though 95.6% urban participants and 92% rural participants felt sanitary napkin to be the ideal absorbent during menstruation, only 73.55 urban and 45.9% rural participants used sanitary pads during menstruation. Due to cost and unavailability, others used clothes. Most of the participants (76.5% in urban and 90.8% in rural) changed the absorbent two to four times in a day with 75% urban and 79.3% rural participants changing the absorbent during night also. Only 17.7 % urban participants and 40.35 % rural participants reused the absorbents. Majority of the participants have stored the absorbents in bathroom followed by cupboard. common place of disposal of used absorbent in rural (44.9%) and urban (69.1%) areas

was dustbin, 10.3% urban and 23% rural girls buried in ground. Regarding restrictions practised during menstruation, 12.6% rural and 7.4% urban girl's refrained bathing.

Sabarkantha district is considered as one of the tribal district of Gujarat but it has dual burden of tribal and urban within. A community based cross sectional study among 250 adolescent girls in selected 4 rural government schools of Himatnagar Taluk of Sabarkantha district in Gujarat using predesigned pretested questionnaire was carried out by Vijay Agarwal⁴⁸ et al during February 2016 to study social parameters along with menstrual hygiene knowledge and practices. Mean age of menarche was 13.44 years \pm 1.35 years. In the study 41.6% girls had 28-35 days cycle, 34% had 25-28 days cycle and 62.8% girls have regular menstrual cycle. About 35.6% participants had awareness about menstruation before menarche and mothers (54.2%) were the common source of information followed by sister (29.3%). Among the participants, 34.8% participants believed menstruation to be due to natural cause. In the study 14.8% girls were using sanitary napkins during menstruation, 48.8% girls used cloths and 36.4% used sanitary pad and cloth. Only 51.6% girls changed the absorbent once in a day. Reason for not using sanitary pads was due to high cost (31.2%), lack of awareness (33.6%), shyness (15.5%) and difficulty in disposal (19.7%). Also the association between mother's educational status and use of sanitary napkins by girls is statistically significant which means girls whose mothers are well educated were more likely to use sanitary napkins

A community based cross sectional study about menstrual hygiene practices was done by Debadeep et al⁴⁹ using pre-designed pretested proforma involving 200 adolescent girls of Barpeta from August 2018 to January 2019. In the study 84%

respondent attained menarche between 12 and 14 years of age, 66.5% adolescent had menstrual cycle between 28 and 32 days followed by < 28 days in 19.5% and more than 32 days in 14%. Regarding knowledge 92% were aware about menstruation before menarche with mother and sister being the source of information (72.5%). Sanitary pads were used by 82.5% respondents followed by clothes in 7.5% respondents. Frequency of pad change per day during menstruation was once (12%), two pads (50.5), three pads (26.5%) and more than three pads by 11% participants. About 78.5% respondents used soap and water for cleaning of external genitalia each time after changing the pad and 21.5% girls used only water. Majority of the participants (98.5%) took bath daily during menstruation and 93.5% respondents washed hand with soap and water after changing the pads. Sociocultural factors influencing menstruation were not attending religious ceremonies (100%), avoiding kitchen work (57.5%), and not attending marriage party (31.5%), sleeping separately (30.5%), school restrictions (21.5%) and dietary restrictions like avoiding sour food (46%), egg (19.5%) and other food (6%).

Shanbhag D et al ⁵⁰ conducted cross sectional study in four selected High schools in rural areas in three districts of Bangalore rural, Bangalore urban and Kolar around Bangalore city using pre designed pretested self-administered questionnaire from January to march 2011 among girls studying 8th, 9th and 10th std regarding the perceptions and practices during menstruation involving 506 participants. Mean age of menarche was 13.4years and 99.6% students had awareness about menstruation and 57.9% students had knowledge before menarche, mother(55.1%) being the major source of information followed by friends (17.4%) and sister 9.2%). Menstruation was perceived as a natural phenomenon by 73.7% and curse of god by

13.4%. Frequency of menstrual cycle was once in 4-5 weeks in 63.2% and once in 2-3 weeks in 22.8% students. Regarding the use of menstrual absorbent, 44.1% used sanitary pads, 34.7% used cloth and 21.2% used both. Among the girls who used cloth, 31.3% used soap and water for washing the cloths, 28.6% used hot water and 20.1% used antiseptic solution. Among girls who used cloth as menstrual absorbent, 71.7% reused the clothes for 1-2 months, 20.45% for 3-4 months and 7.9% for 5-6 months. Washed clothes were dried under the sun by 68.4% and inside the house by 16.4%. About 56.8% participants used soap and water for cleaning the external genitalia and 43.2% used only water. 88.8% girls take bath during menstruation, 3.3% once in 2-4 days and 3% after bleeding has stopped. About 53.8% cleaned external genitalia all times after micturition, 8.5% participants never cleaned after micturition. Restriction of food during menstruation was like sweets, spicy food, and curd and milk products.

A cross-sectional study was conducted by Seenivasan et al ⁵¹ in five government schools located in North Chennai, Tamilnadu among 500 school going adolescent girls who have attained menarche, during the period June to August 2012 using pretested questionnaire regarding knowledge and menstrual hygiene practices. Mean age of menarche was 12.1±1.5 years. About 40 % of the girls had knowledge about menstruation before menarche with mother (47.7 %) being the major source of information. Other sources of information were friends (39.9%), sisters (6.1%), teachers (4.5%) and media (2%). In the study sanitary pads were used by 92.6% girls, 5.6% used cloths as absorbent and 1.6% used both. Change of absorbents per day was 28% changed 1-2 times, 34.4% changed 3-4 times, 37.6 % changed 4-5 times. 77% girls washed their genitals more than twice a day and 47.6% used water, 37.4% soap and

water and 15% antiseptics. Regarding disposal of absorbents, dustbin (72.6%) was commonly used for disposal followed by flushing in toilets (12.2%), burning (3.6%) and reusing (1.8%). Restrictions practised during menstruation were 92.4 % restricted to attend religious function, 55.7% restricted from house hold work, 51.8% restricted from sleeping on routine bed and 9.2% did not attend school.

Kamath et al ⁵² conducted a cross sectional study among 550 school going adolescent girls using a pre-tested questionnaire in Udupi taluk, Karnataka. Of 550 adolescent girls, 280 were from rural villages and 270 from urban areas. Mean age of menarche was 12.39 years in urban and 12.31 years in rural schools. Study showed that only 33.27% urban participants and 35.82 % rural participants had awareness about menstruation before menarche and common source of information was mothers [urban-82.2%, rural- 69.6% total- 75.8%] followed by friends [urban – 25.2 %, rural – 33.2% total- 29.3%] and sisters [urban- 14.4% rural- 11.1% total- 12.7%] teachers [urban -3.3% rural - 2.5% total - 2.9%] and health worker [urban -6.7%, rural-14.6% total-10.7%]. Usage of sanitary napkins during menstruation was higher among urban than rural participants. – Urban (75.9% rural- 65% total – 70.4%). Reason for not using sanitary pad were difficult to dispose [urban- 55.6% rural- 55.6%], cost [rural – 30.8 %] urban-18.25], lack of knowledge [urban - 11.1 % rural - 23.1 % total - 18.2 %] no reason [urban-33.3% rural – 7.7% total 7.7%]. Reason for not changing pads in school are due to uncomfortable atmosphere [72.6%] in both the groups, lack of water and disposal facilities among rural participants [24.2%] and unhygienic conditions in school [6.2%].

Arya et al ⁵³ conducted a descriptive cross sectional study among adolescent tribal girls in Kolayad Grama Panchayat of Kannur district. He conducted the study to assess the knowledge, practices of menstrual hygiene and the restrictions practised by them. It was done in 30 tribal girls in the age 12-19 years. It was observed in the study that 67% respondents used old washed clothes, 26.7% used natural materials and 6.7% used new clothes as absorbents. Reason for not using sanitary pads were due to difficulty in disposing and cost by 33.3%, not comfortable by 20% and unawareness by 13.3%. Regarding the change of frequency of pads during menstruation, four times by 6.7%, 66.7 % girls changed three times a day, twice daily by 20%, and one absorbent in whole day by 6.7%. Here the limitation is sample size limited to 30 adolescent girls and only one panchayat.

Sridhar et al ⁵⁴ conducted a community based cross sectional descriptive study among 425 tribal adolescent girls of age 10 to 19 years (married, antenatal, postnatal) residing in 18 habitations of Achampet mandal in Telangana from December 2016 to February 2017 using a predesigned pretested questionnaire to observe menstrual health of the tribal adolescent girls and to describe cultural factors on study population. Out of 425 students, 353(83.05%) study participants were unmarried. 74.35% subject's attained menarche with the mean age of 12.83 years and menstruation last for 3-5 days in majority followed by less than 3 day with regular menstrual cycle in majority of study subjects. Majority of the parents were illiterate, mother 60.5% father 52.5%. Among the study subjects, 25.9% were illiterates, 41.2% completed primary education, 6.4% high school education. Menstrual hygiene was non sanitary in majority of the illiterate subjects (55.1%). Sanitary pads were used by 68.35% participants and

cloth by 31.6%. About 66.5% participants changed the materials less than twice daily and 33.5% more than twice. In the study, certain cultural practices were still prevalent with religious restrictions (86.81%), bathing restrictions (72.5%), routine household activity (21.6%), food restriction (20.2%), school absenteeism (20%) and playing restriction (8%), sleeping on floor (8.7%). Mother's education played an important role in menstrual hygiene practices of the girls and it's statistically significant. Girls who had regular menstrual cycle were practising good menstrual hygiene which was statistically significant. It was also observed in the study that premenstrual symptoms were significant in girls with poor menstrual hygiene.

Bekkalale Chikkalingaiah et al ⁵⁵ conducted community based cross sectional observational study among 210 adolescent girls. The study was done in the field practice area of Hegadagere subcenter area, Bangalore using predesigned pre tested questionnaire to assess the menstrual hygiene knowledge and practices. In the study 61% girls belong to nuclear family, 35.7% girls joint family and 3.3% girls three generation family. Sanitary pads were used by 11.25% as menstrual absorbent, and 6.25% girls were using fresh cloth, used cloth was used by 42.5%, both cloths and pads by 40%. Regarding awareness, 87.6% had knowledge about menstruation before menarche and 12.4% had no awareness and mother was the source of information in 56.5% girls. Other sources for information were teachers, friends, neighbours and health workers. Also in the study 63% girls were taking bath daily during menstruation. Regarding restrictions practised during menstruation 97.6% practised different restrictions with religious restrictions in 49.4%, food restrictions like avoiding sour foods, banana, radish

palm in 7.6%, restricting house hold work in 18.8% girls, restricting playing in 17.1% girls and school absenteeism in 4.7% girls.

Jagruti Prajapati et al ⁵⁶ conducted an epidemiological cross sectional community based study among 155 girls in the Anganwadi centres of UHTC of GMERS Medical College Gandhinagar Gujarat using semi structured questionnaire to assess menstrual hygiene knowledge and practices. In the study 50% girls attained menarche in the age 12-14 years and 19.3% girls before 12 years and 30.6% girls after 14 years. Duration of blood flow was 2-5 days flow in 65.9%, more than 5 days in 27.3% and less than two days in 6.8% girls. Length of cycle was 28-32 days in 53.5% girls, more than 32 days in 13.6% and less than 28 days in 32.9% girls. Quantity of flow was normal in 69.3%, excessive in 18.2% and scanty in 12.5% of the study subjects. In the study 39.8 % girls had knowledge before menarche. Mothers (48.9%) were the main source of information followed by sister (25%), friends (12.5%), and relatives (10.2%). Only 33.1% girls had knowledge that menstruation is a physiological process. Sanitary pads were used by 26.1% girls followed by new cloth (31.8%), and old washed cloth (33.15), pad and old washed cloth (5.7%), pad and new cloth (3.4%) as absorbent. Among the girls who not used sanitary pads were due to washing problem (33.8%), drying (13.6%), and cost (29.2%), difficulty to discard (21.5%). All girls had different type of restrictions like religious restrictions (87.5%), routine house hold work (35.2%), and food restrictions (8.1%). Hygienic practices during menstruation were observed in the study. They were daily bathing (95.5%), regular hand washing (96.6%), hand washing with water (6.8%), soap and water (93.2%). Also regular cleaning of genital (90.9%),

separate bathroom facility (42.1%), using soap and water for cleaning genital (35.2%) was observed.

METHODOLOGY:

Study design:

This study was conducted at the community level as a community based cross sectional study to estimate the menstrual hygiene practices and the factors influencing the menstrual hygiene practices among tribal adolescent girls in Salem district, Tamil Nadu.

Study area:

The community based study was conducted in Valavanthi Primary Health Centre, Salem, Tamil Nadu, India.

Study period:

The study was carried out for a period of one year from August 2018 to July 2019

Study population:

Tribal adolescent girls in the age group of 10 to 19 years were the study participants with the inclusion and exclusion criteria being:

Inclusion criteria:

- 1) Adolescent girls in the age group of 10 -19 years who attained menarche.
- 2) Having at least three continuous menstrual cycles.

Exclusion criteria:

- 1) Adolescent girls in the age group of 10 19 years those who had not attained the menarche.
 - 2) Adolescent girls who have psychological problems.
 - 3) Adolescent girls who are seriously ill.
 - 4) Adolescent girls who are not able to contact for 3 consecutive visits

Sample size:

400 adolescent girls

Sample size calculation:

Formula

$$n=z\alpha^2pq/d^2$$

 $z\alpha = 1.96$ at 95% confidence interval

p = prevalence from previous study

$$q = 1-p$$

d = precision

The prevalence for the present study was calculated from the previous study p=20.1%

(p = 20.1 was taken as frequency of change of sanitary pad more than twice per day as a menstrual practice among the study participants from Menstrual

hygiene practices among adolescent girls residing in Tribal and social welfare hostel in Andhra Pradesh, A Community based study by Sharvanan E Udayar, Kiruthika Anand, Prasad V Devi.)⁵⁷

$$q = 100 - p$$

$$q = 100 - 20.1$$

$$q = 79.9\%$$

d = Relative precision 20% of prevalence was taken for this stud

I.e
$$20\%$$
 of $20.1 = 4.02$

$$n = 1.96*1.96*20.1*79.9/4.02*4.02$$

$$n = 381$$

Allowing a 5% for permissible errors like non response rate (19)

Sample size comes around 381+19 = 400 individuals

Sampling method:

The study was carried out as Multistage sampling method.

First stage:

By simple random sampling, Salem District was chosen.

Second stage:

Salem District have tribal population residing in 3 blocks namely Valavanthi block, Bethanayakkanpalayam block and Gangavalli block. Of these by lot method, Valavanthi block was chosen.

Third stage:

Valavanthi block consists of Valavanthi PHC, Nagalur PHC and Manchakuttai PHC. By lot method, Valavanthi PHC was chosen.

Fourth stage:

Valavanthi PHC has 4 health sub centres (HSC) namely Thalaisolai, Kovilmedu, Maramangalam and Kottachedu. Tribal adolescent girls in all the 4 Health Sub Centres were line listed as per Anganwadi Centre (AWC) Register. Total of 1194 adolescent girls were registered in the Anganwadi Centre. By simple random sampling, using a Random Number Table, 400 samples who satisfy the inclusion criteria were included in the study. If two study participants were from the same household, both were included in the study.

Figure 7: Sampling Method

First Stage

• By simple random sampling, Salem district was chosen.

Second Stage • In Salem district, tribal population residing in 3 blocks namely Valavanthi block, Bethanayakkanpalayam block and Gangavalli block. Of these by lot method Valavanthi block was chosen.

Third Stage

• Valavanthi block consists of Valavanthi PHC, Nagalur PHC and Manchakuttai PHC. By lot method Valavanthi PHC was chosen.

Fourth Stage

• Valavanthi PHC has 4 health sub centres (HSC) namely Thalaisolai, Kovilmedu, Maramangalam and Kottachedu. Tribal adolescent girls in all the 4 health sub centres were line listed as per anganwadi centre (AWC) register. Total of 1194 adolescent girls were registered in AWC. By simple random sampling, using a random number table, 400samples who satisfy the inclusion criteria were included in the study.

Operational definitions

1. ADOLESCENTS:

'Adolescence' is the period between 10 and 19 years. The early adolescence means 10 to 14 years and late adolescence means 15 to 19 years.

2. MENSTRUAL HYGIENE:

Adequate menstrual hygiene management is "women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials."

Measuring tool:

A pretested validated semi structured questionnaire

Questionnaire:

The questionnaire consists of

- a. Socio demographic characteristics
- b. Menstrual profile
- c. Knowledge about menstrual hygiene practices
- d. Practices during menstruation
- e. Cultural restrictions during menstruation.

The questionnaire was pretested among 50 adolescent girls in Valavanthi PHC during the pilot study and based on the observations, necessary modifications were made for the main study. The results from the pilot study were not included in the final analysis.

Knowledge about menstruation was assessed using a score.

- 1. **Cause for menstrual bleeding:** If the answer is physiological the score was given as one and for all the other options the score was given as zero.
- 2. Sanitary material ideally used during menstruation: If the answer was sanitary pad, the score was given as one and for all the other options the score was given as zero.
- 3. **Frequency of changing the sanitary pad per day:** If the answer is 4-6 times the score was given as 2, three times per day the score was given as 1 and for all other options the score was given as zero.

4. **Disposal of sanitary pads:** If the answer is deep burial / burning, the score was given as one and for all other options the score was given as zero.

The total score for knowledge was 5.

Likewise the practices were also scored

- 1. Sanitary material currently used during menstruation: If the answer is sanitary pad the score was given as two, both sanitary pad and cloth the score was given as one and for all other options the score was given as zero.
- 2. **Frequency of changing the sanitary pad per day:** If the answer is 4times (4-6 hours) the score was given as two, 3 times (8 hours) per day the score was given as one and for all other options score was given as zero.
- 3. **Storing of the sanitary pad:** If the answer is 1 day score was given as two and for all other options score was given as zero.
- 4. **Disposal of sanitary pad:** If the answer is deep burial / burning the score was given as two and for all other options the score was given as zero.
- 5. **Reuse of sanitary pad:** If the answer is no the score was given as two and for the other options the score was given as zero.
- 6. **Cleaning of external genitalia:** If the answer is yes score was given as two and for the other options the score was given as zero.
- 7. Cleaning of external genitalia with: If the answer is soap and water the score was given as two, only water the score was given as one and for all other options the score was given as zero.
- 8. Cleaning external genitalia during menstruation: If the answer is every time after urination/defecation, the score was given as two and score one was given

to cleaning only during bathing and during changing pad and for all other options score was given as zero.

- 9. **Bathing daily during menstruation:** If the answer is yes, score was given as two and for all the other options the score was given as zero.
- 10. Changing undergarments daily during menstruation: If the answer is yes score was given as two and for all the other options the score was given as zero.
 Total score for practices was 20.

Data Collection:

Data collection was done in the study area after obtaining the due permission from the Head of the Department, Department of Community Medicine and the Dean, Stanley Medical College, Directorate of Public Health and Preventive Medicine (DPH), Deputy Director of Health Services (DDHS) of Salem district and approval from the Institute Ethics Committee.

The data was collected from those who satisfied the inclusion criteria. If the study participant was above the age of eighteen years, a written informed consent was obtained from the study subject and if the study participant was below eighteen years a written informed consent was obtained from her parents.

Total of 1194 adolescent girls were registered in the Anganwadi Centre. By simple random sampling, using a Random number table, the study participants are selected. House to house visit was made to collect the data from the selected study participant. If they are not in their house during the first visit, subsequent visit was made

and the data was collected. The selected study participants who were not available during three consecutive visits were excluded from the study.

The data collection was done using a semi structured questionnaire in the local language by interview method. The questions were put forward pertaining to the Socio demographic profile, menstrual profile, awareness about menstruation, menstrual practices and cultural restrictions among the study participants during menstruation.

Relevant information was obtained from the respondent using the semi structured questionnaire in the local language and the questionnaire was read out to the study participants in the same order as listed in the questionnaire and sufficient time was given to the subjects to respond. If the study subject did not understand the question, it was repeated in the same manner without probing for the answer.

Services rendered:

Health education was given to all the study participants regarding the proper menstrual hygiene practises

Statistical Analysis:

Data was entered in MS Excel and analysed using the Statistical Package for Social Sciences (SPSS) Version 16. Descriptive statistics such as Mean / Median and Standard Deviation were employed to describe continuous variables, while frequency distributions were obtained for dichotomous variables. Association between qualitative variables were done using Chi square tests and Fisher's exact test. A p value of less than or equal to 0.05 has been considered to be significant.

RESULTS

A total of 400 tribal adolescent girls in the age group of 10-19 years were interviewed for the study. Table 7 shows the socio demographic characteristics of the study participants.

I. Socio demographic details:

The mean age of the study participants is 15.10 ± 1.564 years. All of them were literates. Majority of the study participants 208 (52%) had completed up to high school. Majority of the study participants 142(35.5%) were second order of birth. Most of the study participants 391 (97.8%) were unmarried. Majority of the study participants belongs to nuclear type of family.

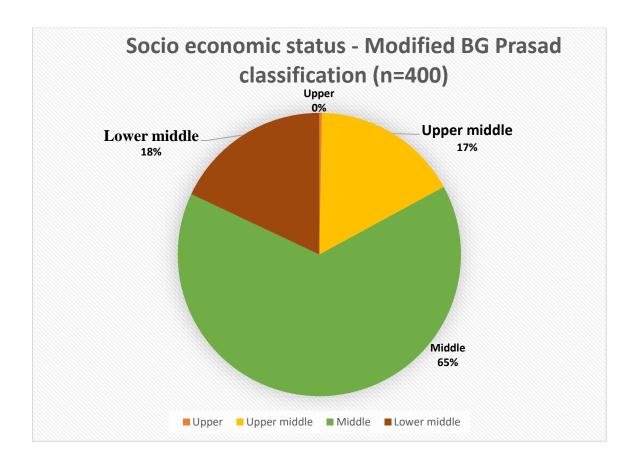
Table 7: Socio demographic profile of the study participant

Socio demographic characteristics	Number of study participants,	
	n = 400(%)	
Age in years		
10-14	171 (42.8%)	
15-19	229 (57.2%)	
Education		
Middle school	73 (18.3%)	
High school	208 (52%)	
Higher secondary	113 (28.3%)	
Post graduate/ degree	6 (1.5%)	

Birth order	
First	178 (44.5%)
Second	142 (35.5%)
Third	61 (15.3%)
Fourth	16 (4%)
Fifth	3 (8%)
Marital status	
Married	9 (2.3%)
Unmarried	391 (97.8%)
Family type	
Nuclear	299 (74.8%)
Joint	101 (25.3%)

The study area being a tribal population, the per capita income classification of Modified BG Prasad scale was used to arrive at the socio economic status. Using the Consumer Price Index (Industrial Worker) for the month of November 2018, which was 302, the Modified BG Prasad Classification was updated (annexure). Figure 1. Shows socioeconomic classification as per the Modified BG Prasad Scale. Majority of the study participants belongs to lower middle classes 260 (65%) while only 0.3 % of the study participants belong to the upper class.

Figure 8. Socio economic status of the study participants



II. Menstrual profile of the study participants

Table 8. Menstrual profile of the study participants

Menstrual profile	Number of study participants
	n =400 (%)
Menarche attained age in years	
10-14	380 (95%)
15-19	20 (5%)
Menstrual cycle pattern	
Regular	338 (84.5%)
Irregular	62 (15.5%)

Out of the 400 adolescent girls, 380 adolescent girls (95%) attained menarche between the age group of 10 - 14 years. Majority of the adolescent girls 338 (84.5%) had regular menstrual cycles.

III. Knowledge about menstruation:

Knowledge about menstruation was assessed using the following score.

- **1. Cause for menstrual bleeding:** If the answer is physiological the score was given as one and for all the other options the score was given as zero.
- 2. Sanitary material ideally used during menstruation: If the answer was sanitary pad, the score was given as one and for all the other options the score was given as zero.
- **3. Frequency of changing the sanitary pad per day:** If the answer is 4-6 times the score was given as 2, three times per day the score was given as 1 and for all other options the score was given as zero.
- **4. Disposal of sanitary pads:** If the answer is deep burial / burning, the score was given as one and for all other options the score was given as zero.

Total knowledge score was 5. The scores 4 and 5 was taken as good knowledge and the scores 1, 2 and 3 was taken as poor knowledge

The minimum score for knowledge about menstruation among the study participants one and maximum score was five. The mean score for knowledge about menstruation was 4.03 ± 0.88

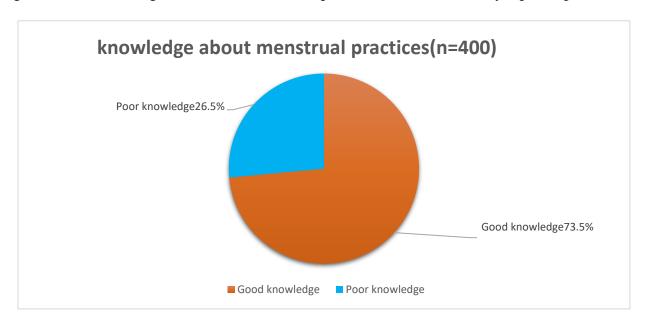
In the study, 81% of the study participants had correct knowledge that menstrual bleeding was due to physiological. Knowledge about usage of sanitary pad was present in 96.3% of the adolescent girls. About 169

(42.3%) adolescent girls had the knowledge about changing the sanitary pad 4-6 times per day. About 98.5% of the adolescent girls had correct knowledge about the ways of disposal and adopted burning as the method of disposal.

Table 9. Correct knowledge about menstruation among study participants

Correct knowledge about menstruation	Number of study participants
	n =400(%)
1. About the cause for menstrual bleeding	324 (81%)
2. About the sanitary material ideally used during	385 (96.3%)
menstruation	
3. About the frequency of changing pad per day	169 (42.3%)
4. About ways of disposal of pad	394 (98.5%)

Figure 9: knowledge about menstrual practices of the study participants



Out of 400 adolescent girls, 294 (73.5%) had good knowledge about menstrual practices.

IV. Menstrual hygiene practices among the study participants

Menstrual hygiene practices was scored by the following

- 1. Sanitary material currently used during menstruation: If the answer is sanitary pad the score was given as two, both sanitary pad and cloth the score was given as one and for all other options the score was given as zero.
- **2. Frequency of changing the sanitary pad per day:** If the answer is 4times (4-6 hours) the score was given as two, 3 times (8 hours) per day the score was given as one and for all other options score was given as zero.
- **3. Storing of the sanitary pad:** If the answer is 1 day score was given as two and for all other options score was given as zero.
- **4. Disposal of sanitary pad:** If the answer is deep burial / burning the score was given as two and for all other options the score was given as zero.
- **5. Reuse of sanitary pad:** If the answer is no the score was given as two and for the other options the score was given as zero.
- **6. Cleaning of external genitalia:** If the answer is yes score was given as two and for the other options the score was given as zero.
- 7. Cleaning of external genitalia with: If the answer is soap and water the score was given as two, only water the score was given as one and for all other options the score was given as zero.
- **8.** Cleaning external genitalia during menstruation: If the answer is every time after urination/defecation, the score was given as two and score one was given to cleaning only during bathing and during changing pad and for all other options score was given as zero.

- **9. Bathing daily during menstruation:** If the answer is yes, score was given as two and for all the other options the score was given as zero.
- **10. Changing undergarments daily during menstruation:** If the answer is yes score was given as two and for all the other options the score was given as zero.

Total score for menstrual hygiene practices among the study participants was 20. The scores18, 19 and 20 was taken as good practice and the other scores taken as poor practice.

The minimum score for menstrual hygiene practices among the study participants was 13 and the maximum score among the study participants was 19. None of the study participants got the score 20.

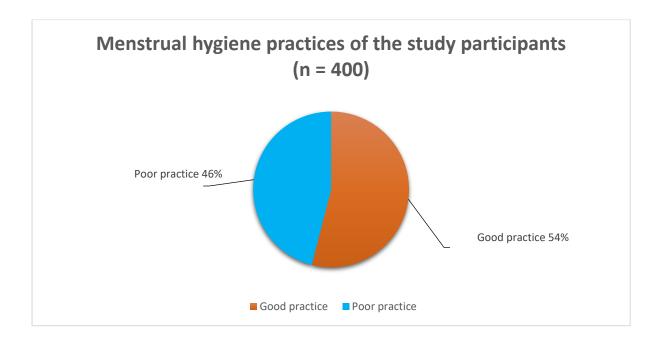
The mean score for menstrual hygiene practices among the study participants was 17.40 ± 1.358

Out of the 400 adolescent girls, 379 (94.8%) girls were using sanitary pad currently. 179 (44.8%) adolescent girls changed their sanitary pads 3 times per day and 163(40.8%) adolescent girls changed their sanitary pad 4-6 times per day. 297(74.3%) adolescent girls stored and disposed the sanitary pad every day. Majority of the adolescent girls 394(98.5%) used burning as a method of disposal. 287 (71.8%) adolescent girls, cleaned their genitals with soap and water during menstruation and 82 adolescent girls were used only water for cleaning their genitals during menstruation. Out of the 400 adolescent girls, 73 girls were cleaned their genitals every time after urination / defectation during menstruation. All the adolescent girls bathed daily during menstruation and all the girls changed their undergarments daily during menstruation.

Table 10. Correct menstrual practices of the study participants

Correct menstrual practices	Number of study participants
	n = 400 (%)
Sanitary material used during menstruation	379 (94.8%)
Frequency of changing pad per day	163 (40.8%)
Storing pad	297 (74.3%)
Disposal of pad	394 (98.5%)
Reuse of pad	400 (100%)
Cleaning genitals	400 (100%)
Clean with soap and water	287 (71.8%)
Cleaning every time after urination/ defecation	73 (18.3%)
Bathing daily during menstruation	400(100%)
Changing undergarments daily	400 (100%)

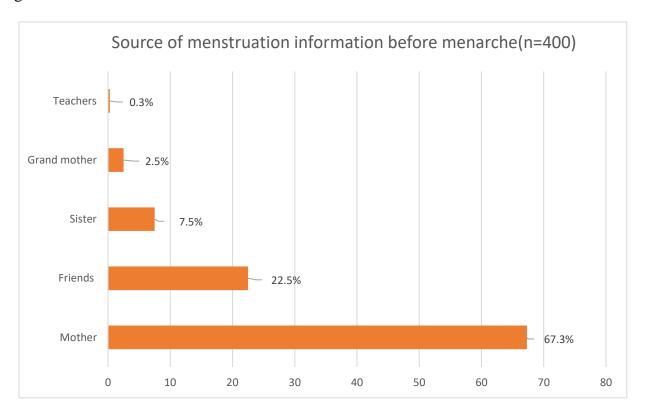
Figure 10: Menstrual hygiene practices of the study participants



Out of the 400 study participants 216(54%) of adolescent girls had good menstrual hygiene practices.

Of the 400 study participants, all of the adolescent girls have heard about menstruation before attaining menarche.

Figure 11: Source of menstruation information before menarche



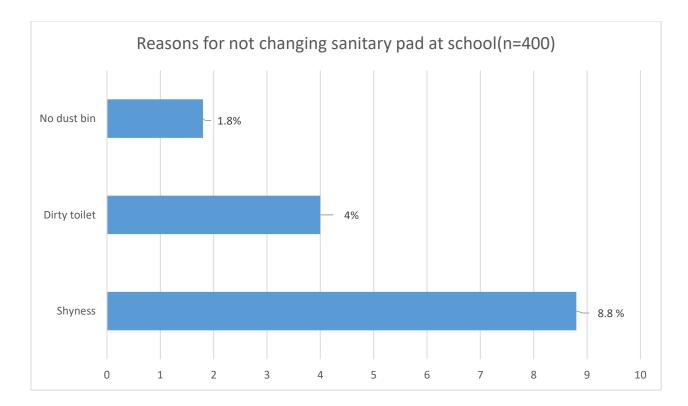
Majority of the adolescent girls received the information about menstruation before attaining menarche from their mothers.

Table 11: Procurement of pads

Procurement of pads	Number of study participants
	n =400 (%)
Both school teacher and self	307 (76.8%)
Self-procurement	46 (11.5%)
School teacher	36 (9%)
Both anganwadi worker and self	8 (2%)
Anganwadi worker	2 (0.5%)
ASHA	1 (0.3%)

Majority of the adolescent girls procured the sanitary pads from both school teacher and by themselves.

Figure 12: Reasons for not changing sanitary pad at school



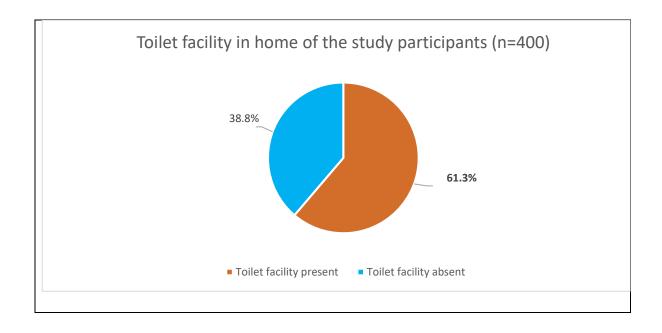
Out of the 400 study participants, 336(84%) adolescent girls changed the sanitary pad at school and 58(14.5%) girls did not change the sanitary pad at school. 35 adolescent girls (8.8%) mentioned shyness, 16 (4%) girls mentioned dirty toilet and 7 girls (1.8%) mentioned non-availability of dust bin in the toilet as the reason for not changing the sanitary pad at school.

Of the total participants, 21 (5.3%) study participants are using both sanitary pad and cloth during menstruation. They use the clothes only at home and if they go out they use the sanitary pad. Feeling of warmth is the main reason for not using the sanitary pad at home. All the 21 (5.3%) adolescent girls who used cloth during menstruation

wash and reuse the clothes. The type of cloth used was cotton. Out of 21 (5.3%) adolescent girls, 18 (4.5%) girls washed the clothes with soap and water and the remaining 3 (0.8%) girls, used soap, Dettol and water for washing. The washed clothes were put under the sunlight for drying. Of the 21(5.3%) girls, majority 17 (4.3%) girls change their clothes three times per day and they disposed the cloths 3 months once.

Out of 21 girls, 20 girls stored the used clothes separately near the routine clothes. Those who used the clothes, disposed them by burning as a method of disposal.

Figure 13: Toilet facility in home of the study participants



245 (61.3%) adolescent girls had toilet facility in their home.

V RESTRICTIONS DURING MENSTRUATION

A. Cultural restrictions

Table: 12 Cultural restrictions of the study participants during Menstruation

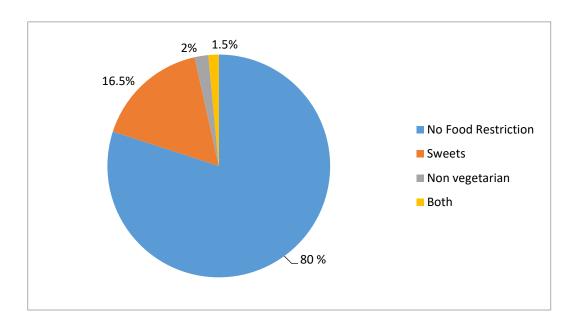
Cultural	Yes n (%)	No n (%)
Restrictions(n=400)		
Attending religious places	383 (95.8%)	17 (4.3%)
Attending school	392 (98%)	8 (2%)
Isolation	250 (62.5%)	150(37.5%)
Playing	211 (52.8%)	189 (47.2%)
Food	80 (20%)	320 (80%)
Sleeping on routine bed	208 (52%)	192 (48%)
Doing household work	336 (84%)	64(16%)
Attending family functions	392 (98%)	8(2%)
Touching food	339 (84.8%)	61(15.3%)
Touching family members	267 (66.8%)	133 (33.3%)

Majority of the study participants had restrictions to activities like attending religious places, family functions, going to school, doing household work and touching the stored food. More than half of the study participants had restrictions like isolation during menstruation, restriction from playing with friends, sleeping in routine bed and touching the family members.

B. Food restrictions during menstruation

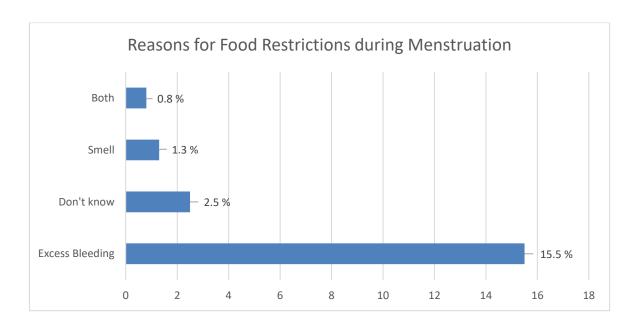
Majority (80%) of the study participants had no food restrictions during menstruation.

Figure 14: The foods which were restricted during menstruation



Out of the 400 study participants, sweets were restricted to 66(16.5%) adolescent girls, non-vegetarian food restricted to 8(2%) girls and both were restricted to 6(1.5%) girls during menstruation.

Figure 15: Reasons for Food Restriction during Menstruation



Among the 400 adolescent girls, excess bleeding was the reason for food restriction to 62(15.5%) girls, foul smell of the menstrual flow was the reason for food restriction to 5(1.3%) girls, both excess bleeding and foul smell of the menstrual flow was the reason for food restriction to 3(0.8%) girls and 10(2.5%) girls doesn't know the reason for food restriction. Majority of the adolescent girls 339(84.8%) were not allowed to touch the cooked food.

VI ASSOCIATION OF SOCIODEMOGRAPHY WITH KNOWLEDGE

Table 13: Association between age category of adolescent girls and knowledge score

Age	Knowledge score		Total	Chi	df	p value
category	Good	Poor		square		
10-14 years	122 (71.3%)	49 (28.7%)	171			0.399
15-19 years	172 (75.1%)	57 (24.9%)	229	0.712	1	(not
Total	294(73.5%)	106(26.5%)	400			significant)

Late adolescents (15-19 years) had better knowledge than early adolescents. But this association was not statistically significant

Table 14 Association between adolescent girl's education and knowledge score

	Knowledge score			Fisher's		
Education	Good	Poor	Total	exact	df	p
				test		value
Middle	44(60.3%)	29(39.7%)	73			
High school	152(73.1%)	56(26.9%)	208			
Higher	93 (82.3%)	20(17.7%)	113	11.035	1	0.009
secondary						(S)
Graduate	5 (83.3%)	1 (16.7%)	6			
Total	294(73.5%)	106(26.5%)	400			

As the educational status of the adolescent girls in the study population increases, the knowledge on good menstrual hygiene practices increases. This association was found to be statistically significant. (p value = 0.009)

Table 15: Association between family type and knowledge score

Family	Knowledge score		Total	Chi	df	p
type	Good	Poor		square		value
Nuclear	211(70.6%)	88(29.4%)	299			
Joint	83(82.2%)	18(17.8%)	101	5.224	1	0.022
Total	294(73.5%)	106(26.5%)	400			(S)

In this study, adolescent girls living in joint families had a statistically significant better knowledge on menstrual hygiene than girls living in nuclear families. (p=0.022)

VII ASSOCIATION OF SOCIO DEMOGRAPHY WITH PRACTICE SCORE

Table 16: Association between age category of adolescent girls and practice score

Age	Practice score		Total	Chi	df	p value
category	Good	Poor		square		
10-14 year	89(52%)	82(48%)	171			
15-19 years	127(55.5%)	102(44.5%)	229	0.459	1	0.498
Total	216(54%)	184(46%)	400			

In this study, late adolescents had a better menstrual hygiene practices compared to early adolescents. But this association was not statistically significant.

Table 17: Association between family type and practice score

Family type	Practice score		Total	Chi	df	p value
	Good	Poor		square		
Nuclear	150(50.2%)	149(49.8%)	299	7.003	1	0.008(S)
Joint	66(65.3%)	35(34.7%)	101	7.003	_	0.000(5)

In this study, adolescent girls living in joint families had statistically significant better menstrual hygiene practices when compared to girls living in nuclear families. (p=0.008)

VIII KNOWLEDGE PRACTICE GAP

Table 18: Association between knowledge score and practice score

Knowledge	edge Practice score		Total	Chi	df	p value
Score	Good	Poor		square		
Good	188 (63.9%)	106 (36.1%)	294			
Poor	28 (26.4%)	78 (73.6%)	106	44.178	1	0.000
Total	216 (54%)	184 (46%)	400			(S)

Among the study participants, those who had good knowledge on menstrual hygiene had good menstrual hygiene practices. This association was found to be statistically significant.

DISCUSSION

In the present study, more than half of the participants belong to 15 -19 years (57.2%) followed by 10 to 14 years (42.8%) and the mean age of the study participants was 15.10 ± 1.564 years. All of the study participants were literate. Most of the participants were unmarried (97.8%) and 74.8% girls belong to nuclear family. Socioeconomic classification as per the Modified BG Prasad Scale, majority of the study participants belongs to lower middle class 260(65%) while only 0.3% of the study participants belong to the upper class.

A study conducted by Koshi E P et al 58 Almabagh in Lucknow found that age of menarche ranged from 8-17 years (66.8%) and in the study the mean age of menarche was being 14.19 years. A cross sectional study done by Prasad B G et al 59 showed the mean age of menarche ranged between 11-15 years with mean age being 13.62 years.

To know the onset of menarche among girls, a cross sectional study was done by Gurmeet M P Singh et al ⁶⁰ in Ludhiana and the mean age of menarche was found to be 14.7 years. In Kodhamendhi village of Nagpur district a cross sectional study was done by Durge P M et al ⁶¹ and the menarche age ranged between 13 to 14 years with mean age being 13.5 years.

In a study by Vijay Agarwal et al 48 the mean age of menarche was 13.44 ± 1.35 years and 35.6% participants had knowledge about menstruation before menarche with mothers being the common source of information in 54.2% girls. In a study Dasgupta A et al 27 , age of menstruating girls ranged from 14 to 17 years with

76.25% girls belong to the age group between 14 and 15 years and the mean age of menarche was 12.8years.

A study by Deo et al 62 age of menstruating girls ranged from 12 to 17 years with maximum girls between 13 and 15 years. Also in the study 42.5% of urban girls and 55.4% rural girls had awareness about menstruation before menarche. In a study by Seenivasan et al 51 69% of girls attained menarche at the age of 11 to 13 years with mean age of menarche being 12.1 \pm 1.5 years and 40% of the girls had knowledge about menstruation with mother being the informant in 47.7% participants.

A study done by Rama rao et al ⁶³ from Lady Harding Medical College New Delhi in 18 to 20 years, 38.8% had irregular cycles at onset of menstruation and 11.3% had irregular cycles during interview.

To study the menstrual pattern, B G Prasad et al ⁵⁹ conducted a study among 192 girls in Lucknow and range for menstrual bleeding was 2-8 days. Majority of girls were menstruating for 4-5 days with average being 4.9 days. Also it was found 74.5% girls were menstruating at 26-30 days interval and 9.9 % less than 25 days, mean inter menstrual period was 28.21 days.

In the present study 57.2% participants were in the age group between 15 and 19 years and 42.8% participants between 10 and 14 years, 95% girl's attained menarche between the age 10 to 14 years and 5% girl's attained menarche between the ages 15 to 19 years. Also 84.5% participants had regular menstrual cycle and 15.5% girls had irregular pattern.

A study by Zaidi et al ²⁵ reported 81.33% girls had knowledge and awareness about menstruation after attaining menarche with mother (38 %) being the common

source of knowledge, followed by sister (25.33%), friends (16.67%) and relatives (18.67%). Keerti Jogdand et al ⁶⁴ in Guntur, only 36.19% girls had awareness about menstruation before menarche and the major source of knowledge being mother (61.29%) followed friends (22.58%) teachers (13.98%), relatives (2.15%).

In a study by Das Gupta et al 27 , 67.5% girls had awareness about menstruation with mother (37.5%) being the common source of information, 28.75% by friends, 1.25% by relatives and nil source of information in 32.5%.

In a study by Rutuja D Pundkar et al ⁶⁵ in Ahmednagar, the source of information before menarche was mother(45.01%), sister (2.85%), others (14.28%) and 37.86% girls had no knowledge about menstruation.

However studies conducted by other researchers earlier reported that mothers were the first source of information for menstruation in the range from 37.5% to 40.67% of the participants ⁶⁶.

In a study by Deo D S et al ⁶², in urban areas the main source for menstruation was mothers (27.5%) whereas in rural areas it was teachers (27.01%) the reason being there was a teaching programme about menstruation in rural schools. Also in urban based study, B G Prasad et al ⁵⁹ found that 56 % to 84% girls received information from mother.

In the present study, the common source of information to the girls were given by mothers (67.3%), followed by friends (22.5%), sisters (7.5%), grandmother (2.5%) and teachers (0.3%).

Different restrictions were practised by girls during menstruation based on the tradition and customs. In a study by Rutuja D Pundkar et al ⁶⁵ 94% girls practised

restrictions with 90% of girls avoided attending religious functions, 78% girls were restricted from household work, 48% girls were not allowed to sleep on a routine bed, 40 % girls were not allowed to play outside and 36% girls were not allowed to attend schools.

In a study by D S Deo et al ⁶², 44.7% girl's practised restrictions during menstruation with rural girls practised more restrictions for physical activity. 27.4% girls were restricted to wear certain clothes and 25% girls were restricted to interact with boys during menstruation. A study conducted by Sharvanan E Udayar et al ⁵⁷ among girls in tribal and social welfare hostel religious restrictions were seen in majority of girls (52%), 20.5% girls did not attend schools during menstruation. Other restrictions include touching sacred books (11.6%), playing (9.6%) and isolation (4.4%).

A study done by Kalita D et al ⁴⁹ all the participants were not attending religious function during menstruation, followed by avoiding household work (57.5%), not attending family functions (31.5%), and sleeping separately (30.5%) and its evident that these findings indicate the prevailing traditional beliefs and restrictions observed in the community by the girls during menstruation. Also 46% girls avoided sour food, egg by 19.5% and banana by 6% girls during menstruation.

A study by Kapoor G et al ⁶⁷ showed 98.48% of the participants practised / followed some restrictions during menstruation with 51.54 % girls not attending religious function, 34.62% girls were restricted from house hold work, playing (10%), attending school (28.46%) and food restrictions (23.85%).

In the present study 95.8% girls were restricted to attend religious places, 98% girls were restricted to attend school, 52.8% girls were restricted to play, 98% girls were restricted to attend family functions, 62.5% girls were isolated, 20% girls avoided specific food like sweet (16.5%), non-vegetarian (2%) and 52% girls were not allowed to sleep on routine bed and 33.3% girls were not allowed to touch the family members.

A study conducted by Ramachandra K et al ²⁸ 33.27% of girls had awareness about menstruation before menarche and about 88.5% urban girls expressed negative reactions to menstruation which could be due to they are not psychologically prepared for menarche and culture taboo in the society. Dasgupta A et al ²⁷ study shows 67.5% girls had knowledge about menstruation before attaining menarche and 86.25% girls believe it to be due to physiological process, 97.5% girls did not know the source of bleeding and more than half of the girls (51.25%) were not aware about sanitary pad usage during menstruation. Rutuja D Pundkar et al ⁶⁵ study shows 62.14% had knowledge about menstruation before menarche and 82.14% girls believe menstruation to be physiological process. On the contrary, Gupta et al ⁶⁸ found 68% adolescent girls were not aware about menstruation before menarche and similar finding stated by Dasgupta et al ²⁷ (32.5%).

In the present study when the participants were asked about the menstruation, 73.5% girls had good knowledge about menstruation, 81% girls had correct knowledge about the cause of menstrual bleeding as physiological, 96.3% girls knew about the sanitary material ideally used during menstruation, 42.3% knew about the frequency of changing pad per day as 4-6 times and 98.5% girls had good knowledge

about disposal of pads. In a study done at Belgaum by Pokhrel et al ²¹, 52.1% of participants responded with similar answer. About 81% of participants responded that menstruation occurs due to hormones in present study. In a study done by Kamath et al ⁵², 45.5% of participants answered similarly. In a study by Pokrel et al, 29.75% girls reported blood flows from the uterus and 36% girls in a study done by Sapkota et al in rural Nepal.

Govt of Tamilnadu had launched free sanitary napkin distribution to girls to promote personal hygiene among them and the beneficiaries are students, lactating mothers and women prisoners⁶⁹.

Personal hygiene measures like proper hand washing, bathing every day and cleaning of external genitals, proper disposal of used absorbent plays an important role in protecting from infections. Proper sanitation facilities like adequate water supply, toilet facility is also important for hygienic health.

A study by Zaidi et al ²⁵ shows 93.8% sanitary pad usage and 90.5% participants used sanitary pads in a study by Bharathalakshmi et al ²². In a study done at rural Nepal ⁷⁰ about 50.8% girls and 41.5% girls reported that they had changed pads twice and three times a day respectively which is almost similar to study by Patavegar et al ⁷¹ where 53.6% and 40.8% girls changed the pads twice and three times in a day respectively.

Regarding hygienic disposal of used absorbent, in a Bangladesh study ⁶ 56.5% participants and 57.5% girls in Dasgupta et al ²⁷ study practiced hygienic disposal of used which is low than present study (98.5%). A study Subhash B Thakre et al ⁷² showed 58.09 % of study participants had unsatisfactory cleaning of external

genitalia with 51% girls wash with soap and water, water alone by 33.3% girls, Patavegar et al ⁷¹ study showed 47.4% participants had washed the genitals with soap and water/ antiseptic.

In a study by Adrija Datta et al ³⁰ sanitary napkins were used by 73.5% urban girls and 45.9% rural girls and majority of them changed the pads 2-4 times (76.5% urban and 90.8% rural girls), few girls only reused the absorbent, and they stored the absorbent in the bathroom by many participants. Public dustbin (urban-69.1% rural- 44.9%) was the common mode of disposal of absorbent. Few girls only practised burial (urban- 10.3% rural-23.0%) in ground to dispose the absorbent. Regarding cleaning of external genitals was satisfactory in 60.3% urban girls and 43.7% rural girls. 57.1% urban and 48.1% rural girls used soap and water for cleaning of genitals and the remaining used only water for cleaning. Bathrooms were used for bathing by 95.6% urban girls and 83.9% rural girls. Around half of the participants reported sanitary napkins were costly and not available everywhere.

Vineet Kaur et al ⁷³ reported 69.2% girls were aware about menstruation and mother was the common informant. Used absorbent (cloth) was changed twice by 37.96% girls, thrice by 16.67 % girls and only once in 20.37% girls and sanitary napkins were changed twice or thrice a day and disposed in the dustbin by 81.49% girls. Surprisingly menstrual awareness were high in nuclear family (78.46%) than joint family (61.9%) with p value <0.001. In the study menstrual hygiene practices like bathing during menstruation and cleaning of external genitals were higher in nuclear family when compared to joint family which is statistically significant(p value < 0.001).

Majority of girls in joint family practised religious restrictions and it is statistically significant (p value- 0.003669) implying that families act as source of taboos.

Mahajan et al 74 study showed that majority (71%) of the girls had inadequate knowledge about menstruation and good hygiene practice score in 12% girls. In the knowledge score of participants were better if their mothers were better educated (p value 0.02) significant statistically. Similarly there was a positive correlation between knowledge score and participants score (p value <0.001, correlation r 0.394)

A study by Balamurugan et al ⁸ reported that sanitary napkins were used by 35% girls, clothes by 52% and 13% both sanitary pad and clothes and only 19.5% used new clothe during menstruation. Less than 15% of the participants used antiseptics to wash clothes during menstruation. Majority of the participants changed the pads 2-3 times a day (32%) and they used dustbin (32.5%) to throw the sanitary pads, 15.5% burned it. A statistically significant association was found between educational status and usage of sanitary pads, marital status and menstrual hygiene, and socio-economic status and good hygienic practice (p value < 0.001)

Tanvi Nitin Deshpande et al ⁷⁵ study reported majority of the girls (76%) had no knowledge about menstruation before menarche and mother was the common source of information in majority of girls (84%). Regarding practice of menstrual hygiene was 60% girls used sanitary pads, 19% used old clothes, and 5% used both pad and clothes. Sanitary pads were changed more than three times per day by 63.34% girls and 70% girls reused the clothes after washing and drying in sunlight. Hand washing with soap and water was practised by majority (78%) of the participants. During

menstruation, bathing every day and washing of genitals was observed in almost all the participants. About 79% girls used common public toilet, the study being conducted in a slum area.

In the present study, though late adolescents had better menstrual hygiene practices than early adolescents, the association was not statistically significant (p value- 0.399). Adolescent girls living in joint families had a statistically significant better knowledge on menstrual hygiene practices (p value 0.022) and also girls living in joint families had a better practices (p value 0.008). A statistically significant association was found between the educational status of the adolescent girls and knowledge on good menstrual hygiene (p value 0.009). Those who had good knowledge on menstrual hygiene had good menstrual hygiene practices and the association was found to be statistically significant (p value < 0.001)

SUMMARY AND CONCLUSION

In the present study sanitary pads were used by 94.8% adolescent girls. 73.5% of the study participants had good knowledge about menstrual hygiene and 54% of the study participants had good menstrual hygiene practices. Though most of the study participants had good knowledge, still they had cultural restrictions. Menstrual hygiene practices were good in adolescent girls for those who lived in joint families.

A healthy population can be rendered by improvement of the adolescent girl's health. Adolescent girl's health is an important social goal in all societies. Adolescent health over the years has evolved through various stages.

The findings in the study led to the conclusion that girls had various misconceptions, beliefs and inadequate practices about menstruation and its management. Majority of the participants practised different restrictions during menstruation. Health education should be given to them regarding this. Also positive results in the study showed that who had good knowledge about menstrual hygiene had correct menstrual hygiene practices. Also it is observed in the study that menstrual hygiene practices were good in girls with higher educational status. Health education programme with specific focus on menstrual hygiene practices will bring significant positive changes in menstrual hygiene practices. To reduce the sufferings of adolescent girls, menstrual health related issues should be addressed at younger age at 13, 14, 15 years and this ensures the girls health which is regarded as the index of a healthy society. Educational intervention can bring many changes for less discussed topics like menstruation.

RECOMMENDATIONS

- 1. Effective strategies to be implemented for persuading adolescent girls for adopting healthy menstrual practices considering prevailing socio-cultural and economic factors. By social marketing (making low cost sanitary pads available), better hygienic practices can be adopted.
- 2. In the school curriculum, safe hygiene and sanitary practices should be included and better communication between adolescent girls and their teachers, mother.
- 3. Adolescent girls to be encouraged to attend awareness program regularly conducted at Primary Health Centre and adolescent clinics.
- 4. Adolescents to be considered as a special group in education and health programme
- 5. Further studies involving teacher led education on menstrual hygiene can be done to improve the knowledge of the adolescent girls.
- 6. Health programme to be extended to cover the adolescent girls in college also.
- 7. Inter-sectoral co-ordination of various departments like Education, Health and Family welfare, Social welfare, Human Resource Development, Women and child development should integrate together for the upliftment of adolescent health.

LIMITATION OF THE STUDY:

- 1. In the present study, the teachers are not included and teacher led intervention measures are not studied.
- **2.** In the present study, associated gynaecological problems related to menstruation are not included.
- **3.** Also the present study is limited to one tribal block in Salem district.

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PATIENT INFORMATION SHEET

TOPIC: A cross sectional study on menstrual hygiene practices among adolescent girls in tribal population in Tamilnadu.

I, Dr S Ramya, postgraduate MD Community Medicine, Government Stanley Medical College is going to undertake the study on the above mentioned topic.

The purpose of this study is to find the menstrual hygiene practices among adolescent girls in tribal population. I request your cooperation and help for the study.

If you willing to participate in this study you will be asked some questions regarding your menstruation and the practices followed during the menstrual period. On the whole it will take about 20mins of your time.

Though you may not benefit from the study directly, it is possible that the findings of the study based on your response may be of great help in planning strategies for protecting you and other people in future.

I assure that all the information provided by you will be kept highly confidential and privacy is assured your identity won't be revealed to anyone. The study may be published in scientific journal, but your identity will not be revealed.

Your participation in this study is voluntary and you can withdraw from this study at any point of time.

Signature/left thumb impression of the participant

தகவல் நகல்

TOPIC: A cross sectional study on menstrual hygiene practices among adolescent girls in tribal population in Tamilnadu.

இந்த ஆராச்சியில் உங்களிடம் கேட்கும் கேள்விகளுக்கு உங்கள் முழு மனதுடன் பதில் அளிக்குவேண்டும். இந்த ஆராச்சியில் உங்களுக்கு எந்த பின்விளைவும் ஏற்படாது என்பதை நான் உறுதி அளிக்கிறேன்.

உங்களிடம் கேட்கும் கேள்விகளில் உங்களின் சுயவிபரம், குடும்பவிபரம், மாதவிடாய் கால சுகாதாரா பழக்கவழங்கள் பற்றி சிலகேள்விகள் கேட்கப்படும். உங்களுக்கு பணம் எதுவும் அளிக்கப்படாது என்பதை இதன் மூலம் தெரிவிக்கிறேன்.

இந்த ஆய்வில் உங்களுக்கு நேரடி பயன் எதுவும் இல்லை நீங்கள்அளிக்கும் தகவல் மூலம் புதுயுத்திகள் வகுக்கப்படலாம் அதன் மூலம் வருங்காலத்தில் உங்களுக்கோ அல்லது உங்களை போன்ற மக்களுக்கு பயன்படலாம்

நீங்கள் எப்போது வேண்டுமானாலும் இந்த ஆய்வில் இருந்து விலகி கொள்ளலாம் அதனால் உங்களுக்கு எந்தபாதிப்பும் இல்லை. உங்களின் விபரங்கள் எதுவும் மற்றவர்களுக்கு தெரிவிக்கப்படாது என்பதை உறுதி அளிக்கிறேன்.

இந்த ஆராச்சியின் முடிவுகள்பத்திரிக்ளைில் பிரசுரிக்கப்படாலம் உங்களின் அடையாளம் எதுவும் தெரிவிக்கப்படாது. ஆய்வில் பங்கு எடுக்கும் போது ஏற்படும் சாத்தியமான அபாயங்கள் மற்றும் பயன்களை பற்றி நான் அறிந்துள்ளேன்.

நான் ஆய்வில் பங்கு கொள்ள பணம் எதையும் பெறமுடியாது என்று அறிந்துள்ளேன். நான் இந்த ஆய்வில் பங்கு எடுப்பதல் மூலம் நான் என்ன செய்ய போகிறேன் என்று தெரியும் நான் இந்தஆய்வில் என் முழு ஒத்துழைப்பையும் கொடுப்பேன் என்று உறுதியளிக்கின்றேன்.

ஆய்வில்பங்கேற்பவர் பெயர்

சாட்சி

பெயர் மற்றும் முகவரி

பெயர் மற்றும் முகவரி

கையொப்பம் / விரல்ரேகை

கையொப்பம் / விரல்ரேகை

ஆராய்ச்சியாளராககையொப்பம் மற்றும் தேதி

INFORMED CONSENT

TOPIC: A cross sectional study on menstrual hygiene practices among adolescent girls in tribal population in Tamilnadu.

Name of principal Investigator:	Number:
have been read carefully by me/explained in	detail to me, in a language that I comprehend, that I have had the opportunity to ask questions.
	•
research and sections of any of my medical r	ected about me from my participation in this notes may be looked at by responsible individuals sion for these individuals to have access to my
I agree to take part in the above study	
(Signature /	Left Thumb Impression)
Name of the participant	
Daughter / of	
Complete postal address	
This is to certify that the above consent has	been obtained in my presence
Date:	
Signature of the Principal Investigator	
Place:	
Witness – 1	Witness -2
Signature:	Signature:
Name:	Name:
Address:	Address:

ஒப்புதல் படிவம்

தலைப்பு : பழங்குடி இளம் பெண்களின் மாதவிடாய் கால சுகாதரா பழக்க வழங்கள் குறித்த ஆய்வு

நான் இந்த ஆராய்ச்சியின் முழு விவரம் பற்றி அறிந்துகொண்டேன் இந்த ஆராய்ச்சியில் எந்த பின் விளைவும் இல்லை என்பதை புரிந்துகொண்டேன் இந்த ஆராய்ச்சிக்கு பணமோ பொருளோ கிடையாது என்பதையும் அறிவேன் இந்த ஆராய்ச்சியில் கேட்கப்படும் கேள்விகளுக்கு என்னால் முடிந்த அளவு உண்மை விவரம் அளிப்பேன் என்பதை உறுதியளிக்கிறேன்,

என் முழு மனதுடன் இந்த ஆராய்ச்சிக்கு ஒத்துழைப்பு அளிக்கிறேன்.

கையொப்பம்

QUESTIONNAIRE:

SOCIO DEMOGRAPHIC PROFILE

DATE:

- 1. ID number
- 2. Name
- **3.** Age
- **4.** Address
- **5.** Birth order
- **6.** Marital status 1) Married 2) Unmarried 3) others

S.No	Name of	household	Age	Sex	Education	Occupation	Income
	members		(years)				

7. Type of family 1. Nuclear family 2. Joint family 3. Others

MENSTRUAL PROFILE OF STUDY SUBJECT

- 8. Age at menarche (years):
- 9. Menstrual cycle pattern: 1. Regular 2. Irregular
- 10. According to you Menstrual flow 1.normal 2.scanty 3.excessive
- 11. Menstrual frequency -----

AWARENESS ABOUT MENSTRUATION:

- **12.** Have you heard about menstruation before attaining menarche? 1) Yes 2) No
- 13. What was the source of information before menarche? 1) Mother 2) Sister 3) Friends 4) Teachers 5) Health workers 6) mass media 7) books 8) others
- 14. What is the cause for menstrual bleeding? 1) physiological 2) disease 3) sin 4) do not know 5) others(specify)
- 15. What sanitary material should be ideally used during menstruation? 1. Sanitary pad 2. New cloth 3. Reused cloth 4. Both pad and cloth 5.others (specify)
- 16. How frequently should you change the sanitary pad per day?
- 17. How should the sanitary pads be safely disposed? 1. Burial 2.burn it 3.thrown in routine waste 4.hide 5.flush 6.thrown in open places 7.others

MENSTRUAL PRACTICES AMONG THE SUBJECTS

18. What sanitary material are you using during menstruation currently 1) Sanitary pad 2) new cloth 3) reused cloth 4) Both cloth and pad 5) Others (specify)

IF SANITARY PAD IS USED:

- 19. From where do you procure sanitary pads? 1) Village health nurse 2) Anganwadi worker 3) school teacher 4) NGO 5) Self procurement 6) PHC 7) 2, 5 8) 3, 5 9) ASHA
- 20. How often do you change the sanitary pad per day?
- 21. Are you comfortable changing pad during school hours? 1) Yes 2) No
- 3) Not School Going

If no, why? 1.no toilet facility 2.dirty toilet 3.no dust bin facility in the toilet 4.shyness to change pad at school 5.others(specify)

- 22. How long do you store the used sanitary pad? 1.1day 2.2days 3.3 days 4.>3days
- 23. How do you dispose the sanitary pad? 1) Burial 2) burn it 3) thrown in routine waste 4) hide 5) flush 6) thrown in open places 7) others
- 24. Do you reuse the pad? 1. Yes 2.No

If yes, why?	
--------------	--

IF SANITARY PAD IS NOT USED:

- 25. What is the reason for not using sanitary pads? 1) Lack of awareness 2) unavailable 3) costly 4) inconvenience 5) social-cultural taboos 6) disposal problems 7) Harm to the body 8) Transmits infection 9) Heat
- 26. What do you with your used cloth? 1. Throw 2.wash and throw 3. Wash and reuse
- 27. What is the type of cloth used? 1. Cotton 2.nylon 3.others

CULTURAL RESTRICTIONS DURING MENSTRUATION (YES /N0)

DO YOU HAVE RESTRICTIONS FOR THE FOLLOWING ACTIVITY

CULTURAL	RESTRICTIONS	DURING	YES	NO
MENSTRUATION				
39. Attending religi	ous places			
40. Attending school	ol .			
41. Isolation				
42. Playing				
43. Food				
If yes, what	, reason			
44. Sleeping on rou	tine bed			
45. Household work	ζ			
46. Attending famil	y functions			
47. Touch stored for	od			
48. Touch family m	embers			
49. Eating any spec	ific food			
If yes, what?	, reason			

50. Hand hygiene 1. Yes 2. No

TAMIL QUESTIONNAIRE:

சமூக மக்கள் தொகை விவரம்

- 1. I.D. எண்
- 2. பெயர்
- 3. வயது
- 4. முகவரி
- 5. சமூக மக்கள்தொகை விவரம்

வ.எண்	குடும்ப	வயது	பாலினம்	கல்வித்தகுதி	தொழில்	வருமானம்	உடற்தகுதி
	உறுப்பினர்களின்						
	பெயர்கள்						

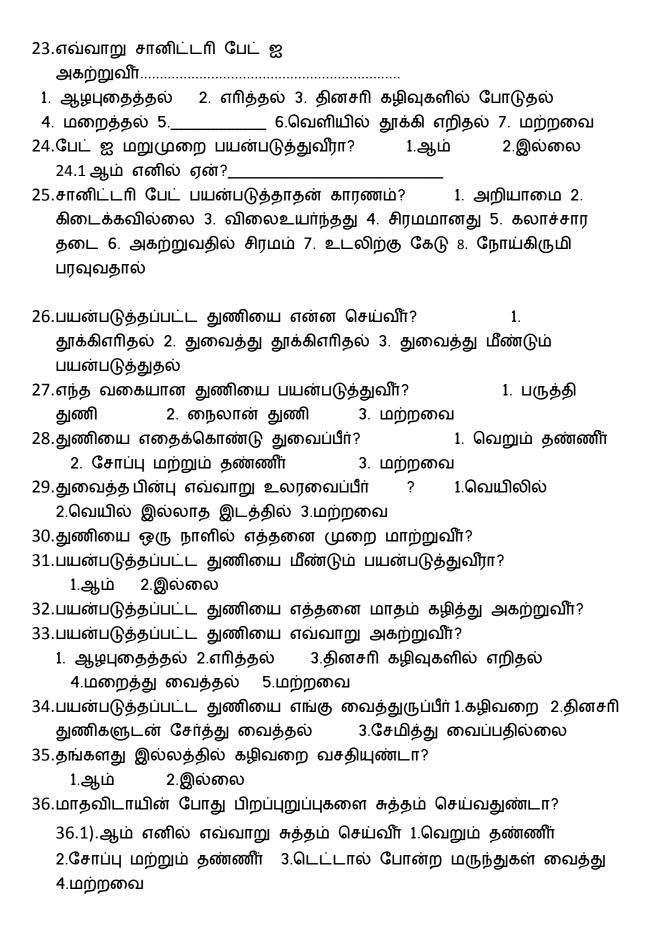
கல்வி மதிப்பெண்

1.தொழில் 2.பட்டதாரி அல்லது முதுநிலை பட்டதாரி 3.இடைநிலை அல்லது உயர்நிலைப் பள்ளிக்கு பிந்தைய டிப்ளமோ 4.உயர்நிலைப்பள்ளி 5.நடுநிலை பள்ளி சான்றிதழ் 6.முதன்மை பள்ளி சான்றிதழ் 7.கல்வி அறிவற்றவர்.

தொழில் சார் மதிப்பெண்

1.தொழில் 2.பகுதிநேர தொழில் 3.எழுத்து சார்ந்த கடை உரிமையாளர்/விவசாயி 4.நுட்பமான தொழில் செய்பவர் 5.இடைநிலை நுட்பம் சார்ந்த தொழில் செய்பவர் 6.நுட்பமற்ற தொழில் செய்பவர் 7.வேலையற்றவர்.

- 6. குடும்ப வகைப்பாடு 1.தனிக்குடும்பம் 2.கூட்டு குடும்பம் 3.நீட்டிக்கப்பட்ட குடும்பம்
- 7. வீட்டின் வகைப்பாடு 1.கச்சா வீடு 2.இடைநிலை பக்கா வீடு 3.பக்கா வீடு
- 8. பூப்பெய்தபோது வயது?
- 9. மாதவிடாய் சுழற்சி? 1.ஒழுங்கானது 2.ஒழுங்கற்றது
- 10.தங்களை பொருத்தவரை மாதவிடாய் 1.சீரானது 2.குறைவு 3.அதிகம்
- 11.மாதவிடாயின் எண்ணிக்கை?
- 12.பூப்பெய்துவதற்கு முன்பு மாதவிடாய் பற்றி அறிந்ததுண்டா?
- 13.யார்மூலம் தெரியவந்தது? 1.தாய் 2.சகோதரி 3.நண்பர்கள் 4.ஆசிரியர் 5.சுகாதாரபணியாளர் 6.ஊடகம் 7.புத்தகம். 8.பாட்டி 9.மற்றவை.
- 14.மாதவிடாயின் காரணம் என்ன? 1.இயற்கையானது 2.நோய் 3.பாவம் 4.தெரியவில்லை 5.மற்றவை
- 15.மாதவிடாயின் போது எதை பயன்படுத்த வேண்டும் ? 1.சானிட்டரி பேட் 2.புதிய துணி 3.பயன்படுத்தப்பட்ட துணி 4.பேட், துணி இரண்டும் 5.மற்றவை
- 16.சானிட்டரி பேட் ஐ ஒரு நாளில் எத்தனை முறை மாற்ற வேண்டும்?
- 17.சானிட்டரி பேட் ஐ எவ்வாறு அகற்ற வேண்டும்? 1. ஆழபுதைத்தல்
 - 2. எரித்தல் 3. தினசரி கழிவுகளில் போடுதல் 4. மறைத்தல்
 - 5.______ 6.வெளியில் தூக்கி எறிதல் 7. மற்றவை
- பாதவிடாய் போது எதை பயன்படுத்துகிறீர்கள்?
 புது துணி 3. பயன்படுத்தப்பட்ட துணி 4. துணி மற்றும் பேட் 5. மற்றவை
- 19.சானிட்டரி பேட் ஐ எங்கிருந்து வாங்குவீர்கள்? 1. கிராம சுகாதார செவிலியர் 2. அங்கன்வாடி பணியாளர் 3.பள்ளி ஆசிரியர் 4. அரசு சாரா நிறுவனங்கள் 5. தாங்களே வாங்குவீர் 6. ஆரம்ப சுகாதார நிலையம். 7.2 மற்றும் 5. 8. 3 மற்றும் 5 9. ASHA
- 20.ஒரு நாளைக்கு எத்தனை முறை சானிட்டரி பேட் ஐ மாற்றுவீர்?
- 21.பள்ளியில் இருக்கும் போது சானிட்டரி பேட் ஐ மாற்ற வசதியாக உள்ளதா?
 - 21.1 இல்லையெனில் ஏன்? 1. கழிப்பறை இல்லை 2. கழிவறை தூய்மையாக இல்லை 3. கழிப்பறையில் குப்பை தொட்டி இல்லை 4. பள்ளியில் மாற்ற கூச்சமாக உள்ளது. 5.மற்றவை
- 22.எவ்வளவு நேரம் சானிட்டரி பேட் ஐ சேகரிப்பீர்?
 - 1. 1 நாள் 2. 2 நாட்கள் 3. 3 நாட்கள் 4. >3 நாட்கள்



- 36.2). தங்களது பிறப்புறுப்புகளை எப்பொழுதெல்லாம் சுத்தம் செய்வீர்கள்? 1.குளிக்கும் பொழுது 2.சிறுநீர் கழித்த பிறகும்/மலம் கழித்த பிறகும் 3.சானிட்டரி பேட் ஐ மாற்றும் போது
- 37.மாதவிடாயின் போது தினமும் குளிப்பீரா? 1. ஆம் 2. இல்லை 37.1.இல்லையெனில் ஏன்?
- 38.மாதவிடாயின் போது உள்ளாடைகளை தினமும் மாற்றுவீரா? 1. ஆம் 2. இல்லை
 - 38.1.இல்லையெனில் ஏன்?

மாதவிடாயின் போது உள்ள கலாச்சார தடைகள்

மாதவிடாயின் போது உள்ள கலாச்சார தடைகள்	ஆம்	இல்லை
39.மதம் சார்ந்த இடங்களுக்கு செல்லுதல்		
40.பள்ளிகளுக்கு செல்லுதல்		
41.தனிமைப்படுத்துதல்		
42.விளையாடுதல்		
43.உணவு		
43.1.ஆம் எனில் காரணம்		
44.தினசரி உறங்கும் கட்டிலில் உறங்குவது		
45.அன்றாட வீட்டு வேலைகள்		
46.குடும்ப நிகழ்ச்சிகளில் பங்கேற்பது.		
47.சேயிக்கப்பட்ட உணவுப்பொருட்களை		
தொடுவதில்		
48.குடும்ப உறுப்பினர்களை தொடுவதில்		
49.ஏதேனும் குறிப்பிட்ட உணவை சாப்பிடுவது		
49.1. ஆம் எனில் காரணம்		

50.கைகளை சுத்தமாக கழுவுதல். 1. ஆம் 2. இல்லை

SOCIO ECONOMIC CLASS BASED ON MODIFIED B.G.PRASAD'S CLASSIFICATION

The study was done in tribal area and modified B.G. Prasad's classification was used for socioeconomic classification, based on the per capita monthly income of the family

The calculation was done as follows: Consumer price index for Tamil Nadu during study period from November 2018 was 1339 (the index number was obtained by multiplying it with the link factor of 4.63

Base price for 1961 was Rs.100

Multiplication factor (MF) for current index=consumer price index ÷ base price index

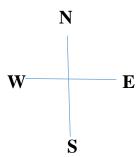
MF=1339/100=13.39

Correction factor (CF) = $MF \times (linking factors for 1961 and 2001)$

CF=13.39×4.93=66.0127

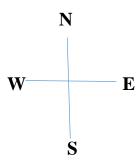
CF=66

CLASS	OLD classification 1961(Rs/m)	Modified B.G Prasad classification
1.	100 & above	6600 & above
2.	50-99	3300-6599
3.	30-49	1980-3299
4.	15-29	990-1979
5.	<15	<990



Salem District





VALAVANTHI BLOCK PHC AND HSC



Marcon 19	NAME	AGE	FDUC	ADDR	BIRTI	MARI	тот	AINCOME	PERCAPITA	SES	MOTHEAMI	MENA	MFN	MEI MEREOUE	HF.	sol c	Δ \ <i>\</i> /	и сна	HOV	PRΔ	PRO	PRAC	СНА	NOV S	тогра	D PAD	ТОІ	ICLEA	lyesho	WHE BAT	חאח	RFLIG	ATTEN	ISOLAL	PLAYIF	-001	YESWI
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9 AMAY 9 A				1	1	2	2 .				2 1	+	1	+ + + + + + + + + + + + + + + + + + + +	1	3 4	1	1 3	2	1	3	3	1		3	2 2	2	1	2	1 1	1	1	2	1	1	1	
10 10		14	4	1	1	. 2	2 .				3 1	_	1		1	3 :	1	1 3	2	1	8	3	1		3	2 2	2	1	. 2	1 1	1	1	2	1	1	1	
13 SAMPAN 15 4 1 1 2 4 1200 3900 3 1 1 1 1 1 1 1 1 1		15	4	1	1	2	2			3	3 1	+	1		1	3 1	1	1 4	2	1	8	4	1		5	2 2	2	1	2	1 1	1	1	2	1	1	2	$\overline{}$
12 MAND 14 4 1 1 3 2 1 1 100 3 966 87 8 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				1	1	2	2			3	1 1		1		1	1 2	1	1 2	2	4	8	2	2	4	3	2 2	2	1	2	1 1	1	1	2	1	1	2	
33 MAND 33 4 4 1 4 2 5 5 13000 2000 3 1 1 1 1 1 1 30ANS 30 3 1 1 1 4 2 1 1 8 4 2 1 8 8 4 1 1 1 2 2 1 1 1 1 1 1 2 2 1 1 1 1 1 2 2 1 1 1 1 1 2 2 1 1 1 1 1 2 3 1 1 1 1				1	3	2	2			2	1 1	+	1		1	1 2	1	1 3	2	1	3	3	1		5	2 2	2	1	1	2 1	1	1	2	1	1	1	1
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15 MANI 1 4 4 1 1 1 2 5 1000				1	2	2	2			3	1 1	+	1		1	1 2	1	1 4	2	1	3	4	1		3	2 2	1	1	2	1 1	1	2	2	2	1	2	
15 MANNS 16 4 1 3 2 5 14000 2200 3 3 3 2 13 2 3 60×50 1 3 1 4 1 2 2 1 1 1 1 3 3 1 1 1 1 1 2 1 1 1 1 3 3 1 1 1 1				1	1	. 2	2			_	2 1	+	1		1	3	1	1 4	2	1	8	4	2	3	5	2 2	2	1	. 2	1 1	1	1	2	1	1	1	<u> </u>
17 MAIA 1 4 4 1 1 1 2 3 12000 4000 4 5 1 13 2 2 1 1 50AY56 1 1 3 2 2 1 1 1 1 1 1 2 2 1 1 1 1 1 2 1 1 2 1 1 1 2 1 1 1 1 1 1 1 2 1 1 1 1 1 1 1 1 2 1				1	3	2	2				3 2	+	2		1	3	1	4 5	2	4	8	5	2	4	1	2 2	1	1	. 3	1 1	1	1	2	1	1	1	$\frac{-}{3}$
18 SUAPS 15 4 1 2 2 4 13000 3220 3 2 1 13 1 2 130AYS 00 3 8 1 1 3 2 2 8 8 2 1 3 2 2 2 2 2 2 2 1 1 1				1	1	. 2	2			4	5 1	+	2	+	1	1	1	1 3	2	1	8	3	2	3	1	2 2	2	1	. 2	1 1	1	1	2	1	1	2	\dashv
19 SWITT: 15			-	1	1	. 2	2			3	2 1	+	1	+	1	8	1	1 4	2	1	8	2	1		1	2 2	2	1	. 2	1 1	1	1	2	1	1	1	1
20 INANUR 14 4 4 1 1 2 2 5 11000 2200 3 3 1 13 1 150AYS 0 1 8 1 1 3 2 1 8 8 1 1 1 2 2 1 1 2 2 1 1				1	2	: 2	2			_	2 1	+	2		1	2 2	1	1 3	2	1	8	3	2	3	3	2 2	2	1	. 2	3 1	1	1	2	1	1	2	一刊
22 KANMA 14				1	1	. 2	2			_	3 1	+	1		1	8 :	1	1 3	2	1	8	3	1		1	2 2	1	. 1	. 2	1 1	1	1	2	1	1	1	1
22 ABMAN 15 4 1 2 2 6 13000 2166.67 3 2 1 12 2 1 10 APA 30 1 1 1 1 1 1 1 1 2 1 1				1	1	. 2	2 .				3 1		1		1	3 :	1	1 4	2	1	8	4	1		1	2 2	. 2	1	. 2	3 1	1	1	2	1	1	1	1
32 ADMAN 14	—	15	4	1	2	: 2	2			_	2 1	+	2		1	1 :	1	1 3	2	1	8	3	1		1	2 2	2	1	. 2	1 1	1	1	2	1	1	2	
24 NEVET 14 4 9 1 2 2 5 5 9000 1800 4 2 7 13 1 1 2 5 50AYS 0 1 8 4 1 3 2 1 18 3 2 1 8 3 2 4 1 2 2 2 1 1 2 1 1 1 1 2 2 1 1 1 1 1				1	3	1 2	2			3	3 1	+ +	1		1	3 :	1	1 3	2	1	8	3	2	3	1	2 2	1	. 1	. 2	1 1	1	1	2	1	2	2	
25 SINYA 15 A 1 2 2 4 1 2000 3000 3 3 2 1 13 1 13 1 1 SISANS 30 1 2 1 8 3 1 5 5 2 2 2 1 1 2 3 1 1 1 1 2 2 1 1 1 1 2 6 1 1 1 2 6 1 1 1 1		14	4	1	2	: 2	2			4	2 1	+	1		1	8 4	1	1 3	2	1	8	3	2	4	1	2 2	. 2	1	. 2	1 1	1	1	2	1	2	2	
26 ROSNN 14 4 1 3 2 5 11000 2200 3 2 1 12 1 1 1 1 1 2 1 1		15	4	1	2	: 2	2 .			3	3 1	. 13	1		1	3 :	1	1 4	2	1	8	3	1		5	2 2	. 2	1	. 2	3 1	1	1	2	1	1	1	1
27 SNEGA 14 4 1 3 2 5 11000 2200 3 2 1 1 33 1 1 1 50AYS 30 1 2 1 1 3 3 2 1 8 3 2 4 5 2 2 1 1 1 1 1 2 2 1 1 1 1 2 2 1 1 1 1		14	4	1	3	2	2	_			2 1	+	1	+	1	3 :	1	1 3	2	1	8	3	2	3	3	2 2	. 2	1	. 2	1 1	1	1	2	1	1	2	-
28 MONAN 15 4 1 2 4 25000 6500 2 2 1 14 1 1 5DAYS 30 1 3 1 1 2 2 1 8 2 1 1 1 2 2 2 1 3 1 1 1 1 1 1 1 1		14	4	1	3	2	2			3	2 1	+	1	+	1	2 :	1	1 3	2	1	8	3	2	4	5	2 2	1	. 1	. 1	2 1	1	1	2	1	1	1	1
29 ATCHA 16 5		15	4		1	. 2	2 .	4 25000	6250	2	2 1	. 14	1	1 5DAYS 30	1	3 2	1	1 2	2	1	8	2	1		5	2 2	. 2	1	. 2	1 1	1	1	2	1	1	2	-
31 MAM					1	. 2	2	_			1 1	+	1		1	3 2	1	4 5	2	4	8	5	1		1	2 2	. 2	1	. 3	1 1	1	1	2	1	1	1	2
31 MAM	30 ARTHY	15	4		2	2	2 .	4 18000	4500	2	2 1	. 13	2	1 5DAYS 40	1	1 4	1	1 2	2	1	3	2	1		5	2 2	. 2	1	. 3	1 1	1	1	2	2	1	2	-
32 DEVI 17 3					1	. 2	2 .				1 1		2		_				2	1	3	2	2	4	3	2 2	1	. 1	. 2	3 1	1	1	2	1	1	2	
33 SUVAT 17 3	32 DEVI				2	2	2 .				2 1		1		_	1 4	1	4 4	2	4	7	4	3		1	2 2	1	. 1	. 1	1 1	1	1	3	1	1	2	
34 KALPAI 18 5		17	3		1	. 2	2				3 1	_	1		_	1 :	1	1 2	2	1	8	2	2	4	1	2 2	1	. 1	. 1	1 1	1	1	2	1	1	2	
36 ANANT 16 5 2 2 4 1700 4250 2 1 1 1 4 1 1 3DAYS 30 1 1 2 1 2 2 1 1 3 2 2 4 3 2 2 1 1 1 2 1 1 1 1 1 2 1 1 2 2 2 2 2		18	5		1	. 2	2	_			3 2		1		_	1 :	1	1 3	2	1	8	3	1		1	2 2	1	. 1	. 2	1 1	1	1	2	2	2	2	
36 ANANT 16 5 2 2 4 1700 4250 2 1 1 1 4 1 1 3DAYS 30 1 1 2 1 2 2 1 1 3 2 2 4 3 2 2 1 1 1 2 1 1 1 1 1 2 1 1 2 2 2 2 2					1	. 2	2				3 1		1		_	3 1	+	_	2	1	3	3	1		4	2 2	2	1	. 2	1 1	1	1	2	1	1	2	
37 MOHA 16 5 1 2 3 1000 3333.33 3 2 1 15 1 1 4DAYS 0 1 3 1 1 3 2 1 3 3 1 1 1 2 2 2 2 2 1 2 1					2	2	2 .				1 1	_	1		_		2	1 2	2	1	3	2	2	4	3	2 2	1	. 1	. 2	1 1	1	1	2	1	1	2	
38 SARAN 18 5 1 2 5 1300 260 3 3 1 1 13 1 15DAYS 30 1 1 1 1 1 3 2 1 1 1 1 1 1 1 1 1 1 1 1 1					1	. 2	2 :				2 1		1		_		1	1 3	2	1	3	3	1		1	2 2	2	1	. 2	1 1	1	1	2	2	2	2	
39 SUMIT 16 5 1 2 6 1100 1833.333 4 1 2 1 3 1 1 5DAYS 30 1 1 1 1 1 3 2 2 2 1 1 2 1 1 1 1 1 2 1 1 1 2 1 1 2 1 1 1 2 1 1 2 1 1 1 1 2 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 1 2 1 1 1 1 1 1 2 1					1	. 2	2			_	3 1		1		_	1 :	1	1 3	2	1	7	3	1		1	2 2	1	. 1	. 1	1 1	1	1	2	1	1	2	
40 ANITH 15 4 1 2 4 9000 2250 3 2 1 14 1 1 3DAYS 30 1 1 1 1 1 2 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 1 2 1					1	. 2	2				1 2	_	1		_	1 1			2	1	3	3	1		1	2 2	2	1	. 2	1 1	1	1	2	1	1	2	
41 ISWAR 17 5 1 2 3 1200 4000 2 2 1 14 2 2 3DAYS 45 1 1 1 1 2 2 1 3 2 2 1 3 2 2 1 1 2 1 1 1 1			4		1	. 2	2 .	_			2 1	. 14	1		_	1 1	1	1 3	2	1	8	3	2	4	3	2 2	1	. 1	. 2	1 1	1	1	2	1	1	2	
43 DEEPA 18 4 3 2 6 1000 1666.667 4 3 2 13 1 1 5DAYS 30 1 3 4 1 4 2 1 2 4 1 1 1 2 2 1 1 1 2 1 1 1 3 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 3 1 2 1 1 2 1 1 3 1 2 1 1 2 1 1 3 1 2 1 1 2 1 1 3 1 2 1 1 3 1 3	41 ISWAR	17	5		1	. 2	2 :				2 1	. 14	2		_	1 1	1	1 2	2	1	3	2	2	4	3	2 2	2	! 1	. 2	1 1	1	1	2	1	2	1	1
44 BOOM 15 4 2 2 4 9000 2250 3 4 1 12 1 1 3DAYS 30 1 3 4 1 3 2 1 3 3 1 3 2 2 1 1 1 2 1 1 1 1 1 2 1 1 1 2 2 1 1 2 2 3 8 DAYS 40 1 1 3 4 1 4 2 1 8 4 1 1 2 2 1 1 1 2 1 1 1 1 1 2 1 1 1 2 2 2 3 8 DAYS 40 1 1 1 4 1 4 2 1 8 4 1 1 2 2 1 1 1 2 1 1 1 1 1 2 1 1 1 1 2 1 1 1 1 2 2 1 1 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 1 2 1 1 1 1 1 1 2 1	42 KAUSA	15	4		1	. 2	2 :	3 10000	3333.333	3	3 1	. 13	1	1 5DAYS 30	1	1 1	1	1 3	2	1	3	3	2	4	5	2 2	1	. 1	. 2	1 1	1	1	2	1	1	2	
44 BOOM 15 4 2 2 4 9000 2250 3 4 1 12 1 1 3DAYS 30 1 3 4 1 3 2 1 3 3 1 3 2 2 1 1 1 2 1 1 1 1 1 2 1 1 1 2 2 1 1 2 2 3 8 DAYS 40 1 3 1 4 2 1 8 4 1 1 2 2 1 1 1 2 2 1 1 1 1 1 1 2 1 2 1					3	2	2			_	3 2	13	1		_	3 4	1	1 4	2	1	2	4	1		1	2 2	1	. 1	. 2	1 1	1	1	3	1	1	2	
45 DURGA 15 4 1 2 4 11000 2750 3 3 1 13 1 14DAYS 30 1 3 1 1 4 2 1 3 4 1 1 1 2 2 1 1 1 1 1 1 2 1 2 2 2 4 1 1 2 2 2 2					2	. 2	2 .				4 1		1		_	3 4			2	1	3	3	1		3	2 2	1	. 1	. 2	1 1	. 1	1	2	1	1	2	
46 SNEKA 13 4 2 2 4 1100 2750 3 3 1 12 2 3 8DAYS 40 1 1 1 4 2 1 8 4 1 1 2 2 1 8 2 1 1 2 2 1 1 1 2 1 1 1 2 1 2					1	. 2	2 .	_			3 1	_	1		_	3 2	1	1 4	2	1	3	4	1		1	2 2	1	. 1	. 2	1 1	1	1	2	1	2	2	
47 VITHYA 13 3 2 7 14000 2000 4 4 2 12 1 1 6DAYS 30 1 8 4 1 4 2 1 1 2 1 1 2 1 1 2 1					2	. 2	2 .				3 1	_	2		_	-	+	_	2	1	8	4	1		1	2 2	1	. 1	. 2	1 1	1	1	2	1	2	2	
48 GOWR 13 3 1 2 6 17000 2833.333 3 2 2 11 2 1 6DAYS 40 1 1 4 1 4 2 1 8 4 1 1 2 2 1 1 1 2 1 1 1 1 2 1 1 1 2 1 1 1 3 4 9 PRIYAD 14 4 2 2 5 15000 3000 3 4 2 13 1 1 3DAYS 30 1 2 1 1 1 5 2 1 8 5 1 1 2 2 1 1 1 2 2 1 1 1 2 1 1 2 2 2 2					3	2	2				4 2		1		_		+		2	1	8	4	1		1	2 2	1	. 1	. 2	1 1	1	1	2	1	2	1	3
49 PRIYAD 14 4 2 2 5 15000 3000 3 4 2 13 1 1 3DAYS 30 1 2 1 1 5 2 1 8 5 1 1 2 2 1 1 1 2 1 1 2 2 2 2 2 2 2 2 2					1	. 2	2				2 2		2		_		1	1 4	2	1	8	4	1		1	2 2	1	. 1	. 2	1 1	1	1	2	1	1	1	3
50 TAMILS 14 4 1 2 5 8000 1600 4 2 1 13 2 1 5DAYS 40 1 1 1 5 2 1 8 3 1 1 2 2 1 1 2 1 1 1 1 2 2 1 2 1 1 2 2 1 3 2 1 2				1	2	2	2				4 2		1		_		-	_	2	1	_	5	1			2 2	1	. 1	. 1	2 1	1	2	2	2	2	2	
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	51 PARAM				1	. 2	2				3 1	. 13	1	1 4DAYS30	_		-		2	1	8	3	1			_	2	1	. 2	1 1	1	1	2	1	1	2	$\overline{}$

	NAM	E AGE	EDUCADDR	DIDTL	MARITOTA	INCOME	PERCAPITA SES MOTH	EVVIII	MENIA	MENIS	MELC	MEDEOLIE	HEYS	مار	٨١٨٨	СПУ	ном	DD A DD	DBACL	INNO	ds TO	DADDAD	dTOULCLE	VECH	Ч₩Н	E B V	TIND	RELIGI AT	TENLIS	OLA P		F00[Y	/ES\\/\
52	TAM	_	4	2	2 2	11000		1	13	1		5DAYS 30	1	1 1	1 1	Δ1 Δ	2	1 0	2 4	1	V 310	2 2	2	1	2 .	1 1	1 0 1 1	1	2	2	2	2	LSVVI
	VANI		2	1	2 3		3000.007 3 2	1	12	1		6DAYS 30	1	1 1	1 1	5		1 8	2 2	1	1	2 2	2	1	2 -	1 1	1 1	1	2	1	2		
	VIJAY	_		1	2 4	12000 13000	2600 3 1	1 2	12	-	1	6DAYS 30	1	1 1	1 1	5		1 0))	1	1	2 2	2	1	2 -	1 1	1 1	1	2	1	- 4	-	
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_	BRIN		4	1	2 6	13000		2	10	1	1	3DAYS 30		1 1	1 1	3	2	1 8		1	1		2	-		1 1		1	2	1	1		
	SHOE		4	3	2 5	15000	3000 3 1	1	13	1	1	4DAYS 30	1	1 1		5	2	1 8	3 3	1	4	2 2		1	2 1	1 1		1	2	1	2		
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79	KAYA	TI 15	4	2	2 7	16000	2285.714 3 1	2	12	1	1	3DAYS 30	1	1 1	1 1	2	2	1 8	3 2	2 2	2 1	2 2	2 1	1	2 1	1 1	l 1	1	2	1	1	1	1
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116	RAGAV	14	4	4	2	5 10000	2000 4	2	1 1	3 1	1	4DAYS 30 1	1	1	1 4	1 2	2 1	8	4	1	1	2 2	2 2 1	L	2	1 :	1 1	1	2	2	2	2	
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119	CHITHE	17	5	1	2	5 11000	2200 3	2	1 1	5 1	1	6DAYS 30 1	1	1	1 4	2	2 1	8	4	1	1	2 2	2 2	1	1 7	2 -	1 1	1	2	2	1	2	
120	VENNIL	17	5	4	2	4 13000	3250 3	2	1 1	3 1	1	5DAYS 30 1	1	1	1 4	1 2	2 1	3	4	1	1	2 2	1 1	1	2	1 :	1 1	1	2	1	1	2	
121	RAJASH	13	3	2	2	5 18000	3600 2	2	2 1	1 1	1	5DAYS 30 1	1	1	1 3	3 2	2 1	8	3	1	1	2 2	1 1	1	2	1 :	1 1	2	2	2	2	2	
122	JAYAPF	13	3	2	2	10000	1666.667 4	2	2 1	2 2	2	3DAYS 45 1	3	1	1 2	2 2	2 1	8	2	1	3	2 2	2 2	1	1 :	2	1 1	1	2	2	2	2	
123	BUELA	14	4	2	2	5 15000	3000 3	5	2 1	2 1	1	5DAYS 30 1	1	1	1 3	3 2	2 1	8	3	1	1	2 2	1 1	1	2	1 :	1 1	2	2	2	2	2	
124	SANDH	13	3	1	2	5 15000	3000 3	5	2 1	1 1	1	4DAYS 30 1	1	1	1 4	1 2	2 1	8	4	1	1	2 2	2 1 3	1	2	1 :	1 1	1	2	1	2	2	
125	VIJAYA	13	3	5	2	4 12000	3000 3	1	1 1	2 1	1	5DAYS 30 1	1	4	1 3	3	3 1	3	3	1	1	3 2	2 2	1	2	1 :	1 1	1	2	1	2	1	1
126	SOWDI	14	4	3	2	5 15000	3000 3	4	1 1	2 2	3	6DAYS 40 1	2	1	1 5	5 2	2 1	8	5	1	1	2 2	2 1 2	1	2 :	1 :	1 1	1	2	2	1	2	
127	BANUP	16	5	2	2	5 11000	2200 3	2	1 1	4 1	3	7DAYS 30 1	3	4	1 4	1 2	2 1	8	4	2 2	1	2 2	2 1 2	1	1 :	2 :	1 1	1	2	2	2	2	
128	NISHA	14	4	2	2	6 16000	2666.667 3	3	2 1	2 1	2	4DAYS 30 1	8	1	1 3	3 2	2 1	8	3	1	1	2 2	1 1	1	2 :	1 :	1 1	1	2	2	1	2	
129	GOWTI	13	3	1	2	13000	2166.667 3	3	2 1	1 2	1	5DAYS 45 1	1	4	1 4	1 2	2 1	8	4	1	1	2 2	2 2	1	2 :	1 :	1 1	1	2	1	1	1	1
130	MOUN	14	3	2	2	5 25000	4166.667 2	5	2 1	3 1	1	5DAYS 30 1	1	1	1 4	1 2	2 1	8	4	1	5	2 2	1 1	1	2 :	1 :	1 1	1	2	1	2	1	1
131	RUBINI	17	5	2	2	3 10000	3333.333 3	2	1 1	5 1	3	5DAYS 30 1	1	1	1 3	3 2	2 1	8	3 :	1	1	2 2	2 2	1	2	1 :	1 1	1	2	1	1	1	1
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	GAYAT			3	2	5 12000		4	1 1		1	5DAYS 30 1	1	1	1 3	_	+ +	8	3	<u> </u>	1	2 2			2	1 .	1 1	1	2			2	
155	HEMAF	14	4	<u> </u>	2	5 12000	2400 3	3	2 1	3 2	1	4DAYS 40 1	1	1	1 2	2 2	2 1	5	2	1	4	2 2	: 1 £	L	2	1 (1 1	1	2	1	1	1	1

	NAME	AGE	EDUC ADDR	DIDTL	MARITOTA	INCOME	PERCAPITA SES M	OTULE	^ ^ / I I ^	15/1/	NAENIG	NAELC	MFREQUE	петс	010	١٨/١	ЛСП У	ПΩ	DDADE		VICH V	NOV	STO		dTOULCE		בנחק	W/UE	р∧т	HND	DELICI AZ	TENIIG	SOLA	DI AVI	FOOI	VECIVI
156	RAJESV	15	A L	םועור	2 5	15000	3000 3	2	1	12	2		3DAYS 45	1	1	A VVI	1 CHA	2	V PKA PF	QPRA	1	VINOV	1	2 2	1 1014	1	1 1	2 2	1 1	1	1	2	30LAT	2 LA 1111	2	LESVVI
	PAVITH	15	4	1	2 3	12000	3000 3	2	2	14	2		6DAYS 40	1	1	1 1	3	2	1 1	5 2	2 1		1	2 2	1	1	2	1	1	1	1	2	2	2	2	\longrightarrow
	KOKILA	15	4	2	2 4	10000	2500 3	2	1	13	2		6DAYS 45	1	3	1 /	1 <u>3</u>	2	1 1	9 /	1 1	1	1	2 2	1	1	1	2	1	1	1	2	1	1	2	\longrightarrow
	PARIM.	14	1	1	2 4	9000	3000 3	2	1	13	2		5DAYS 40	1	1	1 1	4	3	1 1	3 /	1 1		1	3 2) 2	1	2	1	1	1	1	2	1	-	2	\longrightarrow
	RANJAI	15	4	2	2 5	12000	2000 4	2	2	13	2		4DAYS 45	1	1	1 1	4	2) 1	3 /	1 1		1	2 2) 2	1	2	1	1	1	1	2	-	-	2	\longrightarrow
	ABINA	15	1	2	2 1	10000	2500 3	2	1	14	1		7DAYS 30	1	1	1 1	4	2) 1	8 /	1 1		1	2 2) 1	1	2	1	1	1	1	2	2	1	1	1
	MALAT	18	5	1	2 1	11000	2750 3	3	1	15	1		3DAYS 30	1	1	1 1	3	2	1	8 2	1		3	2 2) 2	1	1	2	1	1	1	2	2	2	2	
	KRISHN	14	1	1	2 6	18000	3000 3	2	2	13	2		3DAYS 45	1	1	1 1	4	2		8 2	2 2	1	1	2 2) 1	1	2	1	1	1	1	2	1	1	2	
	VANITH	15	1		2 1	10000	2500 3	1	1	12	2		4DAYS 40	1		1 1	4	2		8 4	1 1	+-	1	2 2) 2	1	1	2	1	1	1	2	2	2	2	
	KASTHI	15	4	1	2 4	10000	2500 3	2	1	14	1		4DAYS 30	1	1	1 1	3	2) 1	5 3	1		1	2 2) 2	1	2	1	1	1	1	2	2	$\frac{2}{2}$	2	
	SRIDEV	15	4	3	2 4	12000	3000 3	3	1	13	1		5DAYS 30	1	1	1 1	4	2	1 1	3 /	1 1		1	2 2) 1	1	2	3	1	1	1	2	1		2	
	PRIYAD	16	5	2	2 4	10000	2000 4	2	1	12	1		3DAYS 30	1		4 1	3	2	1 1	5 2	1 1		3	2 2	2 2	1	2	1	1	1	1	2	2	2	2	
	AKILA	15	J	2	2 3	14000	2333.333 3	2	1	13	1		5DAYS 30	1	2	1 1	3	2	1 1	0 2) 1	1	1	2 2	2 2	1	2	1	1	1	1	2	2	2	2	
	-	14	4	1	2 0	13000	2600 3	2	1	13	1		3DAYS 30	1	1	1 1	3	2		8 3) 1	1	3	2 2	2 2	1	2	1	1	1	1	2	1	2	2	
	GOMA'		4 /	J	2 5	10000	2000 4	2	1	_	1		5DAYS 30	1	1	1 1	3	2	+ +	8 3	2 1	+	1	2 2	2 2	1	2	1	1	1	1	2	1	2	-	
	SHARM BHAVA	14 14	4 /	1	2 5	10000	2000 4	3	1	13	1		7DAYS 30	1		1 1	3 	 		0 5	1	1	1	2 2	2 2	1	۷	1	1	1	1	2	1	-	- 4	
	SUMITI	14	4 /	7	2 5	13000	2600 3	<u>ک</u> ۸	1	13 13	1 1		3DAYS 30	1	1	4 1	3	 	1 1	0 7) 1		3	2 2	1 1	1	۷	1	1	1	1	2	1	-	- 4	
	-		4	2	2 3			- 4	1		1	1		1		4 1		2	1 1	0 3) 1		3	2 4	1 1	1	2	1	1	1		2	2	-	$\frac{2}{3}$	
	SANGE	15 14	4	3	2 4	11000	2750 3	2	1	13	2		4DAYS 30	1	1	4 1	3	-	1 1	8 2) <u>1</u>	+	1	2 2	2 2	1	2	T	1	1	1	2	1	<u></u>		
	ALAME		4	2	2 6	10000	1666.667 4		1	12	1		7DAYS 40	1		4 1		2	 	_	+ 1		1	2 2	1 1	1		3	1	1	1	2		2	$\frac{2}{3}$	
	KANAG	14	4	2	2 5	12000	2400 3	4	1	12			3DAYS 30	1	3	1 1	3	4	+	8 3	3 I		3	2 2	1 1	1	2	1	1	1	1	2	2	$\frac{2}{3}$		
	PARAM	14	4		2 4	10000	2500 3	1	1	13	1		5DAYS 30	1	1	1 1	4	4	1	8 4	1 1	+	1	2 4	2 2	1		1	1	1	1	- 2		$\frac{2}{3}$		
	SOWNI	14	4	1	2 6	14000	2333.333 3	3	2	13	1		4DAYS 30	1	1	1 1	4	4	+ +	8 4	1 1	-	1	2 4	2 2	1	2	1	1	1	1	2	2	$\frac{2}{3}$	$\frac{2}{3}$	
	SINDUJ	13	3	3	2 6	15000	2500 3	3	2	11	1		5DAYS 30	1	 -	4 1	4	2	2 1	8 2	4 1		1	2 4	2 2	1		1	1	1	1	2	1	2		
	GOKUL	19	6		2 3	12000	4000 2	5	1	15	1		4DAYS 30	1	1	1 1	3	3	1 -	5 3	3 1		1	3 2	2 1	1	2	1	1	1	1	2	2	2		
	RADHA	15	4	1	2 3	9000	3000 3	2	1	13	1		3DAYS 30	1	1	1 1	2	2		8 2	2 1		1	2 2	2 1	1	2	1	1	1	1	2	1	$\frac{1}{1}$	2	
	PUNITH	14	4	1	2 4	10000	2500 3	2	1	12	1		7DAYS 30	1		4 1	4	2	2 1	8 2	4 1		1	2 2	2 1	1	3	1	1	1	1	2	1	$\frac{1}{1}$	2	
	DEVAS	13	3	2	2 3	9000	3000 3	3	1	10	1		3DAYS 30	1	1	1 1	3	2	2 1	8 3	3 1		3	2 2	2 1	1	2	1	1	1	1	2	1	$\frac{1}{2}$		
	SOWM	14	3	1	2 4	10000	2500 3	2	1	13	1		3DAYS 30	1	1	1 1	4	2	2 1	8 4	1 1		3	2 2	2 2	1	2	1	1	1	1	2	1	2	1	1
	DINESH	14	4	3	2 6	15000	2500 3	2	2	13	1		3DAYS 30	1	1	1 1	3	2	2 1	8 3	3 1		1	2 2	2 2	1	2	1	1	1	1	2	1	$\frac{1}{2}$	2	
	KOWSA			1	2 5			2	1	13	1		6DAYS 30	1	3		5	_	+ + +	8 3	3 1		1	2 2	2 1	1	2	1	1	1	1	2	1	2	2	
	LOKESV	14		2	2 5	11000		2	1	12	1		5DAYS 30	1	_	1 1		_	+ + +	8 4	1 1		1	2 2	2 2	1	2	1	1	1	1	2	2	2	2	
	RAJALA	13		1	2 4	10000	2500 3	2	1	12	1		5DAYS 30	1	_	1 1	3			8 3	_		1	2 2	2 1	1	2	1	1	1	1	2	1	2	2	
	KALIYA	14		2	2 4	12000	3000 3	2	1	12	1		4DAYS 30	1		1 1	4			8 4	1 1		1	2 2	2 2	1	2	1	1	1	1	2	1	$\frac{1}{2}$	1	3
	HAMSA	13		3	2 5	20000	4000 2	3	1	12	1		5DAYS 30	1		4 1	3			8 3	3 1		1	2 2	2 1	1	2	1	1	1	1	2	2	2	1	1
	MANG	14		1	2 5	10000	2000 4	2	2	13	1		5DAYS 30	1	1	1 1	. 3	_	+-+	8 3	3 1		1	2 2	2 1	1	2	1	1	1	1	2	2	$\frac{1}{}$	1	1
	MUTHU	15		1	2 5	10000	2000 4	1	1	13	1		5DAYS 30	1		4 1	4	2	_	8 4	1 2	2	1	2 2	2 1	1	2	1	1	1	1	2	1	1	2	
	YUVAR	13		2	2 5	12000	2400 3	4	2	12	1		5DAYS 30	1		3 1	4	2	+	8 4	1 -	\downarrow	1	2 2	2 1	1	2	1	1	1	1	2	1	2	2	
	RAMAI	17		1	2 4	10000	2500 3	2	2	13	1		4DAYS 30	1	-+	1 1		-	1 1	8 3	3 1	+	1	2 2	2 1	1	1	2	1	1	1	2	2	2	1	1
	DEEPA	16		3	2 4	10000	2500 3	2	1	12	1		4DAYS 30	1	1	1 1	4	2	1 1	8 4	1 1	<u> </u>	1	2 2	2 1	1	2	1	1	1	1	2	1	1	1	1
	DIVYA	14		2	2 4	12000	3000 3	2	1	13	1		7DAYS 30	1	_	1 1	5	_		8 5	5 1		1	2 2	2 1	1	2	3	1	1	1	2	1	1	2	
	HEMAL	14		1	2 6	15000	2500 3	2	2	13	1		5DAYS 30	1		1 1	4	2		8 4	1 1		1	2 2	2 1	1	2	1	1	1	1	2	1	2	2	
	GOWR	14		2	2 4	12000	3000 3	2	1	12	1		7DAYS 60	1	_	3 1	4	2		8 4	1 1		1	2 2	2 2	1	2	1	1	1	1	2	1	1	2	
	SARAS	15		2	2 5	13000		3	1	12	1		4DAYS 30	1	-+	1 1	\	2		8 4	1 1	1	4	2 2		1	2	1	1	1	1	2	1	1	2	
	SOBAN	16		1	2 4	10000		2	1	14	1		3DAYS 30	1	1	1 1	2	2		8 2	2 1	igspace	3	2 2	2 2	1	2	1	1	1	1	2	2	2	1	1
	REKA	15		3	2 6	20000		2	2	12	1		4DAYS 30	1		1 1	<u> </u>		+	8 4	1 1	igspace	4	2 2	2 1	1	2	1	1	1	1	2	1	2	2	
	MADHI	14		2	2 4	18000		5	1	11	2		6DAYS 60	1		1 4	4	2		8 4	1 1		1	2 2	2 1	1	3	3	1	1	1	2	1	2	2	
	ISWAR'	14		2	2 6	18000	3000 3	5	1	13	1		5DAYS 30	1	1	1 1	3	2		8 3	3 1		1	2 2	2 1	1	2	1	1	1	1	2	2	2	2	
	JAYALA	16		1	2 4	15000	3750 2	4	1	14	1		4DAYS 30	1	1	1 1	4	2	2 1	8 4	1 1	$oxed{oxed}$	1	2 2	2 1	1	3	3	1	1	1	2	1	1	2	
	ESWAR	15		1	2 3	9000	3000 3	1	1	12	1		4DAYS 30	1	1	1 1	4	2	2 1	8 4	1 1	.[]	1	2 2	2 1	1	2	1	1	1	1	2	2	1	2	
205	VIVEKA	14		2	2 5	25000	5000 2	4	1	12	1	1	3DAYS 30	1	2	1 1	3	2	2 1	8 3	3 1		1	2 2	2 1	1	2	1	1	1	1	2	2	2	2	
	AKSHIT	15		1	2 5	12000	2400 3	2	2	13	1		4DAYS 30	1	1	1 1	3	2	2 1	8 3	3 1		1	2 2	2 1	1	2	1	1	1	1	2	2	2	2	
207	BHUVA	14	4	3	2 5	10000	2000 4	2	1	11	1	1	4DAYS 30	1	1	1 1	3	2	2 1	8 3	3 1		4	2 2	2 1	1	2	1	1	1	1	2	1	2	2	

	NAME	AGE	EDUC ADDR	DIDTL	INANDITITOTA	INCOME	PERCAPITA SES MO	тПЕУГ	111 NAE1	14/14	NIG VAEI	MEDEOLIE	петс		· A \ \ A / I	ПСПУ	пО		O DD VICI	14/1/0/	ds TO	DADDAD	dTOULCLE	N VECH	ЧМП	ВΛΤ	TIND	DELICI AT	TENI ISO)LA PL	AVIEO	OLYESWI
200	SARAN	14	4	1	2 4	10000	2500 3	2	_	.2	1	1 4DAYS 30	1	3	A VVI	I CHA	2	1 1	O A	1	V 31 U	2 2		1 150	2 1	1 DA1	1	1	2	2	2	OLITESVVI
		14	4	7	2 4	25000	4166.667 2	2		_	1	1 5DAYS 30	1	2	1 1	1 4	3	1 1	8 4	1	1	3 2	1 2	1 .	2 1	1	1	2	2	2	2	2
	MONIK MANO	15	4	3	2 0	12000	4000 2	3	1 1	_	1 .	1 3DAYS 30	1	2	1 1	4	2	1 1	5 4	1	3	3 4		1 4	2 1	. 1	1	1	2	1	4	2
		15	4	2	2 3	12000	2000 4	2		_	1	1 5DAYS 30	1		1 1	L 4	2	1	0 2	1	1	2 2	1 1	1 .	1 2	1	1	1	2	1	1	2
	DHANU		4	3	2 0	!		2	1 1	_	1 .	+	1	2	1 1	4	2	1 1	8 3	1	1	2 2		1 .	1 2	1 1	1	1	2	1	2	2
-	SUVETI	17	5	3	2 5	11000	2200 3	2	1 1	_	1 .	1 3DAYS 30	1		1 1	<u> </u>	2	1 1 9	8 4	1	1	2 2		1 .	1 2	1 1	1	1	2	1	2	2
	MONIS	14	4	2	2 8	12000	1500 4	3	2 1		1	1 4DAYS 30	1	2	1 1	1 3	<u> </u>	1 (8 3	1	1	2 2		1 .			. I	1	2	1	4	2
	PRIYAD	13	3		2 5	10000	2000 4	3	1 1	_	1 .	1 5DAYS 30	1		1 1	1 3	2	1 1 3	8 3	1	1	2 4		1 4	2 <u>1</u>	1 1	. 1	1	2	1	7	1 1
	SANGE	17	3	1	2 5	13000	2600 3	2	2 1	_		1 4DAYS 30	1	3	1 1		2	1 ,	3 4	1	1	2 2	1	1 .	1 2	1	1	1	2	1	2	2
	MEGAL	14	4	3	2 5	16000	3200 3	2	1 1	_	1 :	1 3DAYS 30	1		1 1	1 3	<u> </u>	1 6	8 3	1	1	2 4		1 4	2 1	. 1	<u> </u>	1			1	2
-	THAMA	15	4	3	2 4	15000	3750 2	2	1 1	_	1	1 5DAYS 30	1	2	1 1	1 3	2	1 :	3 3	1	1	2 4	2 2	1 4	2 1	. 1	1	1	2	1	1	2
	MAHES	14	3	4	2 6	10000	1666.667 4	1	1 1	_	1 :	1 4DAYS 30	1		4 1	L 3	2	1 :	3 3	1	1	2 4	2 2	1 4	2 1	. 1	1	1		1	1	2
	MONIS	15	4	1	2 /	13000	1857.143 4	2	2 1	_		1 5DAYS 30	1	1	1 1	L 4	2	1 8	8 4	1	1	2 2	2 2	1 2	4 -	. 1	1	1	2		2	2
	SRILAT	14	3	3	2 6	10000	1666.667 4	2	1 1		-	2 3DAYS 60	1	-	4 1	1 3	2	1 3	3 3	1	1	2 2	2 2	1 2		. 1	1	1	2	1	1	2
	AMBIG	13	3	1	2 4	8000	2000 4	2	1 1	_	1 :	1 3DAYS 30	1	1	1 1	1 3	2		8 3	1	1	2 2	2 2	4		. 1	. 1	1		1	1	4
	MONIS	16	5	3	2 5	14000	2800 3	4	1 1		1 :	1 3DAYS 30	1	2	1 1	L 4	2	1 8	8 4	2 2	3	2 2	2 2	1 7	<u> </u>	1	1	1	2	1	1	2
	SUMET	13	3	2	2 6	10000	1666.667 4	5	2 1	_	2 :	3 7DAYS 60	1		4 4	1 4	<u> </u>	4 8	8 4	1	1	2 2	1 1	1 2	4 1	1	1	1	2	1	1	1 1
	TAMILS	14	4	2	2 5	11000	2200 3	2		.2	1 :	1 6DAYS 30	1	2	1 1	4	2	1 1	8 4	1	1	2 2	1 1	1 2	<u> </u>	1	1	1	2	2	2	2
	PONM	14	3	1	2 4	8000	2000 4	3	1 1		2 :	1 5DAYS 40	1	1	1 1	L 3	2	1 8	8 3	1	1	2 2	2 2	1 2	2 1	1	1	1	2	1	2	2
	MENAK	13	3	1	2 5	10000	2000 4	2		.2	1 :	1 3DAYS 30	1	1	1 1	1 3	2		8 3	1	3	2 2	2 2	1 2		1	1	1	2	1	2	2
-	DEEPA	15	4	2	2 6	14000	2333.333 3	1	2 1		1 :	1 3DAYS 30	1	1	1 1	L 4	2	1 '	8 4	1	1	2 2	2 1	1 2	2 1	. 1	1	1	2	2	1	2
	PRIYA	13	3	2	2 4	12000	3000 3	2		.2	1	1 5DAYS 30	1	3	1 1	L 3	2	1 8	8 3	1	1	2 2	2 1	1 2	2 1	. 1	. 1	1	2	1	2	2
	VANITH	14	4	2	2 5	17000	3400 3	2		.3	1 :	1 5DAYS 30	1	1	1 1	L 4	2	1 1	8 4	1	1	2 2		1 2	2 1	. 1	1	1	2	2	2	2
	RASIGA	13	3	2	2 6	15000	2500 3	3	2 1	_	1 :	1 5DAYS 30	1	1	1 1	L 3	2	1 1	8 3	1	1	2 2		1 2		. 1	1	1	2	2	2	2
	KAVITH	15	4	1	2 5	10000	2000 4	3	2 1	_	1	1 6DAYS 30	1	1	1 1	L 3	2		8 3	1	1	2 2		1 3	_	3 1	. 1	1	2	1	1	1 3
	VINITH	19	6	1	1 3	15000	5000 2	2	2 1	_	1 :	1 5DAYS 30	1	3	1 1	L 4	2	1 !	5 4	1	1	2 2	2 1	1 2		. 1	. 1	1	2	2	2	2
	RAJASF	13	3	2	2 5	13000	2600 3	3	2 1	_	1 :	1 3DAYS 30	1		4 1	L 4	2	1 1	8 4	1	3	2 2		1 2	2 3	3 1	1	1	2	2	2	1 1
	VINITH	14	4	1	2 5	12000	2400 3	2	1 1	_	1 :	1 6DAYS 30	1	1	1 1	L 4	2	1 8	8 4	1	1	2 2		1 3	3 3	3 1	. 1	1	2	2	2	2
	JAKULI	16	3	4	2 6	12000	2000 4	2	1 1	_	1 :	1 5DAYS 30	1		4 1	L 3	2	1 !	5 3	3	1	2 2	2 2	1 :	1 2	2 1	. 1	1	3	1	1	2
	SWATH	13	3	1	2 5	13000	2600 3	5	1 1		1	1 6DAYS 30	1	1	1 1	L 4	2	1 1	8 4	1	1	2 2	2 1	1 2	2 3	1	. 1	1	2	1	1	2
	SAMBO			1	2 5			3		.2		2 3DAYS 45	1	1		1 3	_		8 3	1	3	2 2	2 2	1 7	2 1	. 1	. 1	1	2	1	2	2
	NIVETH			2	2 4	12000	3000 3	2		.2		1 5DAYS 30	1	-	1 1	_	-		8 3	1	1	2 2	2 1	1 :	1 2	2 1	. 1	1	2	1	2	2
	SUBIKS			1	2 4	10000	2500 3	4		.3	1	1 6DAYS 30	1	_	1 1	L 4		_	8 4	1	1	2 2	2 1	1 2	2 1	. 1	. 1	2	2	2	2	2
	ANJEL	13		3	2 6	15000	2500 3	2	1 1	_	1 :	1 3DAYS 30	1		4 1	L 4			8 4	1	3	2 2	2 2	1 :	1 1	. 1	. 1	1	2	1	2	1 1
	MANG			2	2 3	11000		2		.2	1 :	1 3DAYS 30	1		1 1	L 2		+	3 2	1	1	2 2		1 2	2 1	. 1	1	1	2	1	1	2
	SHALIN			2	2 5	15000	3000 3	3	_	.2	1	1 4DAYS 30	1	1	1 1	1 3	-		8 3	2 4	1	2 2	2 2	1 :	1 2	2 1	. 1	1	2	1	1	1 1
	SUDHA			2		8000	2000 4	2	1 1	_	1 :	1 5DAYS 30	1	2	1 1	L 4	2		8 4	1	1	2 2		1 :	1 2	2 1	1	1	2	1	1	2
	LOKES			2	2 3	9000	3000 3	2		.3	1 :	1 3DAYS 30	1		1 1	L 4		_	8 4	1	3	2 2		1 3	-	1	1	1	2	1	2	2
	BHUVA			1	2 7	14000	2000 4	2	_	.3	1 :	1 5DAYS 30	1	-+	1 1				5 3	2 4	1	2 2	2 1 2	1 2	+	. 1	1	1	2	2	2	2
	DEEPIK			2	2 8	25000	3125 3	5		.2	1 :	1 5DAYS 30	1	1	1 1	L 4	2	1 -	8 4	1	1	2 2	2 1	1 2		. 1	1	1	2	1	2	2
	AMUDI			2	2 6	14000		3	2 1		1	1 6DAYS 30	1	_	1 1	L 4	2		8 4	1	1	2 2	2 2	1 2	_	. 1	1	1	2	2	2	2
	MARYL			1	2 4	30000	7500 1	5		.3	1	1 6DAYS 30	1	1	1 1	L 4	2		8 4	1	1	2 2	2 1	1 3		1	. 1	1	2	1	2	2
	SRIHAR			2		20000	5000 2	3		.3	1	1 6DAYS 30	1	1	1 1	L 5	2		8 5	1	1	2 2	2 1	1 2	_	. 1	1	1	2	1	2	2
-	JANAKI			2	2 4	12000	3000 3	3		.3	1	1 5DAYS 30	1	_	1 1	1	-		5 4	1	1	2 2	2 1	-	2 1	. 1	. 1	1	2	1	2	2
	THENM			1	2 4	8000	2000 4	2	1 1		1	1 5DAYS 30	1		1 1	L 4	2		8 4	1	1	2 2	2 2	1 3		1	. 1	1	2	2	1	2
	POOJA			2	2 4	15000	3750 2	3		.3	2	1 3DAYS 20	1	_	1 4	1 3			8 3	1	1	2 2	2 1	1 3	+	. 1	1	1	2	1	2	2
	DEEPA			2	2 4	10000	2500 3	1		.3	1	1 5DAYS 30	1	_	1 1	L 3	2		5 3	1	1	2 2	2 1	1 2		. 1	. 1	1	2	2	2	1 1
	PRIYAD			1	2 6	12000	2000 4	4		.2	1 :	1 3DAYS 30	1		4 1	L 3	2		8 3	1	3	2 2	2 2	1 7		. 1	. 1	1	2	1	1	2
	DEEPIK			2	2 3		2666.667 3	2	_	.2	2	1 5DAYS 40	1	-	1 1	L 4	2	1 8	8 4	1	1	2 2	2 1 :	1 3	3 3	1	. 1	1	2	2	2	2
-	PRIYAN			2	2 5	12000	2400 3	3	1 1		1 :	1 6DAYS 30	1		1 1	L 4	2		8 4	1	1	2 2	2 2	1 :	1 2	2 1	. 1	1	2	2	2	2
	SANGE			1	2 4	10000	2500 3	3	1 1	.2	1	1 4DAYS 30	1	1	1 1	L 4	2	1 1	8 4	1	1	2 2	1 1	1 :	1 2	2 1	. 1	1	2	1	2	2
	INDIRA			3	2 6	18000	3000 3	4		.2	1	1 7DAYS 30	1	_	1 1	L 4	2	1 !	5 4	1	1	2 2	1 1	1 3	3 3	1	1	1	2	2	2	2
259	ARTHIC	15	4	4	2 4	12000	3000 3	2	2 1	.1	1	1 3DAYS 30	1	3	1 1	L 4	2	1 1 8	8 4	1	3	2 2	2 1	1 :	1 2	2 1	. 1	1	2	1	1	2

	NAME	AGE	EDITO VDDB	DIDTL	MARITTOTA	INCOME	PERCAPITA SES (MO)	ПЕУУ	I MENI	NAENIG	MELC	MFREQUEI	JE J S /	مارد	\\\\\	СПУ	ЦΩ		DBACI	14/1/0/	ds TO	DADDAD	dTOULCLE	VECL	ЧМП	Ε D Λ -	Нимп	DELICI AT	TENLIC	OLA F		FOOLY	/EC\\/\
260	KAVIYA	13	2	1	2 4	10000	2500 3	2	1 12	1		5DAYS 30	1	1 1	1	Δ1 A	2	1 0	2 A	1	1	2 2	1	1	1	2 1	1 1	1	2	2	2	2	LJVVI
		17	5	1	2 4		2000 4	2	_	1		3DAYS 30	1	1 1	1	4		1 8	9 4	1	3	2 2	1 1	1	1	1 1	1 1	1	2	1	-		-
	MUTHI SNEKA	17	5	1	2 3	10000 11000	2750 3	4	1 14 1 13	1	1	4DAYS 30	_	1 1	1	3	2	1 0	2 2	1	3 /	2 2	2 2	1	2	1 1	1 1	1	2	1	-	<u>_</u>	
		15	3	1	2 4	9000	3000 3	2	_	1	1	5DAYS 30	_		1	4	2	1 0	- 4	1	4	2 2	2 2	1	2	1 1	1 1	1	2	1	-	-	
	RAJESV		- 4 	1	2 3	!		3	1 14	1	1		_	1 1	1	3		1 3	9 4	1	1	2 2	1 1	1	2	1 1	1 1	1	2	1	-+	- 2	
	GAYAT	16 17	5	2	2 5	15000	3000 3 3000 3	2	1 14	1	1	4DAYS 30		3 1 1 1	. 1	5	2	1 2	3 5	1	1	2 2	1 1	1	<u> </u>	1 J		1	2	2	2		-
	RANJIT		5	3	2 0	18000		2	1 15	1	3	6DAYS 30		1 1	. 1	5 Δ		1 '	5 5	1	1	2 2	2 2	1	1	2 1		1	2	2	2		
	AMAR/	17	5	2	2 5	12000	2400 3	2	1 14	1	1	4DAYS 30			. 1	4 4	2	1 0	-	1	4	2 4	2 2	1	2	2 J		1	2	1	2	$\frac{2}{3}$	
	POOVIZ	15	4	3	2 5	14000	2800 3	3	1 13	1	1	4DAYS 30	_	1 1	. 1	4		1 8	3 4	1	1	2 2		1	<u> </u>	1 1		1	2	2	2	$\frac{2}{3}$	
	SARAD	16	5	1	2 6	12000	2000 4	2	2 13	1	1	5DAYS 30		1 1	. 1	-		1 5	9 4	1	1	2 4	2 2	1	1	2 1	1 1	1	2	1	$\frac{2}{1}$	$\frac{2}{3}$	
	VENNIL	18	5	3	2 5	18000	3600 2	2	1 12	1	1	4DAYS 30	_	3 1		3	2	1 8	3 5	1	1	2 4	2 2	1	<u>1</u>	2 1		1	2	1			
	DHANA	15	4	1	2 5	15000	3000 3	3	1 13	1	-	7DAYS 30	_	1 1	. 4	5 ⊿		4 8	5 5	1	1	2 2	2 2	1	2	3 1	1 1	1	2	1		$\frac{2}{3}$	-
	VIJAYA	15	4		2 6	12000	2000 4	2	1 13	1	1	5DAYS 30		1 1	. 1	4		1 2	3 4	1	1	2 4	2 -	1	4	1 1		1	2	1	- 	$\frac{2}{3}$	
	DEEPA	14	4	1	2 6	11000	1833.333 4	2	2 14	1	1	5DAYS 30	_	8 1	. 1	4		1 '	3 4	1	1	2 4		1	2	2]		1	2	1	$\frac{1}{4}$		
	SIVAGA	17		1	2 6	13000	2166.667 3	3	2 14		1	5DAYS 30		1 1	. 1	3		1 '		2 3		2 4	2 2	1		1 1		-	2		$\frac{1}{4}$	$\frac{2}{3}$	
_	MAYIL	17	5	1	2 6	10000	1666.667 4	2	2 13	1	1	4DAYS 30		3 1	1	3	2	1 8	5 3	2 4	4	2 2	2 2	1	2	1 1		1		1	1		\dashv
	GOMA.	15	4	1	2 3	9000	3000 3	3	1 14	1	1	5DAYS 30	_	1 1	1	4		1 2	5 4	1	1	2 2	2 2	1	1	<u> </u>		1		1	-		\dashv
_	KOWSA	15	4	2	2 4	10000	2500 3	3	1 13		1	4DAYS 30		2 1	1	4	2	1 5	9 4	1	1	2 2		1	4	1 1		1		1			\dashv
	MANG	17	5	2	2 6	20000	3333.333 3	3	2 14	1	1	4DAYS 30		1 1	1	4	2	1 8	5 4	1	1	2 2		1	1	<u> </u>		1	2	1	1		
	VENNIL	17	5	1	2 /	15000	2142.857 3	2	2 15		1	4DAYS 30		1 1	. 1	3		1 '		1	1	2 4	2	1		1 1		-			$\frac{1}{2}$		1
	RANI	16	5	2	2 3	10000	3333.333 3	1	1 14	1	1	5DAYS 30		1 1	. 1	4	2	1 8	-	1	1	2 2	2 2	1	2	1 1		1	2	2	2	$\frac{2}{2}$	
	DURGA	15	4	1	2 6	12000	2000 4	4	2 13	1	1	4DAYS 30		1 1	. 1	3	2	1 8	3 3	2 2	4	2 2	1 1	1	2	3 1		1	2	2	$\frac{2}{4}$		
	KOWSA	17	5	1	2 6	12000	2000 4	2	1 13	1	1	4DAYS 30	_	3 1	. 1	4		1 8	3 4	1	1	2 2	2 2	1	3	1 1		1	2	1	1	1	1
	ANITH/	16	5	4	2 5	15000	3000 3	1	1 13	1	1	5DAYS 30	_	3 1	1	3	2	1 3	3 3	2 2	! 1	2 2	2 1	1	2	1 1		1	2	2	2		
	SUGAV	17	5	3	2 4	11000	2750 3	1	1 15	1		5DAYS 30		1 1	1	4		1 8	-	1	1	2 2	2 2		2	1 1		1	2	2	2	1	$\frac{1}{}$
	UMABI	15	4	2	2 5	10000	2000 4	2	1 14	2		4DAYS 40		2 1	. 1	3		1 8	3 3	2 2	4	2 2	2 1	1	2	3 1		1	2	2	2	2	
	PACHIY	17	5	1	2 5	12000	2400 3	3	1 14	1		5DAYS 30	_	1 1	. 1	4	2	1 8	3 4	1	1	2 2	2 2	1	2	1 1		1	2	2	2	1	$\frac{1}{}$
	LAVAN	15	4	1	2 5	17000	3400 3	3	1 12	2	2	3DAYS 45		1 4	_	3		1 8	3 3	2 2	. 3	2 4		1	1	2 1		1	2	2	$\frac{2}{1}$		
	KOKILA	14	4	2	2 5	12000	2400 3	2	1 11	1	1	4DAYS 30		1 4	1	4	2	1 8	3 4	1	4	2 2	2 1	1	2	1 1		1	2	1	1	2	
	PRIYA	17	5	2	2 5	13000	2600 3	4	2 14	1	1	3DAYS 30		1 1	. 1	3	2	1 8	3 3	1	3	2 2		1	1	2 1		1	2	1	2	2	
	KAVITH			4	2 5			3	1 15			3DAYS 30	_	2 1		3			5 3	2 4	1	2 2			3	1 1		1	2	2	2		
	GANGA			1	2 3	9000	3000 3	2	2 14	1		5DAYS 30		3 4	_	3	2			2 4	1 -	2 2	2 1	_	3	1 1		1	2	1	1	1	1
	NANDH			2	2 4	20000	5000 2	3	1 11	1		4DAYS 30		1 1	+	3	2		3	1	4	2 2			2	1 1		1	2	2	1	2	
	PRIYA	16		2	2 4	12000	3000 3	2	1 15	1		3DAYS 30		1 1	_	3			5 3	2 4	1	2 2		1	3	3 1		1	2	2	2	2	
	PALAN			2	2 5	10000	2000 4	2	1 13	1		5DAYS 30	_	1 1	. 1	4	2	 	9 4	1	1	2 4		1	4	1 1		1	2	2	2		
	PRIYAD			1	2 4	10000	2500 3	4	1 14	1		3DAYS 30		1 1	. 1	3	2	1 5	3	2 3	+ -	2 2		1	1	2 1		1	2	2	2	$\frac{2}{2}$	
	PRIYAD			1	2 4	10000	2500 3	3	1 11	1		4DAYS 30		1 4		3	2			2 2	4	2 2	2 2	_	2	1 1		1		1	1	2	
	AMBIG			2	2 5	12000	2400 3	2	2 13	1		4DAYS 30	_	1 1	_	4	2		' 	1 -	1			_	2	1 1		1			- 1		
	SARAS			2	2 6	12000	2000 4	2	1 15	1		3DAYS 30		1 1	. 1	2	2		3 2	2 2	+ +			-	2	1 1		1	2	1	1		$\frac{1}{}$
	KAVYA:			1	2 6	12000	2000 4	2	2 15	2		3DAYS 45		3 1	1	4	2	1 8		4	3	2 2	1 1	1	2	1 1		1		1	- 1		
	DIVYA	16		3	2 5	10000	2000 4	3	1 13	1		3DAYS 30	_	3 1	+	3		_	3 3	1	3	2 2		1	1	1 1		1		2	2		
	POONG			3	2 7	15000		3	2 13	2		5DAYS 45		3 1	1 -	3	2		3 3	1	1	2 2		1	1	<u> </u>		1		1	1		
	VINOD			1	1 4	15000	3750 2	4	2 13	1		8DAYS 30		1 4	_	4	2		9 4	1	1		1 1	_	2	1 1	L 1	1	2		1	2	\longrightarrow
	MAHAI			1	1 4	16000		2	2 14	1		3DAYS 30	1	1 1		3	2		7 3	1	1	2 2	2 1	1	3	1 1	L 1	1	2	1	1	2	\dashv
	REKHA			2	1 4	18000		2	2 14	1		4DAYS 30	1	4 4		4	2	1 7	4	1	1	2 2	1 1	1	1	2 1	1	1	2	1	1	2	\dashv
	PARVA			2	1 4	17000	4250 2	2	2 11	1		5DAYS 30		3 4	_	3			5 3	1	1	2 2	1 1	1	2	1 1	1	1	2	1	1	2	\dashv
	SEETH/			4	2 4	16000		1	1 14	1		3DAYS 30	_	3 1	_	4	2		4	1	1	2 2	1 1	1	1	2 1	1	1	2	1	1	2	\longrightarrow
	VELANI			2	1 3	14000		1	2 12	1		4DAYS 30		3 4		4	2	1 5	9 4	2 4	1	2 2	2 1	1	2	1 1	1	1	2	1	1	2	
	LOKES			1	2 4	12000		4	1 13	1		4DAYS 30		1 1		4	2	 	5 4	1	1	2 2	+	-	3	1 1	1 1	1	2	1	_1	2	
	MATHA			3	2 5	12000	2400 3	2	1 14	1		4DAYS 30	_	3 1	+	4	2		5 4	1	4	2 2	2 2	1	2	1 1	1 1	1	2	1	_1		1
	MANJU			4	2 6	15000	2500 3	2	1 13			3DAYS 30		3 1	_	3			3	2 4	3	2 2	2 1	1	1	2 1	1 1	1	2	1	1	1	1
	SHANN			2	2 4	10000	2500 3	4	1 11	1		5DAYS 30		2 1	_	4	2		5 4	1	1	2 2	2 1		2	1 1	<u> 1</u>	1	2	2	2	2	
311	SATHY	16	5	1	2 5	12000	2400 3	2	2 13	2	1	3DAYS 45	1	1 1	1	2	2	1 5	5 2	2 4	1	2 2	2 1	1	2	1 1	l 1	1	2	2	2	2	

	NANAE	ACE.	EDIIQ V D D BI	DIDTL	MARITTOTA	LINICOME	PERCAPITA SES	SAMOTH	EANAII	NAENIA	NAENIG	MELC	MFREQUE	петс		۸۱۸/۱	اراما	ЦО		DD A (C		VSTO		dTOULCLE	VECH	ДМП	ΕΙΒΑΞ	TILINIDI	DELICI AT	TENLIC	20171	DLAVI	FOOLY	ECVVI
212	NAME SNEKA	AGE 16	FDOGADORI	BIKIT	IVIARII IOIA	10000	2500 3	SUNIO I FI	FAIVIIL 1	13	IVIEINS		4DAYS 30	1	3 2	A VV F	СПА	יטח	1 0	J PRAIC	TAINO	4 4	PAUPAL	FTOIL CLE	1 YESHI	1 VV TI	E BA	ו וועווטוו	KELIGI AT	TEIVIS	SOLA F	LATIF	2	ESVVI
			5	1	2 4			3 4	1		1			1	1 1	1 1 1 1	<u></u> Δ	2	1 0	0 4	2 4	4 4	2 4	2 2 -	1 -	1 1	1 1		1	2	2	2	$\frac{2}{3}$	
	SUBHA	16	5	7	2 4	10000	2500 3	3 2	1	14	1		6DAYS 30	1	_	1 1 1 4	3	2	1 8	3 4	1	1	2 4	1 1 .	1 -	1 2	2 1		1	2	2	2		
	SHALIN	16	5	2	2 5	10000	2000 4	4 2	1	14			5DAYS 30	1	1 1	1 4	ı -	2	1 1	0 4	1	1	2 2	2 2 .	1 -	1 4	2 1	1 1	1	2		$\frac{2}{3}$	-1	
	NIVETH	14	4		2 4	12000	3000 3	3 4	1	13	2		4DAYS 60	1	1 1	1 1 1 1	4	2	1 0	3 4	1	1 1	2 2	1 1 .	1 4	<u> </u>	1 1		1	2	2	-	- 2	
_	KANAG	16	5	1	2 3	10000	3333.333 3	3 2	1	14	1		6DAYS 30	1	3 2	1 1 1 1	3	2	1 0	3 3	2 4	2 3	2 2	<u> </u>	1 -	1 1	1 1		1	2	1	<u> </u>	2	
	KIRUTH	16	5	1	2 4	12000	3000 3	3 3	1	15	1		4DAYS 30	1	3 1	1 1	3		1 0	3 3	1	4	2 4		1 2	1			1		2	1	$\frac{2}{3}$	
	ANITHA	16	5	2	2 5	15000	3000 3	3 3	1	12			5DAYS 30	1	1 1	1 1	4	2	1 (1 1	1	1	2 4		4				1		1	$\frac{2}{4}$	$\frac{2}{3}$	
	ABIRAN	16	5	3	2 4	13000	3250 3	3 2	1	14	1		4DAYS 30	1	3 1	1 1	3	2	1 '	1 1	1	4	2 2		1 2	1			1	2		$\frac{1}{4}$	$\frac{2}{3}$	
	VANITH	16	5	1	2 4	12000	3000 3	3 2		14	1	1	4DAYS 30	1	1 1	$\begin{array}{c c} 1 & 1 \\ \hline \end{array}$	4	2	1 8	3 4	1	4	2 4		1 2	2 1	1 1		1	2	1	$\frac{1}{2}$	$\frac{2}{3}$	
_	ISWAR'	14	4	2	2 4	15000	3750 2	2 5	1	13	1	1	4DAYS 30	1	1 1	$\begin{array}{c c} 1 & 1 \\ \hline \end{array}$	4	2	1 8	3 4	1	4	2 4		1 4	2 1	1 1		1	2	2			
	VIDHYA	16	5	2	2 3	11000	3666.667 2	2 2		13	1		5DAYS 30	1	3 1	$\begin{array}{c c} 1 & 1 \\ \hline \end{array}$	3	2	1 8	3 3	1	1	2 4		1 4	2 1	1 1		1	2	2	$\frac{1}{4}$		
_	LATHA	17	5	3	2 5	15000	3000 3	3 2	1	14	1		3DAYS 30	1	1 1	$\frac{1}{1}$	4	2	1 8	3 4	1	1	2 2	2 2 1	1 1	1 1	1 1		1	2		$\frac{1}{2}$	2	
	VIJAYA	17	5	3	2 6	18000	3000 3	3 2	1	14	1		5DAYS 30	1	3 1	$\frac{1}{4}$	4	2	1 8	3 4	1	1	2 2		1 2	2 1	1 1		1	2	2	$\frac{2}{4}$	2	
	RADHII	17	5	2	2 5	10000	2000 4	4 2	1	14	1		3DAYS 30	1	1 1	$\begin{array}{c c} 1 & 1 \\ \end{array}$	4		1 8		1	1	2 2	2 2 2	1 1	1 4	2 1		1	2	1	$\frac{1}{2}$		
_	DHANA	16	5	3	2 6	25000	4166.667 2	2 3	1	15	1		7DAYS 30	1	1 1	1 1	3	2	1 8	3	1	1	2 2		L 1	1 2	<u> </u>	1	1	2	2	2	1	1
	SUMAT	16	5	3	2 5	10000	2000 4	4 2	1	13	1		6DAYS 30	1	_	4 1	4	2		3 4	1	1	2 2	2 1 2	1 2	<u> </u>	1 1	L 1	1	2	1	1	2	
	INDHU	15	4	2	2 4	10000	2500 3	3 4	1	13	1	1	5DAYS 30	1	3 2	$1 \mid 1$	4	2	1 1	3 2	2 2	4 1	2 2	2 2 2	1 1	1 2	<u> </u>	L 1	1	2	2		2	
	MYTHII	17	5	1	2 3	8000	2666.667 3	3 2	1	14	1	1	4DAYS 30	1	3 1	1 1	4	2	1 8	3 4	1	1	2 2	2 2 3	1 2	2 1	<u>. 1</u>	1	1	2	1	1	2	
	VANITH	15	4	1	2 4	12000	3000 3	5	1	12	1		5DAYS 30	1	1 1	1 1	3	2	1 8	+ +	1	1	2 2	2 1 2	1 2	<u> </u>	1 1	1	1	2	1	1	2	\blacksquare
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	SAKTHI	14	4	1	2 4	12000	3000 3	4	1	11	2	1	7DAYS 60	1	3 1	$1 \mid 1$	4	2	1 8	3 4	1	1	2 2	2 1 2	1 2	2 3	3 1	1	1	2	1	2	2	
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	DHANA	17	5	4	2 7	20000	2857.143 3	3 2	1	14	1		4DAYS 30	1	3 1	1 1	3	2	1 8	1	1	1	2 2	2 2 1	1 1	1 2	2 1	l 1	1	2	1	$\frac{1}{}$	2	
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363	MEENA	18	6	1	2 6	15000	2500 3	3	2	14	1	1	3DAYS 30	1	3 1	1 1	3	2	1 2	4 3	1	1	2 2	2 1 2	1 2	1 ا	ւլ 1	ւլ 1	1	2	1	1	2	

	NAME	AGE	EDUC ADDR	BIRTH	MARI	ТОТА	INCOME	PERCAPITAS	ES MOTH	FAMIL	MENA	MENS	MFL	MFREQUE	HEAS	οιο	A WI	НСНА	HOV	PRA P	RO PF	RACH	IA NOV	STO	PADPA	DFTOIL	CLEA	YESHO	WHE	BAT	UNDIF	RELIGI A	TTENI	SOLA	PLAYI	FOOI YI	ESWI
364	NIRMA	19	3	1	2	2	10000	5000	2 1	1	14	1	. :	1 3DAYS 30	1	1	4 1	1 3	2	1	5	3	3	1	2	2 2	1	1	2	1	1	1	3	2	2	2	
365	LAKSHI	19	4	2	2	3	12000	4000	2 3	1	13	1	. :	1 5DAYS 30	1	1	4 1	1 4	2	1	5	4	1	1	2	2 1	1	2	1	1	1	1	3	1	1	2	
366	KEERTH	16	5	2	2	4	20000	5000	2 4	1	14	1	. :	1 5DAYS 30	1	1	1 1	1 3	2	1	8	3	1	1	2	2 1	1	1	2	1	1	1	2	1	1	2	
367	SNEKA	15	4	2	2	3	15000	5000	2 2	1	13	1	. :	1 4DAYS 30	1	2	4 1	1 3	2	1	8	3	1	1	2	2 1	1	2	1	1	1	1	2	1	1	2	
368	RANJIT	14	4	2	2	4	12000	3000	3 2	1	12	2	: 2	2 3DAYS 45	1	3	4 1	1 2	2	1	8	2	1	1	2	2 1	1	3	1	1	1	1	2	1	1	2	
369	SWATH	16	5	2	2	4	15000	3750	2 2	1	13	1	. :	1 5DAYS 30	1	1	1 1	1 3	2	1	8	3	1	1	2	2 1	1	2	1	1	1	1	2	2	2	2	
370	ANITH/	15	4	1	2	4	12000	3000	3 3	1	13	1	. :	1 3DAYS 30	1	3	4 1	1 3	2	1	8	3	1	3	2	2 2	1	2	1	1	1	1	2	2	2	2	
371	JAYAPF	15	4	3	2	5	15000	3000	3 2	2	13	2	: :	1 4DAYS 35	1	3	1 1	1 4	2	1	8	4	1	1	2	2 2	1	2	1	1	1	1	2	1	1	2	
372	VALARI	15	4	2	2	3	10000	3333.333	3 3	1	13	1		1 4DAYS 30	1	1	1 1	1 3	2	1	8	3	1	1	2	2 2	1	1	2	1	1	1	2	1	2	2	
373	BANU	18	4	2	2	4	10000	2500	3 2	1	13	2	: 1	1 5DAYS 35	1	3	4 1	1 3	2	1	8	3	1	1	2	2 2	1	2	1	1	1	1	2	1	1	2	
374	VASAN	15	4	2	2	4	15000	3750	2 3	1	14	1	. 1	1 5DAYS 30	1	1	1 1	1 3	2	1	8	3	1	1	2	2 1	1	2	1	1	1	1	2	2	2	2	
375	SANDH	15	4	1	2	3	10000	3333.333	3 2	1	12	1		1 6DAYS 30	1	3	1 1	1 4	2	1	8	4	1	1	2	2 1	1	3	1	1	1	1	2	1	2	2	
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377	BHAVA	16	5	1	2	5	12000	2400	3 1	2	13	1		1 5DAYS 30	1	1	1 1	1 3	2	1	8	3	2 4	1	2	2 1	1	2	1	1	1	1	2	2	2	2	
	SUBUS	15	4	2	2	4	13000	3250	3 1	1	14	1		1 4DAYS 30	1	3	4 1	1 3	2	1	8	3	1	1	2	2 2	1	2	1	1	1	1	2	1	2	2	
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-	REVATI	16	5	1	2	3	12000	4000	2 3	1	14	1		1 5DAYS 30	1	1	1 1	1 4	2	1	8	4	1	1	2	2 2	1	2	1	1	1	1	2	1	2	2	
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	ANANT	16		1	2	5	15000	3000	3 3	1	14	1	.	1 5DAYS 30	1		1 1	_	_			3	1	1		2 2	1	2	1	1	1	1	2	1			1
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	REASOSIFE	HOUS FAM	TOUG	тоид	SPECI	agedm	n k1	k2	k3	k4	know	l _{n1}	p2	р3	p4	p5	р6	p7	8q	р9	p10	practi	iceto	tal		1	$\overline{}$	
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7	1 1	1 1	1	1	2	1	1	0 1	1	1	3	2	1	0	2	2	1	+	1	2	2	+	2	2	1	2	1 1	2
8	4 1	1 1	2	1	2	1	1	0 1	1	1	3	2	1	0	2	2	2	2	1	2	2	16	2	2	1	2	1 1	. 2
9	2 1	1 1	1	1	2	1	1	1 1	1	1	4	2	1	0	2	2	2	2	1	2	2	16	1	2	1	2	1 1	. 2
10	1	2 1	2	2	2	2	1	1 1	2	1	5	2	2	0	2	2	2	2	1	2	2	17	1	2	1	2	1 1	. 2
11	1	2 1	2	2	2	2	1	1 1	0	1	3	1	0	0	2	2	2	2	1	2	2	14	2	2	1	2	1 1	. 1
12	4 1	2 1	2	1	2	1	1	1 1	1	1	4	2	1	0	2	2	2	2 1	2	2	2	16	1	2	1	1	1 2	. 1
13	2 1	2 1	1	1	2	1	1	1 1	2	1	5	2	2	2	2	2	2	2	1	2	2	19	1	1	1	2	1 2	. 1
14	2	2 2	2	2	2	1	1	1 1	2	1	5	2	2	0	2	2	2	2	1	2	2	17	1	2	1	2	1 1	. 1
15	4 2	2 1	2	2	2	1	1	1 1	2	1	5	2	2	0	2	2	2	2	1	2	2	17	1	2	1	2	1 1	2
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17	1	2 1	1	1	2	1	1	1 1	1	1	-	2		2	2	2	1	_		2	2	_	1	1	1		2 1	2
18	1 1	1 1	1	1	2	2	1	1 1		1	5	2		_		2		+	1	2	2	+	1	2	1	2	1 1	2
19	1	2 1	2			2	_	1 1		1	1	2		0	2				0		2	+ +	1	2	1		1 1	7
20	1 1	1 1	1	1	2	1	_	1 1		1	1	2		2	2		-	+	1	2	2	+ +	1	1	1		1 1	2
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28	1	1 1	2	1	2	2	1	1 1	1	1	-	2	0	1	2	2		4	1	2	2	+	2	2	1	1	1 1	2
29	2 1	2 1	2	1	2	2	1	1 0	1	1	2	1	0	2	2	2	2	_	_	2	2		2	2	2	1	1 1	1
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31	1	2 1		_				1 1			-	2	1					_	l		2		2		1		1 1	1
32	1	1 1					_	0 0		1		1	2		2						2		2	2	1		1 1	. 2
33	1		2	2	2	2	1	1 1	0	1	3	2	0		2	2			1		2	_	2	2	1		1 1	. 2
34	2		2	2		2	1	1 1		1	4	2	1		2			4	1		2	_	1	1	2	2	1 1	. 2
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36	1	1 1	2	1	2	2	1	0 1	0	1	2	2	0			2			1		2	15	2	2	2	1	1 1	1
37	2	2 1	2	1	2	2	2	1 1	1	1	4	2	1	2	2	2	2	2	1	2	2	18	1	1	2	2	1 1	2
38	1	2 1	2	2	2	2	1	1 1	1	1	4	2	1	2	2	2	2	. 1	1	2	2	17	1	2	2	2	1 1	2
39	1	1 1	2	1	2	2	1	1 1	1	1	4	2	1	2	2	2	2	2	1	2	2	18	1	1	2	2	1 1	1
40	1	1 1	 	_		2	_	1 1	_	1	_	2	1		2		-			_	2		1	2	1		1 1	2
41	1 1	2 1	2		2	2	_	1 1	_			2	-	0	2						2	_	2	2	2		1 1	_
42	1					2	_	1 1	_	1	_	2	-				-				2		1	2	1	_	1 1	+
43	1		+				_	0 1		1		2		_								_	1		1		1 2	
44	2			_	2	2	_	0 1	1	1	1	2	l —		2			_	-		2		2	2	1		1 1	1 1
45	2		_	_			_	1 1		1	-	2	ł — —	_	2	+	_				2		1	1	1		1 1	++
46	1	 	1			1	_	1 1	_	1		2	-		2		+				2		1	1	1		1 1	+
47	3 1		1			1	_	0 1		1	-	2		-	2						2		1	1	1		1 2	_
48	3 1		+				_	0 1 0 1	_	1		2				_					2	_	1	1	1		1 1	+
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49	2		 			1		1 1	_		-	2			2			_			2		2	2	1		1 1	+ +
50	2						_	1 1	1	1	-	2	-	_	2				ł — —		2	_	2	1	1		1 1	+
51	1	1 1	2	2	2	2	1	1 1	1	1	4	2	1	0	2	2	2	2	1	2	2	16	1	2	2	2	1 1	. 2

	REASO	SLEE	HOLIS	ΕΔΙΛΙ	TOLIC	TOUG	SPECI	200	men k1	k2	k3	k4	knowp	1	p2	р3	p4	p5	p6	р7	8 q	р9	p10	nracti	cetotal				$\overline{}$	$\overline{}$
52	NLASC	2	2	1	2	2	2		1 1	1	1 2	1	. 5	2		h2 0	2	2		-	·	2	7	17	1 2	1	2	1	-	
			2	1	2			-		_	1 0					2	2					2	2	-		1		1	-	
53	1	2		 	2	1			 			_	· -	2		2		2		_	1	2	2	18	2 1	1	2	1		
54	1		1	1	2	1	2			1	1 0	_	. 3	2			2	2				2	2	18	2 1	1	2			
55	1	1	1	1	2	1	2	-		0	1 1	1	<u> </u>	2		2	2	2		_	!	2	2	18	2 1	1	2	1		2
56		1	2	1	1	1	2		 	0	1 1	1	. 3	1	1	2	2	2		_		. 2	2	17	2 2	1	2	1	2	2
57	1	2	2	<u> </u>	2	2				_	1 1	1	. 4	2		0	2	2		_		. 2	2	16	1 2	1	2	1	1	2
58	1	1	2	1	2	2	2	2	1	1	1 2	1	. 5	2	1	0	2	2	2	2 2	1	. 2	2	16	1 2	2	2	1	1	2
59		1	2	1	2	1	2	1	1	1	1 1	1	. 4	2	1	2	2	2	2	2 2	1	. 2	2	18	1 1	1	2	1	1	1
60		1	2	1	2	2	2	1	1	1	1 0	1	. 3	2	1	0	2	2	2	2 2	1	. 2	2	16	2 2	1	2	1	2	1
61		2	2	1	2	2	2	1	1	0	1 1	1	. 3	2	1	0	2	2	2	2 2	1	2	2	16	2 2	1	2	1	1	2
62		1	2	1	2	2	2	1	1	1	1 1	1	. 4	2	1	0	2	2	2	2 2	1	2	2	16	1 2	1	2	1	1	2
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64		2	2	1	2	2	2	1	1	1	1 2	1	. 5	2	2	2	2	2	2	2 1	2	2	2	19	1 1	1	2	1	1	2
65		1	2	1	2	2	2	1	1	1	1 0	1	. 3	2	1	2	2	2	2	2 2	1	2	2	18	2 1	1	2	1	1	2
66		2	2	1	2		2	1	1	1	1 2	1	. 5	1	2	2	2	2				2	2	18	1 1	1	1	1	1	2
67	1	1	2		2	-		-	 	_	1 0		1 1	2		0	2	2		_		2	2	15	2 2	1	2	1	1	2
68	_	1	2	<u> </u>	2	2					1 2		+ +	2		0	2	2				2	2	17	1 2	1	2	1	1	2
69		2	<u>-</u> 1	1	2	2		-		_	1 2		. 5	1	2	2	2	2	2	_	!	2	2	16	1 2	1	1	2	1	
70		1	2	<u> </u>	2			4			0 0		+	1	0	2	2	2		_	ł	2	2	16	2 2	1	2	1	1	2
71	2	1	2	-		1		-		_	0 2	_	-	1	2	2	2	2				2	2	-	2 1	1	2	1	1	2
72	1	1	1	1	1	1			 	_	1 2	ł	1 1	2		2	2	2				-	2	19	1 1	2	2	1	1	1
73		2	2	<u> </u>	2	2				_	1 0		+	2	-	2	2	2				2	2	16	2 2	1	2	1	1	
74	1	2	2	<u> </u>	1	1					1 2	_	+ +	2		0	2	2		_	2	2	2	17	1 2	1	1	1	-	
75		1	2		2	2			 	_	1 2	1	. 5	2		0	2	2		_		2	2	17	1 2	1	1	1	1	
76		2	2	<u> </u>	2	2					1 2		+	2			2	2				2	-	-		1	_	1	-	2
				1		1		-	 	_	_		1 1			2		-		_	!	1 -	2		1 1	1	1			
77		1	1	_	1	1				1	1 1		1	2			2	2		+	ł – – – –	2	1	17	1 2	1	2	1	-	
78	1			1	1	2			1 -1	_	1 2		. 5	2		0	2	2				2	2	17	1 2	1	2			
79	1	1	2	!	2	1	2	_	 	_	1 0		-	2		2	2	2		_	ł	2	2	17	2 2	1	2	1	$\frac{1}{2}$	
80		2	1	1	1	1	2		+ -	1	1 0		3	2	0		2	2	2		_	2	2	17	2 2	1	1	1	$\frac{2}{4}$	
81		2	2	1	2	1			 	1	1 1		. 4	2		2				_	ł	_		_	1 1	2		1	$\frac{1}{1}$	2
82		2	1	<u> </u>	1	1			 		1 1			2		0						-		-	1 2	1	2	_		2
83		1	1								1 2			2		0									1 2	1	2	_	$\frac{1}{1}$	2
84		1	2						 	_	1 0	1		2		0						-	1		2 2	1	2		1	2
85		1	1								1 0			2		2		2		_					2 2	1	1	1	1	2
86	4	1	2	-	_						1 1	ł		2		2		2			-	_	1	-	1 1	1	2	_	2	2
87	1	2	2								1 2	ł	+ +	2		2		2				_			1 1	1	2		2	2
88		2	2							_	1 1	-	+	2		2				_					1 1	1	2	_	1	1
89		2	2	-				_	 	-	1 1	-	+ +	2		2				_		_	1	-	1 2	1	1	1	1	2
90	1	1	2								1 2	-	+	2		2		2							1 1	1	1	1	1	1
91		2	2	1	2	1	2	2	1	1	1 1	1	. 4	2	1	0	2	2	2	2 2	1	2	2	16	1 2	1	2	1	1	2
92	3	1	2	1	2	1	2	1	1	1	1 2	1	. 5	2	2	0	2	2	2	2 2	1	2	2	17	1 2	1	2	1	1	2
93		2	2	1	2	2	2	2	1	1	1 0	1	. 3	2	0	2			2	2 2	1	2	2	17	2 2	2	1	1	2	2
94		2	1	1	2	2	2	1	1	0	1 2	1	. 4	2	2	2	2	2	2	2 2	1	2	2	19	1 1	1	2	1	1	2
95		1	2	1	2	2	2	1	1	0	1 0	1	. 2	2	0	2	2	2	2	2 2	1	2	2	17	2 2	1	2	1	1	2
96		1	2	1	1	1		2	1	1	1 0	1	. 3	2	0	2	2			2 2	1	2	2	17	2 2	1	2	1	1	2
97	1	1	2	1	2	_			1	0	1 2	1	. 4	2		2	2	2		2 2	1	. 2		19	1 1	1	2	1	2	1
98		1	2	-	_	2					1 1	1		2		2						2			1 2	1	1	2	1	2
99		1	1			_	_		1 1		1 0			2		0	_			4					2 2	1	2		1	2
100		2	2	1		-		_	 	-	1 2	-	+ +	2		2					-	1	1	-	1 1	1	1	1	1	2
101		1	<u>-</u>		_						1 2			2		2						1			1 1	1	2		1	2
102		1	2			-				_	1 1	-	+ +	2		2		2		_		_		-	1 1	1	2		1	2
103		1	2	-		1			 		1 0	<u> </u>		2		0				_		1		15	2 2	1	2	_	- 1	2
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	REASO	SLEE	HOLISI	ΕΔΙΛΙ	TOLIC	TOLIC	SPECI	200	men k1	k2	k3	k4	know p	1	p2	р3	p4	p5	p6	p7	p8	р9	p10	nracti	cetotal			П	$\overline{}$	
104	1127134	2	2	1	2	2	2	1	1 1	1	1 1	1	4	2	ρ <u>ν</u> 1	0	2	2		+ -	•	2	2	16	1	2 1	2	1	1	
_		2	2	1	2	2			 	-	1 0	1	3		0	2	2			+		2	2	17	2	2 1	2	-	2	
105		2			2	-		_	 	_	1 0			2	0	2	0	2		4		2		-		_	2	-		
106				 	_	2				_		-		2		2	_					2	2	15	2	2 1		_		
107		1		1	1	1		_		_	1 1	1	4	2	1	2	2	2		+			2	17	1	2 1	2	 	<u>_</u> _	
108		2	2	1	2	2	_		 	0	1 1	1	3	2	1	0	2	2			2	2	2	16	2	2 1	1	1	$\frac{1}{4}$	
109		1	2		1	1	2				1 2		5	2	2	2	2	2	2			2	2	19	1	1 1	1	1		
110		2	2		2	2		_			1 2	1	5	2	2	2	2	2		-		1	2	18	1	1 1	2	-	$\frac{1}{1}$	1
111		1	2	-	2	1	2		-		1 2	 	5	2	2	0	2	2		4			2	16	1	2 1	2	-	$\frac{1}{1}$	1
112		2	2	_	2	2				_	1 1		3	2	1	2	2	2		+		2	2	18	2	1 1	2	-		2
113		1	1	1	1	2				1	1 0	ļ	3	2	0	2	2	2				2	2	17	2	2 1	2	-		2
114	1	2	1	2	2	2					1 2	1	5	1	2	2	2	2		-		2	2	18	1	1 2	2	_	1	2
115		1	1	1	1	1	2	!		_	1 1	1	4	2	1	2	2	2		4		2	2	17	1	2 1	2	-	$\frac{1}{}$	2
116		2	2	1	2	2				1	1 2		5	2	2	2	2	2				. 2	2	19	1	1 1	2		2	2
117	1	1	2	-		2			 	_	1 2	<u> </u>		2	2	2	2	2		+		2	_		1	1 2	2	-	1	2
118		2	2	-	2	2					1 0			2	0	2	0			4		2	2	15	2	2 2	2	-	1	2
119		1	2		2	2					1 2	1		2	2	2	2	2			2	. 2	2	19	1	1 2	2		1	2
120		1	2	1	2	2			 	_	1 2	1	5	2	2	2	2	2		-		2	2	19	1	1 2	2	1	2	2
121		2	2	2		2		1		_	1 1	1	4	2	1	2	2	2	2	4		2	2	18	1	1 1	1	1	1	2
122		1	2	-	2	2					1 0	_	3	2	0	0	2	2		+	2	 	2	15	2	2 1	2	_	1	2
123		2	2		_	2	_		 		1 1	1	4	2	1	2	2	2		_		2	2	18	1	1 1	2	-	1	2
124		2	2			2					1 2	1	5	2	2	2	2	2		-		2	2	19	1	1 1	2	_	1	2
125	1	2	2	1	2	2		_	1	0	1 1	0		2	1	2	0	2				. 2	2	16	2	2 1	2	-	2	1
126		2	1	1	2	2			 		1 0	1	3	2	0	2	2	2			1	. 2	2	17	2	2 1	2	-	2	2
127		2	1	1	2	2	2	2	1	0	1 2	1	4	2	2	2	2	2	2	2 1	2	. 2	2	19	1	1 2	2	1	1	2
128		2	2	1	1	1	2	1	1	1	1 1	1	4	2	1	2	2	2	2	2 2	1	. 2	2	18	1	1 1	2	1	1	2
129	1	2	2	1	2	2	2	1	1	0	1 2	1	4	2	2	2	2	2	2	2	1	. 2	2	19	1	1 1	2	1	1	2
130	1	2	2	1	2	2	2	1	1	1	1 2	1	5	2	2	0	2	2	2	2 2	1	. 2	2	17	1	2 1	1	2	1	2
131	1	1	2	1	2	2	2	2	2	1	1 1	1	4	2	1	2	2	2	2	2	1	. 2	2	18	1	1 2	2	1	1	2
132		2	2	1	2	2	2	1	1	1	1 2	1	5	2	2	2	2	2	2	2	1	. 2	2	19	1	1 1	2	1	2	2
133		1	1		2	2		+		0	1 1	1	3	2	1	2				_	1	. 2	2		2	1 1	2	1	1	2
134		1	2	1	2	1	2	2	1	1	1 1	1	4	2	1	0	2			2	1	. 2	2	16	1	2 2	2	1	2	2
135		1	2	1	2	2	2	1	1	0	1 2	1	4	2	2	0						. 2	2	17	1	2 1	2	1	2	1
136		1	2	1	2			1	1	1	1 2	1	5	2	2	2				_		. 2	2	19	1	1 1	2	1	2	2
137		2	2	1	2			1	1	1	1 1	1	4	2	1	2		2	2	2	1	. 2	2	18	1	1 1	2	1	1	2
138	1	1	2	1	2	2		2	2	1	1 1	1	4	2	1	2		2		_	1	. 2	2	18	1	1 2	2	1	2	2
139		1	2	1	1	2	2	2	1	1	1 2	1		2	2	2		2			1	. 2	2	19	1	1 2	2	1	1	2
140		1	1								1 2	1		2		2				_					1	1 2		_	1	2
141		2	2		2	2		+	2	1	1 2	1	5	2	2	2				2 1	2	. 2	2	19	1	1 2	2	1	1	2
142		1	2					_			1 1			2	1	2		2				2			1	1 2	_	_	1	2
143		2	2		2	2		2	1	1	1 0	1	3	2	0	2				2 1	2	. 2	2	17	2	2 2	2	1	1	2
144		2	2	1	2	2			1 1	_	1 1	1	4	2	1	0		2			1	2	2	15	1	2 2	2	1	1	2
145	1	1	2	1	1	1			1	1	1 0	1		2	0	2				_	2	2	2		2	2 2			2	2
146		2	2	1	2	2	2	2	1	1	1 2	1	5	2	2	2	2	2	2	2 2	1	. 2	2	19	1	1 2	2	1	1	2
147		2	2	1	2	2	2	2	1	1	1 1	1	4	2	1	0	2	2	2	2 1	2	. 2	2	16	1	2 2	2	1	2	2
148	1	1	2	1	2	2	2	2	1	1	1 1	1	4	2	1	2	2	2	2	2 0	1	. 2	2	16	1	2 2	2	1	1	2
149		1	2	1	1	1	2	2	2	1	1 1	1	4	2	1	2	2	2	2	2 1	2	. 2	2	18	1	1 2	2	1	1	2
150		1	1	1	2	1	2	2	1	0	1 1	1	3	2	1	2	2	2	2	2 2	1	. 2	2	18	2	1 2	2	1	2	2
151		1	1	1	1	1	2	2	1	1	1 2	1	5	2	2	2	2	2	2	2 2	0	2	2	18	1	1 1	2	1	1	2
152		1	2	1	2	2	2	2	1	1	1 2	1	5	2	2	2	2	2	2	2 2	1	2	2	19	1	1 1	2	1	1	2
153	4	2	2	1	2	2	2	1	1	1	1 1	1	4	2	1	2	2			2 2	1	2	2	18	1	1 1	2	1	2	2
154		2	1	1	1	1	2	1	1	1	1 1	1	4	2	1	2	2	2	2	2 2	1	2	2	18	1	1 1	2	1	2	2
155	1	2	2	1	1	1	2	1	1	1	1 0	1	3	2	0	0	2	2	2	2 2	1	2	2	15	2	2 1	2	1	1	2

	REASC	SLEE	HOUS	FAM	TOU	TOUC	SPECI	ageo	men k1	k2	k3	k4	know p1	þ	02	р3	p4	p5	р6	р7	p8	р9	p10	practio	etotal					$\overline{}$
156		1	1	1	2	1	2		1 1	. 1	0	1	3	2	0	2	2	. 2		2 1	2	. 2	2	17	2	2 1	2	1	2	2
157		1	2	1	2	1	2		1 1	1	1	1	4	2	1	2	2	2	ł — —	2 2	1	. 2	2	18	1	1 1	2	1	1	2
158		1	2	1	2	1	2	2	1 1	. 0	2	1	4	1	2	2	2	2	:	2 1	2	. 2	2	18	1	1 1	2	1	1	2
159		1	2	1	1	1	2	1	1 1	. 1	2	0	4	2	2	2	0	2	:	2 2	1	. 2	2	17	1	2 1	2	1	1	2
160		1	2	1	1	1	t		1 1	. 1	2	1	5	2	2	2	2	2	l	2 2	1	. 2	2	19	1	1 1	2	1	1	2
161	1	1	2	-	1	1	-		1 1	+	2	-	5	2	2	2	2	2	-	2 2	+	. 2	2	19	1	1 1	2	-	1	2
162		2	2		2	2			2 1	1	1	1	4	2	1	0	2	2	ł — —	2 1		2	2	-	1	2 2	2	_	1	2
163		1	2	 	2	1	2		1 1	1	2	1	5	2	0	2	2	2	l	2 2		. 2	2	17		2 1	2	1	1	2
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222		1	2 1	2	-	2	2	1	1	1	2	1	1	2	1	-	2	2		+	4	2	2	-	1	2	2	2		2
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225		1	2 1	2	2	2	1	1	1	1	1	1	4	2	1	2	2	2	2	2 2	1	2	2	18	1	1	1	2	1 1	2
226		1	2 1	2	2	2	1	1	1	1	1	1	4	2	1	0	2	2	2	2	1	2	2	16	1	2	1	2	1 1	2
227		2	2 1	2	2	2	2	1	1	. 1	2	1	5	2	2	2	2	2	2	2 2	1	2	2	19	1	1	1	2	1 1	. 1
228		2	2 1	2		2	1	1	1	1	1	1		2	1	2	2	2		+	+	2	2		1	1	1	2	1 1	2
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230		1	2 1	2	2	2	1	1	1	1	1	1	-	2		2	2	2			+	2	2	+	1	1	1	2		2
231	4	1	1 1	2		2	2	1	1	1	1	1	1	2	1	2	2	2		_	4		2	-	1	2	1	2		2
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235		1	1 1	1	1	2	2	1	0	1	1	1	1	2	1	2	2	2		+	. 2		2	+	2	1	1	2	1 2	2
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239		2	2 2	2	2	2	1	1	1	. 1	2	1	5	2	2	2	2	2	2	2 2	1	2	2	19	1	1	1	2	1 1	. 2
240	1	2	2 1	2	2	2	1	1	0	1	2	1	4	2	2	0	2	2	2	2 1	1	2	2	16	1	2	1	2	1 2	. 2
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242	4	1	2 1	1	1	2	1	1	1	+	1	1	_	2	1	2	2	2			4		2		1	1	1	2	1 1	. 2
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254		1	2 1	1	1	2	1	1	0	1	1	1		2	1	0	2	2			1	2	2	_	2	2	1	2	1 1	2
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KEY TO MASTER CHART

Variable	Label	Coding
Sno	Serial number	1,2 etc
idno	Identificatio n number	1,2 etc
birthorder	Birth order	1,2,3 etc
maritalstatus	Marital	1=married, 2=unmarried,3=others.
	status	
education	Education	1=illiterate, 2=primary school, 3=middle school,
	of	4=high school, 5= higher secondary, 6=graduate
	adolescent	and 7=professional
	girls	
totalhouseholdmem	Total	1,2,3 etc.
bers	household	
	members	
sesclass	Socio	1=upper class, 2=upper middle, 3=lower middle,
	economic	4=upper lower and 5=lower
	status scale	
mothersedu	Mothers	1=illiterate, 2=primary school, 3=middle school,
	education	4=high school, 5= higher secondary, 6=graduate
C:1	E	and 7=professional
familytype	Family type	1=nuclear, 2=joint and 3=others(specify)
menarcheage	Age at menarche	12years, 13years etc
menspattern	Menstrual	1=regular, 2=irregular
	cycle	
	pattern	
mflow	Menstrual	1=normal, 2=scanty,3=excessive
	flow	
mfrequency	Menstrual	1,2,3days etc
	frequency	
heardmenstruation	Heard	1=yes, 2=no
	menstruatio	
	n	
source	Source of	1=mother,2=sister, 3=friends, 4=teachers,
	information	5=health workers, 6=mass media,
	before menarche	7=books,8=grandmother
COLICA	Cause for	1-physiological 2-disease 2-sin 4-de not
cause	menstruatio	1=physiological, 2=disease, 3=sin,4=do not know,5=others (specify)
	n	know,3—omers (specify)
whatmaterial	Material	1=sanitary pad,2= new cloth, 3=reused
	ideally used	cloth,4=cloth+pad,5=others(specify)
	during	
		ı

	menstruatio	
ah an aa dtimaa	n Fra such av	1 1 4 im 22 2 24 im 22 24 2
changedtimes	Frequency	1=1 times,2=2times etc
	of changing	
	pad per day	
howdisposed	Safe	1=deep burial,2=burning, 3=thrown in routine
	disposal of	waste, 4=hide,5=flush, 6=thrown in open places,
	pads	7=others(specify)
pracmaterial	Sanitary	1=sanitary pad,2= new cloth, 3=reused
	material	cloth,4=cloth+pad,5=others(specify)
	currently	
	practiced	
procurepads	Procuremen	1= village health nurse, 2=Anganwadi
	t of sanitary	worker,3=school teacher, 4=NGO,5=self
	pads	procurement,6=PHC, 7=2+5,8=3+5,9=ASHA
practimes	Practice-	1,2times etc
	changing	
	per day	
changingschool	Comfortabl	1= yes, 2=no
	e to change	1 yes, 2 no
	the pad at	
	school	
nowhy	If no why	1=no toilet facility,2=dirty toilet,3=no dust bin
nowny	If no why	facility in the toilet,4=shyness to change at
stomonod	Storing of	school,5=others(specify)
storepad	Storing of pad	1day,2days etc
paddisposed	Disposal of	1=deep burial,2=burning, 3=thrown in routine
	pad	waste, 4=hide,5=flush, 6=thrown in open places,
		7=others(specify)
padreuse	Reusal of	1=yes,2=no
	pad	
reason	Reason for	1=lack of
	not using	awareness,2=unavailable,3=costly,4=inconvenien
	pads	ce,5=socio cultural taboos,6=disposal
		problems,7=harm to the body,8=transmits
		infection,9= heat
usedcloth	Used cloth	1=throw,2=wash and throw,3=wash and reuse
clothtype	Type of	1=cotton,2=nylon,3=others
	cloth	-
washcloth	Wash cloth	1=only water,2=soap with
		water,3=Dettol+water,4=others
drying	Place of	1=under sunlight,2=away from
, 6	drying	sunlight,3=others(specify)
changecloth	Frequency	1time,2times etc
J.1	of changing	
	or changing	<u> </u>

reusecloth	Reuse the cloth	1=yes,2=no
alothdisposadment		1month 2months ata
clothdisposedmont hs	Frequency of disposal	1month,2months etc
clothdisposedmeth	Method of	1=deep burial,2=burning,3=thrown in routine
od	cloth	waste,4=others(specify)
	disposal	
storecloth	Storing of	1=bathroom,2=stored near routine cloth,3=do not
	cloth	store,4=others
toilet	Toilet	1=yes,2=no
clean	Clean the	1=yes,2=no
	external	
	genitalia	
yeshow	If yes, how	1=only water,2=soap and water,3=water with
		antiseptic (Dettol),4=others(specify)
whenclean	When clean	1=cleaning only during bathing,2=every time
	the external	after urination / defecation,3=during changing
	genitalia	pad
bath	bathing	1=yes,2=no
undergarments	Changing	1=yes,2=no
	undergarme	
	nts	
religiousplace	Attending	1=yes,2=no
	religious	
	place	
attendingschool	Attending	1=yes,2=no
	school	
isolation	Isolation	1=yes,2=no
playing	Playing	1=yes,2=no
food	Food	1=yes,2=no
yeswhat	If yes, what	1=sweets,2=nonvegetarian,3=both
reasonfood	Reason for	1=excess bleeding,2=smell,3=both,4= do not
	food	know
1 .	restriction	
sleeping	sleeping	1=yes,2=no
housework	Household	1=yes,2=no
C '1 C ':	work	1 2
familyfunction	Family	1=yes,2=no
touchfood	function	1 200 2 70
touchfood	Touch	1=yes,2=no
touches and s :	stored food	1_vvag 2_na
touchmembers	Touch	1=yes,2=no
	family	
Specific food	members	1-yos 2-no
Specific food	Any	1=yes,2=no

	specific food	
agecategory	Age	1=10-14 years,
	category	2=15-19 years
menarcheagecatego	Menarche	1=10-14 years,
ry	age	2=15-19 years
	category	
kscore	Knowledge	1=good knowledge
	score	2=poor knowledge
pscore	Practice	1= good practice
	score	2= poor practice

Office of the Deputy Director of Health Services, Salem.

- Sub: Public Health and Preventive Medicine MCH II Permission to do dissertation in Salem District Cross Sectional Study on Menstrual Hygiene Practices among Adolescent Girls in Tribal Population- permission accorded- instructions-reg.
- Ref: 1) R.No.52010/MCH II/S1/2018 dated 04.07.2018 of the Director of Public Health and Preventive Medicine, Chennai 6.
 - 2) Letter dated 30.10.2018 Dr.S.Ramya, II ndYr PG Student.

As per the reference 1st cited, Dr.S.Ramya, IInd Yrs PG Student of Community Medicine, Stanley Medical College, Chennai has been permitted to conduct study on Menstrual Hygiene Practices among adolescent girls in Yercaud Block (Valavanthi PHC and Nagalur PHC) and Thammampatty Block (Pachamalai PHC) subjected to the following conditions.

- 1. The data should be kept confidential and the report should not be Published without the permission of the Government.
- 2. The Data should be used for the Project work only.
- 3. Study report should be submitted to the Director of Public Health and Preventive Medicine. If not submitted it will be addressed to University Authorities for necessary action.
- 4. If there is any devitation in the above action, action will be taken against the individual.
- 5. The Study should not be detrimental to normal functioning of the Institution.
- 6. The views of the department should be obtained before finalizing the report for submission.
- 7. Progress of data collection should be appraised at each stage.
- 8. Study should have institutional ethics committee approval.
- 9. Consent form should be obtained from the study participant after giving the information sheet.
- 10. Data on sensitive issued relating to AIDS, Mental health and drugs related need not be given.

11.It is also requested to provide necessary data to undertake the study to study to the students.

Hence, the Block Medical Officer, Government Primary Health Centre,
Valavanthi and Thammampatty are requested to provide necessary assistance
to the student to undertake the study.

Deputy Director of Health Services,

Salem.

To

The Block Medical Officer, Govt. Primary Health Centre, Valavanthi and Thammampatty.

Copy to: The Medical Officer, GPHC, Nagalur, Pachamalai.

opy to: Dr.S.Ramya, IIYr PG, Community Medicine, Stanley Medical College, Chennai.

Copy Submitted to:

The Director of Public Health Preventive Medicine, Chennai -6.



Urkund Analysis Result

Analysed Document: A CROSS SECTIONAL STUDY ON MENSTRUAL HYGIENE

PRACTICES AMONG ADOLESCENT GIRLS IN TRIBAL POPULATION

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CROSS SECTIONAL STUDY ON MENSTRUAL HYGIENE PRACTICES AMONG ADOLESCENT GIRLS IN

TRIBAL POPULATION IN TAMILNADU INTRODUCTION: The term adolescence comes from Latin word meaning" to grow to maturity"1.

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World health organisation defines adolescents as young people between 10 and 19 years of age 2. Around 16% of world's population are adolescents3. Transition period from childhood to adult life is termed as adolescents. It is an important and a very sensitive period in the human life cycle. Many developments like physical, mental and social development

occur in this adolescent period4. Currently, one in every five person on the earth is an adolescent and 85% of these adolescents live in developing countries. In India, 20.07% of the total population are adolescents 5. Menstruation is an important change that occurs in an adolescent girl6. Menstruation begins with menarche and ends in menopause. Menstruation is a regular cyclical process which occurs throughout child bearing period with the exception of pregnancy and lactation. It is a physiological process, which occurs in girls. It is important that every girl knows about the changes that occurs during

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menstruation. Menstrual hygiene related practices are still clouded by socio-cultural restrictions,

taboos in India 4. Misconception and malpractices about menstrual hygiene could result in adverse health problems like reproductive tract infection

and

urinary tract infection 7. Knowledge about menstruation and its hygiene among adolescent girls is grossly inadequate. Various restrictions are imposed on adolescent girls during the menstruation period. These restrictions have reinforced negative attitude in the minds

of

adolescent girls. Several studies have reported about these restrictions which include restrictions to go to school, play, work, to enter holy places and also dietary restrictions. Also adolescents are hesitant to seek help during menstrual period from parents, friends and

health care providers, which in turn leads to ignorance of hygienic menstrual practices among adolescent girls6. Adolescent girls are at risk of many diseases due to poor personal hygiene. A common cause of gynaecological diseases is poor personal hygienic practices during menstruation. There is an inter relationships between socioeconomic status, menstrual hygiene practices and reproductive tract infection. Reproductive tract infections lead to increased incidence of cervical cancer.

Also it leads

to increased

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incidence of HIV/AIDS, infertility, ectopic pregnancy, and a myriad of other symptoms 8.

As a result, they suffer intense mental stress due to lack of proper guidance and support regarding proper menstrual hygiene practices7. Health needs of adolescent girls have seldom been addressed

in an adequate manner.

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Majority of girls acquire knowledge about menstruation and menstrual hygiene mostly through their parents, relatives and friends. Knowledge about menstrual hygiene and its practices plays a vital part of health education for adolescent girls9, 10.

Safe menstrual hygiene practices will avoid risk of RTI and its consequences. This would lead to improvement in adolescent health and maternal health in the future. Although many studies had been done on reported menstrual practices among adolescent girls in India, very few were conducted among those who belong to most backward classes, scheduled caste and scheduled tribes. REVIEW OF LITERATURE Adolescent girls experience marked anxiety and eagerness to know about menstruation. During adolescence the physical, mental, social, psychological and reproductive problems which are often associated with menstrual irregularities and menstrual problems. Majority of adolescents suffer from reproductive tract morbidities affecting the normal life. Talks on menstrual hygiene are regarded as taboos by traditional Indian society. Open discussion on such topics are also discouraged. Available literatures

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highlights the problems faced during menstruation among adolescent girls residing in rural and urban

areas. ADOLESCENTS

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The World Health Organization defines adolescents as young people between the ages of 10 and 19 years2.

They constitute a major building block to the world's population2. Globally more than half of the adolescents are in Asia. India is home to 253 million adolescents, accounting for 20% of India population as per census 2011. 20% of the world's (1.2 billion) adolescents are from India4.

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In addition, more than 1 in 10 children in India are currently experiencing puberty, and more than a quarter of all children will

undergo transition to adolescence and puberty within the next decade7, 8, 11. Adolescence is a time for preparing greater responsibilities and to ensure healthy development 2.Adolescent period is spread over a decade. Of the total adolescent population, 10.1 percent belong to 10-14 years age group and 9.4% are in the 15-19 years age group. Girls constitute 9.8% of adolescents in 10 to 14 years age group and 9.2% in 15 to 19 years age group (NFHS 4 India). CHANGES DURING ADOLESCENT Profound biological, morphological and psychological changes occur during adolescent period leading to full maturity and eventual fertility2. Physical changes in girls Physical changes like increase in growth rate, gonadal growth, sexual changes, and spurt in growth may begin at 10 years or even earlier in girls. A general readjustment of the endocrine balance results in establishment of menstruation and ovulation in girls. Puberty refers to the whole period of time during which secondary sexual characteristics develop, menstruation begins and changes in the psychosexual outlook occurs 12. Physical feature of Puberty Years 1. Breast growth 10-16 2. Pubic hair 9-13 3. Axillary hair 10-14 4. Growth in height 10-16 5. Menstruation 10-16 There may be a difference in the age of onset, time of full development and order of their appearance. Any two girls cannot be the same12.

MENSTRUATION Menstruation is a part of female reproductive cycle and it is unique to girls. It starts at puberty13. Menstruation is a normal process in which there is discharge of blood from uterus. First menstruation is called menarche. Menstrual bleeding lasts for 3-5 days in a month regularly every 28 days. In a study done by P B Verma et al in Bhavnagar (2011) suggested most common menstrual pattern among girls was 30/3-5 days followed by 28/5-7 days with 75.76% girls having regular menstrual cycle and 24.24% girls having irregular cycles. MENARCHE Menarche is a normal physiological process. Menarche occurs between 11 and 15years of age14. In India, girls attain menarche between the ages of 10 to 16 years with an average age being 12 years. Girls experience feelings of fear and guilty due to inadequate / poor knowledge of menstruation during their first menstruation15. Age of onset of menarche is influenced by race, heredity and nutritional status 16, 17. Menarche signals that sexual maturation has occurred and they are capable of supporting pregnancy18.

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Menarche shows many socio-economic, environmental, nutritional and geographical differences in the societies. In this phase girls experience

menstruation related problems. This is marked by feeling of anxiety and eagerness to know about

it.

Figure 1: PHASES OF MENSTRUAL CYCLE

First Stage By simple random sampling, Salem district was chosen. Second Stage

In

Salem district, tribal population residing in 3 blocks namely Valavanthi block, Bethanayakkanpalayam block and Gangavalli block. Of these by lot method Valavanthi block was chosen. Third Stage Valavanthi block consists of Valavanthi PHC, Nagalur PHC and Manchakuttai PHC. By lot method Valavanthi PHC was chosen. Fourth Stage Valavanthi PHC has 4 health sub centres (HSC) namely Thalaisolai, Kovilmedu, Maramangalam and Kottachedu. Tribal adolescent girls in all the 4 health sub centres were line listed as per anganwadi centre (AWC) register. Total of 1194 adolescent girls were registered in AWC. By simple random sampling, using a random number table, 400samples who satisfy the inclusion criteria were included in the study.

Source: Shaw text book of Gynaecology.

Phases in menstrual cycle include menstrual, follicular, ovulatory and luteal phase. Menstrual cycle starts at menarche and ceases at 45-50 years of age. During her lifetime, a woman spends approximately 2100 days in menstruation which is about 6 year19. Average blood flow during menstruation is 80-90 ml per cycle.

Table 1:

NFHS 4 DATA ON MENSTRUAL HYGIENE PROTECTION Percentage using hygienic method of menstrual protection Background characteristics Tamil Nadu (%) India (%) Age 15 – 19 years 20 – 24 years 93.8 89.3 57.7 57.4 Residence Urban Rural 93.5 89.5 77.5 48.2 Scheduled Tribes 85.9 40.3

Total 91.4 57.6 Source: NFHS 4 data

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MENSTRUATION HYGIENE MANAGEMENT (MHM):

Menstrual hygiene deals with the special health care needs and requirements of women during

monthly menstruation. Practical strategies for coping with monthly periods

are focused in menstruation hygiene management. MHM, deals with ways, a woman can keep herself clean and healthy and also about procurement usage and disposal of blood absorbing material 20. This is a problem in middle and low income countries for adolescent girls going to

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98%

school21.

United Nations defines

adequate

menstrual hygiene management

as "

women and adolescent girls using a clean menstrual management

material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of

the menstruation

period, using soap and water for washing the body as required, and

having

access to facilities to dispose

of used menstrual management materials.

Particularly in

poor countries, girls and women face substantial barriers to achieve adequate menstrual management 22.

POOR MENSTRUAL HYGIENE:

Beliefs and practices regarding menstrual hygiene varies irrespective of socioeconomic status, rural and urban areas23. Many girls lack appropriate information on hygienic practices during menstruation. Many studies have reported infection due to poor hygienic practices. In addition studies also reveal that adolescent girls have incomplete information about physiology of menstruation. Most of the information obtained by adolescent girls was through mothers, friends, television, teachers and relatives6. Some of the problems of poor hygiene

includes urinary tract infection, abdominal pain, absence from school and complications during pregnancy 24,25,26,27. FRAMEWORK FOR MHM IN INDIA Menstruation

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hygiene management is issued by the Ministry of Drinking Water and Sanitation to support all adolescent girls and women.

Menstrual hygiene management is included under Swachh Bharat Mission Guidelines (SBM-G). Guidelines are in three parts main guidelines, action guides, and technical guides. The guideline highlights the work to be done by state government, district administrator and school head teachers. Essential elements of a menstrual hygiene management programme are highlighted in the framework.

Figure 2: Effective

0: https://www.researchgate.net/publication/316230418_Menstrual_hygiene_practices_among_adolescent_schoolgirls_of_rural_Mangalore_Karnataka

Menstrual Hygiene Management

Source: Ministry of Drinking Water and Sanitation, Government

of India,

Menstrual Hygiene Management Guidelines, December 2015.

Table 2: ADOLESCENT GIRLS AND MENSTRUATION

Serial no Characteristics Percentages 1 No discussion on the process of menstruation 100% 2 Unaware of the importance of washing menstrual cloth 90% 3 Used old cloth as menstrual absorbent 87% 4 Completely unprepared 86% 5 Low self confidence 79% 6 Felt scared 64% 7 Missed school on account of menstruation 60% 8 Mothers did not agree with girls knowing about it before onset 47% 9 Felt embarrassed and humiliated over restrictions 44% 10 Never washed cloth before using first time 33% 11 Had never heard of sanitary napkins 6%

Source: UNICEF (2012): Girls today, Women tomorrow study. Other studies include: A.C. Nielsen and Plan India (2010). Sanitation protection:

Every Women'

s Health Right ROLE OF SOCIAL TABOOS It is a

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86%

well-known fact

that cultural

factors are deeply involved in all the affairs of women.

Menstruation and its related issues are surrounded by a culture of silence. This leads to lack of appropriate and sufficient information related to menstruation 23, 28. These cultural factors are followed for years together without any scientific explanation. Also

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82%

they have their own explanation in relation to their cultural practices. Myths and taboos

on socio cultural factors regarding menstruation were explained in many studies 29, 30. One such taboo is the significance attached to the day and time of menarche. The day, date and time including month will be noted.

They feel morning is good to attain menarche. Also at the time menarche, wearing white colour is considered as lucky. She seeing the mark

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is considered to be unlucky. These customs seem to be a reflection of the South Indian

tradition31. Restrictions commonly practised during menstruation include prohibition from religious activities, attending functions, cooking etc.

As a result daily routine activities are limited in women. This is widely practiced in India leading to poor menstrual hygiene19 in adolescent girls.

RESTRICTIONS DURING MENSTRUATION During menstruation restrictions include restriction in daily activities and dietary restrictions. Daily activity restriction includes not to take bath, comb hair and entry into holy places. Dietary restrictions include taboos on consumption of food like rice, curd, potato and sugarcane are also imposed32. Certain taboos are followed in culture in Hindus. Some of these taboos are superstitious such as isolation from participating in day to day activities once menstruation begins, taking bath soon after awaking from sleep, using separate place to sleep and washing used clothes every day morning. Hindus consider menstruation as religiously impure but no scientific reason has been given. These are more common in rural areas when compared to urban areas and these

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practices are also observed in other religious communities' also 4. PRE MENSTRUAL SYMPTOMS:

Premenstrual symptoms occur

commonly occur before the

start of menstrual bleeding. Most of the females suffer from this premenstrual symptoms. These symptoms vary from cycle to cycle and stress increases the severity of these symptoms. Symptoms are fatigue, headache, back pain, tenderness in

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76%

breast, constipation. Mood and behaviour symptoms include sad or depressed mood, anger irritability, anxiety, mood swings etc.

IMPORTANCE OF TOILETS: Some people still practice "

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99%

open defecation", which means toileting in fields, roadsides or by train tracks. India, Indonesia, Nigeria, Ethiopia, Pakistan, account for 75% of open defecation. Recent reports have shown that in India, 597 million people, or 48 per cent of the total population, practice open defecation. Although open defecation has been reduced by 31 % since 1990, about 300 million women and girls in India still have no other choice33.

About half of the Indian households use improved toilet facilities (48%). 39% of households practice open air defecation (NFHS4) which is decreased from 55% in NFHS3.

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While open defecation is more prevalent in rural areas, it is much more concentrated in urban areas, particularly in urban poor settlements where residents live in close quarters and sanitation facilities are severely lacking. In rural areas, underground sewers are almost non-existent; urban areas are only marginally better. A recent report shows that only 6% of India's cities have partial sewerage network, fewer than 20% of roads have storm water drains, and 86% of waste water is left untreated and often ends up polluting natural resources and highly populated urban environments. In a study conducted by Anupama Nallari, poor adolescent girls in urban Bengaluru say, "All we want are toilets inside our homes34. Lack of latrine, water supply seriously affects menstrual hygiene management and jeopardizes physical, psychological health of school adolescents.

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WATER, SANITATION AND HYGIENE (WASH) SCHEME The Global Goals have set an ambitious new agenda for sustainable development. The new goal for the water sector, Goal 6, aims to achieve universal, sustainable and equitable access to safe drinking water, sanitation and hygiene by 2030. In response to the global goals, UNICEF has developed a new Strategy for Water, Sanitation and Hygiene (WASH) 2016-2030 that provides a framework to guide our work related to water, sanitation and hygiene over the next 15 years33. WASH facility in

schools are important considerations for school-going girls, both for their educational attainment and their health23.

Qualitative studies report that school absenteeism is associated with poor MHM interventions, but so far only WASH studies have shown an association between toilet improvement and absenteeism, and improved enrolment of adolescent girls when girls-only toilets were constructed 21.

India, has an array of policies and schemes developed to provide pads, counselling from frontline workers, and the construction of toilets for girls also number of separate usable toilet facilities for girls has increased in India21.

MENSTRUAL ABSORBENTS: It's an absorbent item worn during menstruation or after delivery. It could be a sanitary cloth, napkin, towel or pads. This absorbent absorbs the blood flow from her vagina. SANITARY NAPKINS: Absorbent pads are an important need for adolescent girls for absorbing menstrual blood loss. In high income countries, sanitary pads are used universally. Studies in India shows that only 12% of menstruating women are using sanitary pads and cost was cited as major barrier to use by 70% of women36. A study conducted by Tegegne and Sisay in Northeast Ethiopia13 among 574 students showed 86.75% had heard about menstruation before menarche and the leading of source of information was from sisters (42.68%). but in the same study utilisation of disposable sanitary pad was 35.38% only13. This is due to lack of money, unavailability, feeling ashamed to get it and lack of knowledge about how to use it. Girls in the study used clothes, rags other than sanitary napkins.

MENSTRUAL ABSORBENTS ADVANTAGES AND DISADVANTAGES37

Table 3: Unhygienic menstrual absorbents – Advantages and Disadvantages

Table 4: Hygienic menstrual absorbents – Advantages and Disadvantages

Source:

Mahon T Cavill S & House

0: Kuruvila - Knowledge attitudes.doc

100%

S (2012) "Menstrual Hygiene Matters, a resource for improving Menstrual Hygiene around the world"

Water Aid

Figure 3 TRAINING

AND ORIENTATION IN MHM

Source: Mahon T Cavill S & House

0: Kuruvila - Knowledge attitudes.doc

100%

S (2012) "Menstrual Hygiene Matters, a resource for improving Menstrual Hygiene around the world"

Water Aid

Table 5: Roles of various ministries on MHM

Source:

Mahon T Cavill S & House

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100%

S (2012) "Menstrual Hygiene Matters, a resource for improving Menstrual Hygiene around the world"

Water Aid

ROLE OF SCHOOL IN MHM In shaping the behaviours, developing the skills and providing the correct information, schools play an important role. In order to provide psycho-social support and promoting regular hygiene to adolescent girls, at least one female teacher to be trained for every school. MHM should be included in curriculum. Following subjects to be considered 1. Puberty and menstruation – biological aspects 2. Menstruation- myths and misconception 3. Menstrual hygiene In order to provide peer to peer support, discreet student MHM council, for girls can be established. When the adolescent girls are provided support at school, they can deal menstrual issues more confidently. Teachers should have right information and confidence to break the silence about menstrual issues, stigma and shame associated with menstrual hygiene can be easily overcome by adolescent girls. Hence it's essential to train the school teachers. This could be done by individual exercise, quiz, group work, role play, drawing, poem writing, and case studies which helps the girls to have more positive attitude towards menstrual hygiene.

GOVERNMENT INITIATIVES: For below poverty line girls, under Free days scheme envisaged supply of a pack of six sanitary napkins at a nominal cost of Re 1 per pack. A charge of rupees 5/- per pack of sanitary napkins is charged of girls above poverty line.

Free days scheme was approved by NRHM Mission steering group5.

SCHEME FOR PROMOTION OF MENSTRUAL HYGIENE Under this scheme, the aim is to ensure about adequate knowledge and information about the hygiene during menstruation. It also ensures high quality sanitary napkin usage, availability of safe products and environmentally safe disposal mechanisms. Under RCH II, as a part of Adolescent Reproductive and Sexual Health (ARSH), this scheme was launched. This scheme was planned to be executed in a phased manner. First phase was expected to cover 25% of the adolescent girl.

First phase covers 152

districts across 20 states in the country. Initially a central supply mode of sanitary napkins was envisaged in 107 districts by Government of India. In the remaining 45 districts

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60%

supply of sanitary napkins was envisaged in a Self Help Group mode. Sanitary napkins were to be manufactured by the

Self Help Groups which are sold to the adolescent girls.

The brand under which these sanitary napkins are distributed by NHM is Freedays. Accredited Social Health Activist have been selling these sanitary napkins at a rate of Rs 6 per pack of six sanitary napkins. An incentive amount of Rs 1 per pack is given as an incentive to ASHA. Also ASHA gets a free pack of sanitary napkins every month. She has to deposit remaining rupees 5/- in treasury. Through Central procurement, the scheme has been implemented in 107 district, 17 states38.

Government of Tamil Nadu initiated distribution of sanitary napkins 'Pudhu Yugam' at free of cost. Two packets of sanitary napkins are given to each adolescent girls who had attained menarche for three months. Each pack contains 6 sanitary pads. Beltless sanitary napkins with wings are distributed to adolescent girls and belt sanitary napkin are distributed to postnatal mothers.

Figure 4a: Sanitary napkin Pudhu yugam

Figure 4b: Sanitary Nakin Pudhu Yugam

ADOLESCENT REPRODUCTIVE AND SEXUAL HEALTH Reproductive health problems in adolescents

affect the normal life of adolescent girls and young women. They suffer from physical, mental, social, psychological and reproductive problems which are often associated with menstrual irregularities and problems related to menstruation. The menstrual problems, issues related to menstruation, reproductive problems among adolescent girls in rural and urban are highlighted in literatures in India and abroad. During menarche and subsequent menstrual periods in adolescent period, girls experience problems which are marked by anxiety and eagerness. In Indian traditional society, talks on such topics are regarded as taboo and open discussion are also discouraged on such issues 38, 39. Common health issues faced by the adolescent girls during menstruation include excessive bleeding, lower abdominal pain, polymenorrhoea etc. On the other hand only very few of them seek treatment for the same. As a result of inadequate treatment, there is school absenteeism, leading to poor school performances. Due to socio-cultural factors, politico-religious factors, lack of inter-ministerial collaboration,

a comprehensive ARSH policy is yet to be developed in our country.

Adolescent health in India is in infant stage still. It's still a long way to go

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100%

from 'health for the adolescents' to health with the adolescents 40.

Figure 5:

0: https://www.researchgate.net/publication/316533392_Menstrual_hygiene_practices_among_adolescent_girls_in_a_resettlement_colony_of_Delhi_a_cross-sectional_study 100%

Promotion of Menstrual Hygiene among Adolescent Girls (10-19 Years) in Rural Areas

Source:

0: https://www.researchgate.net/publication/316533392_Menstrual_hygiene_practices_among_adolescent_girls_in_a_resettlement_colony_of_Delhi_a_cross-sectional_study 100%

Promotion of Menstrual Hygiene among Adolescent Girls (10-19 Years) in Rural Areas,

NHM Operational Guidelines. Under this programme,

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87%

adolescent girls in the age group of 10-19 years residing in rural areas

are the targeted group. This programme aims that the adolescent girls should have adequate information and knowledge about sanitary napkin usage. Also good quality safe sanitary products are made available with readily accessible environmentally safe mechanisms to dispose the sanitary napkins. This will be rolled out in a phased manner in selected districts initially

and includes the following components. 1.

Health education at community level for promoting menstrual health 2. Sanitary napkins to be available regularly 3. Sanitary napkins - Sourcing and procurement 4. ASHA workers to be trained in menstrual hygiene 5. Behaviour Change Communication 6. How to dispose sanitary napkins safely.

Table 6:

FRAME WORK FOR SERVICE DELIVERY: Roles and Responsibilities at Various Levels

Source:

0: https://www.researchgate.net/publication/316533392_Menstrual_hygiene_practices_among_adolescent_girls_in_a_resettle ment colony of Delhi a cross-sectional study 100%

Promotion of Menstrual Hygiene among Adolescent Girls (10-19 Years) in Rural Areas,

NHM Operational Guidelines.

Figure 6: Structure of management

Source:

0: https://www.researchgate.net/publication/316533392_Menstrual_hygiene_practices_among_adolescent_girls_in_a_resettlement_colony_of_Delhi_a_cross-sectional_study 100%

Promotion of Menstrual Hygiene among Adolescent Girls (10-19 Years) in Rural Areas,

NHM Operational Guidelines.

TRIBAL POPULATION IN TAMILNADU41, 42 In Tamil Nadu as per 1991 census, there are about 36 tribes with a population of 5.74 lakhs, representing 1.03 % of population of Tamil Nadu. - Ninth Five Year plan Tamil Nadu (1997-2002) Tribes in

Tamil Nadu: Following are the major tribes in Tamil Nadu -

Sholagar, Kadar and Veddar. Except Malayali and Irular tribes, most of the tribal communities are small in size. Tribal are found in all the districts in

Tamil Nadu

with major concentration in North, Central, and Western region of the state. Two taluks which don't have tribal population in

Tamil Nadu

are Devakottai taluk in Sivagangai district and Thiruchuli taluk in Virudhunagar district. Of the 5.74 lakh tribal population, 2.10 lakhs of tribal people live in Tiruchi, Villupuram, Tiruvannamalai, Vellore, Dharmapuri and Salem districts.

Policy Note on Forest Department 1999-2000. With the exception of Irular in Kancheepuram and Tiruvallur district, tribal live in forests. Viz Eastern Ghats, Western Ghats and discontinuous hill tracts. In Kanchipuram and Tiruvallur districts, tribal are found to live in the plains.

TRIBES IN YERCAUD43 In Tamilnadu, tribes reside in hills like Jawadhu and Yelagiri hills of Thiruvannamalai, the Kalrayan hills of Vellore district, the Pachamalai, Kollimalai and Yercaud

of Salem District, Anaimalai of Coimbatore District, Sitteri hills of Dharmapuri and Palani of Madurai District. Due to many mountainous regions suitable for inhabitation, many tribes reside in Salem. Yercaud which means "Lake Forest" derives it name from the two Tamil words, 'Eri-Lake' and Kadu- Forest respectively. Yercaud is a beautiful Hill station situated in the southern part of the Shevaroy ranges in the eastern ghats of Salem District. In

Yercaud Malayalis

are the original inhabitants. These Malayalis are Tamil speaking. They live in huts which are circular with the walls made of bamboo split, clay daubed. The huts have thickly thatched conical roof. Usually they use kambu straw, paddy straw, stalks of cholam and keeths from coconut to thatch the roof. Malayali tribes mostly live in nuclear family. Turban and a brown kambli is the traditional dress. The kambli serve as overcoat, a rain coat and sometimes as umbrella. Men and women usually wear two yard long dhoti. Many hilly tribes have changed their dessing style as plain people as a result of increase in contact with people in plains and also as a spread of literacy. Staple food for them is millets like kambu, cholam, samai. Sometimes they consume rice, ragi and their delicious food is

chendhu kazhi.

MENSTRUATION AND MENSTRUAL HYGIENE PRACTICES – STUDIES A school based health education study (interventional study) was conducted in Arihazar area, Bangaladesh by Haque et al6. In this study 416 adolescent girls in the age group 11-16 yrs studying in grade 6-8 living with the parents were the participants. Haque et al reported that the adolescent girls involved in the study had

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71%

a significant improvement in knowledge and beliefs when compared to baseline (51% vs 82.4%). It was also observed

that there was significant improvement in good menstrual practices (28.8% vs 88.9%) which includes improvement in usage of sanitary pads (22.45 change after the intervention), changing pad or clothes per day (68.8%), place of drying of used absorbent (97.6%), disposable of used absorbents (25.5%) and cleaning the genitals (19.2%). When these adolescent girls were followed up, a significant improvement in menstrual cycle regularity (94.5% vs 99.5%) and reduction in complications were reported (97.86% vs 59.6%) In 2013, in Northeast Ethiopia, Tegegne and Sisay

et al13 conducted a mixed method research by

randomly selecting 595 adolescent school girls. They conducted nine in depth review among dropout girls from five schools. They have

0: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4232635/

58%

four female teachers and four focus group discussions. Mean age at menarche was 13.98 years (± 1.17

years) and 51%

of girls had knowledge about menstruation and its management. Sanitary napkins were used as menstrual absorbent during last

menstrual cycle by only a third of the participants. It was also observed that the usage of sanitary napkins was more among girls from urban areas, girls with mothers of secondary or higher education and among families with higher monthly income. School absenteeism during menstrual period was observed in

more than half of the girls. School absenteeism was more in girls

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38%

who did not use sanitary napkins (AOR -95% C I 5.37 (3.02-9.55). It was reported by

girls that their school performance had declined after they had attained menarche. School dropout was common among girls who were teased and humiliated by their classmates when their clothes were blood stained as they did not use sanitary napkins.

A self-administered

semi structured questionnaire study was conducted by Robyn Boosey et al44 in Uganda among school girls in six government run schools. A semi-structured interview was also conducted with the female teachers and head teacher in the study schools with

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60%

toilet assessment in each school. One hundred and forty girls completed the questionnaire. Lack of access to resources, toilet and information related to menstrual hygiene

management were reported. Eighty six girls (61.7%) were missing the school during menstrual period due to menstruation related issues (mean 1.64, range 0-10, SD 1.84).

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58%

A school based cross sectional study using multistage sampling technique was conducted at Amhara Province, Ethiopia by Gultie

et al45. By lottery method the participants were selected after clustering the schools into grade and sections. Gultie et al used pretested and structured questionnaire involving 492 students and making a response rate of 100%. Menarche was attained at a mean age of 14.16 years. A high level of knowledge about menstrual hygiene management was observed in four

hundred forty six respondents (90.7%). It was observed that teachers were the main source of information about menstrual hygiene management for 212 students (43.1%). Four hundred and fifty seven (92.9%) respondents had access to water facility and four hundred and seventy five (96.5%) respondents had access to toilet facility. A

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88%

study to assess

the

impact of health education on knowledge, attitude and practice on menstrual hygiene among female college students

in urban area of

Belgaum

was

designed by Pokhrel et al19. All the PUC girls

0: https://www.researchgate.net/publication/316230418_Menstrual_hygiene_practices_among_adolescent_schoolgirls_of_rural_Mangalore_Karnataka

who attained menarche and willing to participate in the study were included. The

descriptive data which was collected were displayed in mean, percentage and proportion and the test of significance was applied with the significant level set at 5%. There was significant improvement in knowledge in post-test on nearly all menstrual relevant issues. Significant improvement was observed in practices like washing the genitals during every visit to toilet (p> 0.001) and practice of bathing during menstruation p value(p>0.001) Ghongdemath et al4 conducted a school based educational interventional study in the age group of 11 to 19 years of grade 6th to 10th and among pre-university and first year degree colleges from surrounding rural areas. The study involved 1249 students in Karnataka from January 2012 to February 2014. The study was done with pre-test and post-test along with health education relating to adolescent health. It was observed that knowledge about menstruation and menstrual hygiene improved significantly from 69.3% to 96.9% and 64.9% to 100% following health education. Practice of bathing during menstruation increased from 75.9% to 100% among participants following health education.

In Tamil Nadu

a descriptive cross sectional study was conducted by Zaidi et al23 among 150 adolescent school going girls in Thiruporur government girls higher secondary school in Tamilnadu from

April to October 2012. Provisional sampling was used and face to face interview with structured pretested questionnaire was used as tool for survey.

It was observed that

0: https://www.ijcmph.com/index.php/ijcmph/article/view/948

65%

only 18.67% of adolescent girls had known about menstruation before menarche.

About 67% of girls did not know the cause for menstruation.

Usage of sanitary pad during menstruation was reported by 96.67% and clothes were used by 1.33%. It was also observed that 51.3% girls changed the pad after completely soaked whereas 48.7% girls changed on timely interval. 54.7% of girls changed the pad twice daily, 18% once a day and 27.3% changed more than twice a day. During menstruation, 96% of girls used to take showers. The restrictions practiced during menstruation in the study are as follows. About 66% of the girls i.e. nearly two-third were secluded during menstruation, 38.7% girls were restricted from cooking, 64.7% slept separately, 38.7% were restricted from household work, 92% were restricted from playing, 81.3% were restricted from going to school and 26% girls were restricted from touching men during menstruation. Source of knowledge related to menstruation is the mother (38%), relatives 3.3%, and health professionals 3.3%, teacher 0.4%. Regarding cause for menstruation, 46.67% girls did not know the cause, 42% believed it is due to physiological process, 8% considered it as sin, 0.67% as a disease. Most of them (81.3%) knew about menstruation after menarche only, and only 18.67% had knowledge before menarche. First experience of onset of menarche was frightening in 78% of girls, confusing in 14.7% and expectant in 7.3% girls. A cross sectional descriptive study among 160 adolescent secondary school girls in

West Bengal by Das gupta et al 25. It was done

0: https://www.researchgate.net/publication/313848134_Menstrual_hygiene_knowledge_and_practice_among_adolescent_school_girls_in_rural_settings

in the field practice area of rural health unit and training

centre

in

Singur, using predesigned and pre- tested questionnaire from 15.12.2006 to 15.01.2017 in relation to knowledge about menstruation, menstrual hygiene practices and restricted activities. In the present study mean age of menarche was 12.8 years. Source of knowledge was mothers (37.5%), friends (28.75%), and relatives (1.25%). About 67.5% girls had knowledge about menstruation before menarche. Regarding cause of menstruation, 86.25% girls believed it a physiological process, 5% girls as disease, 6.25%

0: https://www.researchgate.net/publication/40453982_Menstrual_Hygiene_How_Hygienic_is_the_Adolescent_Girl 41%

girls believed it to be curse of god and 2.5% girls believed it as a result of sin. Majority of the participants (97%) did not know the source of menstrual bleeding. Regarding the practice of menstrual hygiene, more than half of the participants were not aware about the use of sanitary pads.

Even though 48.75% girls were aware about the use of sanitary pads, 11.25%

0: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2784630/

47%

girls used sanitary pads during menstruation, 42.5% used old clothes and 6.25% used new clothes whereas 40% girls used both sanitary pads and

clothes during menstruation.

Regarding cleanliness of external genitals, 2.5% girls used only water, 97.5%

0: https://www.researchgate.net/publication/40453982_Menstrual_Hygiene_How_Hygienic_is_the_Adolescent_Girl 52%

used soap and water. More than half (51.25%) participants did not possess covered toilet. Regarding disposal of used materials, 57.5% girls disposed cloth piece or sanitary pads

properly but 73.75% girls reused cloth pieces. Restrictions during menstruation was practised among 85% participants. Among them, 70.59% girls did not attend any religious function, 50% girls had food restrictions, 42.65% did not play, 33.82% were restricted from house hold works, 16.18% girls were absent to

0: https://www.researchgate.net/publication/40453982_Menstrual_Hygiene_How_Hygienic_is_the_Adolescent_Girl 83%

school and 10.29% girls did not attend marriage functions during the menstrual period.

An epidemiological cross sectional study conducted

by Ramachandra K et al26 in Bangalore. The study was done among 550

0: https://www.researchgate.net/publication/321217988_Knowledge_of_Adolescent_Girls_Regarding_Menstruation_in_Tribal_Areas_of_Meghalaya

adolescent school going girls in the age group of 13-16 years

using pre-designed pre-tested semi-structured questionnaire.

The study

showed the mean age of menarche was 12.39 years (SD \pm 0.908) in the urban schools. The study also showed that 33.27% participants had awareness relating to menstruation before menarche. It was also observed that there was no significant difference regarding menstrual awareness between urban and rural participants. Regarding the source of information, mothers (85%) were the most common informant followed by friends (30%), teachers (12%), health professionals (6%), and mass media (2%). About 49% girls experienced fear at the onset of menarche, and 21% experienced anxiety. In the study, sanitary pad usage was higher in urban area (75.9%), followed by new cloth (14%), old cloth (11%) and 6% used both. Here teachers were not a good source of information and they did not prefer to provide menstrual education too. A cross sectional descriptive study conducted among 155 adolescent female rural and urban school students in Howrah district of West Bengal by Datta et al28 using predesigned pre-tested semi-structured questionnaire included awareness about menstruation, sources of information and menstrual hygiene practices in the year 2011. Mean age of menarche among urban girls was 12.1 years and 12.2 years among rural girls. Average duration of menstrual cycle was 29.3 days and mean duration of last menstrual period was 5.4 days. About 72.1% urban participants and 39.1% rural participants had awareness about menstruation before menarche and friends (65.3%) were the main source of information followed by mothers (36.7%) in urban areas and school curriculum (55.9%) was the most common source of information in rural areas. Regarding the cause of menstruation, 60.3% urban girls and 54% rural girls mentioned menstruation as a normal phenomenon and 32.4% urban girls and 42.5% rural girls did not know the cause of menstruation. Though 95.6% urban participants and 92% rural participants felt sanitary napkin to be the ideal absorbent during menstruation, only 73.55 urban and 45.9% rural participants used sanitary pads during menstruation. Due to cost and unavailability, others used clothes. Most of the participants (76.5% in urban and 90.8% in rural) changed the absorbent two to four times in a day with 75% urban and 79.3% rural participants changing the absorbent during night also. Only 17.7 % urban participants and 40.35 % rural participants reused the absorbents. Majority of the participants have stored the absorbents in bathroom followed by cupboard. Most common place of disposal of used absorbent in rural (44.9%) and urban (69.1%) areas was dustbin, 10.3% urban and 23% rural girls buried in ground. Regarding restrictions practised during menstruation, 12.6% rural and 7.4% urban girl's refrained bathing. Sabarkantha district is considered as one of the tribal district of Gujarat but it has dual burden of tribal and urban within. A community based cross sectional study among 250 adolescent girls in selected 4 rural government schools of Himatnagar Taluk of Sabarkantha district in Gujarat using predesigned pretested questionnaire was carried out by Vijay Agarwal46 et al during February 2016 to study social parameters along with menstrual hygiene knowledge and practices. Mean age of menarche was 13.44 years ± 1.35 years. In the study 41.6% girls had 28-35 days cycle, 34% had 25-28 days cycle and 62.8% girls have regular menstrual cycle. About 35.6% participants had awareness about menstruation before menarche and mothers (54.2%) were

the common source of information followed by sister (29.3%). Among the participants, 34.8% participants believed menstruation to be due to natural cause. In the study 14.8% girls were using sanitary napkins during menstruation, 48.8% girls used cloths and 36.4% used sanitary pad and cloth. Only 51.6% girls changed the absorbent once in a day. Reason for not using sanitary pads was due to high cost (31.2%), lack of awareness (33.6%), shyness (15.5%) and difficulty in disposal (19.7%). Also the association between mother's educational status and use of sanitary napkins by girls is statistically significant which means girls whose mothers are well educated were more

likely to

use sanitary napkins A community based cross sectional study about menstrual hygiene practices was done by Debadeep et al47 using pre-designed pretested proforma involving 200 adolescent girls of Barpeta from August 2018 to January 2019. In the study 84% respondent attained menarche between 12 and 14 years of age, 66.5% adolescent had menstrual cycle between 28 and 32 days followed by > 28 days in 19.5% and more than 32 days in 14%. Regarding knowledge 92% were aware about menstruation before menarche with mother and sister being the source of information (72.5%). Sanitary pads were used by 82.5% respondents followed by clothes in 7.5% respondents. Frequency of pad change per day during menstruation was once (12%), two pads (50.5), three pads (26.5%) and more than three pads by 11% participants. About 78.5% respondents used soap and water for cleaning of external genitalia each time after changing the pad and 21.5% girls used only water. Majority of the participants (98.5%) took bath daily during menstruation and 93.5% respondents washed hand with soap and water after changing the pads. Sociocultural factors influencing menstruation were not attending religious ceremonies (100%), avoiding kitchen work (57.5%),

and

not attending marriage party (31.5%), sleeping separately (30.5%), school restrictions (21.5%) and dietary restrictions like avoiding sour food (46%), egg (19.5%) and other food (6%). Shanbhag D

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89%

et al 48 conducted

cross sectional study in four selected High schools in rural areas

in three districts of Bangalore rural, Bangalore urban and Kolar around Bangalore city using pre designed pretested self-administered questionnaire from January to march 2011 among girls studying 8th, 9th and 10th std regarding the perceptions and practices during menstruation involving 506 participants. Mean age of menarche was 13.4years and 99.6% students had awareness about menstruation and 57.9% students had knowledge before menarche, mother(55.1%) being the major source of information followed by friends (17.4%) and sister 9.2%). Menstruation was perceived as a natural phenomenon by 73.7% and curse of god by 13.4%. Frequency of menstrual cycle was once in 4-5 weeks in 63.2% and once in 2-3

weeks in 22.8% students. Regarding the use of menstrual absorbent, 44.1% used sanitary pads, 34.7% used cloth and 21.2% used both. Among the girls who used cloth, 31.3% used soap and water for washing the cloths, 28.6% used hot water and 20.1% used antiseptic solution. Among girls who used cloth as menstrual absorbent, 71.7% reused the clothes for 1-2 months, 20.45% for 3-4 months and 7.9% for 5-6 months. Washed clothes were dried under the sun by 68.4% and inside the house by 16.4%. About 56.8% participants used soap and water for cleaning the external genitalia and 43.2% used only water. 88.8% girls take bath during menstruation, 3.3% once in 2-4 days and 3% after bleeding has stopped. About 53.8% cleaned external genitalia all times after micturition, 8.5% participants never cleaned after micturition. Restriction of food during menstruation was like sweets, spicy food, and curd and milk products. A cross-sectional study was conducted by Seenivasan et al 49 in five government schools located in North Chennai, Tamilnadu

0: https://www.researchgate.net/publication/305419697_Knowledge_attitude_and_practices_related_to_menstruation_among_adolescent_girls_in_Chennai

among 500 school going adolescent girls who have attained menarche, during the period June to August 2012

using pretested questionnaire regarding knowledge and menstrual hygiene practices.

Mean age of menarche was 12.1±1.5 years. About 40 % of the girls had knowledge

0: https://www.researchgate.net/publication/305419697_Knowledge_attitude_and_practices_related_to_menstruation_among_adolescent_girls_in_Chennai 54%

about menstruation before menarche

with

mother (47.7 %) being the major source of information.

Other sources

of information were friends (39.9%), sisters (6.1%),

teachers (4.5%) and media (2%).

In the study sanitary pads were used by 92.6% girls, 5.6% used cloths as absorbent and 1.6% used both. Change of absorbents per day was 28% changed 1-2 times, 34.4% changed 3-4 times, 37.6 % changed 4-5 times. 77% girls washed their genitals more than twice a day and 47.6% used water, 37.4% soap and water and 15% antiseptics. Regarding disposal of absorbents, dustbin (72.6%) was commonly used for disposal followed by flushing in toilets (12.2%), burning (3.6%) and reusing (1.8%). Restrictions practised during menstruation were

92.4 % restricted to attend religious function, 55.7% restricted from house hold work, 51.8% restricted from sleeping on routine bed and 9.2% did not attend school. Kamath et al 50 conducted a

0: https://www.researchgate.net/publication/305419697_Knowledge_attitude_and_practices_related_to_menstruation_among_adolescent_girls_in_Chennai

cross sectional study among 550 school going adolescent girls using a pre-tested questionnaire

in Udupi taluk, Karnataka. Of 550 adolescent girls, 280 were from rural villages and 270 from urban areas. Mean age of menarche was 12.39 years in urban and 12.31 years in rural schools. Study showed that only 33.27% urban participants and 35.82 % rural participants had awareness about menstruation before menarche and common source of information was mothers [urban- 82.2%, rural- 69.6% total- 75.8%] followed by friends [urban – 25.2 %, rural – 33.2% total- 29.3%] and sisters [urban- 14.4% rural- 11.1% total- 12.7%] teachers [urban – 3.3% rural – 2.5 % total – 2.9%] and health worker [urban -6.7%, rural-14.6% total- 10.7%]. Usage of sanitary napkins during menstruation was higher among urban than rural participants. – Urban (75.9% rural- 65% total – 70.4%). Reason for not using sanitary pad were difficult to dispose [urban- 55.6% rural- 55.6%], cost [rural – 30.8 % urban-18.25], lack of knowledge [urban – 11.1 % rural – 23.1 % total – 18.2 %] no reason [urban- 33.3% rural – 7.7% total 7.7%]. Reason for not changing pads in school are due to uncomfortable atmosphere [72.6%] in both the groups, lack of water and disposal facilities among rural participants [24.2%] and unhygienic conditions in

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71%

school [6.2%]. Arya et al 51 conducted a descriptive cross sectional study among adolescent tribal girls

in

Kolayad Grama Panchayat of Kannur district. He conducted the study

to assess the knowledge, practices of menstrual hygiene and the restrictions practised by them.

It was done

in 30 tribal girls in the age 12-19 years. It was observed in the study that 67% respondents used old washed clothes, 26.7% used natural materials and 6.7% used new clothes as absorbents. Reason for not using sanitary pads were due to difficulty in disposing and cost by 33.3%, not comfortable by 20% and unawareness by 13.3%. Regarding the change of frequency of pads during menstruation, four times by 6.7%, 66.7 % girls changed three times a day, twice daily by 20%, and one absorbent in whole day by 6.7%. Here the limitation is

sample size limited to 30 adolescent girls and only one panchayat. Sridhar et al 52 conducted a community based cross sectional descriptive study among 425 tribal adolescent girls of age 10 to 19 years (married, antenatal, postnatal) residing in 18 habitations of Achampet mandal in Telangana from December 2016 to February 2017 using a predesigned pretested questionnaire

0: https://www.researchgate.net/publication/321217988_Knowledge_of_Adolescent_Girls_Regarding_Menstruation_in_Tribal_Areas_of_Meghalaya

to observe menstrual health of the tribal adolescent girls and to describe cultural factors on study population.

Out of 425 students, 353(83.05%) study participants were unmarried. 74.35% subject's attained menarche with the mean age of 12.83 years and menstruation last for 3-5 days in majority followed by less than 3 day with regular menstrual cycle in majority of study subjects. Majority of the parents were illiterate, mother 60.5% father 52.5%. Among the study subjects, 25.9% were illiterates, 41.2% completed primary education, 6.4% high school education. Menstrual hygiene was non sanitary in majority of the illiterate subjects (55.1%). Sanitary pads were used by 68.35% participants and cloth by 31.6%. About 66.5% participants changed the materials less than twice daily and 33.5% more than twice. In the study, certain cultural practices were still prevalent with religious restrictions (86.81%), bathing restrictions (72.5%), routine household activity (21.6%), food restriction (20.2%), school absenteeism (20%) and playing restriction (8%), sleeping on floor (8.7%). Mother's education

0: https://www.researchgate.net/publication/316230418_Menstrual_hygiene_practices_among_adolescent_schoolgirls_of_rural_Mangalore_Karnataka

played an important role in menstrual hygiene practices of the girls

and it's statistically significant. Girls who had regular menstrual cycle were practising good menstrual hygiene which was statistically significant. It was also observed in the study that premenstrual symptoms were significant in girls with poor menstrual hygiene.

Bekkalale Chikkalingaiah

et al 53 conducted

0: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2784630/

55%

community based cross sectional observational study among 210 adolescent girls. The study was done in the field practice area of

Hegadagere subcenter

area, Bangalore using predesigned pre tested questionnaire to assess the menstrual hygiene knowledge and practices. In the study 61% girls belong to nuclear family, 35.7% girls joint family and 3.3% girls three generation family. Sanitary pads were used by 11.25% as menstrual absorbent, and 6.25 % girls were using fresh cloth, used cloth was used by 42.5%, both cloths and pads by 40%. Regarding awareness, 87.6% had knowledge about menstruation before menarche and 12.4% had no awareness and mother was the source of information in 56.5% girls.

Other sources for information were

teachers, friends, neighbours and health workers. Also in the study 63% girls were taking bath daily during menstruation. Regarding restrictions practised during menstruation 97.6% practised different restrictions with religious restrictions in 49.4%, food restrictions like avoiding sour foods, banana, radish palm in 7.6%, restricting house hold work in 18.8% girls, restricting playing in 17.1% girls and school absenteeism in 4.7% girls. Jagruti Prajapati et al 54 conducted an epidemiological cross sectional community based study among 155 girls in the Anganwadi centres of UHTC of GMERS Medical College Gandhinagar Gujarat using semi structured questionnaire to assess menstrual hygiene knowledge and practices. In the study 50% girls attained menarche in the age 12-14 years and 19.3% girls before 12 years and 30.6% girls after 14 years. Duration of blood flow was 2-5 days flow in 65.9%, more than 5 days in 27.3% and less than two days in 6.8% girls. Length of cycle was 28-32 days in 53.5% girls, more than 32 days in 13.6% and less than 28 days in 32.9% girls. Quantity of flow was normal in 69.3%, excessive in 18.2% and scanty in 12.5% of the study subjects. In the study 39.8 % girls had knowledge before menarche. Mothers (48.9%) were the main source of information followed by sister (25%), friends (12.5%), and relatives (10.2%). Only 33.1% girls had knowledge that menstruation is a physiological process. Sanitary pads were used by 26.1% girls followed by new cloth (31.8%), and old washed cloth (33.15), pad and old washed cloth (5.7%), pad and new cloth (3.4%) as absorbent. Among the girls who not used sanitary pads were due to washing problem (33.8%), drying (13.6%), and cost (29.2%), difficulty to discard (21.5%). All girls had different type of restrictions like religious restrictions (87.5%), routine house hold work (35.2%), and food restrictions (8.1%). Hygienic practices during menstruation

were observed in the study. They were

daily bathing (95.5%), regular hand washing (96.6%), hand washing with water (6.8%), soap and water (93.2%). Also regular cleaning of genital (90.9%), separate bathroom facility (42.1%), using soap and water for cleaning genital (35.2%) was observed.

OBJECTIVES OF THE STUDY: 1.

To assess

the menstrual hygiene practices among tribal adolescent girls in Salem district. 2.

To determine the factors influencing the menstrual hygiene practices among the same study population

JUSTIFICATION Adolescent growth is a sequence of development. WHO defines adolescence as the segment of life between the ages of 10-19 years 55. Menstruation is natural phenomenon for girls. In India, menstruation is regarded as something unclean or dirty and itis linked with misconceptions. Over 21.4 % population in India are adolescents. A sizeable proportion of the Indian mothers are adolescents. In tribal population, children are not being sent to school because parents utilise their services to improve the family income. In India poor nutrition, early child bearing and complications associated with reproductive health problems. As per WHO, 20% of health problems in adolescent girls are due to reproductive and sexual ill health56. Every girl and woman need to practice menstrual hygiene in their life and it's essential to practise good menstrual hygiene for healthy life because it is an important risk factor for reproductive tract infection. There is lack of awareness regarding menstrual hygiene knowledge, practices and awareness. Social taboos have made the problems of menstrual hygiene ignored or misunderstood. Although studies were done regarding menstrual hygiene awareness, practices, very few studies are conducted in tribal population. Hence this study is indented to know about menstrual hygiene practices in tribal population in Salem district.

METHODOLOGY: Study design: This study was conducted at the community level as a community based cross sectional study to estimate the menstrual hygiene practices and the factors influencing the menstrual hygiene practices among tribal adolescent girls in Salem district, Tamil Nadu. Study area: The community based study was conducted in Valavanthi Primary Health Centre, Salem, Tamil Nadu, India. Study period: The study was carried out for a period of one year from August 2018 to July 2019 Study population: Tribal adolescent girls in the age group of 10 to 19 years were the study participants with the inclusion and exclusion criteria being: Inclusion criteria: 1) Adolescent girls in the age group of 10 -19 years who attained menarche. 2) Having at least three continuous menstrual cycles.

Exclusion criteria: 1) Adolescent girls in the age group of 10 – 19 years those who had not attained the menarche. 2) Adolescent girls who have psychological problems. 3) Adolescent girls who are seriously ill. 4) Adolescent girls who are not able to contact for 3 consecutive visits Sample size: 400

adolescent girls

Sample size calculation: Formula $n = z\alpha 2pq/d2$ $z\alpha = 1.96$ at 95% confidence interval p = prevalence from previous study q = 1-p d = precision The prevalence for the present study was calculated from the previous study p = 20.1% (p = 20.1 was taken as frequency of change of sanitary pad more than twice per day as a menstrual practice among the study participants from

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100%

Menstrual hygiene practices among adolescent girls residing in Tribal and social welfare hostel in Andhra Pradesh, A Community based study

by Sharvanan E Udayar, Kiruthika Anand, Prasad V Devi.)57 q = 100 – p q = 100 – 20.1 q = 79.9% d = Relative precision 20% of prevalence was taken for this stud I.e 20% of 20.1 = 4.02 n = 1.96*1.96*20.1*79.9/4.02*4.02 n = 381 Allowing a 5% for permissible errors like non response rate (19) Sample size comes around 381+19 = 400 individuals Sampling method: The study was carried out as Multistage sampling method. First stage: By simple random sampling, Salem District was chosen. Second stage: Salem District have tribal population residing in 3 blocks namely Valavanthi block, Bethanayakkanpalayam block and Gangavalli block. Of these by lot method, Valavanthi block was chosen. Third stage: Valavanthi block consists of Valavanthi PHC, Nagalur PHC and Manchakuttai PHC. By lot method, Valavanthi PHC was chosen. Fourth stage: Valavanthi PHC has 4 health sub centres (HSC) namely Thalaisolai, Kovilmedu, Maramangalam and Kottachedu. Tribal adolescent girls in all the 4 Health Sub Centres were line listed as per Anganwadi Centre (AWC) Register. Total of 1194 adolescent girls were registered in the Anganwadi Centre. By simple random sampling, using a Random Number Table, 400 samples who satisfy the inclusion criteria were included in the study. If two study participants were from the same household, both were included in the study.

Figure 7: Sampling Method

Operational definitions 1. ADOLESCENTS: 'Adolescence' is the period between 10 and 19 years. The early adolescence means 10 to 14 years and late adolescence means 15

to 19 years. 2. MENSTRUAL HYGIENE:

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97%

Adequate

menstrual hygiene management is "

women and adolescent girls using a clean menstrual management

material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of

the menstruation

period, using soap and water for washing the body as required, and

having

access to facilities to dispose

of used menstrual management materials."

Measuring tool: A pretested validated semi structured questionnaire Questionnaire: The questionnaire consists of a. Socio demographic characteristics b. Menstrual profile c. Knowledge about menstrual hygiene practices d. Practices during menstruation e. Cultural

restrictions during menstruation. The questionnaire was pretested among 50 adolescent girls in Valavanthi PHC during the pilot study and based on the observations, necessary modifications were made for the main study. The results from the pilot study were not included in the final analysis. Knowledge about menstruation was assessed using a score. 1. Cause for menstrual bleeding: If the answer is physiological the score was given as one and for all the other options the score was given as zero. 2. Sanitary material ideally used during menstruation: If the answer was sanitary pad, the score was given as one and for all the other options the score was given as zero. 3. Frequency of changing the sanitary pad per day: If the answer is 4-6 times the score was given as 2, three times per day the score was given as 1 and for all other options the score was given as zero. 4. Disposal of sanitary pads: If the answer is deep burial / burning, the score was given as one and for all other options the score was given as zero. The total score for knowledge was 5. Likewise the practices were also scored 1. Sanitary material currently used during menstruation: If the answer is sanitary pad the score was given as two, both sanitary pad and cloth the score was given as one and for all other options the score was given as zero. 2. Frequency of changing the sanitary pad per day: If the answer is 4times (4-6 hours) the score was given as two, 3 times (8 hours) per day the score was given as one and for all other options score was given as zero. 3. Storing of the sanitary pad: If the answer is 1 day score was given as two and for all other options score was given as zero. 4. Disposal of sanitary pad: If the answer is deep burial / burning the score was given as two and for all other options the score was given as zero. 5. Reuse of sanitary pad: If the answer is no the score was given as two and for the other options the score was given as zero. 6. Cleaning of external genitalia: If the answer is yes score was given as two and for the other options the score was given as zero. 7. Cleaning of external genitalia with: If the answer is soap and water the score was given as two, only water the score was given as one and for all other options the score was given as zero. 8. Cleaning external genitalia during menstruation: If the answer is every time after urination/defecation, the score was given as two and score one was given to cleaning only during bathing and during changing pad and for all other options score was given as zero. 9. Bathing daily during menstruation: If the answer is yes, score was given as two and for all the other options the score was given as zero. 10. Changing undergarments daily during menstruation: If the answer is yes score was given as two and for all the other options the score was given as zero. Total score for practices was 20. Data Collection: Data collection was done in the study area after obtaining the due permission from the Head of the Department, Department of Community Medicine and the Dean, Stanley Medical College, Directorate of Public Health and Preventive Medicine (DPH), Deputy Director of Health Services (DDHS) of Salem district and approval from the Institute Ethics Committee. The data was collected from those who satisfied the inclusion criteria. If the study participant was above the age of eighteen years, a written informed consent was obtained from the study subject and if the study participant was below eighteen years a written informed consent was obtained from her parents. Total of 1194 adolescent girls were registered in the Anganwadi Centre. By simple random sampling, using a Random number table, the study participants are selected. House to house visit was made to collect the data from the selected study participant. If they are not in their house during the first visit, subsequent visit was made and the data was collected. The selected study participants who were not available during three consecutive visits were excluded from the study. The data collection was done using a semi

structured questionnaire in the local language by interview method. The questions were put forward pertaining to the Socio demographic profile, menstrual profile, awareness about menstruation, menstrual practices and cultural restrictions among the study participants during menstruation. Relevant information was obtained from the respondent using the semi structured questionnaire in the local language and the questionnaire was read out to the study participants in the same order as listed in the questionnaire and sufficient time was given to the subjects to respond. If the study subject did not understand the question, it was repeated in the same manner without probing for the answer. Services rendered: Health education was given to all the study participants regarding the proper menstrual hygiene practises Statistical Analysis: Data was entered in MS Excel and analysed using the Statistical Package for Social Sciences (SPSS) Version 16. Descriptive statistics such as Mean / Median and Standard Deviation were employed to describe continuous variables, while frequency distributions were obtained for dichotomous variables. Association between qualitative variables were done using Chi square tests and Fisher's exact test. A p value of less than or equal to 0.05 has been considered to be significant.

RESULTS A total of 400 tribal adolescent girls in the age group of 10-19 years were interviewed for the study. Table 7 shows the socio demographic characteristics of the study participants. I. Socio demographic details: The mean age of the study participants is 15.10 ± 1.564 years. All of them were literates. Majority of the study participants 208 (52%) had completed up to high school. Majority of the study participants 142(35.5%) were second order of birth. Most of the study participants 391 (97.8%) were unmarried. Majority of the study participants belongs to nuclear type of family. Table 7: Socio demographic profile of the study participant Socio demographic characteristics Number of study participants, n = 400(%) Age in years 10-14 15-19 171 (42.8%) 229 (57.2%) Education Middle school High school Higher secondary Post graduate/ degree 73 (18.3%) 208 (52%) 113 (28.3%) 6 (1.5%) Birth order First Second Third Fourth Fifth 178 (44.5%) 142 (35.5%) 61 (15.3%) 16 (4%) 3 (8%) Marital status Married Unmarried 9 (2.3%) 391 (97.8%) Family type Nuclear Joint 299 (74.8%) 101 (25.3%)

The study area being a tribal population, the per capita income classification of Modified BG Prasad scale

was

used to arrive at the socio economic status. Using the Consumer Price Index (Industrial Worker) for the month of November 2018, which

was 302,

the Modified BG Prasad Classification was updated (annexure). Figure 1. Shows socioeconomic classification as per the Modified BG Prasad Scale. Majority of the study participants belongs to lower middle classes 260 (65%) while only 0.3 % of the study participants belong to the upper class.

Figure 8. Socio economic status of the study participants

Socio economic status - Modified BG Prasad classification (n=400) [CATEGORY NAME]

[PERCENTAGE]

[CATEGORY NAME]

[PERCENTAGE]

[CATEGORY NAME]

[PERCENTAGE]

[CATEGORY NAME]

[PERCENTAGE]

Upper Upper middle Middle Lower middle 0.3 16.8 65 18

II. Menstrual profile of the study participants Table 8. Menstrual profile of the study participants Menstrual profile Number of study participants n =400 (%) Menarche attained age in years 10-14 15-19 380 (95%) 20 (5%) Menstrual cycle pattern Regular Irregular 338 (84.5%) 62 (15.5%) Out of the 400 adolescent girls, 380

0: https://madridge.org/journal-of-internal-and-emergency-medicine/mjiem-1000123.php 70%

adolescent girls (95%) attained menarche between the age group of 10 – 14 years. Majority of the adolescent girls 338 (84.5%)

had regular menstrual cycles. III. Knowledge about menstruation: Knowledge about menstruation was assessed using the following score. 1. Cause for menstrual bleeding: If the answer is physiological the score was given as one and for all the other options the score was given as zero. 2. Sanitary material ideally used during menstruation: If the answer was sanitary pad, the score was given as one and for all the other options the score was given as zero. 3. Frequency of changing the sanitary pad per day: If the answer is 4-6 times the score was given as 2, three times per day the score was given as1 and for all other options the score was given as zero. 4. Disposal of sanitary pads: If the answer is deep burial / burning, the score was given as one and for all other options the score was given as zero. Total knowledge score was 5. The scores 4 and 5 was taken as good knowledge and the scores 1, 2 and 3 was taken as poor knowledge The minimum score for knowledge about menstruation among the study participants one and maximum score was five. The mean score for knowledge about menstruation was 4.03 ± 0.88 In the study, 81% of the study participants had correct knowledge that menstrual bleeding was

due to physiological. Knowledge about usage of sanitary pad was present in 96.3% of the adolescent girls.

About 169 (42.3%) adolescent girls had the knowledge about changing the sanitary pad 4-6 times per day. About 98.5% of the adolescent girls had correct knowledge

about the ways of disposal and adopted burning as the

method of disposal. Table 9. Correct knowledge about menstruation among study participants Correct knowledge about menstruation Number of study participants n =400(%) 1. About the cause for menstrual bleeding 324 (81%) 2. About the sanitary material ideally used during menstruation 385 (96.3%) 3. About the frequency of changing pad per day 169 (42.3%) 4. About ways of disposal of pad 394 (98.5%)

Figure 9: knowledge about menstrual practices of the study participants

knowledge about menstrual practices(n=400) Good knowledge73.5%

Poor knowledge26.5%

Good knowledge Poor knowledge 73.5 26.5

Out of 400 adolescent girls, 294 (73.5%) had good knowledge about menstrual practices. IV. Menstrual hygiene practices among the study participants Menstrual hygiene practices was scored by the following 1. Sanitary material currently used during menstruation: If the answer is sanitary pad the score was given as two, both sanitary pad and cloth the score was given as one and for all other options the score was given as zero. 2. Frequency of changing the sanitary pad per day: If the answer is 4times (4-6 hours) the score was given as two, 3 times (8 hours) per day the score was given as one and for all other options score was given as zero. 3. Storing of the sanitary pad: If the answer is 1 day score was given as two and for all other options score was given as zero. 4. Disposal of sanitary pad: If the answer is deep burial / burning the score was given as two and for all other options the score was given as zero. 5. Reuse of sanitary pad: If the answer is no the score was given as two and for the other options the score was given as zero. 6. Cleaning of external genitalia: If the answer is yes score was given as two and for the other options the score was given as zero. 7. Cleaning of external genitalia with: If the answer is soap and water the score was given as two, only water the score was given as one and for all other options the score was given as zero. 8. Cleaning external genitalia during menstruation: If the answer is every time after urination/defecation, the score was given as two and score one was given to cleaning only during bathing and during changing pad and for all other options score was given as zero. 9. Bathing daily during menstruation: If the answer is yes, score was given as two and for all the other options the score was given as zero. 10. Changing undergarments daily during menstruation: If the answer is yes score was given as two and for all the other options the score was given as zero. Total score for menstrual hygiene practices among the study participants was 20. The scores18, 19 and 20 was taken as good practice and the other scores taken as poor practice. The minimum score for menstrual hygiene practices among the study participants was 13 and the maximum score among the study participants was 19. None of the study participants got the score 20. The mean score for menstrual hygiene practices among the study participants was 17.40 ± 1.358 Out of the 400 adolescent girls, 379 (94.8%) girls were using sanitary pad currently. 179 (44.8%) adolescent girls changed their sanitary pads 3 times per day and 163 (40.8%) adolescent girls changed their sanitary pad 4-6 times per day. 297(74.3%) adolescent girls stored and disposed the sanitary pad every day. Majority of the adolescent girls 394

(98.5%) used burning as a method of disposal. 287 (71.8%) adolescent girls, cleaned their genitals with soap and water during menstruation and 82 adolescent girls were used only water for cleaning their genitals during menstruation. Out of the 400 adolescent girls, 73 girls were cleaned their genitals every time after urination / defecation during menstruation. All the adolescent girls bathed daily during menstruation and all the girls changed their undergarments daily during menstruation. Table 10. Correct menstrual practices of the study participants Correct menstrual practices Number of study participants n = 400 (%) Sanitary material used during menstruation 379 (94.8%) Frequency of changing pad per day 163 (40.8%) Storing pad 297 (74.3%) Disposal of pad 394 (98.5%) Reuse of pad 400 (100%) Cleaning genitals 400 (100%) Clean with soap and water 287 (71.8%) Cleaning every time after urination/ defecation 73 (18.3%) Bathing daily during menstruation 400(100%) Changing undergarments daily 400 (100%)

Figure 10: Menstrual hygiene practices of the study participants

Menstrual hygiene practices of the study participants (n = 400) Good practice [VALUE] %

Poor practice [VALUE] %

Good practice Poor practice 54 46

Out of the 400 study participants 216(54%) of adolescent girls had good menstrual hygiene practices. Of the 400 study participants, all of the adolescent girls have heard about menstruation before attaining menarche. Figure 11: Source of menstruation information before menarche

Source of menstruation information before menarche(n=400) [VALUE] %

[VALUE] %

[VALUE] %

[VALUE] %

[VALUE] %

Mother Friends Sister Grand mother Teachers 67.3 22.5 7.5 2.5 0.3

Majority of the adolescent girls received the information about menstruation before attaining menarche from their mothers. Table 11: Procurement of pads Procurement of pads Number of study participants n =400 (%) Both school teacher and self 307 (76.8%) Self-procurement 46 (11.5%) School teacher 36 (9%) Both anganwadi worker and self 8 (2%) Anganwadi worker 2 (0.5%) ASHA 1 (0.3%) Majority of the adolescent girls procured the sanitary pads from both school teacher and by themselves. Figure 12: Reasons for not changing sanitary pad at school

Reasons for not changing sanitary pad at school(

n=400) [VALUE] %

[VALUE] %

[VALUE] %

Shyness Dirty toilet No dust bin 8.800000000000007 4 1.8

Out of the 400 study participants, 336(84%) adolescent girls changed the sanitary pad at school and 58(14.5%) girls did not change the sanitary pad at school. 35

adolescent girls (8.8%) mentioned shyness, 16 (4%) girls mentioned dirty toilet and 7 girls (1.8%) mentioned non-availability of dust bin in the toilet as the reason for not changing the sanitary pad at school.

Of the total participants, 21 (5.3%) study participants are using both sanitary pad and cloth during menstruation. They use the clothes only at home and if they go out they use the sanitary pad. Feeling of warmth is the main reason for not using the sanitary pad at home. All the 21 (5.3%) adolescent girls

who used cloth during menstruation

wash and reuse the clothes. The type of cloth used was cotton. Out of 21 (5.3%) adolescent girls, 18 (4.5%) girls washed the clothes with soap and water and the remaining 3 (0.8%) girls, used soap, Dettol and water for washing. The washed clothes

were

put under the sunlight for drying. Of the 21(5.3%) girls, majority 17 (4.3%) girls change

their

clothes three times per day and they disposed the cloths 3 months once. Out of 21 girls, 20 girls stored the used clothes separately near the routine clothes. Those who used the clothes, disposed them by burning

as a method of disposal.

Figure 13: Toilet facility in home of the study participants

Toilet facility in home of the study participants (n=400) [VALUE] %

[VALUE] %

Toilet facility present Toilet facility absent 61.3 38.79999999999999

245 (61.3%) adolescent girls had toilet facility in their home.

V RESTRICTIONS DURING MENSTRUATION A. Cultural

restrictions

Table: 12 Cultural restrictions of the study participants during Menstruation

Cultural Restrictions(n=400) Yes n (%) No n (%) Attending religious places 383 (95.8%) 17 (4.3%) Attending school 392 (98%) 8 (2%) Isolation 250 (62.5%) 150(37.5%) Playing 211 (52.8%) 189 (47.2%) Food 80 (20%) 320 (80%) Sleeping on routine bed 208 (52%) 192 (48%) Doing household work 336 (84%) 64(16%) Attending family functions 392 (98%) 8(2%) Touching food 339 (84.8%) 61(15.3%) Touching family members 267 (66.8%) 133 (33.3%)

Majority of the study participants had restrictions to activities like

attending religious places, family functions, going to school,

doing household work and touching the stored food. More than half of the study participants had restrictions like isolation during menstruation, restriction from playing with friends, sleeping in routine bed

and touching the family members.

B. Food restrictions during menstruation Majority (80%) of the study participants had no food restrictions during menstruation. Figure 14: The foods which were restricted during menstruation

80 %

16.5%

2%

1.5%

No Food Restriction Sweets Non vegetarian Both 80 16.5 2 1.5 Out of the 400 study participants, sweets were restricted to 66(16.5%) adolescent girls, non-vegetarian food restricted to 8(2%) girls and both were restricted to 6(1.5%) girls during menstruation.

Figure 15: Reasons for Food Restriction during Menstruation

Reasons for Food Restrictions during Menstruation [VALUE] %

[VALUE] %

[VALUE] %

[VALUE] %

Excess Bleeding Don't know Smell Both 15.5 2.5 1.3 0.8

Among the 400 adolescent girls, excess bleeding was the reason for food restriction to 62 (15.5%) girls,

foul smell of the menstrual flow

was the reason for food restriction to 5(1.3%) girls, both excess bleeding and

foul smell of the menstrual flow

was the reason for food restriction to 3(0.8%) girls and 10(2.5%) girls doesn't know the reason for food restriction. Majority of the adolescent girls 339(84.8%) were not allowed to touch the cooked food.

VI ASSOCIATION OF SOCIODEMOGRAPHY WITH KNOWLEDGE Table 13: Association between age category of adolescent girls and knowledge score Age category Knowledge score Total Chi square df p value

Good Poor 10-14 years 122 (71.3%) 49 (28.7%) 171 0.712 1 0.399 (not significant) 15-19 years 172 (75.1%) 57 (24.9%) 229 Total 294(73.5%) 106(26.5%) 400

Late adolescents (15-19 years) had better knowledge than early adolescents. But this association was not statistically significant Table 14 Association between adolescent girl's education and knowledge score

Education Knowledge score Total Fisher's exact test df p value

Good Poor Middle 44(60.3%) 29(39.7%) 73

11.035

1

0.009 (S) High school 152(73.1%) 56(26.9%) 208 Higher secondary 93 (82.3%) 20(17.7%) 113 Graduate 5 (83.3%) 1 (16.7%) 6 Total 294(73.5%) 106(26.5%) 400

As the educational status of the adolescent girls in the study population increases, the knowledge on good menstrual hygiene practices increases.

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83%

This association was found to be statistically significant. (p value = 0.009) Table 15: Association

between family type and knowledge score Family type Knowledge score Total Chi square df p value

Good Poor Nuclear 211(70.6%) 88(29.4%) 299 5.224

1 0.022 (S) Joint 83(82.2%) 18(17.8%) 101 Total 294(73.5%) 106(26.5%) 400

In this study, adolescent girls living in joint families had a statistically significant better knowledge on menstrual hygiene than girls living in nuclear families. (p=0.022) VII

ASSOCIATION OF SOCIO DEMOGRAPHY WITH PRACTICE SCORE Table 16: Association between age category of adolescent girls and practice score Age category Practice score Total Chi square df p value

Good Poor 10-14 year 89(52%) 82(48%) 171 0.459 1 0.498 15-19 years 127(55.5%) 102(44.5%) 229 Total 216(54%) 184(46%) 400

In this study, late adolescents had a better menstrual hygiene practices compared to early adolescents. But this association was not statistically significant. Table 17: Association between family type and practice score Family type Practice score Total Chi square df p value

Good Poor Nuclear 150(50.2%) 149(49.8%) 299 7.003 1 0.008(S) Joint 66(65.3%) 35(34.7%) 101

In this study, adolescent girls living in joint families had statistically significant better menstrual hygiene practices

when compared to girls living in nuclear families. (

p=0.008) VIII KNOWLEDGE PRACTICE GAP Table 18: Association between knowledge score and practice score Knowledge Score Practice score Total Chi square df p value

Good Poor Good 188 (63.9%) 106 (36.1%) 294 44.178 1 0.000 (S) Poor 28 (26.4%) 78 (73.6%) 106 Total 216 (54%) 184 (46%) 400 Among the study participants, those who had good knowledge on menstrual hygiene had good menstrual hygiene practices. This association was found to be statistically significant. DISCUSSION

In the present

study, more than half of the participants belong to 15 -19 years (57.2%) followed by 10 to 14

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64%

years (42.8%) and the

mean age of the study participants was 15.10 \pm 1.564 years. All of the study participants were

literate. Most of the participants were unmarried (97.8%) and 74.8% girls belong to nuclear family. Socioeconomic classification as per the Modified BG Prasad Scale,

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100%

majority of the study participants belongs to lower middle class 260(65%)

while only $0.3\,\%$ of the study participants belong to the upper class. A study conducted by Koshi E P et al58 Almabagh in Lucknow found

0: https://www.researchgate.net/publication/40453982_Menstrual_Hygiene_How_Hygienic_is_the_Adolescent_Girl

30%

that age of menarche ranged from 8 – 17 years (66.8%) and in the study

the mean age of menarche was being 14.19 years. A cross sectional study done by Prasad B G et al59 showed the mean age

of menarche

ranged between 11-15 years with mean age being 13.62 years. To know the onset of menarche among girls, a cross sectional study was done by Gurmeet M P Singh

et al 60

in Ludhiana and

0: Kuruvila - Knowledge attitudes.doc

100%

the mean age of menarche was found to be 14.7 years.

In Kodhamendhi village of Nagpur district a cross sectional study was done by Durge P M et al 61 and the menarche age ranged between 13 to 14 years with

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60%

mean age being 13.5 years. In a study by Vijay Agarwal et al 46 the mean age of menarche was 13.44 ± 1.35 years

and 35.6% participants had knowledge about menstruation before menarche with mothers being the common source of information in 54.2% girls. In a study Dasgupta A et al 25, age of menstruating girls ranged from 14 to 17 years with 76.25% girls belong to the age group between 14 and 15 years and the mean age of menarche was 12.8years. A

0: https://www.researchgate.net/

76%

publication/40453982_Menstrual_Hygiene_How_Hygienic_is_the_Adolescent_Girl

study by Deo et al 62

age of menstruating girls ranged from 12 to 17 years with maximum girls between 13 and 15 years.

Also in the study 42.5%

of urban girls and 55.4% rural girls had awareness about menstruation before menarche. In a study by Seenivasan et al 49 69% of

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62%

girls attained menarche at the age of 11 to 13 years with mean age of menarche being 12.1 ±1.5 years

and 40% of the girls had knowledge about menstruation with mother being the informant in 47.7% participants.

A study done by Rama rao et al 63 from Lady Harding Medical College New Delhi in 18 to 20 years, 38.8% had irregular cycles at onset of menstruation and 11.3% had irregular cycles during interview. To study the menstrual pattern, B G Prasad

et al 59

conducted a study among 192 girls in Lucknow and range for menstrual bleeding was 2-8 days. Majority of girls were menstruating for 4-5 days with average being 4.9 days. Also it was found 74.5% girls were menstruating at 26-30 days interval and 9.9 % less than 25 days, mean inter menstrual period was 28.21 days. In the present study 57.2% participants were in the age group between 15 and 19 years and 42.8% participants between 10 and 14 years, 95% girl's attained menarche between the age 10 to 14 years and 5% girl's attained menarche between the ages 15 to 19 years. Also 84.5% participants had regular menstrual cycle and 15.5% girls had irregular pattern. A study by Zaidi et al 23 reported 81.33% girls had knowledge and awareness about menstruation after attaining menarche with mother (38 %) being the common source of knowledge, followed by sister (25.33%), friends (16.67%) and relatives (18.67%). Keerti Jogdand et al 64 in Guntur, only 36.19% girls had awareness about menstruation before menarche and the major source of knowledge being mother (61.29%) followed friends (22.58%) teachers (13.98%), relatives (2.15%). In a study by Das Gupta et al 25 , 67.5% girls had awareness about menstruation with mother (37.5%) being the common source of information, 28.75% by friends, 1.25% by relatives and nil source of information in 32.5%. In a study by Rutuja D Pundkar et al 65 in Ahmednagar, the source of information before menarche was mother (45.01%), sister (2.85%), others (14.28%) and 37.86% girls had no knowledge about menstruation. However studies conducted by other researchers earlier reported that mothers were the first source of information for menstruation in the range from 37.5% to 40.67% of the participants 66. In a study by Deo D S et al 62, in urban areas the main source for menstruation was mothers (27.5%) whereas in rural areas it was teachers (27.01%) the reason being there was a teaching programme about menstruation in rural schools. Also in urban based study, B G Prasad

et al 59

found that 56 % to 84% girls received information from mother. In the present study, the common source of information to

the girls were given by

mothers (67.3%), followed by friends (22.5%), sisters (7.5%), grandmother (2.5%) and teachers (0.3%). Different restrictions were practised by girls during menstruation based on the tradition and customs. In a study by Rutuja D Pundkar et al 65 94% girls practised restrictions with 90% of girls avoided attending religious functions, 78% girls were restricted from

0: https://www.ircwash.org/sites/default/files/Thakre-2011-Menstrual.pdf

81%

household work, 48%

girls

were not allowed to sleep on a routine bed, 40 % girls were not allowed to play outside and 36% girls were not allowed to

attend schools.

In a study by D S Deo

et al 62, 44.7%

girl's practised restrictions during menstruation with rural girls practised more restrictions for physical activity. 27.4% girls were restricted to wear certain clothes and 25% girls were restricted to interact with boys during menstruation. A study conducted by Sharvanan E Udayar et al 57 among girls in tribal and social welfare hostel religious restrictions were seen in majority of girls (52%), 20.5% girls did not attend schools during menstruation. Other restrictions include touching sacred books (11.6%), playing (9.6%) and isolation (4.4%). A study done by Kalita D et al 47 all the participants were not attending religious function during menstruation, followed by avoiding household work (57.5%), not attending family functions (31.5%), and sleeping separately (30.5%) and its evident that these findings indicate the prevailing traditional beliefs and restrictions observed in the community by the girls during menstruation. Also 46% girls avoided sour food, egg by 19.5% and banana by 6% girls during menstruation. A study by Kapoor G et al 67 showed 98.48% of the participants practised / followed some restrictions during menstruation with 51.54 % girls not attending religious function, 34.62% girls were restricted from house hold work, playing (10%), attending school (28.46%) and food restrictions (23.85%). In the present study 95.8% girls

were restricted to attend religious places, 98% girls were restricted to attend school, 52.8% girls were restricted to play, 98% girls were restricted to

attend family functions, 62.5% girls were isolated, 20% girls avoided specific food like sweet (16.5%), non-vegetarian (2%) and 52%

girls

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were not allowed to sleep on routine bed and 33.3% girls were not allowed to touch

the family members. A study conducted by Ramachandra K et al 26 33.27% of girls had awareness about menstruation before menarche and about 88.5% urban girls expressed negative reactions to menstruation which could be due to they are not psychologically prepared for menarche and culture taboo in the society. Dasgupta A et al 25 study shows 67.5% girls had knowledge about menstruation before attaining menarche and 86.25% girls believe it to be due to physiological process, 97.5%

0: https://www.researchgate.net/publication/40453982_Menstrual_Hygiene_How_Hygienic_is_the_Adolescent_Girl

64%

girls did not know the source of bleeding and more than half of the girls (51.25%) were not aware about sanitary pad usage during menstruation.

Rutuja D Pundkar et al 65 study shows 62.14% had knowledge about menstruation before menarche and 82.14% girls believe menstruation to be physiological process.

0: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4311354/

84%

On the contrary, Gupta et al 68 found 68% adolescent girls were not aware about menstruation before menarche

and similar finding stated by Dasgupta et al 25 (32.5%).

In the present study

when the participants were asked about the menstruation, 73.5% girls had good knowledge about menstruation, 81% girls had correct knowledge about

the cause of menstrual bleeding as physiological, 96.3%

girls knew about the sanitary material ideally used during menstruation, 42.3% knew about the frequency of changing pad per day as 4-6 times and 98.5% girls had good knowledge about disposal of pads. In a study done at Belgaum by Pokhrel et al 19, 52.1% of participants responded with similar answer.

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100%

About 81% of participants responded that menstruation occurs due to hormones in present study. In a study done by Kamath et al 50, 45.5% of participants answered similarly.

In a study by Pokrel et al, 29.75% girls reported blood flows from the uterus and 36% girls

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88%

in a study done by Sapkota et al in rural Nepal. Govt of

Tamilnadu had launched free sanitary napkin distribution to girls to promote personal hygiene among them and the beneficiaries are students, lactating mothers and women prisoners69.

Personal hygiene measures like proper hand washing, bathing every day and cleaning of external genitals, proper disposal of used absorbent plays an important role in protecting from infections. Proper sanitation facilities like adequate water supply, toilet facility is also important for hygienic health. A

study by Zaidi et al 23 shows 93.8% sanitary pad usage and 90.5% participants used sanitary pads in a study by Bharathalakshmi et al 20.

In a study done at rural Nepal 70 about 50.8% girls and 41.5% girls reported that they had changed pads twice and three times a day respectively which is almost similar to study by Patavegar et al 71 where 53.6% and 40.8% girls changed the pads twice and three times in a day respectively. Regarding hygienic disposal of used absorbent,

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71%

in a Bangladesh study 6 56.5% participants and 57.5% girls in Dasgupta et al 25 study practiced hygienic disposal of used which is low than present study (98.5%).

A study Subhash B Thakre et al 72 showed 58.09 % of study participants had unsatisfactory cleaning of external genitalia with 51% girls wash with soap and water, water alone by 33.3% girls, Patavegar et al 71 study showed 47.4% participants had washed the genitals with soap and water/ antiseptic.

In a study by Adrija Datta et al 28 sanitary napkins were used by 73.5% urban girls and 45.9% rural girls and majority of them changed the pads 2-4 times (76.5% urban and 90.8% rural girls), few girls only reused the absorbent, and they stored the absorbent in the bathroom by many participants. Public dustbin (urban- 69.1% rural- 44.9%) was the common mode of disposal of absorbent. Few girls only practised burial (urban- 10.3% rural-23.0%) in ground to dispose the absorbent. Regarding

cleaning of external genitals was satisfactory in 60.3% urban girls and 43.7% rural girls. 57.1% urban and 48.1% rural girls used soap and water

for cleaning of genitals and the remaining used only water for cleaning. Bathrooms were used for bathing by 95.6% urban girls and 83.9% rural girls. Around half of the participants reported sanitary napkins were costly and not available everywhere. Vineet Kaur et al 73 reported 69.2% girls were aware about menstruation and mother was the common informant. Used absorbent (cloth) was changed twice by 37.96% girls, thrice by 16.67 % girls and only once in

20.37% girls and sanitary napkins were changed twice or thrice a day and disposed in the dustbin by 81.49% girls. Surprisingly menstrual awareness were high in nuclear family (78.46%) than joint family (61.9%) with p value >0.001. In the study menstrual hygiene practices like bathing during menstruation and cleaning of external genitals were higher in nuclear family when compared to joint family which is statistically significant(p value > 0.001). Majority of girls in joint family practised religious restrictions and it is statistically significant (p value- 0.003669) implying that families act as source of taboos. Mahajan et al 74 study showed that majority (71%) of the girls had inadequate knowledge about menstruation and good hygiene practice score in 12% girls. In the knowledge score of participants were better if their mothers were better educated (p value 0.02) significant statistically. Similarly there was a positive correlation between knowledge score and participants score (p value >0.001, correlation r 0.394) A study by Balamurugan et al 8 reported that sanitary napkins were used by 35% girls, clothes by 52% and 13% both sanitary pad and clothes and only 19.5% used new clothe during menstruation. Less than 15% of the participants used antiseptics to wash clothes during menstruation. Majority of the participants changed the pads 2-3 times a day (32%) and they used dustbin (32.5%) to throw the sanitary pads, 15.5% burned it. A statistically significant association was found between educational status and usage of sanitary pads, marital status and menstrual hygiene, and socio-economic status and good hygienic practice (p value > 0.001) Tanvi Nitin Deshpande et al 75 study reported

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68%

majority of the girls (76%)

had no knowledge about menstruation before menarche and

mother was the common source of information

in

majority of girls (84%). Regarding practice of menstrual hygiene was 60% girls used sanitary pads, 19% used old clothes, and 5% used both pad and clothes. Sanitary pads were changed more than three times per day by 63.34% girls and 70% girls reused the clothes after washing and drying in sunlight. Hand washing with soap and water was practised by majority (78%) of the participants. During menstruation, bathing every day and washing of genitals was observed in almost all the participants. About 79% girls used common public toilet, the study being conducted in a slum area. In the present study, though late adolescents had better menstrual hygiene practices than early adolescents, the association was not statistically significant (p value- 0.399).

Adolescent girls living in joint families had a statistically significant better knowledge on menstrual hygiene

practices (p value 0.022) and also girls living in joint families had a better practices (p value 0.008). A statistically significant association was found between the educational status of the adolescent girls and knowledge on good menstrual hygiene (p value 0.009).

Those who had good knowledge on menstrual hygiene had good menstrual hygiene practices and the association was found to be statistically significant (p value > 0.001)

SUMMARY AND CONCLUSION In the present study sanitary pads were used by 94.8% adolescent girls. 73.5% of the study participants had good knowledge about menstrual hygiene and 54 %

of the study participants had good menstrual hygiene practices. Though most of the study participants

had good knowledge, still they had cultural restrictions. Menstrual hygiene practices were good in adolescent girls for those who lived in joint families. A healthy population can be rendered by improvement of

the adolescent girl's health. Adolescent girl's health is an important social goal in all societies. Adolescent health over the years has evolved through various stages. The findings in the study led to the conclusion that girls

had

various misconceptions, beliefs and inadequate practices about menstruation and its management. Majority of the participants practised different restrictions during menstruation. Health education should be given to them regarding this. Also positive results in the study showed that

the

who had good knowledge about menstrual hygiene had correct menstrual hygiene practices. Also it is observed in the study that menstrual hygiene practices were good in girls with higher educational status. Health education programme with specific focus on menstrual hygiene practices will bring significant positive changes in menstrual hygiene practices. To reduce the sufferings of adolescent girls, menstrual health related issues should be addressed at younger age at 13, 14, 15 years and this ensures the girls health which is regarded as the index of a healthy society. Educational intervention can bring many changes for less discussed topics like menstruation.

83

Menstrual hygiene practices of the study participants (n = 400) Good practice [VALUE] %

Poor practice [VALUE] %

Good practice Poor practice 54 46

knowledge about menstrual practices(n=400) Good knowledge73.5% Poor knowledge26.5% Good knowledge Poor knowledge 73.5 26.5 Toilet facility in home of the study participants (n=400) [VALUE] % [VALUE] % Toilet facility present Toilet facility absent 61.3 38.79999999999999 Socio economic status - Modified BG Prasad classification (n=400) [CATEGORY NAME] [PERCENTAGE] [CATEGORY NAME] [PERCENTAGE] [CATEGORY NAME] [PERCENTAGE] [CATEGORY NAME] [PERCENTAGE] Upper Upper middle Middle Lower middle 0.3 16.8 65 18 Reasons for not changing sanitary pad at school(n=400) [VALUE] % [VALUE] % [VALUE] % Shyness Dirty toilet No dust bin 8.800000000000007 4 1.8 Reasons for Food Restrictions during Menstruation [VALUE] % [VALUE] % [VALUE] % **[VALUE] %** Excess Bleeding Don't know Smell Both 15.5 2.5 1.3 0.8

Source of menstruation information before menarche(n=400) [VALUE] %

[VALUE] %
[VALUE] %
[VALUE] %
[VALUE] %
Mother Friends Sister Grand mother Teachers 67.3 22.5 7.5 2.5 0.3
80 %
16.5%
2%
1.5%
No Food Restriction Sweets Non vegetarian Both 80 16.5 2 1.5
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2 37%

World health organisation defines adolescents as young people between 10 and 19 years of age 2. Around 16% of world's population are adolescents3. Transition period from childhood to adult life is termed as adolescents. It is an important and a very sensitive period in the human life cycle. Many developments like physical, mental and social development

3 87%

menstruation. Menstrual hygiene related practices are still clouded by socio-cultural restrictions,

4 92%

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World Health Organization defines adolescents as young people between the ages of 10 and 19 years.

Adolescent population constitutes about 16% of world's total population1. Adolescence is a transition period from childhood to adult life. Adolescence is an important and sensitive phase of life. Many physical, mental and social developments

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Menstruation and menstrual hygiene related practices are still clouded by taboos and socio-cultural restrictions2.

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92%

87%

incidence of HIV/AIDS, infertility, ectopic pregnancy, and a myriad of other symptoms 8.

incidence of cervical cancer, HIV/AIDS, infertility, ectopic pregnancy, and a myriad of other symptoms.5

5 44%

Majority of girls acquire knowledge about menstruation and menstrual hygiene mostly through their parents, relatives and friends. Knowledge about menstrual hygiene and its practices plays a vital part of health education for adolescent girls 9, 10.

5: Final Write up.docx 44%

Majority of women acquire knowledge regarding menstruation and menstrual hygiene through their parents, friends and relatives. Only few acquire correct knowledge either through teachers or health personnel. Learning about menstrual hygiene is a vital part of health education for adolescent girls

6 100%

highlights the problems faced during menstruation among adolescent girls residing in rural and urban

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100%

highlights the problems faced during menstruation among adolescent girls residing in rural and urban

7 100%

The World Health Organization defines adolescents as young people between the ages of 10 and 19 years2.

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100%

The

World Health Organization defines adolescents as young people between the ages of 10 and 19 years.

8 95%

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URKUNAPROSS SECTIONAL STUDY ON MENSTRUAL HYGIENE PRACTICES AMONG ADOLESCENT GIRLS IN TRIBAL POPULATION IN TAMILNADU.docx (D57381875)

In addition, more than 1 in 10 children in India are currently experiencing puberty, and more than a quarter of all children will

In addition, more than 1 in 10 children in India are teenagers or currently experiencing puberty, and more than a quarter of all children will

9 83%

Menarche shows many socio-economic, environmental, nutritional and geographical differences in the societies. In this phase girls experience

menstruation related problems. This is marked by feeling of anxiety and eagerness to know about

9: Final Write up.docx

menarche shows many socio-economic, environmental, nutritional and geographical differences in the societies. During this phase of growth, the girls first experience menstruation and related problems which is marked by feeling of anxiety and

10 83%

MENSTRUATION HYGIENE MANAGEMENT (MHM):

Menstrual hygiene deals with the special health care needs and requirements of women during

monthly menstruation. Practical strategies for coping with monthly periods

10: Final Write up.docx

eagerness to know about

83%

83%

MENSTRUATION HYGIENE MANAGEMENT (MHM):

Menstrual hygiene deals with the special health care needs and requirements of women during monthly menstruation or menstrual cycle. Menstruation Hygiene Management (MHM) focuses on practical strategies for coping with monthly periods.

11 98%

school21.

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98%

school. 15

United Nations defines

adequate

menstrual hygiene management

as "

women and adolescent girls using a clean menstrual management

material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of

the menstruation

period, using soap and water for washing the body as required, and

having

access to facilities to dispose

of used menstrual management materials.

Particularly in

poor countries, girls and women face substantial barriers to achieve adequate menstrual management 22.

POOR MENSTRUAL HYGIENE:

United Nations defines

adequate menstrual hygiene management as "women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials."

Particularly in poor countries, girls and women face substantial barriers to achieving adequate menstrual management.16

3.6 POOR MENSTRUAL HYGIENE:

12 97% 12: Final Write up.docx 97% Hygiene Management Guideline is issued by the Ministry of hygiene management is issued by the Ministry of Drinking Water and Sanitation to support all adolescent girls and women. Drinking Water and Sanitation to support all adolescent girls and women. 14 86% 14: Final Write up.docx 86% well-known fact well-known that cultural factors are deeply involved in all the affairs of man and women. that cultural factors are deeply involved in all the affairs of women. 15 15: Final Write up.docx 82% 82% they have their own explanation in relation to their cultural they have their own explanation in relation to their cultural practices. Myths and taboos practices. These socio-cultural factors like myths and taboos 16 100% 16: Final Write up.docx 100% is considered to be unlucky. These customs seem to be a is considered to be unlucky. These customs seem to be a reflection of the South Indian reflection of the South Indian 87% 17: Final Write up.docx 17 87%

practices are also observed in other religious communities' also 4. PRE MENSTRUAL SYMPTOMS:

practices are also observed in other religious communities.2

3.10 PRE-MENSTRUAL SYMPTOMS:

18 76%

breast, constipation. Mood and behaviour symptoms include sad or depressed mood, anger irritability, anxiety, mood swings etc. 18: Final Write up.docx

76%

Breast tenderness, constipation and Mood and behavior symptoms like Sad or Depressed mood, Anger irritability, Anxiety, Mood swings etc.

19 99%

open defecation", which means toileting in fields, roadsides or by train tracks. India, Indonesia, Nigeria, Ethiopia, Pakistan, account for 75% of open defecation. Recent reports have shown that in India, 597 million people, or 48 per cent of the total population, practice open defecation. Although open defecation has been reduced by 31 % since 1990, about 300 million women and girls in India still have no other choice33.

19: Final Write up.docx

99%

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Recent reports have shown that in India, 597 million people, or 48 per cent of the total population, practice open defecation. Although open defecation has been reduced by 31 % since 1990, about 300 million women and girls in India still have no other choice.27

20 97%

While open defecation is more prevalent in rural areas, it is much more concentrated in urban areas, particularly in urban poor 20: Final Write up.docx

97%

While open defecation is more prevalent in rural areas, it is much more concentrated in urban areas, particularly in urban poor settlements where residents live in close quarters and sanitation facilities are severely lacking. In rural areas, underground sewers are almost non-existent; urban areas are only marginally better. A recent report shows that only 6% of India's cities have partial sewerage network, fewer than 20% of roads have storm water drains, and 86% of waste water is left untreated and often ends up polluting natural resources and highly populated urban environments. In a study conducted by Anupama Nallari, poor adolescent girls in urban Bengaluru say, "All we want are toilets inside our homes34. Lack of latrine, water supply seriously affects menstrual hygiene management and jeopardizes physical, psychological health of school adolescents.

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21 100%

WATER, SANITATION AND HYGIENE (WASH) SCHEME The Global Goals have set an ambitious new agenda for sustainable development. The new goal for the water sector, Goal 6, aims to achieve universal, sustainable and equitable access to safe drinking water, sanitation and hygiene by 2030. In response to the global goals, UNICEF has developed a new Strategy for Water, Sanitation and Hygiene (WASH) 2016-2030 that provides a framework to guide our work related to water, sanitation and hygiene over the next 15 years33. WASH facility in schools are important considerations for school-going girls, both for their educational attainment and their health23.

21: Final Write up.docx

100%

Water, Sanitation and Hygiene (WASH) scheme:

The Global Goals have set an ambitious new agenda for sustainable development. The new goal for the water sector, Goal 6, aims to achieve universal, sustainable and equitable access to safe drinking water, sanitation and hygiene by 2030. In response to the global goals, UNICEF has developed a new Strategy for Water, Sanitation and Hygiene (WASH) 2016-2030 that provides a framework to guide our work related to water, sanitation and hygiene over the next 15 years.27

Qualitative studies report that school absenteeism is associated with poor MHM interventions, but so far only WASH studies have shown an association between toilet improvement and absenteeism, and improved enrolment of adolescent girls when girls-only toilets were constructed 21.

India, has an array of policies and schemes developed to provide pads, counselling from frontline workers, and the construction of toilets for girls also number of separate usable toilet facilities for girls has increased in India21. WASH facility in schools are important considerations for school-going girls, both for their educational attainment and their health.29 Qualitative studies report that school absenteeism is associated with poor MHM interventions, but so far only WASH studies have shown an association between toilet improvement and absenteeism, and improved enrolment of adolescent girls when girls-only toilets were constructed. 15 India, has an array of policies and schemes developed to provide pads, counselling from frontline workers, and the construction of toilets for girls also number of separate usable toilet facilities for girls has increased in India.15

3.13

25 60%

supply of sanitary napkins was envisaged in a Self Help Group mode. Sanitary napkins were to be manufactured by the

26 100%

from 'health for the adolescents' to health with the adolescents 40.

32 71%

25: Final Write up.docx

supply of sanitary napkins in 107 districts was envisaged initially in a Central supply mode, wherein sanitary napkins were to be supplied by the

26: Final Write up.docx

100%

60%

From "health for the adolescents" to "health with the adolescents",

32: Final Write up.docx

a significant improvement in knowledge and beliefs when compared to baseline (51% vs 82.4%). It was also observed

a significant improvement (p>0.001) in 'high knowledge and beliefs' scores compared to baseline (51% vs 82.4%). Significant improvement was also observed

34

who did not use sanitary napkins (AOR -95% C I 5.37 (3.02-9.55). It was reported by

girls that their school performance had declined after they had attained menarche. School dropout was common among girls who were teased and humiliated by their classmates when their clothes were blood stained as they did not use sanitary napkins.

A self-administered

34: Final Write up.docx

who did not use sanitary napkins were more likely to be absent from school [AOR-95% C.I: 5.37 (3.02 - 9.55)]. Fifty eight percent of girls reported that their school-performance had declined after they had menarche. In addition, the qualitative study indicated that school-dropout was common among girls who experienced teasing and humiliation by classmates when their clothes were stained with blood as they do not use sanitary napkins.7

Robyn Boosey et al A self-administered

35 60%

toilet assessment in each school. One hundred and forty girls completed the questionnaire. Lack of access to resources, toilet and information related to menstrual hygiene

35: Final Write up.docx

toilet assessment was also conducted in each school. One hundred and forty schoolgirls completed the questionnaire. The girls reported a lack of access to adequate resources, facilities and accurate information to manage their menstrual hygiene

37 88%

37: Final Write up.docx

88%

60%

study to assess

the

impact of health education on knowledge, attitude and practice on menstrual hygiene among female college students

in urban area of

Belgaum

62

study to assess the impact of health education on knowledge, attitude and practice on menstrual hygiene among PUC female students of college located in urban area of Belgaum.

46 89%

et al 48 conducted

cross sectional study in four selected High schools in rural areas

46: Final Write up.docx

50: Final Write up.docx

89%

et al., conducted a cross sectional study done in four selected Government High Schools in rural areas

50 71%

school [6.2%]. Arya et al 51 conducted a descriptive cross sectional study among adolescent tribal girls

school.17

Dasgupta et al., conducted a descriptive, cross-sectional study was conducted among 160 adolescent girls

60%

62: Final Write up.docx

60%

mean age being 13.5 years. In a study by Vijay Agarwal et al 46 the mean age of menarche was 13.44± 1.35 years

Mean age at menarche was 12.7 years (±0.66). In a similar study conducted in Nepal by Manisha Hamal et al., the mean age of menarche

was 12.94 years65.

69 100%

About 81% of participants responded that menstruation occurs due to hormones in present study. In a study done by Kamath et al 50, 45.5% of participants answered similarly.

69: Final Write up.docx

100%

About 40.9% of participants responded that menstruation occurs due to hormones in present study. In a study done by Kamath et al, 45.5% of participants answered similarly45.

70 88%

in a study done by Sapkota et al in rural Nepal. Govt of

70: Final Write up.docx

88%

in a study done by Sapkota et al in rural Nepal. About 29.75% of

71 71%

in a Bangladesh study 6 56.5% participants and 57.5% girls in Dasgupta et al 25 study practiced hygienic disposal of used which is low than present study (98.5%).

71: Final Write up.docx

71%

In a Bangladesh study3, 56.5% participants and in a study done by Dasgupta et al19, 57.5% participants practiced hygienic disposal of used absorbent which is low than present study. Instances from: Final Write up.docx

55 97%

Adequate

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women and adolescent girls using a clean menstrual management

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the menstruation

period, using soap and water for washing the body as required, and

having

access to facilities to dispose

of used menstrual management materials."

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97%

adequate menstrual hygiene management as "women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials."

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57 83%

This association was found to be statistically significant. (p value = 0.009) Table 15: Association

57: plagiarism check.docx

83%

This difference was found to be statistically significant (χ^2 =5.663, p value= 0.017).

Table 18: Association

66 90%

were not allowed to sleep on routine bed and 33.3% girls were not allowed to

touch

66: plagiarism check.docx

90%

were not allowed to sleep on the routine bed and 24.81% of the girls were not allowed to

touch

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59 100%	59: final thesis.docx	100%
majority of the study participants belongs to lower middle class	Majority of the study participants belongs to lower middle	class

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S (2012) "Menstrual Hygiene Matters, a resource for improving Menstrual Hygiene around the world"

61 100%

the mean age of menarche was found to be 14.7 years.

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29 87%

adolescent girls in the age group of 10-19 years residing in rural areas

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36 58%

A school based cross sectional study using multistage sampling technique was conducted at Amhara Province, Ethiopia by Gultie 36: Nakaye Zainah.pdf

58%

A school based cross sectional study that was conducted using multistage stage sampling technique among 492 students in Amhara Province, Ethiopia, carried out by Gultie,

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58 64%

years (42.8%) and the

mean age of the study participants was 15.10 ±1.564 years. All of the study participants

were

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64 62%

girls attained menarche at the age of 11 to 13 years with mean age of menarche being 12.1 ±1.5 years

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56	70%
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adolescent girls (95%) attained menarche between the age group of 10 – 14 years. Majority of the adolescent girls 338 (84.5%)

56: https://madridge.org/journal-of-internal-and-emergency-medicine/mjiem-1000123.php 70%

adolescent girls attained menarche by the age of 13 years, 87% of the adolescent girls

Instances from: https://www.researchgate.net/publication/316230418_Menstrual_hygiene_practices_among_adolescent_schoolgirls_of_rural_Mangalore_Karnataka

13 88%

Menstrual Hygiene Management

Source: Ministry of Drinking Water and Sanitation, Government of India,

13: https://www.researchgate.net/ publication/316230418_Menstrual_hygiene_practices_among_ado lescent_schoolgirls_of_rural_Mangalore_Karnataka 88%

Menstrual Hygiene Management.

Ministry of Drinking Water and Sanitation. Government of India.

38 92%

who attained menarche and willing to participate in the study were included. The

38: https://www.researchgate.net/publication/316230418_Menstrual_hygiene_practices_among_adolescent_schoolgirls_of_rural_Mangalore_Karnataka 92%

who have attained menarche and willing to participate in the study were included from the

52 100%

played an important role in menstrual hygiene practices of the girls

52: https://www.researchgate.net/publication/316230418_Menstrual_hygiene_practices_among_adolescent_schoolgirls_of_rural_Mangalore_Karnataka 100%

played an

important role in menstrual hygiene practices of the girls.

Instances from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4232635/

33 58%

four female teachers and four focus group discussions. Mean age at menarche was 13.98 years (± 1.17

years) and 51%

of girls had knowledge about menstruation and its management. Sanitary napkins were used as menstrual absorbent during last 33: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4232635/58%

four female teachers, and four focus group discussions among school girls were conducted in 2013.

Results

The mean age at menarche was 13.98 (±1.17) years. About 51% of girls had knowledge about menstruation and its management. Only a third of the girls used sanitary napkins as menstrual absorbent during their last

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Instances from: https://www.thefreelibrary.com/Menstrual+hygiene+practices+among+adolescent+schoolgirls+of+rural...-a0501599139

72 68%

majority of the girls (76%)

had no knowledge about menstruation before menarche and mother was the common source of information

72: https://www.thefreelibrary.com/Menstrual+hygiene+practices +among+adolescent+schoolgirls+of+rural...-a0501599139 68%

Majority of the respondents (70.7%) stated that they had knowledge about menstruation before menarche and mother (63.4%) was the prime source of information.

URKUNAPROSS SECTIONAL STUDY ON MENSTRUAL HYGIENE PRACTICES AMONG ADOLESCENT GIRLS IN TRIBAL POPULATION IN TAMILNADU.docx (D57381875)

Instances from: https://www.ijcmph.com/index.php/ijcmph/article/view/948

39 65%

only 18.67% of adolescent girls had known about menstruation before menarche.

About 67% of girls did not know the cause for menstruation.

39: https://www.ijcmph.com/index.php/ijcmph/article/view/948 65%

Only 18.67% of adolescent girls had knowledge about menstruation before menarche. As high as 67% of them did not know the cause of menstruation. 23.33%

Instances from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2784630/

42 47%

girls used sanitary pads during menstruation, 42.5% used old clothes and 6.25% used new clothes whereas 40% girls used both sanitary pads and

clothes during menstruation.

53 55%

community based cross sectional observational study among 210 adolescent girls. The

study was done in the field practice area of

42: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2784630/47%

girls used sanitary pads during menstruation, 68 (42.5%) girls used old cloth pieces and 10 (6.25%) girls used new cloth pieces. Sixty-four (40%) girls used both cloth pieces and sanitary pads during menstruation.

53: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2784630/55%

Community-based cross-sectional observational study.

Place of study: The present study was undertaken among the adolescent schoolgirls in the field practice area of

Instances from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4311354/

68 84%

On the contrary, Gupta et al 68 found 68% adolescent girls were not aware about menstruation before menarche

68: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4311354/84%

On the contrary, Gupta et al.[6] found that 68% of adolescent girls were not aware about menses before menarche.

Instances from: https://www.researchgate.net/publication/321217988_Knowledge_of_Adolescent_Girls_Regarding_Menstruation_in_Tribal_Areas_of_Meghalaya

45 100%

adolescent school going girls in the age group of 13-16 years

45: https://www.researchgate.net/publication/321217988_Knowledge_of_Adolescent_Girls_Regarding_Menstruation_in_Tribal_Areas_of_Meghalaya 100%

adolescent school going girls in the age group of 13-18 years.

51 100%

to observe menstrual health of the tribal adolescent girls and to describe cultural factors on study population.

51: https://www.researchgate.net/publication/321217988_Knowledge_of_Adolescent_Girls_Regarding_Menstruation_in_Tribal_Areas_of_Meghalaya 100%

to observe menstrual health of the tribal adolescent girls and to describe cultural factors on study population.

Instances from: https://www.researchgate.net/publication/313848134_Menstrual_hygiene_knowledge_and_practice_among_adolescent_school_girls_in_rural_settings

in the field practice area of rural health unit and training centre
in

40: https://www.researchgate.net/publication/313848134_Menstrual_hygiene_knowledge_and_practice_among_adolescent_school_girls_in_rural_settings 92%

in the field practice area of the Rural Health Unit and Training Centre, Saoner, in Instances from: https://www.researchgate.net/publication/40453982_Menstrual_Hygiene_How_Hygienic_is_the_Adolescent_Girl

41%

girls believed it to be curse of god and 2.5% girls believed it as a result of sin. Majority of the participants (97%) did not know the source of menstrual bleeding. Regarding the practice of menstrual hygiene, more than half of the participants were not aware about the use of sanitary pads.

41: https://www.researchgate.net/publication/40453982_Menstrual_Hygiene_How_Hygienic_is_the_Adolescent_Girl 41%

girls believed it as a curse of God, eight (5%)
girls believed that it was a disease and four (2.5%) girls
believed it be result of some sin. Most of the girls (97.5%)
did not know about the source of menstrual bleeding. More
than half of the girls (51.25%) were ignorant about the use
of sanitary pads

43 52%

used soap and water. More than half (51.25%) participants did not possess covered toilet. Regarding disposal of used materials, 57.5% girls disposed cloth piece or sanitary pads 43: https://www.researchgate.net/publication/40453982_Menstrual_Hygiene_How_Hygienic_is_the_Adolescent_Girl 52%

water. More than half of the respondents (51.25%) did not possess a covered toilet. Regarding the method of

disposal of the used material, 118 (73.75%) girls reused

used both soap and

URKUN_AP_{ROSS} SECTIONAL STUDY ON MENSTRUAL HYGIENE PRACTICES AMONG ADOLESCENT GIRLS IN TRIBAL POPULATION IN TAMILNADU.docx (D57381875)

44 83%

school and 10.29% girls did not attend marriage functions during the menstrual period.

cloth pieces and 92 (57.5%) girls properly disposed the cloth pieces or sanitary pads

44: https://www.researchgate.net/publication/40453982_Menstrual_Hygiene_How_Hygienic_is_the_Adolescent_Girl 83%

school and 14 (10.29%) girls did not attend any marriage ceremony during the menstrual period.

60 30%

that age of menarche ranged from 8 – 17 years (66.8%) and in the study

the mean age of menarche was being 14.19 years. A cross sectional study done by Prasad B G et al59 showed the mean age

60: https://www.researchgate.net/ publication/40453982_Menstrual_Hygiene_How_Hygienic_is_the_ Adolescent_Girl 30%

that the age of menstruating
girls ranged from 12 to 17 years with maximum number
of girls between 13 and 15 years of age. In the present
study,

the mean age of menarche of the respondents was
12.8 years, whereas in a study conducted in Rajasthan

63 76%

study by Deo et al 62

age of menstruating girls ranged from 12 to 17 years with maximum girls between 13 and 15 years.

Also in the study 42.5%

by Khanna et al.(2), the mean age

63: https://www.researchgate.net/publication/40453982_Menstrual_Hygiene_How_Hygienic_is_the_Adolescent_Girl 76%

study conducted

by Deo et al.(1) reported

that the age of menstruating

girls ranged from 12 to 17 years with maximum number of girls between 13 and 15 years of age. In the present study,

67 64%

girls did not know the source of bleeding and more than half of the girls (51.25%) were not aware about sanitary pad usage during menstruation. 67: https://www.researchgate.net/publication/40453982_Menstrual_Hygiene_How_Hygienic_is_the_Adolescent_Girl 64%

girls did not know about the source of menstrual bleeding and more than half of the girls were ignorant about the use of sanitary pads during menstruation. Instances from: https://www.researchgate.net/publication/305419697_Knowledge_attitude_and_practices_related_to_menstruation_among_adolescent_girls_in_Chennai

47 100%

among 500 school going adolescent girls who have attained menarche, during the period June to August 2012

47: https://www.researchgate.net/publication/305419697_Knowledge_attitude_and_practices_related_to_menstruation_among_adolescent_girls_in_Chennai 100%

among school

going adolescent girls who have attained menarche, during the period June to August 2012.

48 54%

about menstruation before menarche

with

mother (47.7 %) being the major source of information.

Other sources

of information were friends (39.9%), sisters (6.1%),

teachers (4.5%) and media (2%).

48: https://www.researchgate.net/publication/305419697_Knowledge_attitude_and_practices_related_to_menstruation_among_adolescent_girls_in_Chennai 54%

about menstruation

before menarche with mother being the

informant in 47.7 % of the subjects. Other

informants were friends (39.5%), sisters

(6.1%), teachers (4.5%) and electronic media

(2%).

URKUNAPROSS SECTIONAL STUDY ON MENSTRUAL HYGIENE PRACTICES AMONG ADOLESCENT GIRLS IN TRIBAL POPULATION IN TAMILNADU.docx (D57381875)

49 76%

cross sectional study among 550 school going adolescent girls using a pre-tested questionnaire

49: https://www.researchgate.net/publication/305419697_Knowledge_attitude_and_practices_related_to_menstruation_among_adolescent_girls_in_Chennai 76%

cross-sectional study was carried out among 500 school going adolescent girls. A pre-tested questionnaire

Instances from: https://www.ircwash.org/sites/default/files/Thakre-2011-Menstrual.pdf

65 81%

household work, 48%

girls

were not allowed to sleep on a routine bed, 40 % girls were not allowed to

play outside and 36% girls were not allowed to

attend schools.

65: https://www.ircwash.org/sites/default/files/Thakre-2011-Menstrual.pdf 81%

household work, 102 (26.36%)

girls were not allowed to sleep on the routine bed, 97 (24.81) girls were not allowed to touch anybody, and 20 (5.17%) girls were not allowed to

attend their schools

URKUN_AD_{CROSS} SECTIONAL STUDY ON MENSTRUAL HYGIENE PRACTICES AMONG ADOLESCENT GIRLS IN TRIBAL POPULATION IN TAMILNADU.docx (D57381875)

Instances from: https://www.researchgate.net/publication/316533392_Menstrual_hygiene_practices_among_adolescent_girls_in_a_resettlement_colony_of_Delhi_a_cross-sectional_study

1 100%

CROSS SECTIONAL STUDY ON MENSTRUAL HYGIENE PRACTICES AMONG ADOLESCENT GIRLS IN

1: https://www.researchgate.net/ publication/316533392_Menstrual_hygiene_practices_among_ado lescent_girls_in_a_resettlement_colony_of_Delhi_a_crosssectional_study 100%

cross sectional study on menstrual hygiene practices among adolescent girls in

27 100%

Promotion of Menstrual Hygiene among Adolescent Girls (10-19 Years) in Rural Areas

27: https://www.researchgate.net/
publication/316533392_Menstrual_hygiene_practices_among_ado
lescent_girls_in_a_resettlement_colony_of_Delhi_a_crosssectional_study

100%

Promotion of

menstrual hygiene among adolescent girls (10-

19years) in rural areas.

28 100%

Promotion of Menstrual Hygiene among Adolescent Girls (10-19 Years) in Rural Areas,

28: https://www.researchgate.net/publication/316533392_Menstrual_hygiene_practices_among_adolescent_girls_in_a_resettlement_colony_of_Delhi_a_cross-sectional_study 100%

Promotion of

menstrual hygiene among adolescent girls (10-

19years) in rural areas.

30 100%

Promotion of Menstrual Hygiene among Adolescent Girls (10-19 Years) in Rural Areas,

30: https://www.researchgate.net/publication/316533392_Menstrual_hygiene_practices_among_adolescent_girls_in_a_resettlement_colony_of_Delhi_a_cross-sectional_study

Promotion of

menstrual hygiene among adolescent girls (10-

19years) in rural areas.

31 100%

Promotion of Menstrual Hygiene among Adolescent Girls (10-19 Years) in Rural Areas,

31: https://www.researchgate.net/publication/316533392_Menstrual_hygiene_practices_among_adolescent_girls_in_a_resettlement_colony_of_Delhi_a_cross-sectional_study 100%

Promotion of

menstrual hygiene among adolescent girls (10-

19years) in rural areas.



GOVERNMENT STANLEY MEDICAL COLLEGE& HOSPITAL, CHENNAI -01 **INSTITUTIONAL ETHICS COMMITTEE**

Title of the Work

: A Cross sectional study on menstrual hygiene practices

among adolescent girls in tribal population in Tamilnadu.

Principal Investigator: Dr.S.Ramya

Designation

: I MD Community Medicine,

Department

: Department of Community Medicine,

Govt. Stanley Medical College.

The request for an approval from the Institutional Ethical Committee (IEC) was considered on the IEC meeting held on 21.11.2017 at the Council Hall, Stanley Medical College, Chennai-1 at 10am.

The members of the Committee, the secretary and the Chairman are pleased to approve the proposed work mentioned above, submitted by the principal investigator.

The Principal investigator and their team are directed to adhere to the guidelines given below:

- You should inform the IEC in case of changes in study procedure, site investigator investigation or guide or any other changes.
- You should not deviate from the area of the work for which you applied for ethical clearance.
- You should inform the IEC immediately, in case of any adverse events or serious adverse reaction.
- 4. You should abide to the rules and regulation of the institution(s).
- You should complete the work within the specified period and if any extension of time is required, you should apply for permission again and do the work.
- 6. You should submit the summary of the work to the ethical committee on completion of the work.

IEC, SMC, CHENNAI

DEPARTMENT OF PUBLIC HEALTH AND PREVENTIVE MEDICINE

From

Dr.K.Kolandaswamy,

MBBS,MAE,DPH,DIH,DBE., Director of Public Health and Preventive Medicine, No.359, Anna Salai, Chennai - 600 006. To The Dean, Government Stanley Medical College, Chennai – 600 001.

R.No.52010/MCH-II/S1/2018 Dated.07.08.2018

Sir,

Sub: Public Health and Preventive Medicine - MCH II - Permission to do dissertation in Salem District - Cross Sectional Study on Menstrual Hygiene Practices among Adolescent Girls in tribal population in Tamil Nadu - under the guidance of Dr.P.Seenivasan, Professor and Head of the Department of Community Medicine - Government Stanley Medical College - Regarding.

Ref

- 1. Letter received from Dr.P.Seenivasan, Professor and Head of the Department of Community Medicine, Government Stanley Medical College, Chennai 1.
- 2. This office R.No.52010/MCH-II/S1/2018 Dated.04.07.2018.

As per the reference cited Dr.P.Seenivasan, Professor and Head of the Department of Community Medicine, Government Stanley Medical College has stated that Dr.S.Ramya doing Post Graduation in the Department of Community Medicine in Government Stanley Medical College has planned to do dissertation on "A Cross Sectional Study on Menstrual Hygiene practices among adolescent girls in tribal population in Tamil Nadu" under his guidance. The questionnaire for the above study has been submitted and requested permission to conduct the study in the above mentioned areas.

Permission is hereby accorded to Dr.S.Ramya to conduct the study in Salem District, Yercaud Block, Valavanthi PHC and Nagalur PHC and Thammampatti Block, Pachamalai PHC area with the following conditions:-

- 1. The data should be kept confidential and the report should not be published without the permission of the Government.
- 2. The Data should be used for the project work only.
- 3. Study report should be submitted to the Director of Public Health and Preventive Medicine. If not submitted it will be addressed to University authorities for necessary action.
- 4. If there is any deviation in the above action, action will be taken against the individual.
- 5. The study should not be detrimental to normal functioning of the Institution.
- 6. The views of the Department should be obtained before finalizing the report for submission.
- 7. Progress of data collection should be appraised at each stage.
- 8. Study should have institutional ethics committee approval.
- 9. Consent form should be obtained from the study participant after giving the information sheet.
- 10.Data on sensitive issues relating to Cancer, AIDS, Mental Health and drugs related diseases need not be given.
- 11.It is requested to provide necessary data to undertake the study to the students.

Yours faithfully,

for Director of Public Health and Preventive Medicine, Chennai-6.

Copy to:

- 1.Dr.S.Ramya, Post Graduate in the Department of Community Medicine, Government Stanley Medical College, Chennai – 1.
- 2.The Professor and Head, Department of Community Medicine, Government Stanley Medical College, Chennai – 1.
- 3. The Deputy Director of Health Services, Salem for necessary action.