Menstrual Health and Hygiene among Adolescent Girls in Climate Vulnerable Areas in India

(A PAN INDIA Study in 16 States)

Ministry of Health & Family Welfare
Government of India

By

Population Research Centers (PRCs)

Statistics Division

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Acknowledgement

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PRC TEAM
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Executive Summary

About the study

- The present study is a PAN INDIA study conducted by Population Research Centres (PRCs) in 16 States/UTs of India.
- The study investigates the knowledge and practices among adolescent girls with regards to menstrual health and hygiene, focusing on climate vulnerable regions, in 64 Districts.
- The findings presented in this report are based on the interviews conducted with 6715 adolescent girls in the age group 13 to 19 years, in drought, flood/cyclone and snowfall affected (both rural and urban) areas.

Household characteristics of surveyed adolescent girls

- Significant proportion of adolescent girls were from Hindu religion and around one-third of them belonged to Scheduled Caste/Tribe.
- Majority of them were from either nuclear or extended families, with an average family size of 5.9 members.
- For 28 percent of the girls, Agricultural/Non-Agricultural labor work was main source of household income and for 25 percent, it was a salaried income. More than half (58%) of the girls belonged to BPL households.

Individual and Parental characteristics

- The coverage of girls in the age group 13-15 years (52%) and that of 16-19 years (48%) is almost equal.
- Around one-fourth of the father of adolescent girls were illiterate and another 15% of thems were having education up to primary standard only.
- Similarly, one-third of the mother of adolescent girls were illiterate and around 20 percent of them were having only primary level education.
- As far as occupation of father is concerned, it was the labour work or cultivation for nearly half of them and for mother it was the household work (57%), labour work or cultivation (25%).
- Though the proportion of girls never gone to school is less (2.1%), still it has to be considered, both in rural and urban areas as well as in drought and flood prone areas.

- As high as 11 percent of the girls had discontinued their education; for 25% of the dropped-out girls, discontinuation happened before 7th standard and for 63%, discontinuation took between 8-10 standard.
- Majority of the girls were studying in Government schools/colleges, with local language as the medium of instruction, mostly at co-educated institutes.
- Usually, girls don't travel more than 5 km distance to reach to the educational institutes and usually they travel by walk or by using public transport, which takes less than 30 minutes of time to reach from home.
- Around 9 percent of the girls were working outside, in the family farm, doing agricultural related labor work or self-employed, on part time basis.

Menarche and Menstruation

- Most of the girls perceived that usually girls attain menarche between 10 to 14 years and the actual age at menarche for them was 13 years, on an average.
- One-fourth of the girls mentioned that a grand or formal ceremony was held when they attained menarche and around 48 percent of the girls took menarche as normal, whereas for remaining it was either excited or a frightened feeling.
- Significant number of adolescent girls (20 to 33%) had to change their dress pattern, movement, playing outside, household work and outside work after attaining menarche.
- Among those girls who had discontinued their education, 11 percent mentioned that they discontinued their education due to the attainment of menarche.
- Half of the girls were not aware about menarche before they attained it. Among those who had received prior knowledge, mostly it was from their mothers or teachers.
- Once they attain menarche, girls receive knowledge on menstrual hygiene (89%) either from mother, teachers or sisters.
- Usually, girls get the menstrual bleeding for 4 to 5 days and 16 percent of the girls mentioned that they get heavy bleeding; For 10 percent of the adolescent girls the menstruation was irregular.
- Use of sanitary napkins was among 90 percent of the girls and 18 percent of the girls mentioned that they use cloth to absorb menstrual blood. Hence, around 10 percent of the girls use only cloth and 8 percent use both, cloth and sanitary napkins to absorb menstrual blood.

Menstrual hygiene management

- Around 38 percent of the girls who were using sanitary napkins had access to Government supplied napkins, which are mostly supplied in schools or colleges.
- As high as 81 percent of them had received Government supplied napkins in the recent past, i.e. during last three months.
- For 62 percent of the adolescent girls, the number of napkins supplied were sufficient and 65 percent of the girls were satisfied with the quality of Government supplied napkins.
- Common problems faced while using Government supplied napkins are leakage, need of frequent changes, sense of wetness and not taking proper shape.
- Most of the girls purchase sanitary napkins from shops or pharmacies and usually they consider brand, performance properties and price while purchasing them.
- 36 percent of the girls give used sanitary napkins to garbage collecting vehicles, around one-fourth of them burn, and 18 percent throw them in an open area. Hence altogether, 47 percent of the girls found to dispose the used sanitary napkins in a hygienic way. Usually, girls wrap the used sanitary napkins in newspaper or plastic bag before disposal.
- During heavy bleeding time, usually girls change sanitary napkins 2.9 times per day and during scanty bleeding days, it is 1.9 times per day. Criteria used to change the sanitary napkins are usually sense of wetness or leakage.

Menstrual problems, Reproductive Tract Infections and Treatment seeking behaviour

- Around 63 percent of the girls experience some kind of pain or discomfort during periods, and mostly it is severe abdominal or back pain.
- However, around 60 percent of the girls do not seek any treatment for these menstrual problems and even if they seek treatment, it is either a home remedy or some tablets from a pharmacy. If the problems are observed to be very serious, then girls approach a doctor from a private clinic.
- As far as self-reported symptoms related to Reproductive Tract Infections are concerned, 39 percent of the girls mentioned that they experience symptoms related to pain or burning sensation while urinating, rashes or ulcers on genitals, itching or irritation on vaginal area, bad odour with discharge and severe abdominal pain or fever along with discharge.
- However, 69 percent of the girls had not sought any treatment, even if they agree that they have these symptoms

Cultural practices around menstruation

- Still 25 percent of the adolescent girls observe separation during menstruation and 17% of the girls do not touch small children during menstruation.
- It is a common practice in India not going to worship centres or entering into the worship room during menstruation.
- 40 percent of the girls restrict their physical activities and 19 percent of the girls restrict even school going activities while menstruating.
- Around 13 percent of the girls were not allowed to take bath during menstrual period and 30 percent of the girls follow dietary restrictions during menstruation in the study area.

Impact of National programs on adolescent girls on menstrual hygiene

- Around one-third of the adolescent girls mentioned that they have not received any kind of knowledge on menstrual health and hygiene from any of the personnel including health workers or school teachers. For remaining, knowledge is given from school teachers or ASHA workers.
- Usually, knowledge is given on menstrual hygiene, menstrual problems and nutritious food and such sessions are held in schools or during house visits of ASHA workers.
- Girls agreed that they get knowledge on these issues and it has changed their behaviour like following hygienic practices, taking bath or changing the sanitary pads frequently and proper disposal.

Climate vulnerability and Menstrual hygiene

- 46 percent of the girls felt that they face crisis situation due to flood, drought or snowfall in the study area and usually such situation is less than three months in a year.
- Half of the girls mentioned that they don’t have any problem in getting water and even if such problem arises, they manage by bringing water from neighborhood or boiling water for drinking.
- Three-fourths of the girls felt that there is no problem in washing or drying the menstrual cloth or disposal of sanitary pads even during climatic extremes.
- Around 72 percent of the girls mentioned that they do not face any problem relating to bathing.
- Around 14 percent of the girls had to move away from home and stayed in the tents or camps during such crisis situation.

Conclusion and Recommendations

- The adolescent girls covered in the study area are mostly from lower socio-economic category.
- Education of father as well as mother of the adolescent girls surveyed in this project was very low and most of them were involved in cultivation or labour work.
- Still quite a significant proportion of girls had to discontinue their education irrespective of their willingness to continue and for few of them it is due to the attainment of menarche.
- Significant changes occur in dress, movement and playing activities of girls once they attain menarche.
- Most of the girls are not provided with prior knowledge on menarche but usually they get knowledge on menstrual hygiene after attaining menarche.
- Mostly sanitary napkins are used to absorb the menstrual bleeding by the adolescent girls in the study area. Quite a good number of girls do not have access to Government supplied sanitary napkins and even if they get them, they do not get in sufficient number and many quality issues are also raised by the girls.
- As such girls are aware of frequent changing of sanitary napkins.
- The disposal of sanitary napkins is not taking place properly in the selected areas, as quite a large proportion of girls dispose the used napkins in an unhygienic way. Hence, awareness has to be created among adolescent girls on proper disposal of used sanitary napkins, both in rural and urban areas.
- It is very important to create awareness among all the adolescent girls on symptoms of Reproductive Tract Infections and the urgency of consulting a medical practitioner if they experience such symptoms.
- National Programmes/Schemes on health have to focus still more on changing the behaviour of girls, especially on hygienic practices and consuming nutritious food, in addition to creating awareness.
- Supply of clean water for drinking and sufficient water for bathing and washing clothes has to be made to all the drought prone areas during summer.
- As such the climate vulnerability do not affect menstrual hygiene practices among adolescent girls significantly, as it exists for a short duration and many supportive arrangements are being made by the Government.

- During recent years, because of many National Disaster Management Programs, water is being supplied through tanks, bore-wells and construction of overhead tanks in villages. Compound wall, bridges are constructed in the flood prone areas.
- Existing National Programmes/Schemes are helping to give jobs to adults; they give incentives in the form of cash or ration; and adolescent girls get food in schools. Such facilities might have made the girls to perceive that as such they don't have the crisis situation of flood or drought in their area. As expressed by ASHAs of the selected areas, as such girls don't experience climate vulnerable crisis compared to elders of the household.
- Hence, adolescent girls have not experienced the effect of climatic crisis on their daily activities especially related to menstruation.

SECTION-1

Introduction and Methodology

1.1 Introduction

Adolescence is derived from a Latin word *adolescere* meaning 'to mature'. World Health Organization has defined ‘adolescence’ as a period between 10 to 19 years. Adolescents constitute 20.7 percent i.e. nearly one-fifth of the total population of India, as per Census 2011 (National Commission on Population, MoHFW, 2020). It is a transitional stage of physical and psychological development among both boys and girls. It has been recognized as a special period especially among girls, which signifies the transition from girlhood to womanhood, marked with the onset of menarche. Earlier studies have indicated that most of the girls attain menarche between 12-14 years in India (Tarannum et al., 2017), (Kumari et al., 2020). Furthermore, number of studies recorded that adolescents experience more anxiety and worry, somatic complaints, mood difficulties, and behavioral changes than adults in the aftermath of severe climate events (Newnham et al., 2020); Meltzer et al., 2021). Adolescents are also more susceptible to indirect effects of climate vulnerable regions, such as food insecurity (Oskorouchi & Sousa-Poza, 2021), economic instability (Behera et al., 2002), livelihood loss (Kumar et al., 2016), early age at marriage (Ahmed et al., 2019), school drop-out (Tuladhar et al., 2015; Alam & Singh, 2020), forced migration (Fisher, 2010), trafficking, and physical and sexual exploitation (Mainlay & Tan, 2012; Fisher, 2010).

Adolescent girls and young married women (less than 18 years) disproportionately suffer more health consequences than boys (Bhadra, 2017; Pittaway et al., 2007). Menstrual hygiene management is a matter of concern among adolescent girls particularly from low- and middle-income countries. Poor water, sanitation and hygiene facilities in school, inadequate puberty education and lack of menstrual hygiene management items (MHM)-absorbents cause girls to experience menstruation as shameful and uncomfortable (Sommer, 2010; Mason et al., 2013; Mahon & Fernandes, 2010; McMahon et al., 2011). Adolescent girls need to be informed about the menarche and menstrual management. However, as observed in earlier studies, very few girls are aware of menstruation before menarche. Menstrual problems are present in majority

of the girls and quite common are dysmenorrhea, irregular menses, and heavy menstrual bleeding (Kumari et al., 2020, Hirani & Hirani, 2020). These problems restrict daily activities as well as school attendance. Further, menstrual hygiene practices are observed to be poor among girls due to lack of awareness, restrictions and social taboos related to menstruation, lack of privacy and lack of water and sanitation facilities at home and schools (Sinha & Sharan, 2020 ; Priya et al., 2017). Poor hygienic practices make adolescent girls prone to Reproductive Tract Infections (Jyoti et al., 2020). Menstruation is generally considered as unclean in India. Social prohibitions and strong bondage with the taboos and traditional beliefs during menstruation and hesitation of parents not discussing the related issues openly to their adolescent daughters has blocked the access to get the right kind of information regarding menstrual hygiene (Mudey et al., 2010). Because of the lack of knowledge, they end-up with repeated use of unclean menstrual absorbent results in harbouring of micro-organisms that increases susceptibility to urinary, perineal, vaginal and pelvic infections(Garg et al., 2012). Priya S and team conducted study in rural Puducherry reported that even though sanitary pad users were high, unhygienic practices were noticed, so more emphasize is needed to be given on awareness of menstrual hygiene practices among adolescent girls(Priya S. et al., 2017).

In NFHS-5, women age 15-24 were asked what methods used for menstrual protection. In India, 64 percent were using sanitary napkins, cloth (50 percent), and 15 percent were using locally prepared napkins. Overall, 78 percent of women in this age group were using a hygienic method of menstrual protection (IIPS, 2019). As high as half of the married adolescent girls found to experience menstrual disorders, vaginal discharge, itching and bad odour, or pain during intercourse, but only half of those who experience seek treatment (Barua & Kurz, 2001). Knowledge on RTI/STI is found to be very less among adolescents, however, quite a significant number of adolescent girls do experience these symptoms. Reproductive Tract Infections (RTIs), which has become a silent epidemic that devastates women's life, is closely interrelated to poor menstrual hygiene. The use of rags and old clothes is a rule rather than exception in rural areas of India. Rags and old clothes that are unclean increase the chances of RTIs including urinary, vaginal and perineal infection (Water Aid's Mission, 2009).

Restrictions during menstruation that limit the daily activities and routines of women are widely practiced in India. These restrictions manifest from beliefs that a woman during her menstruation is ritually dangerous, which can result in her spoiling food, plants, biological and social processes. Women are prohibited from religious activities, attending functions (like marriages), cooking, and sexual intercourse or touching male members of the house during

their menstrual periods. Similarly, under Islamic law, they are not allowed to enter the mosque, to fast, or to have sex. Girls are relieved from exclusion only after a purification ritual i.e. women are required to undertake major ablution (ritual bathing) after the conclusion of menstruation (Water Aid's Mission, 2009). Dasgupta and Sarkar reported that 85 percent of school-going adolescent girls practiced different restrictions during menstruation. Among them, 71 percent of girls did not attend any religious occasion, 50 percent of girls did not eat certain foods such as sour foods, banana, radish and palm. Almost 43 percent of girls did not play, 34 percent of girls did not perform any household work, 16 percent of girls did not attend school and 10 percent of girls did not attend any marriage ceremony during the menstrual period (Dasgupta & Sarkar, 2008). About half (51%) of the adolescent girls were being absent in schools during the menstruation. Around 75 percent perceived that the menstruation interferes on school performance. The main reason for the same is painful menstruation and lack of sanitary facilities at school.

1.2 Climate vulnerability

Though Climate change is a Global Phenomenon, its impacts are felt locally. Many comprehensive measures are being implemented by Government of India to reduce the impact of disasters. India is the seventh-most vulnerable country with respect to climate extremes (Germanwatch, 2020). An analysis by the Council on Energy, Environment and Water (CEEW) suggests that three out of four districts in India are extreme event hotspots, with 40 percent of the districts exhibiting a swapping trend, i.e., traditionally flood-prone areas are witnessing more frequent and intense droughts and vice-versa (Mohanty A. and Wadhawan S, 2020). As per this analysis, 27 of 35 States and UTs are highly vulnerable to extreme hydro-met disasters and their compounded impacts. The analysis further suggests that India's western and central zones are more vulnerable to drought like conditions and their compounding impacts. The northern and northeastern zones are more vulnerable to extreme flood events and their compounding impacts. Meanwhile, India's eastern and southern zones are highly vulnerable to extreme cyclonic events and their impacts. The eastern and southern zones are also becoming extremely prone to cyclones, floods, and droughts combined.

Extent of Cyclones/Floods, Droughts and Snowfall are considered in this study to define the climate vulnerability in each of the selected States/UTs. To identify the districts with climate vulnerability, "Mapping India's Climate Vulnerability: A District level Assessment" (2021)

published by The Council of Energy, Environment and Water (CEEW) has been used (Mohanty A. and Wadhawan S, 2020).

1.2.1 Climate in India

India is one of the oldest civilizations in the world with a kaleidoscopic variety and rich cultural heritage. It covers an area of 32,87,263 sq. km (1,269,346 sq mi), extending from the snow covered Himalayan heights to the tropical rain forests of the south. As the 7th largest country in the world, India stands apart from the rest of Asia, marked off as it is by mountains and the sea, which give the country a distinct geographical entity. Bounded by the Great Himalayas in the north, it stretches southwards and at the Tropic of Cancer, tapers off into the Indian Ocean between the Bay of Bengal on the east and the Arabian Sea on the west. India lying entirely in the northern hemisphere, the mainland extends between latitudes 8° 4' and 37° 6' north, longitudes 68° 7' and 97° 25' east and measures about 3,214 km from north to south between the extreme latitudes and about 2,933 km from east to west between the extreme longitudes. It has a land frontier of about 15,200 km. The total length of the coastline of the mainland, Lakshadweep Islands and Andaman & Nicobar Islands is 7,516.6 km.(https://www.india.gov.in/india-glance/profile). India's vulnerability to several types of natural and manmade disasters and emergencies, results from its unique geo-climatic, fragile human settlements, and challenging economic and social dynamics (Lekurwale, 2015). Commonly occurring natural disasters are floods, droughts, landslides and cyclones. Out of 35 States and Union Territories, 27 are considered disaster prone. The Natural Disaster Risk Index (NDRI) ranks Maharashtra, West Bengal, Uttar Pradesh, Madhya Pradesh, Karnataka, Assam, Andhra Pradesh, Gujarat and Bihar among some of the high risk (Thakur P & Chauhan N, 2018).

India, due to its unique geo-climatic and socio-economic conditions, is vulnerable, in varying degrees, to floods, droughts, cyclones, tsunamis, earthquakes, urban flooding, landslides, avalanches and forest fire. Out of 36 States and Union Territories (UTs) in the country, 27 are disaster prone. 59 percent landmass is prone to earthquakes of moderate to very high intensity; 12 percent land is prone to flood and river erosion; out of 7,516 km coastline, 5,700 km is prone to cyclones and tsunamis; 68 percent of the cultivable land is vulnerable to drought, hilly areas are at risk from landslides and avalanches, and 15 percent of the landmass is prone to landslides. A total of 5,161 Urban Local Bodies (ULBs) are prone to urban flooding. (NDMA, 2021)

In India, (Bansal and Minke, 1988) had carried out detailed studies and reported that India can be divided into six climatic zones, namely, hot and dry, warm and humid, moderate, cold and cloudy, cold and sunny, and composite.

1.2.2 Climate vulnerability in India

Flood: Flood events in India is abrupt and non-linear. The frequency and intensity of extreme events are surging. India has witnessed some devastating floods since the 19th century. Flood events in India are becoming recurrent; associated flood events have surged six-fold since 1970s and more than 60 percent of Indian districts are extreme flood event hotspots. The States Assam, Manipur, Sikkim, and Arunachal Pradesh is only highly exposed to extreme flood events. However, the southern and central zones, including States such as Andhra Pradesh, Karnataka, and Uttar Pradesh, are exposed to compounded flood events, i.e., flood & drought. The most of the districts are increasingly exposed to more than one extreme hydro-met disaster.(Mohanty, 2020).

Cyclone: Cyclones are referred to as tropical cyclones In India. The eastern part of India is highly exposed to extreme cyclone events. Further, the southern and western areas are more exposed than the northern and north-eastern zones. States like Andhra Pradesh, Karnataka, Bihar, Odisha, and Maharashtra are the most exposed to extreme cyclones and associated events. In India, tropical cyclones primarily occur between November and May (Singh et al., 2001). Various studies show that the warming of oceans causes sea levels to rise, causing thermal-hydro expansion, which intensifies the strength and frequency of cyclones in the coastal regions of India (Mimura, 2013)

Drought: India is highly vulnerable to the impacts of climate change since a large share of its population directly or indirectly depends on agriculture and its allied sectors for their livelihoods (Goodess et al., 2019). Droughts in India are categorized into three subtypes: i) meteorological, ii) hydrological, and iii) agricultural. Further, a CEEW analysis suggests that droughts occur in all climatic zones in India (Mohanty, 2020). According to a pentad decadal analysis of extreme hydro-met disasters, 68 per cent of Indian districts are exposed to extreme drought events. India's southern and central zones are highly exposed to extreme drought events. Further, the eastern and western zones are more exposed to extreme drought events than the north and north-eastern zones. The States with maximum exposure to extreme drought events are Rajasthan, Andhra Pradesh, Maharashtra, Karnataka, and Tamil Nadu.

1.3 Menstrual Health and Hygiene in Climate Vulnerable areas

Climate disasters have pushed menstrual health initiatives to the backburner as other priorities are put first .Women have been shown to face many difficulties with menstrual health after a climate disaster (Budhathoki et al., 2017). Menstrual hygiene management in disaster prone and fragile contexts is a challenge to adolescent girls and women. Studies provide evidence to the fact that at times of distress, frequency of sanitary pads/cloths, appropriate disposal of pads, washing the clothes, proper cleaning of genetalia are usually given lesser focus (Krishnan & Twigg, 2016). Schmitt & Clatworthy found that worldwide and especially in developing countries, secrecy, shame and taboo that frequently surround menstruation, hindered adequate assessment and identification of contextually appropriate solutions and emerged as a significant challenge in addressing menstrual hygiene management barriers in emergencies (Schmitt et al., 2017). Relief efforts often focus on supplying menstrual hygiene materials, with little attention to provisions for supportive facilities (water, toilet and menstrual waste disposal mechanism, as well as information and support to overcome discriminatory norms and practices related to MHM) to enable girls and women to manage their periods safely and with dignity. Improving menstrual health and hygiene requires a multi-faceted approach, even during emergencies. This includes information and education to address gender equitable norms and stigma associated with MHM, adequate numbers of safe and private toilets, easily accessible water for washing and hygiene purposes, culturally appropriate menstrual products and materials (e.g., cloth, pad), socially and environmentally appropriate means of disposal of used sanitary materials or private washing/drying for cloths, pragmatic information on maintaining hygiene during menses, and supportive health services (Sommer et al., 2016).

In times of climate crisis (i.e., climate disasters or extreme climate conditions) there could be impaired facilities, or a lack of clean water, sanitation, and menstrual products available for women and girls to manage their menstruation with dignity (Bloomstrom et al., 2009) (Sato et al., 2016). Climate disasters are proven to create limited access to clean water, hygiene facilities, and proper menstrual products for women and girls to manage menstrual hygiene effectively (Das, 2017). After a review of many menstrual hygiene interventions in low and middle-income countries, it was found that access to water and sanitation, privacy, and menstrual waste disposal is needed when encouraging menstruation behavior changes and the uptake of new menstrual products (Shannon et al., 2021), (Sommer, 2012). Menstrual hygiene management is a challenge for women living in areas with drought conditions as well as areas

where climate disasters such as monsoons, cyclones, and hurricanes occur more often due to the uncertain and limited access to water and sanitation materials. Menstruation management in emergency settings is particularly challenging for women and girls, as there is an increase in displacement and inadequate menstrual hygiene care (Vanleeuwen & Torondel, 2018). The lack of water available during droughts makes it difficult for women and girls to maintain menstrual hygiene and there are inadequate access to sanitary supplies due to a lack of food and cash reserves used to purchase these products (Fischer, 2016).

In the rural villages of the flood-prone State of Assam, India, women and girls face many logistical issues when dealing with their menstrual hygiene needs during flooding (Bhattacharjee, 2019). In Assam, relief camps and temporary shelters lacked separate toilets and disposal systems for menstrual waste, and disaster management plans for gender-sensitive hygiene responses have yet to be adopted during the floods (Bhattacharjee, 2019).

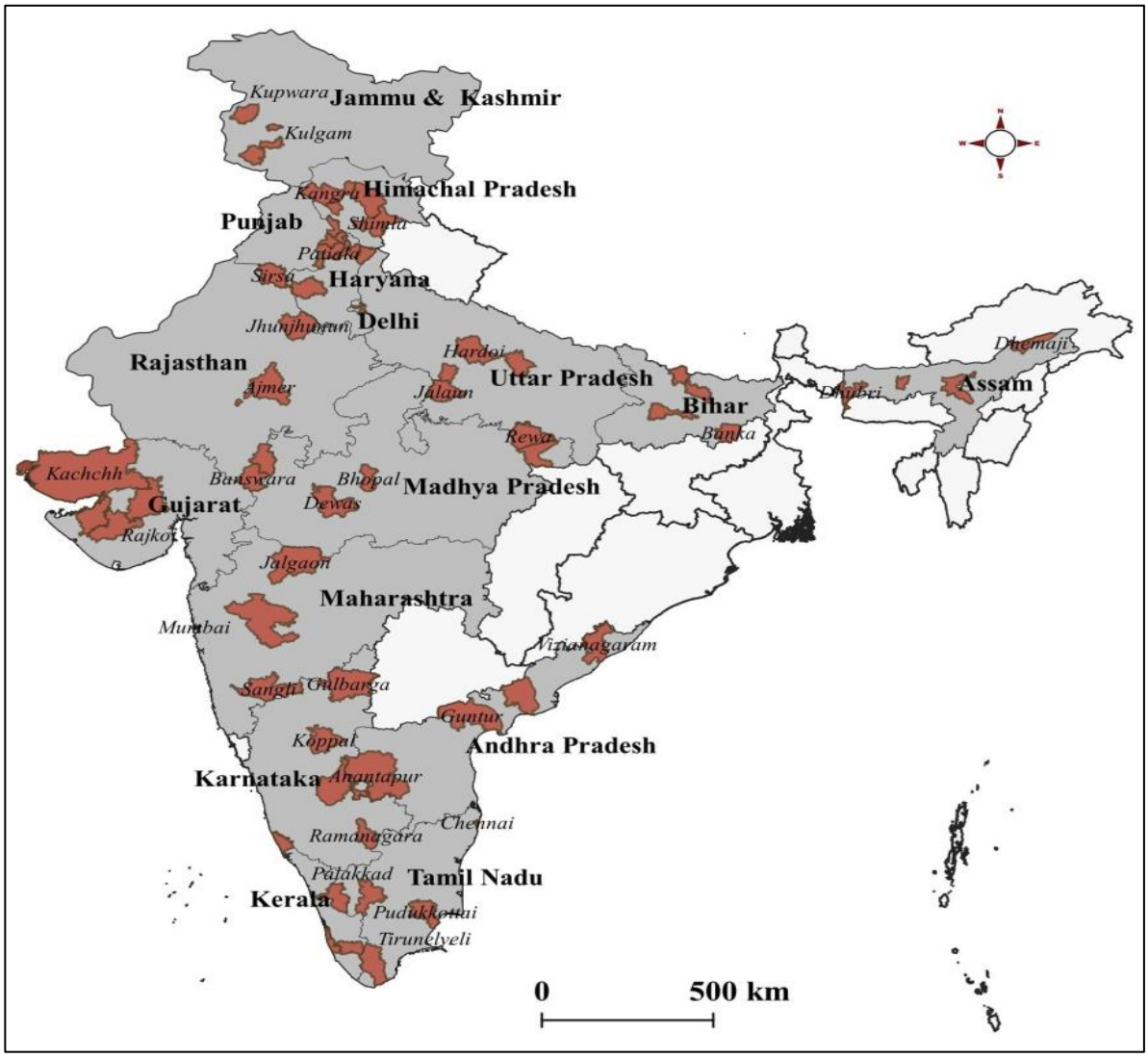
In this context, an attempt has been made to study and assess the knowledge, attitude and practices of adolescent girls concerning menstrual health and hygiene focusing on climate vulnerable regions with the following **specific objectives**.

- To assess the knowledge and attitude of adolescent girls on menstrual health & hygiene, and reproductive health concepts
- To assess the status of menstrual and gynec health among adolescent girls and treatment-seeking behavior
- To understand the existing practices related to menstrual hygiene among adolescent girls

1.4 Methodology

The study is a collaborative PAN India study between 15 Population Research Centres (PRCs) located in different States- Dharwad (Karnataka), Srinagar (Jammu & Kashmir) Thiruvananthapuram (Kerala), Delhi, Vadodara (Gujarat), Lucknow (Uttara Pradesh), Dindigul (Tamil Nadu), Guwahati (Assam), Patna (Bihar), Shimla (Himachal Pradesh), Udaipur (Rajasthan), Pune (Maharashtra), Chandigarh (Punjab and Haryana), Vishakhapatnam (Andhra Pradesh) and Sagar (Madhya Pradesh). It was decided to conduct the study in 16 States (four districts of each State) where these 15 PRCs are located. **Figure 1.1** indicates the 64 districts covered in the study. States covered are shaded in gray and districts covered are shaded in red.

Fig. 1.1 :States (Shaded in Gray) and Districts (Shaded red) covered in the study



1.4.1 Sample size

Sample size determination: The present study is designed to collect information on menstrual health and hygiene among adolescent girls who have attained menarche (aged 13-19 years) living in climate vulnerable areas. To find out the required sample size for each State the following formula has been applied:

$$\text{Sample Size (n)} = \frac{z^2 pq * (1 + R) * \text{D eff}}{\text{d}^2}$$

Where,

n = Sample size required

z= z value (1.96 at 5% level of significance)

p= prevalence of hygienic methods of protection during the menstrual period =**77% (NFHS-5)**

q=1-p=**23%**

R = non-response adjustment (assumed to be 40%)

D eff= Design effect (assumed to be 1.25)

d = margin of error (assumed to be 5%)

$$n = \frac{((1.96)^2 * (0.77) * (0.23)) * (1.40) * (1.25)}{(0.05)^2} = 476$$

n=476 (rounded to 480).

Consent of either of the parents/guardians has been taken along with assent of the girls in case of girls below 18 years and individual consent has been taken for the girls of 18 and 19 years. An Ethical Review Committee approval has been taken for the study.

1.4.2 Selection of Districts, Taluks, PHCs and Adolescent girls

All districts of selected States have been categorized into 2 groups based on the NFHS-5 indicator, 'proportion of women aged 15-24 years who use hygienic methods of protection during their menstrual period' as '*better performing districts*' (those above the State average) and '*poor performing districts*' (those below the State average) (**Table 1.1** gives hygienic method of protection among young women during menstruation by State/UTs as per NFHS-5). One *drought affected* and one *flood/cyclone affected* district has been selected from each of these two categories. To identify the districts "Mapping India's Climate Vulnerability: A District Level Assessment" (2021) published by The Council of Energy, Environment and Water (CEEW) has been used. (Mohanty A. and Wadhawan S, 2020)

Altogether 64 districts were selected –32 districts from the *better performing category* and the remaining 32 districts from the *poor performing category*, 50 percent of them *drought affected* and 50 percent of them were *flood/cyclone affected*. States like Punjab, Haryana and Delhi were not considered for climate vulnerability. Further, all four districts of Assam were flood affected and all four districts of Rajasthan were drought affected. 2 districts in Himachal and Jammu Kashmir were snowfall affected, 1 was drought and 1 flood affected district was selected. In Himachal Pradesh and Gujarat, the required sample size was not adequate for urban areas and hence more samples from rural areas were considered. In Delhi slums were considered for the Sample as there was no rural sample. Within each selected district, 1 Taluk was selected which is comparatively more climate vulnerable in the district. In each of the selected Taluks, 2 Rural

Primary Health Centres and 1 Urban Primary Health Centre were selected which are located in climate vulnerable areas.

Table 1.1: Percentage of Women aged 15-24 years who use hygienic methods of protection during their menstrual period according to State, India (NFHS-5)

Sl. No	States/UTs	Urban	Rural	Total
1	Andaman & Nicobar Islands	98.5	99.1	98.9
2	Andhra Pradesh	90.6	82.5	85.1
3	Assam	82.9	63.8	66.3
4	Bihar	74.7	56	58.8
5	Dadra & Nagar Haveli, Daman & Diu	91.0	95.6	93.6
6	Goa	96.2	97.6	96.8
7	Gujarat	77.6	58.6	65.8
8	Himachal Pradesh	96.3	90.8	91.5
9	Jammu & Kashmir	85.8	69.6	73.4
10	Karnataka	90.9	79.8	84.2
11	Kerala	94.9	91.4	93.0
12	Lakshadweep	97.7	100	98.3
13	Ladakh	90.9	75.2	78.2
14	Maharashtra	90.2	80.1	84.8
15	Meghalaya	85.0	59.1	64.9
16	Manipur	88.6	79.8	82.9
17	Mizoram	93.6	84.6	89.8
18	Nagaland	87.1	76.6	80.2
19	Sikkim	87.1	85.7	86.3
20	Telangana	95.2	90.3	92.1
21	Tripura	83.4	63.8	68.8
22	West Bengal	91.2	79.7	83.0
23	Arunachal Pradesh	93.5	91.4	91.8
24	Chhattisgarh	83.2	64.8	68.8
25	Haryana	96.7	91.6	93.2
26	Jharkhand	88.2	70.8	74.9
27	Madhya Pradesh	81.9	53.4	60.5
28	Odisha	91.7	79.5	81.5
29	Punjab	95.4	91.9	93.2
30	Rajasthan	92.2	81.9	84.1
31	Tamil Nadu	98.6	98	98.3
32	Uttar Pradesh	86.7	68.4	72.6
33	Uttarakhand	94.5	89.7	91.2
34	Chandigarh	93.3	*	93.4
35	NCT Delhi	96.9	98.4	96.9
36	Puducherry	99.1	99.1	99.1
India		**89.4**	**72.3**	**77.3**

*Note: * Percentage not shown; based on fewer than 25 un-weighted cases,*
Locally prepared napkins, sanitary napkins, tampons, and menstrual cups are considered to be hygienic methods of protection
Source: NFHS-5 fact sheets; https://main.mohfw.gov.in/sites/default/files/NFHS-5

A readily available list of adolescent girls (aged 13-19 years) was collected from the health department (through ANMs/ASHAs) covering all the 3 PHCs geographical areas. From the final updated list, 120 Girls were selected using a systematic random sampling method considering the non-response rate and availability of the girls, not attaining menarche, in the age group 13-19 years. Finally, in total 6,715 adolescent girls who have attained menarche, who were available during our visit and willing to take part in the study were interviewed from a total of 64 districts.

Table 1.2: Percent distribution of adolescent girls covered by State according to Place of Residence and Type of Climate Vulnerability

State	No. of Adol Girls	Place of residence		Type of Climate vulnerability			
		Rural	Urban	Not Climate Vul.	Drought	Flood/ Cyclone	Snow fall
Andhra Pradesh	**434**	75.1	24.9	0.0	51.8	48.2	0.0
Assam	**445**	67.0	33.0	0.0	0.0	100.0	0.0
Bihar	**430**	65.6	34.4	0.0	50.9	49.1	0.0
Delhi	**413**	63.4	36.6	100.0	0.0	0.0	0.0
Gujarat	**400**	81.8	18.3	0.0	49.5	50.5	0.0
Haryana	**400**	64.5	35.5	100.0	0.0	0.0	0.0
Himachal Pradesh	**426**	91.3	8.7	0.0	24.2	26.8	49.1
Jammu Kashmir	**401**	67.6	32.4	0.0	25.4	24.7	49.9
Karnataka	**406**	67.2	32.8	0.0	47.0	53.0	0.0
Kerala	**426**	64.3	35.7	0.0	51.9	48.1	0.0
Madhya Pradesh	**445**	64.7	35.3	0.0	52.8	47.2	0.0
Maharashtra	**457**	73.7	26.3	0.0	47.7	52.3	0.0
Rajasthan	**407**	78.4	21.6	0.0	100.0	0.0	0.0
Punjab	**400**	95.3	4.8	100.0	0.0	0.0	0.0
Tamil Nadu	**404**	49.3	50.7	0.0	25.0	75.0	0.0
Uttar Pradesh	**421**	74.3	25.7	0.0	52.5	47.5	0.0
ALL	**6715**	**71.4**	**28.6**	**18.1**	**36.4**	**39.5**	**6.1**

The coverage of the study is presented in **Table 1.2** according to the place of residence and climate vulnerable regions. A total of 7,680 adolescent girls were selected, of which 6,715 were successfully interviewed with a response rate of 87 percent. About 13 percent of adolescent girls were not able to interview because of either refusal, menarche not attained, or not being available in the household during the period of the survey. Further 71 percent of adolescent girls belong to the rural area and 29 percent were from the urban areas. Among the 6,715

adolescent girls covered, 40 percent belonged to Flood/ Cyclone affected areas, 36 percent from Drought region, 6 percent were from snowfall areas and 18 percent of the sample belong to *Not climate vulnerable area* (neither drought nor Flood/ Cyclone/snowfall area).

1.5 Study tools

A detailed schedule has been administered to eligible respondents in their vernacular language. The questionnaire includes questions regarding the respondent's and Household/Parents' demographic and socioeconomic background; Knowledge, attitude and practices of adolescent girls concerning Menstrual Health and Hygiene.

Following Broad areas were covered in the schedule.

- Socio-Economic characteristics of Household
  - Religion, caste, Family type and size
  - Water supply, Toilet facility, Fuel used
  - Possession of valuable/material goods
  - Own house/rent, land owning
  - Source of income
  - BPL card
- Background characteristics of parents
  - Age, marital status, education, occupation
- Adolescent girls
  - Age
  - Education, reasons for drop out (related to menstruation/menarche and sanitation)
  - HH work, occupation, individual income
  - Marital status, Age at marriage and consummation of marriage

- **Reproductive health issues**
  - Age at menarche, practices followed during menarche and menstruation
  - Menstrual hygiene, absorbent used, frequency of change, its disposal, cost involved
  - Accessibility to the Sanitary Napkins, quality/quantity of napkins given through Govt. systems and disposal.
  - Menstrual problems, its impact on other activities, management
  - Gynec problems, treatment seeking
  - Myths and Misconceptions around menstruation
  - Role of RKSK and Peer Education Programmes in imparting knowledge on Menstrual Health and Hygiene
  - Menstrual health problems and challenges related to climate vulnerability

1.6 Field Data Collection

An elaborate training has been organized for the Principal Investigators from all the PRCs through the virtual mode, intern, each PRC has organized training for the Supervisor and Field Investigators including demonstration of interviews, mock interviews, field practice, etc. For the field data collection, a team of one Supervisor and 4 Female investigators were placed in each State. The supervisor collected the lists from all the selected Taluks a few days before the survey and made the final sampling frame as well as the selection of girls. Female investigators conducted 8 interviews per day. On an average, the field data collection was completed in 3 days per district and altogether 18 days have been taken to complete one State, (i.e. 12 working days and 6 days for inter-district travel). Supervisors edited all the filled-in questionnaires.
Each team has been provided with reasonable accommodation at private lodges. The field team was provided with one vehicle of capacity 5. As most of the adolescent girls were at schools or colleges during the day time, efforts were made to contact these girls at their houses during evening time, weekends, and holidays. The data from all 64 districts were collected during January to March 2023.

1.7 Data Processing

Data processing work has been carried out with the help of CSPro 7.6.0 software developed at the PRC Dharwad. Double entry of the data has been preferred to avoid data entry errors. An error list of the data entered twice was generated and were verified for discrepancies with the help of the questionnaires. The required corrections were made in both data sets until no keying error is found. The whole data entry operation was supervised by trained supervisors at PRCs. The entire data processing work has been completed within a period of 2 to 3 weeks. The analysis of the data has been done using CSPro 7.6.0 and STATA 17.

SECTION-2

Adolescent Socio-Demographic, Educational and Occupational Characteristics

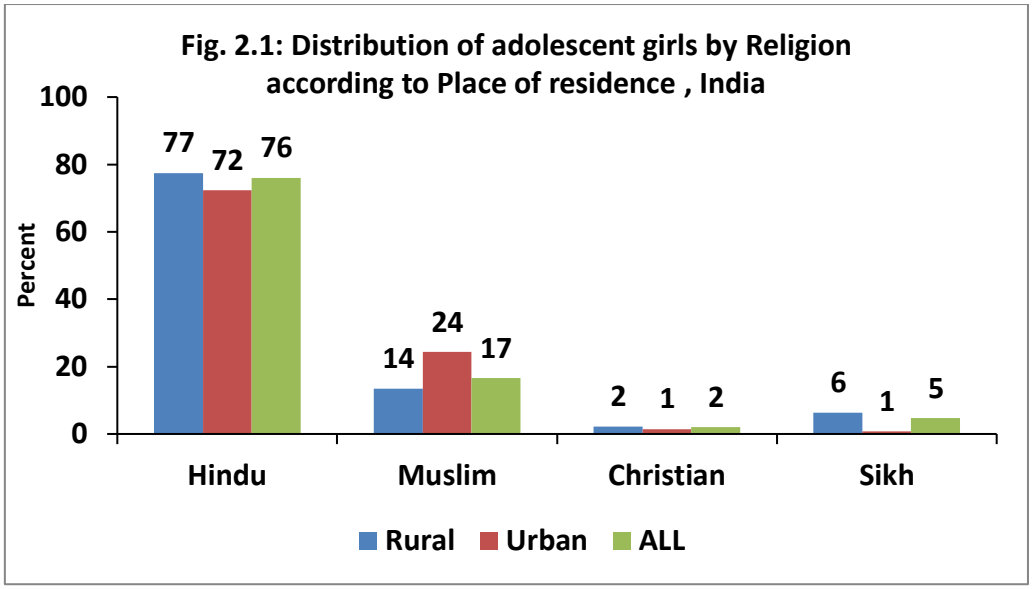
This section presents a profile of the surveyed girls. Their individual, socio-demographic and household level characteristics including parental characteristics have been presented for across the surveyed States of India, place of residence and by climate vulnerability.

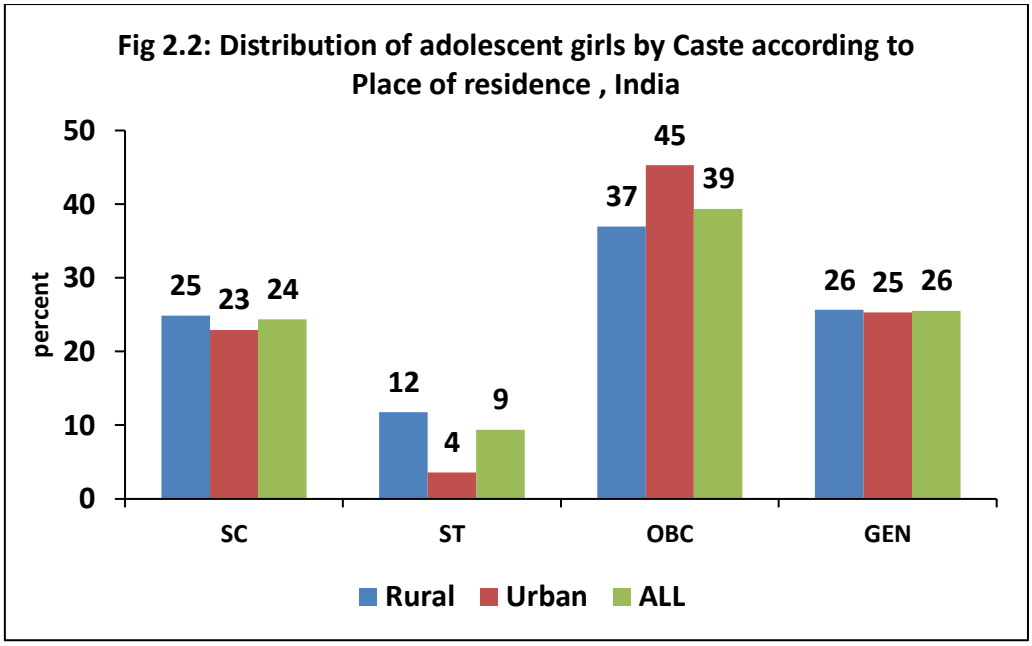
2.1 Household Characteristics

Characteristics of household includes composition by religion, caste, family type and its size, primary source of income to household, parental characteristics, their educational and occupation characteristics according to surveyed States, place of residence and by climate vulnerability.

Household characteristics affect the social and economic well-being of the members of the household. The examination of socio-economic background is essential for a proper understanding of their approach and perception of social phenomena. The social background of respondents is a complex web of interwoven factors that includes, age, religion, education, their income which largely determine the nature of the perception and responses. Behavioural psychologists suggest that social conditioning is an important determinant of human behaviour, and an individual act within the framework of the social structure.

The religious affiliation of adolescent girls has been presented according to surveyed States, type of residence and climate vulnerability in **Table 2.1**. In total, majority of the surveyed girls belong to Hindu religion (76 %) followed by Muslims (17 %) and Sikhs (5 %) (**Fig. 2.1**). State wise analysis suggests that a higher proportion of girls from Hindu religion particularly from Himachal Pradesh (99 %), Bihar (94 %), Madhya Pradesh and Rajasthan (89 % each), Tamil Nadu (85 %) and Haryana (88 %). Similarly, a higher proportion of girls from Jammu & Kashmir (81 %), Uttar Pradesh (24 %), Delhi (32 %) and Kerala (24 %) belong to Muslim community. Similarly, girls from Sikh community reported majorly from Punjab (71 %) followed by Haryana (6 %). A notable difference in proportion of Muslim girls is clearly visible by place of residence (14 vs. 24 %) respectively for rural and urban areas. When climate-vulnerable regions are taken into consideration, a higher proportion of girls from Hindu religion reported from Drought and Flood affected region (82 % each), whereas 49 percent of girls from snowfall region reported to be belong to Muslim community.





Following to the religious characteristics of surveyed girls, analysis from Table 2.1 sheds light on the caste composition too. According to the findings, one-fourth of the surveyed girls were belonging to scheduled caste. State wise data suggest a higher proportion of scheduled caste girls has been observed from Punjab (53 %), Andhra Pradesh (45 %), Haryana (38 %), Bihar and Madhya Pradesh (31 % each). Similarly, about one-tenth of girls belong to scheduled tribe category majorly from Andhra Pradesh (27 %), Rajasthan (23 %) and Madhya Pradesh (20 %). A rural urban difference apparent particularly for OBC girls (37 vs 45 %) and for scheduled tribe girls (12 vs 4 %) respectively (**Fig. 2.2**). A relatively higher proportion of girls from non-climatic vulnerable region were from scheduled caste (37 %), girls from drought or flood prone

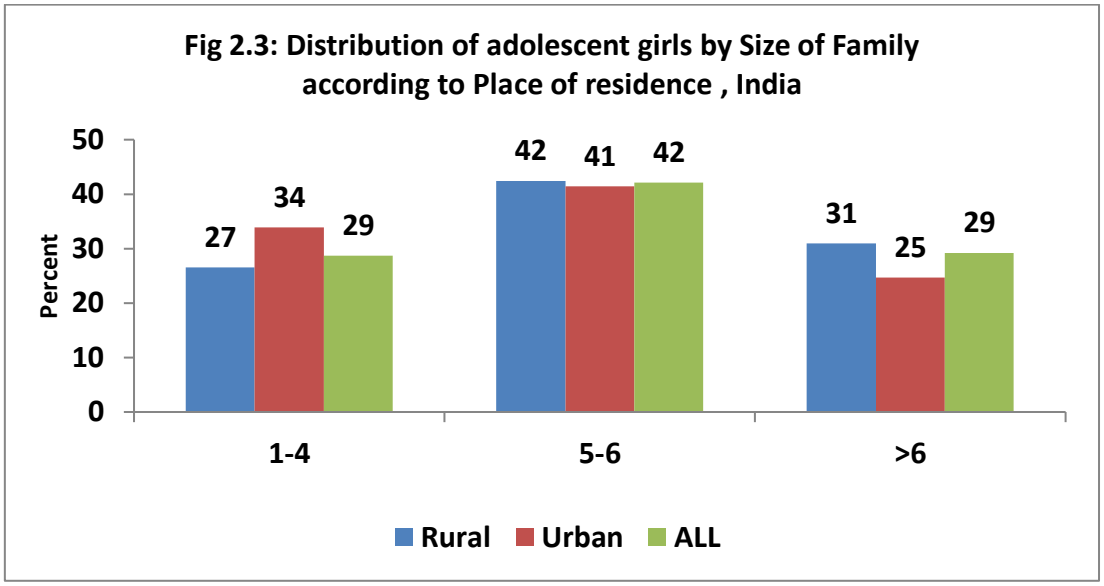
region were OBCs (44 % each) and about 66 percent of girls belong to general caste in snowfall aeras.

Table 2.1: Percent Distribution of Adolescent girls by Religion and Caste according to State, Type of Residence and Type of Climate Vulnerability

Particulars	Religion					Caste					No. of Adol. Girls
	Hindu	Muslim	Christian	Sikh	Other/ No Rel.	SC	ST	OBC	GEN	No caste/ Missing	
State											
Andhra Pradesh	88.2	2.3	8.1	0.2	1.2	44.7	26.7	18.7	9.9	0.0	434
Assam	79.1	20.2	0.0	0.4	0.2	10.3	17.3	25.2	47.2	0.0	445
Bihar	93.5	6.5	0.0	0.0	0.0	30.9	1.2	62.1	5.8	0.0	430
Delhi	67.6	31.7	0.0	0.5	0.2	19.9	1.5	18.2	54.0	6.5	413
Gujarat	81.3	18.8	0.0	0.0	0.0	22.3	7.3	60.5	10.0	0.0	400
Haryana	88.0	2.5	2.0	6.3	1.3	38.3	0.5	41.5	19.0	0.8	400
Himachal Pradesh	99.1	0.9	0.0	0.0	0.0	19.7	5.9	17.6	56.8	0.0	426
Jammu Kashmir	19.5	80.5	0.0	0.0	0.0	1.7	4.0	20.4	73.8	0.0	401
Karnataka	82.8	16.5	0.5	0.0	0.2	25.4	13.1	47.5	13.5	0.5	406
Kerala	67.1	23.9	8.9	0.0	0.0	17.6	3.1	67.1	12.2	0.0	426
Madhya Pradesh	89.0	11.0	0.0	0.0	0.0	30.6	20.2	24.7	19.3	5.2	445
Maharashtra	81.4	13.6	0.4	0.0	4.6	13.3	12.9	41.8	26.3	5.7	457
Rajasthan	88.9	7.6	1.0	0.7	1.7	20.9	22.9	27.8	26.5	2.0	407
Punjab	22.5	5.3	0.3	71.3	0.8	52.5	0.5	27.5	19.5	0.0	400
Tamil Nadu	85.4	3.0	11.6	0.0	0.0	27.5	2.2	70.3	0.0	0.0	404
Uttar Pradesh	76.5	23.5	0.0	0.0	0.0	15.7	8.8	61.0	14.5	0.0	421
Type of residence											
Rural	77.4	13.5	2.3	6.3	0.5	24.9	11.7	37.0	25.6	0.7	4797
Urban	72.3	24.3	1.5	0.8	1.1	22.9	3.6	45.3	25.3	2.9	1918
Type of Climate vulnerability											
Not Climate Vul.	59.4	13.4	0.7	25.7	0.7	36.7	0.8	28.9	31.1	2.5	1213
Drought	82.3	16.3	0.7	0.1	0.6	22.4	13.3	43.5	20.3	0.4	2441
Flood/Cyclone	81.6	13.4	4.1	0.1	0.8	22.7	10.4	43.5	21.5	1.8	2652
Snowfall	51.1	48.9	0.0	0.0	0.0	9.5	5.1	19.1	66.3	0.0	409
ALL	**76.0**	**16.6**	**2.0**	**4.7**	**0.7**	**24.3**	**9.4**	**39.4**	**25.5**	**1.3**	**6715**

The distribution of adolescent girls by type of family has been presented according to surveyed States, type of residence and by type of climate vulnerability in **Table 2.2**. In many of the

surveyed States, nuclear families found to be predominant (64 %) with considerable variation across the States. For instance, nuclear families found relatively higher in Tamil Nadu (80 %), Delhi and Jammu & Kashmir (79 % each) and Maharashtra and Assam (70 % each). Likewise, a sizeable proportion of the respondent living in joint family (29 %) with varying degrees by States such as Uttar Pradesh (46 %), Himachal Pradesh (43 %), Bihar (40 %) and Rajasthan (39 %). A minor difference has been observed in type of family by place of residence (rural/urban) particularly for joint families (30 vs. 27 %) respectively for rural and urban areas. A minimal variation has been observed while considering climate-vulnerable regions by family type.



Following to the family type, analysis from Table 2.2 throw light on the respondents' family size. According to the findings, most of the respondents, particularly from Uttar Pradesh (52 %), Madhya Pradesh (46 %), Bihar (43 %) and Rajasthan (39 %) reported to have family size of more than 6 members (**Fig. 2.3**). Whereas, 29 % of the respondents reported that their family having 1-4 members with a varying degree across the States. For instance, it is found higher for Tamil Nadu (55%), Andhra Pradesh (52 %), Kerala (53 %) and Assam (49 %). Strikingly, a considerable difference in size of family has been observed by place of residence (rural/urban households) i.e. 27 and 34% respectively. A higher proportion of respondents from snowfall regions (41 %) had more than 6 members in the family whereas flood/cyclone-affected regions (35 %) and drought-affected regions (27 %) reported to have 1-4 members in the family.

Table 2.2: Percent distribution of Adolescent girls by Type of family and Size of family according to State, Type of Residence and Type of Climate vulnerability

Particulars	Type of Family			Size of Family				No. of Adol. girls
	Nuclear	Extended	Joint	1-4	5-6	>6	Mean	
State								
Andhra Pradesh	62.2	8.1	29.7	51.8	33.6	14.5	*4.9*	434
Assam	69.9	10.6	19.6	48.8	37.3	13.9	*5.0*	445
Bihar	58.1	1.9	40.0	10.5	46.3	43.3	*6.7*	430
Delhi	79.4	2.9	17.7	16.9	48.2	34.9	*6.4*	413
Gujarat	62.8	1.3	36.0	18.3	51.5	30.3	*6.1*	400
Haryana	56.0	12.8	31.3	22.5	49.3	28.3	*6.2*	400
Himachal Pradesh	57.3	0.2	42.5	29.1	38.5	32.4	*5.9*	426
Jammu Kashmir	78.8	2.0	19.2	19.0	50.6	30.4	*5.9*	401
Karnataka	59.4	24.4	16.3	33.3	45.3	21.4	*5.8*	406
Kerala	64.8	12.0	23.2	52.6	36.4	11.0	*4.9*	426
Madhya Pradesh	58.4	12.4	29.2	9.7	44.7	45.6	*6.7*	445
Maharashtra	69.8	6.1	24.1	24.9	42.0	33.0	*6.2*	457
Rajasthan	52.6	8.8	38.6	28.7	32.2	39.1	*6.5*	407
Punjab	62.8	5.8	31.5	24.8	47.3	28.0	*6.0*	400
Tamil Nadu	80.2	0.0	19.8	55.2	36.6	8.2	*4.7*	404
Uttar Pradesh	52.0	2.1	45.8	11.9	35.9	52.3	*7.0*	421
Type of residence								
Rural	62.6	7.4	30.0	26.6	42.4	31.0	*6.0*	4797
Urban	67.6	5.9	26.5	33.9	41.4	24.7	*5.8*	1918
Type of Climate Vulnerability								
Not Climate Vul.	66.2	7.1	26.7	21.4	48.2	30.4	*6.2*	1213
Drought	60.7	8.8	30.5	27.2	40.2	32.6	*6.1*	2441
Flood/Cyclone	65.7	6.1	28.1	35.2	41.0	23.8	*5.6*	2652
Snowfall	66.3	0.7	33.0	16.6	42.8	40.6	*6.2*	409
ALL	**64.0**	**7.0**	**29.0**	**28.7**	**42.1**	**29.2**	***5.9***	**6715**

The distribution of adolescent girls by their primary source of household income has been presented according to surveyed States, place of residence and by type of climate vulnerability and presented in **Table 2.3**. In many of the surveyed States, agricultural and non-agricultural labor (28 %) were found to be the primary source of income. For instance, it is higher in Andhra Pradesh (60 %), Kerala (59 %), Jammu & Kashmir (49 %), and Bihar (31 %). Likewise, a large portion of the respondent revealed "regular salary" as major source of household income (24

%) with varying degrees by States such as Delhi (59 %), Tamil Nadu (34 %), Punjab (33 %), Rajasthan and Haryana (32 % each). Cultivation was found to be the third most commonly reported primary source of income (21 %) particularly in the States like Maharashtra (53 %), Uttar Pradesh (38 %), Gujarat (36 %) and Himachal Pradesh (32 %).

Table 2.3: Percent distribution of Adolescent girls by Primary source of income of Household and having BPL card according to State, Type of Residence and Type of Climate vulnerability

Particulars	Primary Source of income					Having BPL Card			No. of Adol. Girls
	Cultivation	Agri/ Non Agri labor	Business	Salaried	Other	BPL	APL	Don't know	
State									
Andhra Pradesh	20.0	59.7	9.7	2.8	7.8	97.9	0.9	1.2	434
Assam	20.0	1.6	34.2	21.6	22.7	65.6	31.5	2.9	445
Bihar	13.7	30.7	25.6	27.7	2.3	90.2	5.6	4.2	430
Delhi	1.5	7.0	30.5	58.8	2.2	27.8	51.8	20.3	413
Gujarat	35.5	34.3	8.5	20.5	1.3	33.0	66.3	0.8	400
Haryana	13.3	20.3	22.8	32.0	11.8	64.3	29.3	6.5	400
Himachal Pradesh	31.7	10.3	25.8	26.3	5.9	9.9	78.6	11.5	426
Jammu Kashmir	4.0	48.6	19.7	20.7	7.0	74.6	14.7	10.7	401
Karnataka	25.6	42.4	18.0	13.8	0.2	89.4	9.4	1.2	406
Kerala	6.8	59.2	14.3	14.8	4.9	64.8	34.5	0.7	426
Madhya Pradesh	25.6	23.6	16.9	18.9	15.1	74.6	12.4	13.0	445
Maharashtra	53.4	9.2	16.8	17.1	3.5	53.6	33.7	12.7	457
Rajasthan	26.0	11.3	14.7	32.4	15.5	40.8	25.8	33.4	407
Punjab	10.8	21.0	20.0	33.3	15.0	42.8	43.3	14.0	400
Tamil Nadu	1.5	36.4	16.1	34.2	11.9	42.6	17.6	39.9	404
Uttar Pradesh	37.8	34.9	14.0	6.9	6.4	56.8	14.0	29.2	421
Type of residence									
Rural	26.8	28.7	16.0	20.8	7.7	59.9	29.1	11.0	4797
Urban	5.6	26.1	27.5	30.7	10.1	54.3	29.4	16.3	1918
Type of Climate Vulnerability									
Not Climate Vul.	8.4	16.0	24.5	41.5	9.6	44.8	41.5	13.7	1213
Drought	27.9	29.9	16.1	19.7	6.4	61.2	25.1	13.7	2441
Flood/Cyclone	19.2	32.2	19.7	18.6	10.3	65.0	23.9	11.0	2652
Snowfall	24.4	24.7	20.0	26.7	4.2	36.9	51.3	11.7	409
ALL	**20.7**	**28.0**	**19.3**	**23.6**	**8.4**	**58.3**	**29.2**	**12.5**	**6715**

A couple of States revealed that Business as a major source of income especially in Assam (34 %), Delhi (31 %), Bihar (26 %) and Himachal Pradesh (26 %). A notable difference in the source of household income between rural and urban areas has been observed particularly for cultivation (27 vs. 6 %), salaried employment (21 vs. 31 %), and business activity (16 vs. 28 %), respectively. When climate-vulnerable regions are taken into consideration, salary-based work (42 %) and business (25 %) found to be more common in non-climatic-vulnerable regions. However, cultivation (28 %) and agricultural and non-agricultural labor (30 %) were found to be dominant in drought prone areas.

Following to the primary source of household income, analysis from Table 2.3 sheds light on the respondent households' access to the BPL card. According to the findings, most of the respondents, particularly from Andhra Pradesh (98 %), Bihar (90 %), Karnataka (89 %), Madhya Pradesh and Jammu & Kashmir (75 % each), Haryana and Assam (about 65 % each) reported of having a BPL card. Strikingly, no difference in access to BPL card has been observed by place of residence (rural/urban households). A higher proportion of respondents from flood/cyclone-affected regions (65 %) and drought-affected regions (61 %) reported to have a BPL card.

2.2 Educational and occupational characteristics of Parents

Distribution of adolescent girls by age of their father and mother has been presented according to surveyed States, type of residence and by type of climate vulnerability in **Table 2.4**. Considering girl's father age suggesting most of the fathers were in the age group of 35-44 (32 %) and 45-54 age (31 %). A marginal proportion of fathers were in the age less than 35 years. A similar pattern has been observed across the surveyed states. A marginal variation has been observed across the age groups by place of residence. Interestingly, a higher proportion of girl's father were in the age group 35-44 (37 %) from non-climatic vulnerable regions, whereas the corresponding figure for drought, flood and snowfall region found to be 31%, 32% and 26% respectively. Following to the age composition of fathers, analysis also throw light on the age of mothers of surveyed adolescent girls. According to the findings, most of the mothers were in the age group 35-44 years (50 %) followed to 45-54 years (12 %). Additionally, a little more than one-tenth of mothers were in the age group of less than 35 years (12 %). A miniscule proportion of difference has been observed while considering mothers age by place of residence. Unlike father's age, there is hardly variation observed by climate vulnerable regions.

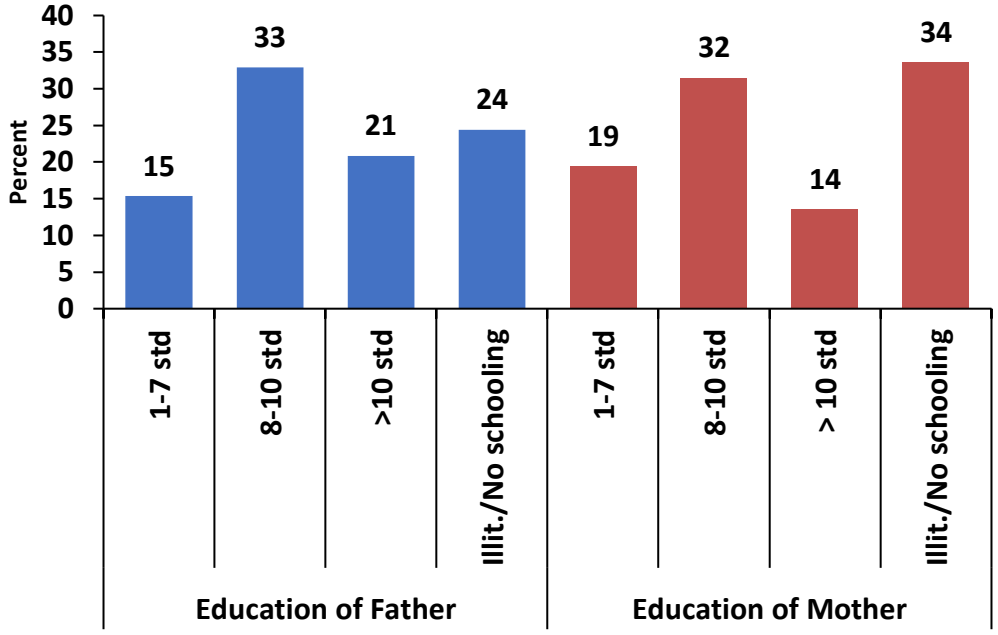
Table 2.4: Percent distribution of Adolescent girls by Age of Father and Mother according to State, Type of Residence and Type of Climate vulnerability

Particulars	Age of Father						Age of Mother						No. of Adol. Girls
	<35	35-44	45-54	>54	DK	Died	<35	35-44	45-54	>54	DK	Died	
State													
Andhra Pradesh	2.1	47.5	26.5	2.3	16.6	5.1	28.1	47.9	7.6	0.5	14.7	1.2	434
Assam	2.5	23.6	35.1	11.5	15.1	12.4	9.7	49.2	22.2	1.1	16.0	1.8	445
Bihar	2.1	29.1	30.0	9.3	24.9	4.7	10.9	45.6	12.1	4.4	25.3	1.6	430
Delhi	0.2	23.2	26.4	3.6	38.3	8.2	8.2	41.4	9.2	0.5	37.0	3.6	413
Gujarat	2.3	48.0	37.5	4.5	2.8	5.0	9.3	65.8	18.0	2.0	2.8	2.3	400
Haryana	1.0	42.8	21.3	2.5	28.0	4.5	11.3	52.5	9.3	0.8	25.0	1.3	400
Himachal Pradesh	0.2	33.8	35.0	1.6	26.5	2.8	9.4	56.8	8.2	0.2	24.4	0.9	426
Jammu Kashmir	0.5	17.7	20.7	6.7	48.9	5.5	5.0	30.4	13.2	3.0	47.4	1.0	401
Karnataka	2.0	33.7	42.1	5.2	4.2	12.8	17.2	64.0	12.6	1.7	3.0	1.5	406
Kerala	0.5	22.8	58.0	10.6	3.8	4.5	6.8	64.6	24.2	1.4	2.6	0.5	426
Madhya Pradesh	2.0	19.1	19.6	3.8	50.3	5.2	9.2	27.6	8.8	1.8	49.9	2.7	445
Maharashtra	0.9	40.7	39.4	2.2	9.6	7.2	14.4	66.3	9.4	0.4	7.4	2.0	457
Rajasthan	3.9	23.6	18.7	2.2	46.2	5.4	10.8	30.7	8.1	1.0	47.9	1.5	407
Punjab	1.8	46.5	20.8	0.5	25.8	4.8	14.5	51.0	8.0	0.0	24.5	2.0	400
Tamil Nadu	0.7	39.9	29.5	3.5	17.8	8.7	16.1	61.9	7.9	0.5	12.4	1.2	404
Uttar Pradesh	0.5	25.7	33.0	4.8	31.8	4.3	6.4	37.3	18.3	1.9	33.3	2.9	421
Type of residence													
Rural	1.5	33.0	30.0	4.3	25.3	5.8	11.7	49.6	11.5	1.4	24.2	1.6	4797
Urban	1.2	30.3	33.3	5.7	22.0	7.5	11.8	49.5	14.4	1.3	20.9	2.1	1918
Type of Climate vulnerability													
Not Climate Vul.	1.0	37.3	22.8	2.2	30.8	5.9	11.3	48.2	8.8	0.4	28.9	2.3	1213
Drought	1.9	31.4	30.8	4.9	24.3	6.8	13.0	46.8	12.0	1.9	24.3	2.0	2441
Flood/Cyclone	1.3	31.7	35.7	5.5	19.0	6.7	11.4	54.1	14.4	1.1	17.6	1.4	2652
Snowfall	0.7	25.9	24.9	5.6	40.3	2.4	7.6	40.8	11.0	2.2	37.7	0.7	409
ALL	**1.4**	**32.3**	**30.9**	**4.7**	**24.3**	**6.3**	**11.7**	**49.6**	**12.3**	**1.3**	**23.3**	**1.7**	**6715**

The distribution of adolescent girls by education of their father as well as mother has been portrayed according to surveyed States, type of residence and by type of climate vulnerability and present in **Table 2.5**. In overall, results suggest that about one-fourth of the father were illiterate or had no formal schooling (24 %) and about one-third of father had schooling up to 8-10 std. (33 %) and only about one-fifth of father had education more than 10^{th} std. (21 %) (**Fig. 2.4**). State level variation in father's education has been clearly evident from the analysis.

In many of the surveyed States, a higher proportion of illiterate fathers is evident particularly for Andhra Pradesh (52 %), Madhya Pradesh (50 %), Bihar and Uttar Pradesh (47 % each). Whereas, several States had relatively better educational level i.e. more than 10th std. education depicted for the States of Himachal Pradesh (51 %), Assam, Maharashtra and Rajasthan (approx. 30 % each). A minor difference has been observed in educational level of father by place of residence (rural/urban). Considering, climate vulnerable region, results suggesting a relatively higher proportion of fathers from drought prone areas had either no schooling or illiterate (30 %). Whereas, this figure for non-climatic region found to be 18 percent and 17 percent for snowfall region. Interestingly, about two-fifths of father from snowfall region had education of more than 10 std. (39 %).

Fig. 2.4: Distribution of Adolescent girls by Education of Father and Mother, India



In addition to father's education, analysis also carried out to understand mother's educational level. In overall, about one-third of the mothers had either no schooling or illiterate (34 %) followed by 8-10th std. (32 %). About one-fifth of mothers had education up to 1-7 std. (19 %). State specific variation in mother's education suggest that most of the women were illiterate or had no formal education particularly in the State of Bihar (66 %), Madhya Pradesh (63 %), Andhra Pradesh (59 %) and Jammu & Kashmir (55 %). No considerable difference in mother's education has been observed by place of residence. A higher proportion of mothers were illiterate from drought prone areas (42 %) followed by snowfall regions (35 %).

Table 2.5: Percent distribution of Adolescent girls by Education of Father and Mother according to State, Type of Residence and Type of Climate vulnerability

Particulars	Education of Father				Education of Mother				No. of Adol. Girls
	1-7 std	8-10 std	>10 std	Illit./ No schooling	1-7 std	8-10 std	> 10 std	Illit./No schooling	
State									
Andhra Pradesh	19.6	12.9	10.6	51.8	24.0	12.4	3.7	58.8	434
Assam	6.1	44.3	31.2	6.1	17.1	53.3	20.0	7.9	445
Bihar	10.7	27.0	11.2	46.5	11.4	16.5	4.7	65.8	430
Delhi	16.2	29.8	14.0	31.7	16.5	24.5	9.2	46.2	413
Gujarat	29.5	40.0	7.8	17.8	40.8	21.0	3.3	32.8	400
Haryana	24.5	38.0	21.3	11.8	23.0	37.3	13.0	25.5	400
Himachal Pradesh	3.3	39.7	50.7	3.5	12.9	48.6	31.5	6.1	426
Jammu Kashmir	6.5	37.4	18.7	31.9	6.5	30.4	7.0	55.1	401
Karnataka	26.1	22.7	15.5	22.7	28.3	29.6	6.9	33.7	406
Kerala	19.0	49.8	21.1	5.6	13.1	51.2	30.8	4.5	426
Madhya Pradesh	7.6	24.0	13.5	49.7	9.9	19.3	4.9	62.9	445
Maharashtra	14.2	36.1	30.0	12.0	31.3	35.4	14.2	16.6	457
Rajasthan	12.8	25.8	30.2	24.6	20.9	17.7	16.7	42.0	407
Punjab	17.0	41.8	27.8	8.8	23.3	45.8	19.3	9.8	400
Tamil Nadu	26.0	34.7	12.9	17.8	19.3	42.6	22.0	14.9	404
Uttar Pradesh	9.3	24.0	15.7	46.8	14.0	18.5	9.3	55.3	421
Type of residence									
Rural	15.4	34.1	20.4	24.2	20.3	31.7	12.6	33.8	4797
Urban	15.2	30.0	22.1	24.9	17.4	31.1	15.8	33.2	1918
Type of Climate vulnerability									
Not Climate Vul.	19.2	36.4	20.9	17.6	20.9	35.7	13.8	27.4	1213
Drought	15.9	27.6	19.4	30.2	20.1	24.9	11.1	41.7	2441
Flood/Cyclone	14.8	35.6	19.3	23.5	19.8	34.8	14.9	29.0	2652
Snowfall	4.6	36.9	39.4	16.6	9.0	37.2	18.3	34.7	409
ALL	**15.4**	**32.9**	**20.8**	**24.4**	**19.4**	**31.5**	**13.5**	**33.6**	**6715**

The distribution of adolescent girls by occupation of father according to surveyed States, type of residence and by type of climate vulnerability has been presented in **Table 2.6**. Results suggest that most of girls reported that their father engaged in labour work (27 %) either as agricultural or non-agricultural labour followed by cultivation (19 %) and salaried worker (20 %) (**Fig. 2.5**). Looking at State level variation, data suggest that a higher proportion of labor

work reported in the States of Andhra Pradesh (70 %), Kerala (56 %) and Jammu & Kashmir (46 %). Similarly, salaried work found prominent work in the States of Delhi (53 %), Punjab (31 %) and Haryana (30 %). A notable difference has been observed by place of residence in occupation of father particularly for cultivation (25 vs 5 %), Business (15 vs 23 %) and for Salaried work (18 vs 25 %) respectively for rural and urban areas. Considering climate-vulnerable regions, results suggest that a higher proportion of fathers from non-climatic region engaged in salaried work (38 %), whereas in drought prone region it is labour work (29 %) as well as cultivation (26 %). Similarly, in flood prone region, major occupation of fathers found to be labour work (31 %).

Fig. 2.5: Distribution of Adolescent girls by Occupation of Father according to Place of residence, India

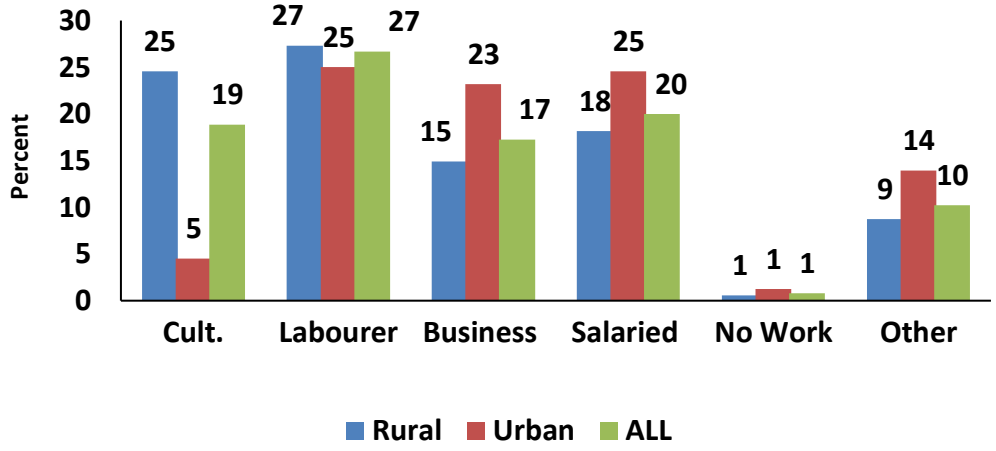


Fig. 2.6: Distribution of Adolescent girls by Occupation of Mother according to Place of residence, India

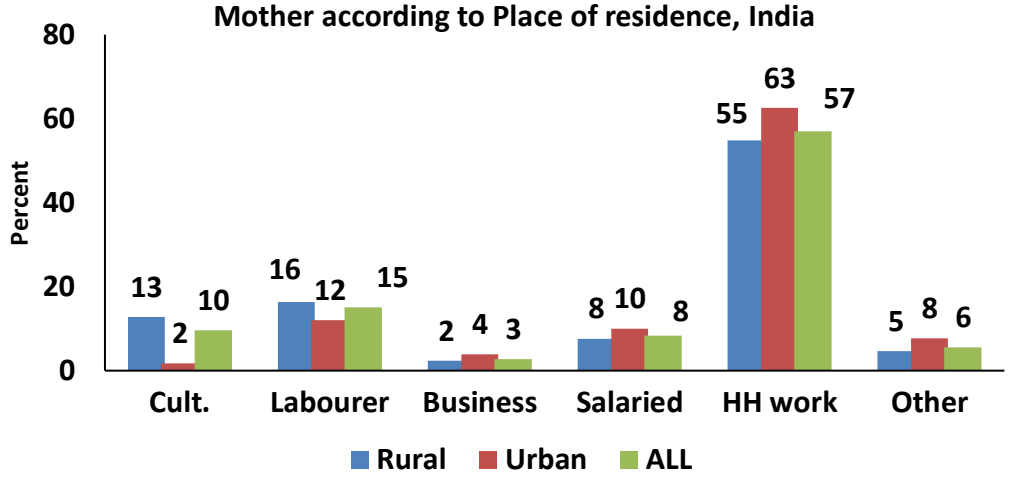


Table 2.6: Percent distribution of Adolescent girls by Occupation of Father and Mother according to State, Type of Residence and Type of Climate vulnerability

Particulars	Occupation of Father						Occupation of Mother						No. of Adol. Girls
	Cult.	Laborer	Business	Salaried	No Work	Other	Cult.	Laborer	Business	Salaried	HH work	Other	
State													
Andhra Pradesh	7.1	70.0	9.0	2.3	0.5	6.0	2.8	77.6	2.8	0.2	14.3	1.2	434
Assam	18.9	2.5	29.7	14.6	2.9	19.1	8.3	0.7	6.3	6.3	71.9	4.7	445
Bihar	13.3	30.2	22.6	23.7	0.5	5.1	3.7	10.9	3.0	4.9	73.3	2.6	430
Delhi	0.2	5.6	25.2	53.3	1.0	6.5	0.0	2.2	2.9	22.3	63.4	5.6	413
Gujarat	34.0	30.3	8.0	13.8	0.0	9.0	12.0	14.0	0.3	7.5	58.8	5.3	400
Haryana	11.5	18.8	17.5	30.3	0.8	16.8	0.3	4.0	1.5	10.5	78.3	4.3	400
Himachal Pradesh	31.0	9.2	26.8	24.4	0.0	5.9	14.6	1.9	3.5	4.2	70.0	4.9	426
Jammu Kashmir	4.0	45.6	18.5	20.0	0.2	6.2	0.0	1.2	0.0	5.2	91.0	1.5	401
Karnataka	23.2	36.7	15.8	7.9	1.7	2.0	16.5	33.3	7.6	8.4	31.3	1.5	406
Kerala	6.6	55.9	13.1	11.7	1.2	7.0	1.6	17.1	1.2	10.3	60.1	9.2	426
Madhya Pradesh	26.1	22.9	12.1	15.7	1.1	16.9	17.1	15.5	4.0	5.2	44.7	10.8	445
Maharashtra	47.9	7.2	17.3	15.1	0.0	5.3	44.4	9.8	2.8	7.9	28.2	4.8	457
Rajasthan	25.3	11.1	13.3	27.3	1.5	16.2	23.3	10.1	3.2	12.0	34.2	15.7	407
Punjab	9.3	19.8	19.0	30.8	0.3	16.3	0.3	3.5	1.8	14.3	73.5	4.8	400
Tamil Nadu	1.2	32.4	12.9	25.5	0.7	18.6	1.2	32.9	2.7	12.1	40.8	8.9	404
Uttar Pradesh	37.8	30.2	14.7	6.2	0.0	6.9	3.6	4.8	0.2	2.6	82.9	3.1	421
Type of residence													
Rural	24.5	27.3	14.9	18.1	0.6	8.7	12.8	16.3	2.3	7.6	54.8	4.7	4797
Urban	4.5	25.0	23.2	24.6	1.3	13.9	1.7	12.0	3.9	10.0	62.6	7.7	1918
Type of Climate Vulnerability													
Not Climate Vul.	6.9	14.6	20.6	38.3	0.7	13.1	0.2	3.2	2.1	15.7	71.6	4.9	1213
Drought	**25.5**	**28.6**	**14.4**	**15.9**	**0.8**	**8.2**	**14.6**	**20.9**	**2.3**	**6.9**	**47.6**	**5.8**	**2441**
Flood/Cyclone	17.3	30.9	18.0	14.4	0.9	11.7	9.1	17.3	3.8	6.7	55.5	6.1	2652
Snowfall	24.2	23.7	19.6	26.2	0.0	3.9	11.0	0.7	1.0	4.9	79.7	2.0	409
ALL	**18.8**	**26.7**	**17.3**	**20.0**	**0.8**	**10.2**	**9.6**	**15.1**	**2.8**	**8.3**	**57.0**	**5.5**	**6715**

Following to the father's occupation, analysis also carried out for mother's occupation. Results clearly suggest that most of the mothers were housewife (57 %) followed by labour work (15 %) (**Fig. 2.6**). State level variation suggest that, a higher proportion of mothers reported to be engaged in household work from Jammu & Kashmir (91 %), Uttar Pradesh (83 %), Haryana (78 %) and Punjab (74 %). Whereas, most of the mother engaged in labour work reported from Andhra Pradesh (78 %), Karnataka and Tamil Nadu (33 % each). Urban rural difference is

clearly visible in mother's engagement particularly for cultivation (13 vs 2 %) and for household work (55 vs 63 %) respectively for rural and urban areas. Mother occupation with respect to climate vulnerable region suggest that across the categories of climatic vulnerable regions, most of the women were engaged in household work ranging from 48-80 %. Moreover, about one-fifth of mothers from drought prone region (21 %) and flood affected region (17 %) were engaged in labour work.

2.3 Educational and occupational characteristics of adolescent girls

The percent of adolescent girls by their age, educational and occupational characteristics according to surveyed States, residence type and by climate vulnerability has been presented in **Table 2.7**. In overall, results suggest that about half of the girls were in the age group 13-15 years (52 %) and the rest were in the age group 16-19 years (48 %). A marginal State level variation has been observed in age composition across the States as well as by place of residence and climate vulnerable region.

Considering educational status, though most of the surveyed girls were studying , as high as one-tenth of the girls were dropped out (11 %) and 2 percent of the girls were never gone to school.

Fig. 2.7: Adolescent girls by their Occupational status, according to Place of residence and Climate vulnerability, India

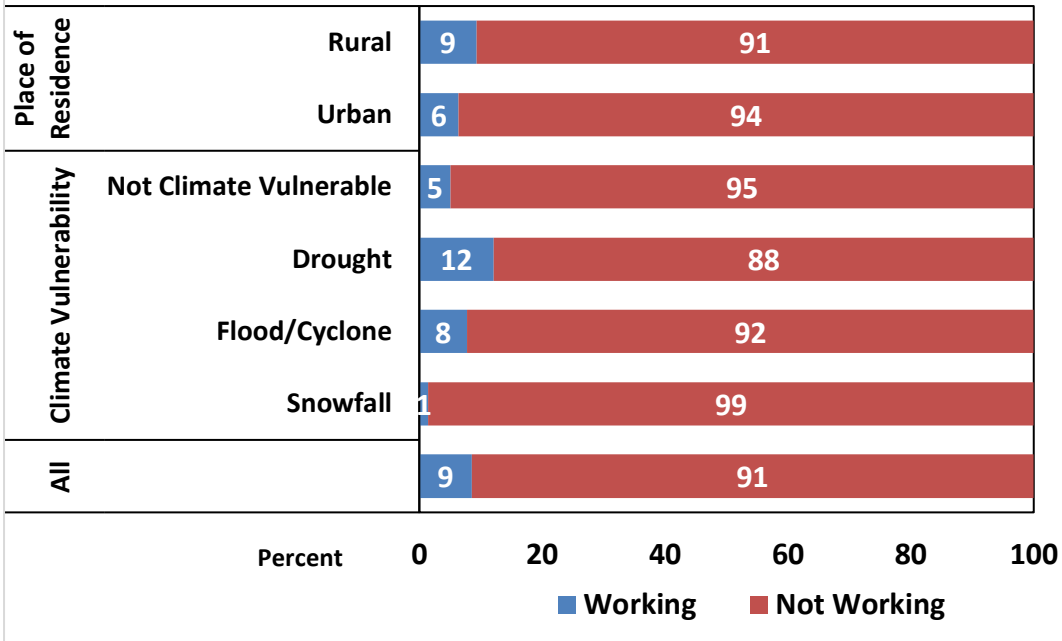


Table 2.7: Percent distribution of Adolescent girls by their age, educational and Occupational status according to State, Type of Residence and Type of Climate vulnerability

Particulars	Age		Educational status			Work for cash or in family farm	No. of Adol. Girls
	13-15	16-19	Studying	Dropped out	Never Gone to school		
State							
Andhra Pradesh	50.0	50.0	69.8	21.7	8.5	25.1	434
Assam	53.0	47.0	98.2	1.8	0.0	0.0	445
Bihar	54.2	45.8	90.2	7.9	1.9	4.7	430
Delhi	48.7	51.3	73.8	22.3	3.9	11.9	413
Gujarat	51.3	48.8	64.0	35.0	1.0	30.0	400
Haryana	52.5	47.5	94.3	5.5	0.3	3.0	400
Himachal Pradesh	48.6	51.4	96.7	3.1	0.2	0.9	426
Jammu Kashmir	48.1	51.9	89.8	9.2	1.0	3.5	401
Karnataka	57.4	42.6	88.4	11.1	0.5	10.3	406
Kerala	51.4	48.6	97.9	2.1	0.0	2.6	426
Madhya Pradesh	37.3	62.7	66.3	24.7	9.0	14.4	445
Maharashtra	47.7	52.3	94.7	3.9	1.3	6.6	457
Rajasthan	45.9	54.1	95.6	2.5	1.2	19.2	407
Punjab	53.0	47.0	100.0	0.0	0.0	0.3	400
Tamil Nadu	79.5	20.5	98.8	1.2	0.0	1.0	404
Uttar Pradesh	52.5	47.5	73.2	22.3	4.0	3.1	421
Type of Residence							
Rural	51.6	48.4	86.5	11.2	2.3	9.4	4797
Urban	52.4	47.6	88.1	10.2	1.7	6.4	1918
Type of Climate Vulnerability							
Not Climate Vul.	51.4	48.6	89.2	9.4	1.4	5.1	1213
Drought	50.8	49.2	85.6	11.7	2.6	12.1	2441
Flood/Cyclone	53.2	46.8	86.0	11.7	2.2	7.8	2652
Snowfall	50.1	49.9	94.4	5.4	0.2	1.5	409
All	**51.8**	**48.2**	**86.9**	**10.9**	**2.1**	**8.5**	**6715**

State level variation suggest a higher number of girl's dropout from the States like Gujarat (35 %), Madhya Pradesh (25 %) and Andhra Pradesh, Delhi and Uttar Pradesh (22 % each). A sizable proportion of girls from Madhya Pradesh and Andhra Pradesh (9 % each) and Uttar Pradesh (4 %) had never gone to school. A small proportion of variation in educational status of surveyed girls by place of residence has been observed. Considering climate-vulnerable regions, comparatively a larger proportion of girls were dropped out from the school from

drought and flood prone areas (12 % each). Similarly, a higher proportion of girls were never gone to school from drought prone areas (3 %) and flood/cyclone prone areas (2 %).

Following to the educational status, girls' engagement in work for cash or working in family farm is also captured. Results depicts that about 9 percent of girls were engaged in work either for cash or working in a family farm (**Figure 2.7**). This proportion of working girls were is found be comparatively high in Gujarat (30 %), Andhra Pradesh (25 %) and Rajasthan (19 %). Working status of girls by place of residence suggest that a higher proportion of girls from rural areas are engaged in work (9 %) whereas the corresponding figure for urban areas is 6 percent. Considering climate vulnerable region, data suggest that a higher percent of girls from drought prone areas (12 %) and from flood prone areas (8 %) were engaged in work for cash or working in the family farm.

The details of educational institution in which girls are studying by place of residence and climate vulnerability has been presented in **Table 2.8**. With respect to type of school by place of residence suggest that about 30 percent of girls from urban areas and 18 percent of girls from rural areas were enrolled in private schools. A stark variation has been observed while considering medium of instruction by place of residence. Data suggests that about 58 percent of girls from urban areas and 77 percent of girls from rural areas were pursuing education in local language. Similarly, about 38 percent of girls from urban areas and 23 percent of girls in rural areas pursuing education in English medium. Of the school going girls, majority were having education from co-education schools i.e. 81 percent from rural and 61 percent of girls from urban were accessing the education from co-education schools. With respect to distance of school/college from their residence, results portrayed that about 17 percent of girls from rural areas and 11 percent of girls from urban areas reported that they have to travel more than 5 kms. to reach to school. About half of the school going girls reported to go by walk to school both in rural (57 %) and urban areas (52 %). Similarly, a little more than one-fifth of the girls from rural areas reported that it takes around 30-60 minutes to reach the school (11 %), whereas the corresponding figure for urban areas found to be 7 percent.

Similarly, an attempt has been made to understand the schooling characteristics of girls by type of climate vulnerable region. With respect to type of school by climate vulnerable region suggest that about 25 percent of girls from flood prone areas, 21 percent of girls from drought prone areas and 23 percent of girls from snowfall areas were enrolled in private schools. About 70-90 percent of school going girls from climate vulnerable regions were accessing education from co-education schools.

Table 2.8: Details of educational institutions in which girls (%) are studying by place of residence and type of climate vulnerability

Particulars	Place of Residence		Type of Climate Vulnerability				All
	Rural	Urban	Not Climate Vul.	Drought	Flood/ Cyclone	Snow fall	
Type of school							
Private	17.7	30.0	13.8	21.3	24.6	22.5	21.3
Government	82.3	70.0	86.2	78.7	75.4	77.5	78.7
Medium of Instruction							
Local Language	77.1	58.1	72.6	75.3	67.0	75.6	71.6
English	22.5	37.6	27.0	23.8	30.7	20.2	26.9
Other	0.4	4.3	0.4	0.9	2.3	4.1	1.5
Co-educated							
Yes	81.1	61.1	60.9	73.8	81.2	89.6	75.3
No	18.8	38.9	39.1	26.2	18.8	10.4	24.6
Distance of school/ college from home							
Less than 0	29.5	28.5	45.2	22.4	27.2	32.9	29.2
1 km	19.2	23.0	10.4	23.9	23.1	12.7	20.3
2-5 km	34.2	37.2	30.0	37.5	35.3	34.7	35.1
>5 km	17.1	11.2	14.2	16.2	14.5	19.7	15.4
Means of transportation used to reach school/ college							
By Walk	57.2	52.0	64.3	53.6	51.0	69.7	55.7
Bicycle	10.4	10.0	6.8	11.2	12.9	0.0	10.3
Motor Cycle	4.3	9.8	6.7	6.4	6.1	0.0	5.9
Public Transport	17.3	18.0	9.6	16.9	21.6	18.9	17.5
Private Transport	10.7	10.2	12.5	11.8	8.4	11.4	10.6
Time taken to reach school/ college							
10 min or less	32.4	34.1	42.7	31.0	31.0	27.5	32.9
>10 min to 30 min	55.1	57.8	49.0	56.4	59.4	51.8	55.9
>30 min to 1 hour	10.8	7.0	6.7	11.0	8.4	17.9	9.7
More than 1 hour	1.7	1.0	1.5	1.5	1.3	2.8	1.5
No. of Adol. Girls studying	**4148**	**1690**	**1082**	**2089**	**2281**	**386**	**5838**

With respect to distance of school/college from residence, results portrayed that about 38 percent of girls from drought prone areas, 35 percent of girls from flood affected areas and 35 percent of girls from snowfall areas reported to cover a distance of 2-5kms to reach to school. About half of the girls from drought and flood prone areas and 7 in 10 girls in snowfall areas

go by walk to school. About one-fifth of girls from flood prone areas (22 %) and snowfall areas (19 %) were using public transport. Similarly, about 18 percent of girls from snowfall areas and 11 percent of girls from drought prone areas reported that it takes about 30-60 minutes to reach to their school.

Table 2.9: Nature & type of work and Percentage of girls getting cash as their salary among those working outside by Place of residence and Type of climate vulnerability

Particulars	Place of residence		Type of climate vulnerability				ALL
	Rural	Urban	Not Climate Vul.	Drought	Flood/ Cyclone	Snow fall	
Nature of work							
Family Farm	23.2	4.9	1.6	28.4	12.1	0.0	19.3
Family Business	3.6	8.2	3.2	6.4	1.9	16.7	4.6
Agri Coolie Work	26.1	4.1	4.8	22.3	25.6	0.0	21.4
Non-Agri Coolie Work	16.5	13.1	12.9	14.2	19.3	0.0	15.8
Work In Factory/Inst	3.3	6.6	8.1	3.0	4.3	0.0	4.0
Work In Business House	3.3	10.7	14.5	4.7	2.4	0.0	4.9
Self Employed	19.2	36.1	48.4	12.8	27.5	83.3	22.8
Other	4.9	16.4	6.5	8.1	6.8	0.0	7.4
Type of work							
Full Time	31.8	31.1	17.7	31.8	34.3	83.3	31.7
Part Time	45.9	56.6	75.8	43.9	46.9	16.7	48.2
Seasonal/Occasional	22.3	11.5	6.5	24.0	18.8	0.0	20.0
Get cash as salary							
Get cash	75.9	87.7	95.2	69.3	86.0	100.0	78.5
Don't get cash	23.4	12.3	4.8	29.7	14.0	0.0	21.0
Working hours per day*							
Less than 4 hours	19.8	35.2	38.7	17.2	25.6	66.7	23.1
4-6 hours	24.9	25.4	22.6	26.7	23.2	33.3	25.0
>6 hours	32.5	27.0	32.3	31.4	31.9	0.0	31.3
No. of adol. Girls working outside	**449**	**122**	**62**	**296**	**207**	**6**	**571**

***Only for Full time/Part time workers (excluding Seasonal/Occasional)**

The details of occupational status of surveyed girls by place of residence and climate vulnerability has been presented in **Table 2.9**. Overall, about 9 percent of girls work outside for cash or family farm. Rural urban differential suggests that about 9 percent of girls from rural areas and about 6 percent of girls from urban areas were working outside for cash. In

rural areas, most of the working girls are engaged in agricultural labour work (26 %), working in family farm (23 %) and working in self-employed endeavor (19 %). Whereas, in urban areas most of the girls were engaged in self-employed endeavor (36 %) and non-agricultural labour work (13 %). Similarly, type of work by place of residence suggests that most of the girls (46 vs 57 %) were engaged in part time work respectively for rural and urban areas. A higher proportion of girls from rural areas (22 %) compared to urban areas (12 %) were engaged as seasonal/occasional work. Further, a one-fourth of working girls from rural areas (23 %) and about one-tenth of girls from urban areas (12 %) were not getting cash for work. Noticeably, about one-third of girls from rural areas (33 %) and a little more than one-fourth of girls from urban areas (27 %) were working more than 6 hrs. a day.

In the similar vein, occupational characteristics by type of climate vulnerable region has been explored. Results suggest that a significantly higher proportion of girls from drought (28 %) and flood prone areas (12 %) were working in family farm. Whereas, about one-fourth of girls from drought (22 %) and flood prone areas (26 %) were engaged in agricultural coolie. Considering type of work, 83 percent of girls in snowfall areas, about 34 percent of girls from flood and 32 percent of girls from drought prone areas were engaged in full time work. Similarly, the corresponding figure for part time work found to be 47 percent and 44 percent respectively for flood and drought prone areas. While looking at the mode of remuneration, about 30 percent of the girls from drought prone areas and 14 percent of girls from flood prone areas do not get cash for their work. Regarding working hours, about one-third of girls from all the climate categories reported to work for more than 6 hours a day.

Summary of findings

The present section mostly discussed surveyed girls' household, individual, parental and occupational characteristics. Majority of the surveyed girls belong to Hindu religion followed by Muslims and Sikhs. Considering ethnicity, a higher proportion of surveyed girls were OBCs followed by Other castes and scheduled castes. A higher proportion of girls from scheduled caste (37 %) reported from non-climatic vulnerable region, whereas a higher proportion of girls from drought or flood prone region (44 % each) were OBCs. A higher proportion of nuclear families reported and a one-fourth of the respondent were living in joint family.

Agricultural and non-agricultural labor work, regular salary and cultivation found to be the primary source of household income. Considering climate-vulnerable regions, cultivation (28

%) and agricultural and non-agricultural labor (30 %) were found to be prominent in drought prone areas. Regarding mother's education, about one-third of the mothers had either no schooling or illiterate (34 %).

Age distribution of girls suggest about half of the surveyed girls were in the age group 13-15 years and rest were 16-19 years (48 %). About one-tenth of them were school dropout (11 %) and about 2% were never attended the school. Considering climate-vulnerable regions**,** about 12% of girls were school dropout both from drought and flood prone areas.

Regarding schooling, about 30% of girls from urban and 18% of girls from rural areas were enrolled in private schools. With respect to distance of school/college from residence, results portrayed that girls from drought prone (38 %) and flood/cyclone and snowfall areas (35 %) reported to cover a distance of 2-5kms to reach to school.

About 9 percent of girls were engaged in work either for cash or working in a family farm. A higher % of girls from drought prone (12 %) and flood prone areas (8 %) were engaged in work for cash or working in family farm. Among those were working, a higher proportion from drought (28 %) and flood prone areas (12 %) were working in family farm. Similarly, girls from drought (22 %) and flood prone areas (26 %) were engaged in agricultural coolie.

SECTION-3

Menarche and Menstruation

India has the largest adolescent population in the world and every fifth person is between 10 to 19 years. India stands to benefit socially, politically and economically if this large number of adolescents are safe, healthy, educated and equipped with information and life skills to support the country's continued development. Adolescence brings several physiological events in human life. Onset of menarche is one such event among girls and calls for behavioural adjustments including management of menstrual hygiene. The onset of menstruation means a new phase and new vulnerabilities in the lives of adolescents. Yet, many adolescent girls face stigma, harassment and social exclusion during menstruation. Although menstruation is a natural process, it is linked with several perceptions and practices within the community, which sometimes may result in adverse health outcomes (Yasmin S, 2013).

The present section attempts to explore the knowledge on menarche, menstruation, its source, the extent it is affecting and hygiene practices among adolescent's girls from climate vulnerable regions.

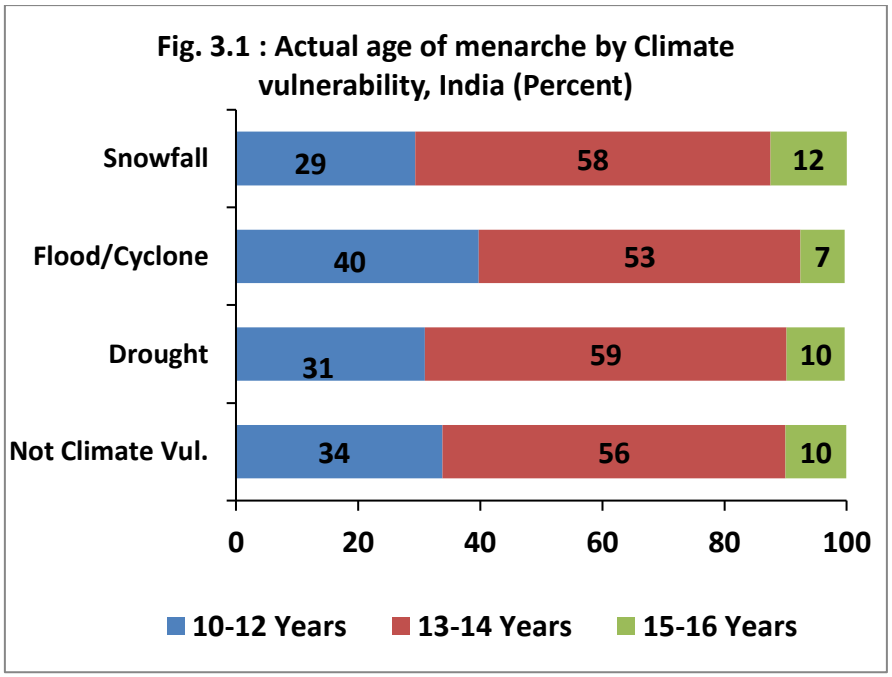
3.1 Age at Menarche and Practices around Menarche

An analysis has been carried out to understand the perceived knowledge on age at menarche and actual age at menarche among surveyed girls by State, type of residence as well as by climate vulnerability and presented in **Table 3.1**. In overall, a higher proportion of girls perceived age of menarche is between 10-12 years (46 %) followed by 13-14 years (39 %). About one-tenth of were not aware or did not willing to respond on age of menarche initiation.

State wise analysis suggest that perceived knowledge of age of initiation of menarche between the age 10-12 years found particularly higher in the States of Kerala (80 %), Assam (70 %) and Tamil Nadu (66 %). Similarly, those perceived menarche initiate in the age group of 13-14 years found higher in the States of Gujarat and Himachal Pradesh (approx. 60 %), Rajasthan (54 %) and Andhra Pradesh (51 %). A higher proportion of girls unaware of age of initiation of menarche found considerably higher in the States of Jammu & Kashmir (28 %), Madhya Pradesh (23 %) and Bihar (21 %). A sizable difference has been observed in perceived knowledge of age of menarche by place of residence. For instance, about 44 percent of rural girls and 50 percent of urban girls reported that age of initiation of menarche is 10-12 years.

The corresponding figure for those who perceived that the age of menarche initiated during the age 13-14 years found to be 41 percent and 35 percent respectively for rural and urban girls. Perceived knowledge on age of initiation of menarche hardly vary by climate-vulnerable regions.

Following to the perceived knowledge on age of menarche, an attempt has been made to explore the actual age at menarche. In overall, a higher proportion of girls reported age of menarche between the age group 13-14 years (56 %), followed by 10-12 years (35 %). The mean age of actual age of menarche found to be 13 years (**Fig. 3.1**).



State wise differentials in actual age of menarche suggest that a higher proportion of girls from the States of Bihar (70 %), Rajasthan (69 %) and Himachal Pradesh (64 %) reported that age at menarche was 13-14 years. Similarly, a higher proportion of girls from the States of Tamil Nadu (67 %), Assam (64 %) and Kerala (56 %) reported their actual age at menarche was 10-12 years. Noticeably, no considerable difference in actual age at menarche has been observed by place of residence (rural/urban) and by climate vulnerable regions.

In many parts of the country, initiation of the menarche is celebrated and has its own regional and contextual significant. An analysis has been carried out to understand the ceremony organized and their initial reaction towards attaining menarche by State, type of residence and climate vulnerability and presented in **Table 3.2**. In overall, a higher proportion of girls reported that there was no ceremony organized (77%) on the eve of menarche. Only about 15

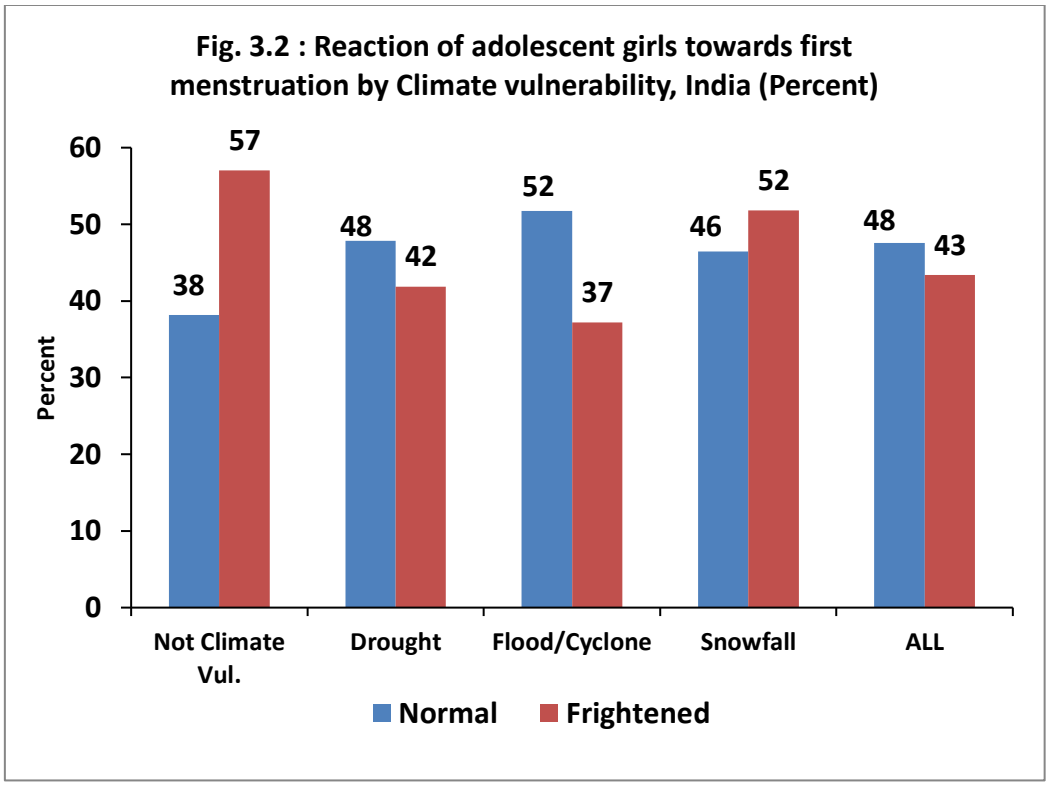
percent reported that they had formal ceremony and about 8 percent reported to had a grand ceremony.

Table 3.1: Perceived knowledge on age at menarche and actual age at menarche of Adolescent girls (%) by State, Type of Residence and Type of climate vulnerability

Particulars	Perceived knowledge on Age at Menarche				Actual Age at Menarche					No. of Adol. Girls
	10-12	13-14	15-16	DK	10-12	13-14	15-16	Mean	Median	
State										
Andhra Pradesh	35.5	50.9	4.1	9.4	41.2	52.1	6.7	*12.8*	*13.3*	434
Assam	69.9	16.6	0.2	13.3	64.0	32.8	3.1	*12.2*	*12.3*	445
Bihar	40.0	38.8	0.7	20.5	24.0	70.0	6.0	*13.1*	*13.7*	430
Delhi	48.4	37.0	1.9	12.6	34.6	57.1	8.0	*12.9*	*13.5*	413
Gujarat	32.5	59.5	3.5	4.5	18.0	63.3	16.5	*13.4*	*14.0*	400
Haryana	51.0	38.8	1.8	8.5	33.8	55.8	10.5	*13.0*	*13.6*	400
Himachal Pradesh	23.7	60.6	0.7	15.0	21.1	64.3	14.6	*13.4*	*13.9*	426
Jammu Kashmir	47.1	23.4	1.2	28.2	37.4	54.6	8.0	*12.9*	*13.5*	401
Karnataka	47.0	44.1	5.7	3.2	30.0	60.6	9.4	*13.0*	*13.7*	406
Kerala	79.6	14.6	2.3	3.5	55.9	39.9	4.2	*12.4*	*12.7*	426
Madhya Pradesh	27.4	42.0	7.2	23.1	19.6	64.3	15.1	*13.3*	*13.9*	445
Maharashtra	44.9	49.0	3.9	2.2	24.3	62.8	12.9	*13.3*	*13.8*	457
Rajasthan	28.0	53.8	3.2	15.0	21.6	68.8	9.6	*13.2*	*13.8*	407
Punjab	42.5	38.0	4.5	15.0	33.0	55.8	11.3	*13.0*	*13.6*	400
Tamil Nadu	66.1	20.3	10.1	3.5	67.3	31.2	1.5	*12.2*	*12.2*	404
Uttar Pradesh	45.1	36.8	1.2	16.4	31.8	62.7	5.0	*12.9*	*13.6*	421
Type of residence										
Rural	43.8	40.7	3.0	12.4	32.8	57.2	9.7	*13.0*	*13.6*	4797
Urban	50.0	34.8	3.9	11.4	40.0	52.9	6.9	*12.8*	*13.4*	1918
Type of climate vulnerability										
Not Climate Vul.	47.3	37.9	2.7	12.0	33.8	56.2	9.9	*13.0*	*13.6*	1213
Drought	42.1	42.2	4.0	11.6	31.0	59.2	9.6	*13.0*	*13.6*	2441
Flood/Cyclone	49.1	36.2	3.2	11.5	39.8	52.6	7.2	*12.8*	*13.4*	2652
Snowfall	38.1	41.1	0.7	20.0	29.3	58.2	12.5	*13.2*	*13.7*	409
ALL	**45.6**	**39.0**	**3.3**	**12.1**	**34.9**	**56.0**	**8.9**	***12.9***	***13.5***	**6715**

Though a marginal proportion of girls reported to had grand ceremony while attaining menarche but State wise analysis suggest that the girls from Tamil Nadu (36 %), Karnataka (29 %), Andhra Pradesh (27 %) and Kerala (16 %) had a grand ceremony. Similarly, a formal

ceremony reported from the States of Assam (43 %), Tamil Nadu (46 %), Karnataka (36 %) and Kerala (32 %). A marginal difference has been observed in organizing ceremony for attaining menarche by place of residence. The event of organizing ceremony for attaining menarche found skewed towards either drought or flood/cyclone prone areas. For instance, the grand ceremony found higher in flood/cyclone prone areas (14%). Whereas, the formal ceremony found higher in flood (22 %) as well as drought prone areas (18 %).



Following to the organizing ceremony at menarche, an attempt also made to capture girls' reaction towards first menstruation. In overall, though about half of the girls reported their reaction was normal (48 %), but a little more than two-fifths of girls were got frightened (43 %). The State level variation suggest that a higher proportion of girls were frightened at the time of their first menstruation particularly in the States of Jammu & Kashmir (72 %), Uttar Pradesh (65 %), Delhi (62 %) and Madhya Pradesh (60 %). A minimal amount of variation has been observed for girls who frightened during their first menstruation (42 vs 47 %) respectively for rural and urban areas. While considering climate vulnerability, about 52 percent from snowfall areas and 57 percent of girls from no climate vulnerable region were frightened during their first menstruation (**Fig. 3.2**).

Table 3.2: percent distribution of adolescent girls by Ceremony organized when they had attained menarche and their reaction towards attaining menarche by State, Place of residence and Type of climate vulnerability

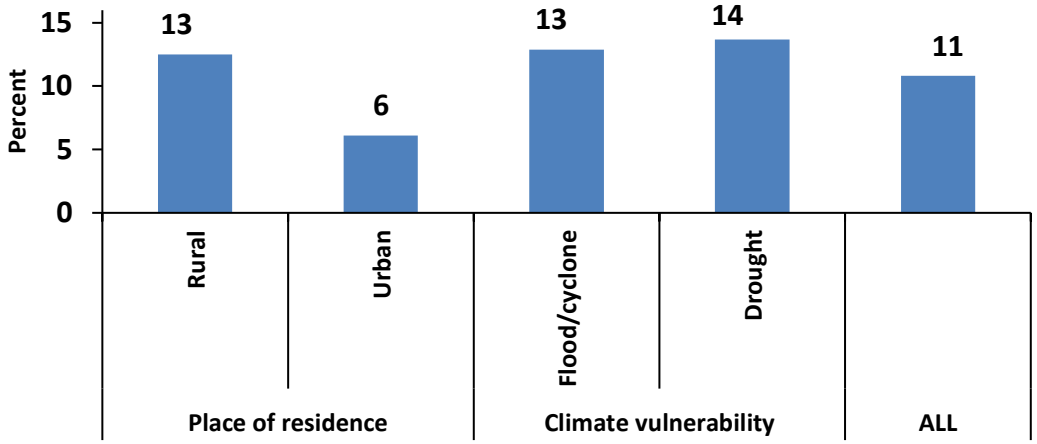
Particulars	Ceremony organized at Menarche			Reaction towards first menstruation				No. of Adol. Girls
	Grand Ceremony	Formal Ceremony	No Ceremony	Normal	Excited	Frightened	Other	
State								
Andhra Pradesh	27.2	19.1	53.7	81.8	10.4	6.9	0.9	434
Assam	12.1	43.1	44.7	58.2	19.8	21.3	0.7	445
Bihar	0.0	0.9	99.1	45.8	2.6	51.6	0.0	430
Delhi	0.0	0.0	100.0	35.1	2.7	61.5	0.7	413
Gujarat	7.0	3.0	90.0	78.3	7.8	14.0	0.0	400
Haryana	0.3	1.8	98.0	37.0	1.5	56.8	4.8	400
Himachal Pradesh	0.0	0.0	100.0	62.4	2.1	32.9	2.6	426
Jammu Kashmir	0.0	0.0	100.0	26.2	0.5	71.8	1.5	401
Karnataka	28.8	35.5	35.7	48.0	18.0	33.3	0.7	406
Kerala	16.2	31.7	52.1	54.5	11.7	33.1	0.7	426
Madhya Pradesh	0.4	3.6	95.5	29.0	3.8	60.2	6.5	445
Maharashtra	2.4	11.6	86.0	47.0	4.2	46.8	2.0	457
Rajasthan	0.7	23.8	75.2	35.9	5.4	53.1	5.7	407
Punjab	0.3	0.3	99.5	42.5	0.8	52.8	4.0	400
Tamil Nadu	35.6	45.5	18.8	46.3	17.1	35.6	1.0	404
Uttar Pradesh	0.0	23.0	76.7	31.1	2.1	64.6	1.9	421
Type of residence								
Rural	7.3	13.5	79.2	48.7	6.8	42.1	2.3	4797
Urban	10.4	19.7	69.9	44.6	7.4	46.5	1.5	1918
Type of climate Vulnerability								
Not Climate Vul.	0.2	0.7	99.2	38.2	1.6	57.0	3.1	1213
Drought	7.7	17.9	74.1	47.8	7.8	41.9	2.4	2441
Flood/Cyclone	13.5	21.8	64.7	51.7	9.5	37.2	1.5	2652
Snowfall	0.0	0.0	100.0	46.5	0.7	51.8	1.0	409
ALL	**8.2**	**15.3**	**76.5**	**47.6**	**6.9**	**43.4**	**2.1**	**6715**

3.2 Perceived changes due to Menarche

In an effort to document the perceived changes brought on by menarche in terms of attire, movement, play and work, as well as the discontinuation of studies due to menarche, by State, place of residence, and climate vulnerability, data has been presented in **Table 3.3**.

Regarding discontinuation of studies, about 11 percent of the girls reported to left the school because of menarche. State level variation suggest that as high as girls from Uttar Pradesh (37 percent), Bihar and Andhra Pradesh (approx. 23% each) reported to left the school/college because of menarche.

Fig. 3.3: Discontinuation of studies due to Menarche by Place of residence and Climate vulnerability, India (Percent)



A wide gap by place of residence in discontinuation of studies has been observed as (13 vs 6%) of girls from rural and urban areas respectively left the school because of menarche. Strikingly, as high as 14 percent of girls from drought and 13 percent if girls from flood/cyclone prone areas left the school due to menarche (**Fig. 3.3**).

Overall, a higher proportion of girls perceived the changes in playing (33 %) followed by movement (32 %) and wearing dresses (31%). State level variation suggest that a higher % of girls reported to perceive changes in playing particularly from the States of Karnataka (66 %), Bihar (63 %), Jammu & Kashmir (59 %) and Delhi (44 %). Similarly, the perceived changes in movement reported from Karnataka (63 %), Delhi (61 %), Gujarat (52 %) and Jammu & Kashmir (50 %). With respect to perceived changes in dressing, a higher proportion of girls reported this change from Andhra Pradesh (54 %) and Karnataka (52 %). A marginal rural urban difference has been observed in terms of perceived changes due to menarche in dressing, playing, household work and outdoor work except movement (34 vs 28 %) respectively for rural and urban areas. Considering climate vulnerable areas, a higher proportion of girls from drought prone regions perceived change in dressing (35 %) due to menarche.

Table 3.3: Perceived changes occurred in studies, dress, movement, playing and work due to menarche by State, Place of residence and Type of climate vulnerability

Particulars	Discontinued studies due to Menarche		Perceived change due to Menarche in					No. of Adol. Girls
	Percent	Sample*	Dress	Movement	Playing	HH work	Outdoor work	
State								
Andhra Pradesh	23.4	94	54.1	20.0	19.4	9.2	7.8	434
Assam	0.0	8	37.1	41.8	36.2	47.0	27.2	445
Bihar	23.5	34	31.9	35.1	62.8	38.8	32.1	430
Delhi	0.0	92	28.6	60.5	44.1	33.7	31.2	413
Gujarat	0.0	140	31.0	51.5	23.0	25.0	22.5	400
Haryana	0.0	22	27.8	24.0	30.5	22.5	18.0	400
Himachal Pradesh	0.0	13	18.5	24.6	30.0	28.9	25.4	426
Jammu Kashmir	2.7	37	49.9	50.4	58.9	46.9	42.4	401
Karnataka	6.7	45	51.5	62.6	65.8	42.6	16.5	406
Kerala	0.0	9	20.4	13.1	16.4	13.1	2.3	426
Madhya Pradesh	8.2	110	12.6	7.4	10.1	13.0	13.0	445
Maharashtra	5.6	18	26.5	33.3	29.1	11.6	9.6	457
Rajasthan	0.0	10	40.5	37.1	39.6	38.8	29.5	407
Punjab	0.0	0	26.8	23.5	24.3	18.0	15.0	400
Tamil Nadu	0.0	5	26.0	23.5	28.7	16.1	13.1	404
Uttar Pradesh	37.2	94	13.5	7.8	9.3	10.7	11.9	421
Type of residence								
Rural	12.5	535	32.0	33.5	32.9	25.8	19.6	4797
Urban	6.1	196	28.2	28.4	32.5	26.0	20.0	1918
Type of climate vulnerability								
Not Climate Vul.	0.0	114	27.7	36.3	33.1	24.8	21.5	1213
Drought	13.7	285	35.1	31.0	31.7	24.7	18.2	2441
Flood/Cyclone	12.9	310	27.9	30.5	31.7	25.2	17.8	2652
Snowfall	0.0	22	34.7	35.7	45.2	40.1	35.5	409
ALL	**10.8**	**731**	**30.9**	**32.0**	**32.8**	**25.9**	**19.7**	**6715**

** Ever attended school but were not attending at the time of survey*

3.3 Knowledge on Menarche and Menstruation

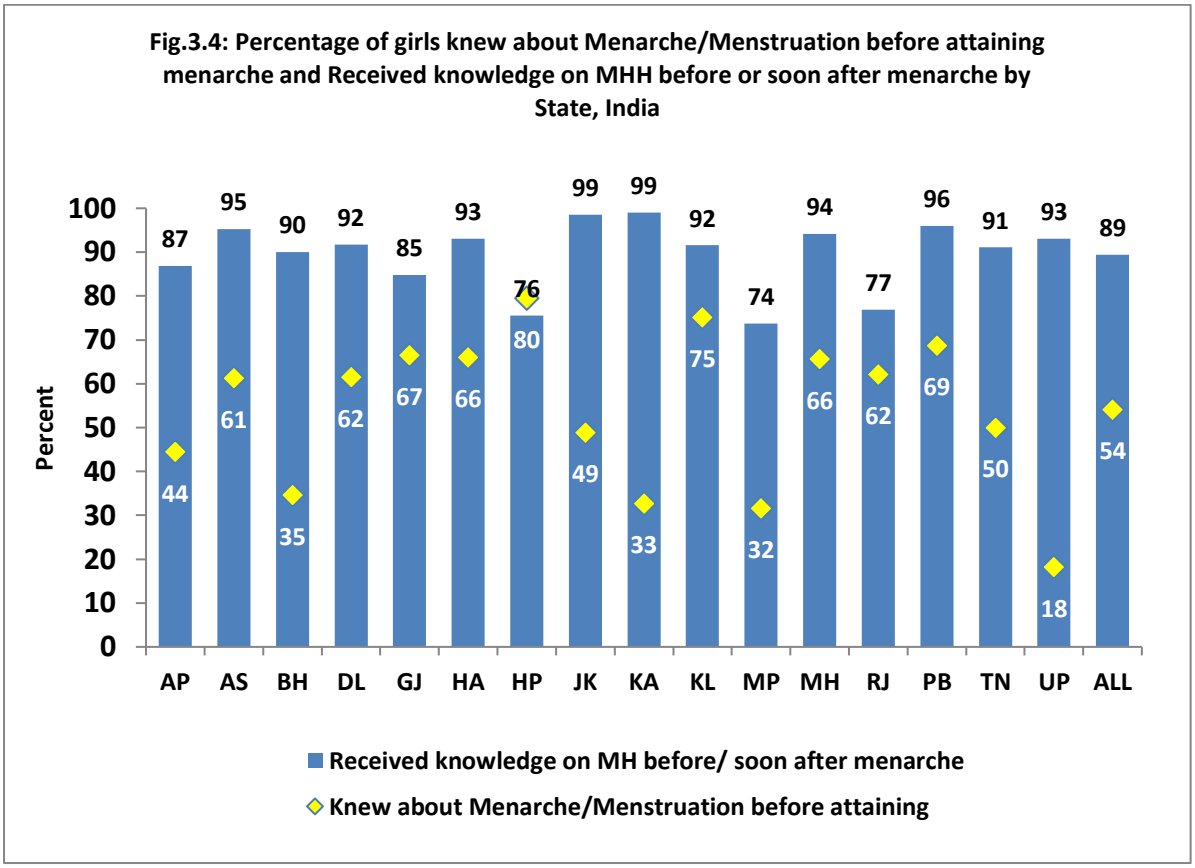
An enquiry has been made to understand the proportion of girls knew about menarche/menstruation before attaining and girls received knowledge on menstrual hygiene before/soon after the initiation of menarche by State, place of residence and climate vulnerability, and presented in **Table 3.4**.

Table 3.4: Percentage of adolescent girls knew about Menarche/Menstruation before attaining menarche and Received knowledge on menstrual hygiene before or soon after menarche by State, Place of residence and Type of climate vulnerability

Particulars	% Knew about Menarche/ Menstruation before attaining	%. Received knowledge on menstrual hygiene before/ soon after menarche	No. of Adol. Girls
State			
Andhra Pradesh	44.5	86.9	434
Assam	61.3	95.3	445
Bihar	34.7	90.0	430
Delhi	61.5	91.8	413
Gujarat	66.5	84.8	400
Haryana	66.0	93.0	400
Himachal Pradesh	79.6	75.6	426
Jammu Kashmir	48.9	98.5	401
Karnataka	32.8	99.0	406
Kerala	75.1	91.5	426
Madhya Pradesh	31.7	73.7	445
Maharashtra	65.6	94.1	457
Rajasthan	62.2	76.9	407
Punjab	68.8	96.0	400
Tamil Nadu	50.0	91.1	404
Uttar Pradesh	18.3	93.1	421
Type of residence			
Rural	56.5	89.6	4797
Urban	48.2	88.7	1918
Type of climate vulnerability			
Not Climate Vul.	65.4	93.6	1213
Drought	50.0	86.3	2441
Flood/Cyclone	51.3	90.7	2652
Snowfall	64.1	86.6	409
ALL	**54.1**	**89.4**	**6715**

Overall, only half of the girls were aware regarding menarche before they attained it (54 %). State level variation would be interesting in this regard. Results suggest that a higher proportion of girls were aware of it before its initiation particularly in the States of Himachal Pradesh (80 %), Kerala (75%), Punjab (69 %), Gujarat (67 %), Maharashtra and Haryana (66 % each). A lower proportion of girls aware before its initiation in the States of Uttar Pradesh (18 %), Madhya Pradesh (32 %) and Karnataka (33 %). A considerable difference by place of residence

has been observed for knowledge of menarche before its initiation (57 vs 48 %) respectively for rural and urban areas. Regarding knowledge of menarche before its initiation by climate vulnerable region suggest that a higher proportion of girls were having knowledge of menarche in non-climatic regions and snowfall region (65 & 64 % respectively). Similarly, for drought and flood prone area, it is (50 & 51 % respectively).



While analysing girls received knowledge on menstrual hygiene before or soon after menarche, results suggest that overall, about 89 percent of girls reported to get the knowledge on menarche before or soon after the menarche. State level analysis suggest that a lower proportion of girls from the State of Madhya Pradesh (74 %), Himachal Pradesh (76 %) and Rajasthan (77 %) had received the knowledge before or soon after the menarche. In almost all the States, marginal difference has been observed between the proportion of girls who knew about menarche before attaining it and proportion of girls who received knowledge on menstrual hygiene soon after menarche (**Figure 3.4**). As such, there is hardly any considerable variation in receiving knowledge before or soon after on menarche by place of residence or by climate vulnerable regions.

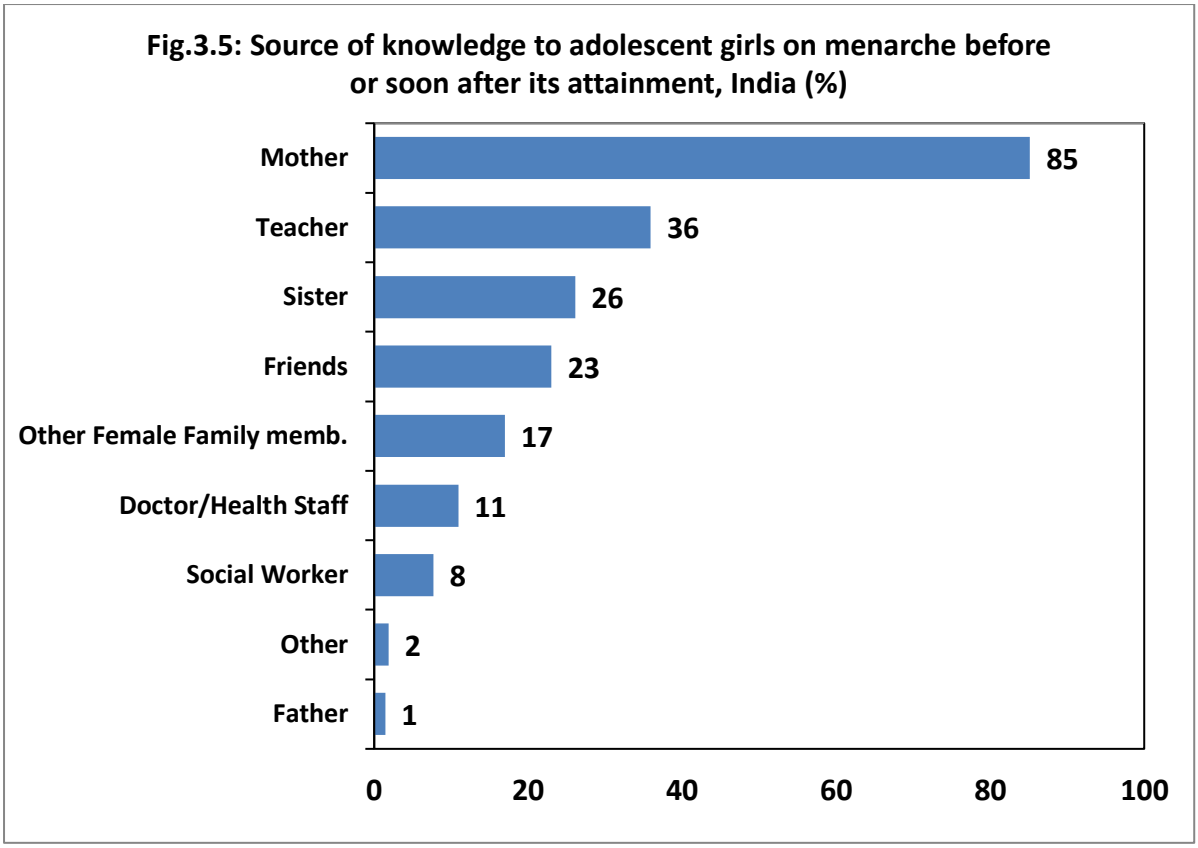
The source of knowledge on menarche before its attainment by place of residence and climate vulnerable region has been analysis and presented in **Table 3.5**. Analysis suggesting a

prominent role of mothers (73 %) in sharing the knowledge on menarche before its initiation. Similarly, the role of Teachers and sister found to be the next major source of providing knowledge on menarche before its initiation (40 % and 25% respectively). A negligible variation has been observed in source of knowledge on menarche before its initiation by place of residence.

Table 3.5: Source of knowledge on menarche before attaining it and Person who provided the knowledge on menstrual hygiene before or soon after attaining menarche by Place of residence and Type of climate vulnerability

	Place of Residence		Type of Climate vulnerability				
Particulars	**Rural**	**Urban**	**Not Climate Vul.**	**Dro ught**	**Flood/ Cyclone**	**Snow fall**	**ALL**
Source of knowledge before attaining menarche*							
Mother	73.3	70.2	61.4	76.6	74.5	76.3	72.5
Father	1.9	2.9	2.0	3.4	1.5	0.4	2.1
Sister	26.0	23.7	18.9	29.0	24.0	35.9	25.4
Other Female Family Member	13.8	16.3	10.1	16.9	16.4	5.7	14.4
Teacher	40.5	40.0	63.7	34.8	29.6	51.5	40.4
Friends	28.7	32.6	30.6	32.5	26.6	30.2	29.7
Doctor/Health Staff	8.3	8.8	12.9	11.4	4.3	2.3	8.4
Social Workers	8.3	5.6	7.7	7.9	4.6	22.1	7.6
Magazine/Literature	1.7	0.8	1.3	1.9	1.2	1.1	1.4
TV/Cinema	5.5	5.9	9.5	6.6	3.5	0.4	5.6
Social Media	4.1	3.4	4.4	5.4	2.5	2.3	3.9
Other	1.6	1.6	0.9	1.7	2.1	0.8	1.6
No. of girls knew about menarche earlier	**2710**	**925**	**793**	**1220**	**1360**	**262**	**3635**
Person gave knowledge on menstrual hygiene*							
Mother	84.5	86.7	82.2	85.8	87.0	78.2	85.1
Father	1.3	1.7	1.4	2.2	1.0	0.0	1.4
Sister	26.6	24.9	21.7	27.0	26.7	31.1	26.1
Other Female Family member	15.6	20.4	11.5	19.9	18.2	8.2	17.0
Teacher	36.0	35.7	59.9	30.7	28.6	39.5	35.9
Friends	23.2	22.5	27.7	23.7	21.7	13.3	23.0
Doctor/Health Staff	10.5	11.9	13.3	13.4	8.8	3.1	10.9
Social Worker	8.5	5.8	6.7	6.6	6.6	25.4	7.7
Other	1.8	2.1	1.9	1.7	2.3	0.0	1.9
No. of girls received knowledge before or soon after menarche	**4300**	**1702**	**1135**	**2107**	**2406**	**354**	**6002**

***Percentage will not add up to 100 as Multiple responses were received**



A similar pattern has been observed while considering source of knowledge before menarche by climate vulnerable region. Noticeably, the role of teacher in providing knowledge on menarche before its initiation varies considerable by climate vulnerable region. For instance, teachers from non-climatic vulnerable region (64 %) and snowfall region (52 %) provide knowledge on menarche before its initiation. The corresponding figure for drought and flood/cyclone prone region found to be (35 & 30 %) respectively.

Additionally, an attempt has been made to identify the source of knowledge on menarche before or soon after attaining it by place of residence and climate vulnerable region (**Fig. 3.5**). Analysis suggesting a prominent role of mothers (85 %) and sisters (26 %) in sharing the knowledge on menarche before or soon after its initiation. Similarly, the role of Teachers found to be the second most source of providing knowledge on menarche before or soon after its initiation (36 %). A minor variation has been noticed in source of knowledge on menarche before or soon after its initiation by place of residence. A similar pattern has been observed while considering source of knowledge on menarche before or soon after its initiation by climate vulnerable region. Noticeably, the role of teacher in providing knowledge on menarche before or soon after its initiation varies considerable by climate vulnerable region. For instance, teachers from non-climatic vulnerable region (60 %) and snowfall region (40 %) provide

knowledge on menarche before or soon after its initiation. The corresponding figure for drought and flood/cyclone prone region found to be (31 & 29 %) respectively.

3.4 Menstruation

The regularity of menstruation, its duration and flow of bleeding has been captured to understand the menstrual health of surveyed girls both by place of residence and by climate vulnerable regions and presented in **Table 3.6**.

Table 3.6: Regularity of menstruation, Duration and Flow of bleeding by Place of residence and Type of climate vulnerability

Particulars	Place of residence		Type of climate vulnerability				ALL
	Rural	Urban	Not Climate Vul.	Drought	Flood/ Cyclone	Snow fall	
Regularity of menstruation							
Regular	89.8	89.1	88.6	89.4	89.7	92.4	89.6
Irregular	9.7	10.6	10.9	10.0	10.0	7.6	10.0
Discontinued	0.3	0.2	0.5	0.2	0.3	0.0	0.3
Missing	0.2	0.1	0.0	0.4	0.0	0.0	0.1
Duration of bleeding							
1-3 days	16.1	16.0	15.8	17.8	15.2	12.0	16.1
4-5 days	61.2	58.5	59.2	59.3	61.8	61.4	60.4
More than 5days	22.1	24.8	24.6	21.6	22.7	26.7	22.9
Missing	0.6	0.7	0.3	1.3	0.4	0.0	0.7
Mean	*4.8*	*4.8*	*4.8*	*4.8*	*4.8*	*4.8*	*4.8*
Perceived flow of bleeding							
Normal	82.4	80.4	82.4	81.4	83.0	75.6	81.8
Heavy	14.8	17.7	15.6	15.4	14.9	21.8	15.6
Scanty	2.8	1.9	2.1	3.1	2.2	2.7	2.5
No. of adol. Girls	**4797**	**1918**	**1213**	**2441**	**2652**	**409**	**6715**

Analysis suggests that most of the girls reported to have regular menstruation (90 %) and only about one-tenth of the girls reported about irregular menstruation (10 %). A negligible variation has been observed considering place of residence as well as by climate vulnerable regions. With respect to duration of bleeding, most of the girls reported that bleeding goes for 4-5 days

(60 %) whereas a little less than one-fourth reported that it is more than 5 days (23 %). A negligible variation has been observed considering place of residence as well as by climate vulnerable regions. Considering perceived flow of bleeding, a normal flow of bleeding has been reported by most of the girls (82 %) and about 16 percent of girls reported to have heavy bleeding. The perceived flow of bleeding suggest that a higher proportion of urban girls reported of heavy bleeding (18 %) whereas this figure was 15 percent in case of rural girls. Similarly, a relatively higher proportion of girls from snowfall area reported to have heavy bleeding (22 %).

Table 3.7: Material used to absorb menstrual bleeding by State, Place of residence and Type of climate vulnerability

Particulars	Sanitary Napkins	Cloth	No. of Adol. Girls
State			
Andhra Pradesh	91.0	6.9	434
Assam	96.0	10.6	445
Bihar	84.2	39.5	430
Delhi	95.9	11.4	413
Gujarat	72.8	26.8	400
Haryana	99.0	7.8	400
Himachal Pradesh	95.1	17.1	426
Jammu Kashmir	96.8	10.2	401
Karnataka	91.1	31.5	406
Kerala	96.9	26.1	426
Madhya Pradesh	72.8	31.7	445
Maharashtra	97.2	6.1	457
Rajasthan	97.5	9.8	407
Punjab	99.5	2.3	400
Tamil Nadu	98.5	11.4	404
Uttar Pradesh	59.6	35.9	421
Type of residence			
Rural	89.1	18.4	4797
Urban	92.9	16.5	1918
Type of climate vulnerability			
Not Climate Vulnerable	98.1	7.2	1213
Drought	86.9	22.2	2441
Flood/Cyclone	88.7	19.4	2652
Snowfall	96.1	13.9	409
ALL	**90.2**	**17.9**	**6715**

An attempt has been made to understand the material used to absorb the menstrual bleeding by State, place of residence and climate vulnerable region, and presented in **Table 3.7**. Overall, a higher proportion of girls were using sanitary napkins (90 %) followed by cloth (18 %).

Though a higher proportion of girls were using sanitary napkins, but state level analysis in using sanitary napkins suggest that a lower proportion of girls from Uttar Pradesh (60 %), Gujarat and Madhya Pradesh (73 %) and Bihar (84 %) reported to have relatively low usage of sanitary napkins comparing to other States. Similarly, a higher usage of cloth has been reported by girls from Bihar (40 %), Uttar Pradesh (36%), Karnataka and Madhya Pradesh (32 % each). Additionally, usage of sanitary napkin found higher in urban areas (93 %) than rural areas (89 %). Similarly, a higher proportion of girls reported to use cloth from drought (22 %) and flood/cyclone areas (19 %).

Summary of findings

The present section is an attempt to understand the knowledge and perceived changes occurred due to menstruation as well as menstrual hygiene.

The perceived age of menarche found to be 10-12 years (46 %) followed by 13-14 years (39 %). About three-fifth of girls reported their age of menarche was between 13-14 years followed by 10-12 years (35 %). The mean age of menarche found to be 13 years.

About 8 percent of girls reported a grand ceremony followed by formal ceremony (15 %) on the eve of menarche. Grand ceremony found to be skewed in the States of Tamil Nadu, Karnataka and Andhra Pradesh. By climate vulnerable region, organizing ceremony for attaining menarche found higher in drought (18 %) and flood/clone prone areas (14 %).

Half of the girls reported a normal reaction towards first menstruation but about 43 percent were frightened on their first menstruation. Considering climate vulnerability, about half of the girls from snowfall region were frightened during their first menstruation.

Regarding discontinuation of studies, about 11 percent girls reported to be school drop-out due to menarche. These drop-out girls because of menarche majorly visible from the State of Uttar Pradesh, Bihar and Andhra Pradesh (approx. 23% each). Strikingly, as higher proportion of dropout observed from drought (14 %) and flood/cyclone (13 %) areas.

Half of the girls reported to be aware of menarche before its attainment. A lower proportion of awareness observed from the States of Uttar Pradesh, Madhya Pradesh and Karnataka. Similarly, by climate vulnerable region, a lower proportion of girls from drought and flood prone area found to be aware (50 & 51 % respectively).

A prominent role of mothers (73 %) followed by teachers (40 %) found to be a major source of sharing knowledge on menarche before its initiation. Noticeably, the role of teacher found higher for non-climatic vulnerable region (64 %) and snowfall region (52 %) whereas for drought and flood/cyclone prone region found to be (35 & 30 %) respectively.

Most of the girls reported to have regular menstruation and about 10 percent reported to have irregular menstruation. Duration of bleeding suggest, it goes for 4-5 days for 60 percent of girls and more than five days for about one-fourth of the girls. A perceived normal flow of bleeding reported by most of the girls (82 %) and about 16 percent of girls reported heavy bleeding.

Similarly, a higher proportion of girls were using sanitary napkins (90 %) followed by cloth (18 %). A low usage of sanitary napkins has been observed from the States of Uttar Pradesh, Gujarat and Madhya Pradesh. Similarly, a higher usage of cloth has been reported from the States of Bihar (40 %), Karnataka and Madhya Pradesh (32 % each). Similarly, a higher proportion i.e. about one-fifth of girls reported to use cloth from drought and flood/cyclone areas.

SECTION-4

Access to free Sanitary Napkins and Menstrual Hygiene Management

India has been a global leader for action on menstrual hygiene since 2014, with strong Government leadership, and diverse actions by civil society, the private sector, manufacturers, and entrepreneurs. The launch of Swachh Bharat Mission (SBM) in October 2014 was a turning point for the sanitation and hygiene landscape in India, including for menstrual hygiene management (MHM). State Governments showcased innovative and promising models to improve MHM; sharing of simple and effective solutions that were instrumental to build and sustain improvements for girls and women in India. WHO and UNICEF Joint Monitoring Programme has defined menstrual hygiene as using clean menstrual management material to absorb or collect menstrual blood, that can be changed in privacy as often as necessary and having facilities to dispose it (WHO/UNICEF, 2012). SDG 6.2 acknowledges the right to menstrual health and hygiene, with special attention to those in vulnerable situations by 2030 (UNICEF 2019). And hence management of menstrual hygiene during adolescence has been acknowledged as a critical concern for overall reproductive health among girls (Garg et al., 2012, and El-Gilany et al., 2005). Poor menstrual hygiene makes them susceptible to several gynaecological problems. Therefore, to understand the consequences and importance of menstrual hygiene practices among adolescent girls, it is important to study the current practices about the same so that future interventions can be planned accordingly (Sharma et al., 2017).

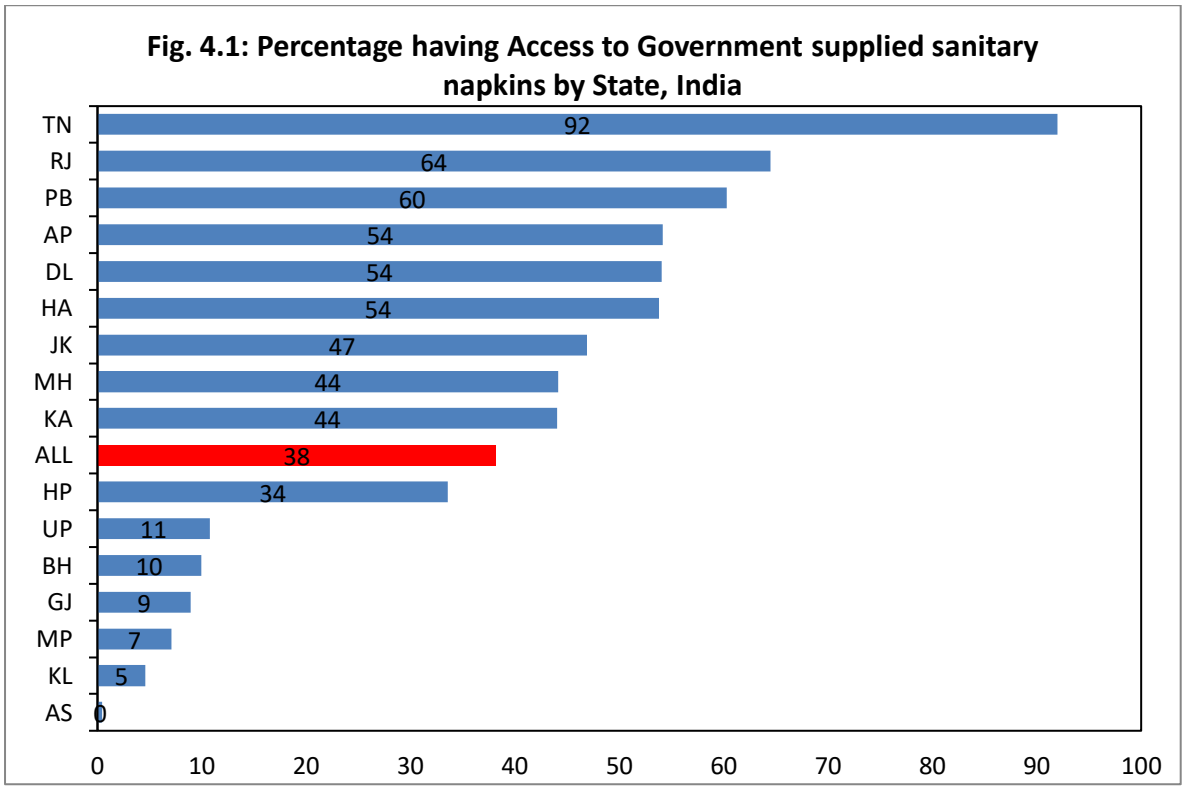
Under menstrual hygiene management various issues like absorbents used for menstrual bleeding, access to Government supplied sanitary napkins, purchasing of sanitary napkins, frequency of changing them and ways of their disposal are considered.

4.1 Access to Government supplied Sanitary napkins

The Ministry of Health and Family Welfare has introduced a scheme for promotion of menstrual hygiene among adolescent girls in the age group of 10-19 year in rural areas. The scheme was initially implemented in 2011 in 107 selected districts in 17 States wherein a pack of six sanitary napkins called “Freedays” was provided to rural adolescent girls for Rs.6. From 2014 onwards, funds are now being provided to States/UTs under National Health Mission for decentralized procurement of sanitary napkins packs for provision to rural adolescent girls at a subsidized rate of Rs 6 for a pack of 6 napkins. The ASHA will continue to be responsible for

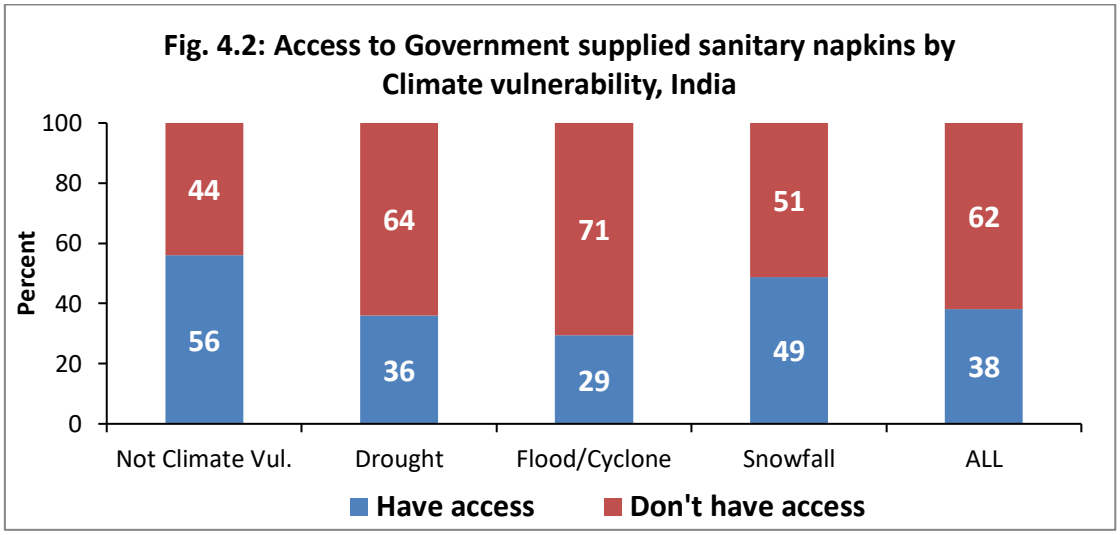
distribution, receiving an incentive @ Rs 1 per pack sold and a free pack of napkins every month for her own personal use. She will convene monthly meetings at the Aanganwadi Centres or other such platforms for adolescent girls to focus on issue of menstrual hygiene and also serve as a platform to discuss other relevant Sexual and Reproductive Health issues.

The proportion of adolescent girls having access to Government supplied sanitary napkins and their opinion on the quantity and quality of provided sanitary napkins has been assessed by State, place of residence and by climate vulnerable region and presented in **Table 4.1**. In overall, about 38 percent of girls reported to have access to sanitary napkins. Of them, about 62 percent of girls reported of its sufficient supply and about 65 percent were satisfied with the quality of Government supplied napkins. State level variation in access to Government supplied napkins suggest that a higher proportion of girls reported to access of sanitary napkins from the States of Tamil Nadu (92 percent), Rajasthan (64 percent) and Punjab (60 percent). Whereas, a lower proportion of girls reported to have access to Government supplied napkins from, Kerala (5 percent), Madhya Pradesh (7 percent), Gujarat (9%) and Bihar (10 percent), **(Figure 4.1**).



A marginal difference has been observed by place of residence i.e. rural (40 %) and urban (35 %). Considering climate vulnerable regions, a relatively lower proportion of girls reported to

have access to Government supplied napkins particularly from drought (36%) and flood/cyclone prone areas (29%) (**Fig. 4.2**).



Considering sufficient supply of napkins by State suggest that a higher proportion of girls reported of sufficient supply of sanitary napkins particularly from the States of Andhra Pradesh (94 %), Uttar Pradesh (89 %), Tamil Nadu (83%) and from Gujarat and Haryana (69 % each). Whereas, a lower proportion of girls reported to have sufficient supply from the States of Karnataka (23 %), Kerala and Maharashtra (37 % each), Himachal Pradesh (46%), Madhya Pradesh (48 %), Delhi (51 %) (**Figure 4.3**).

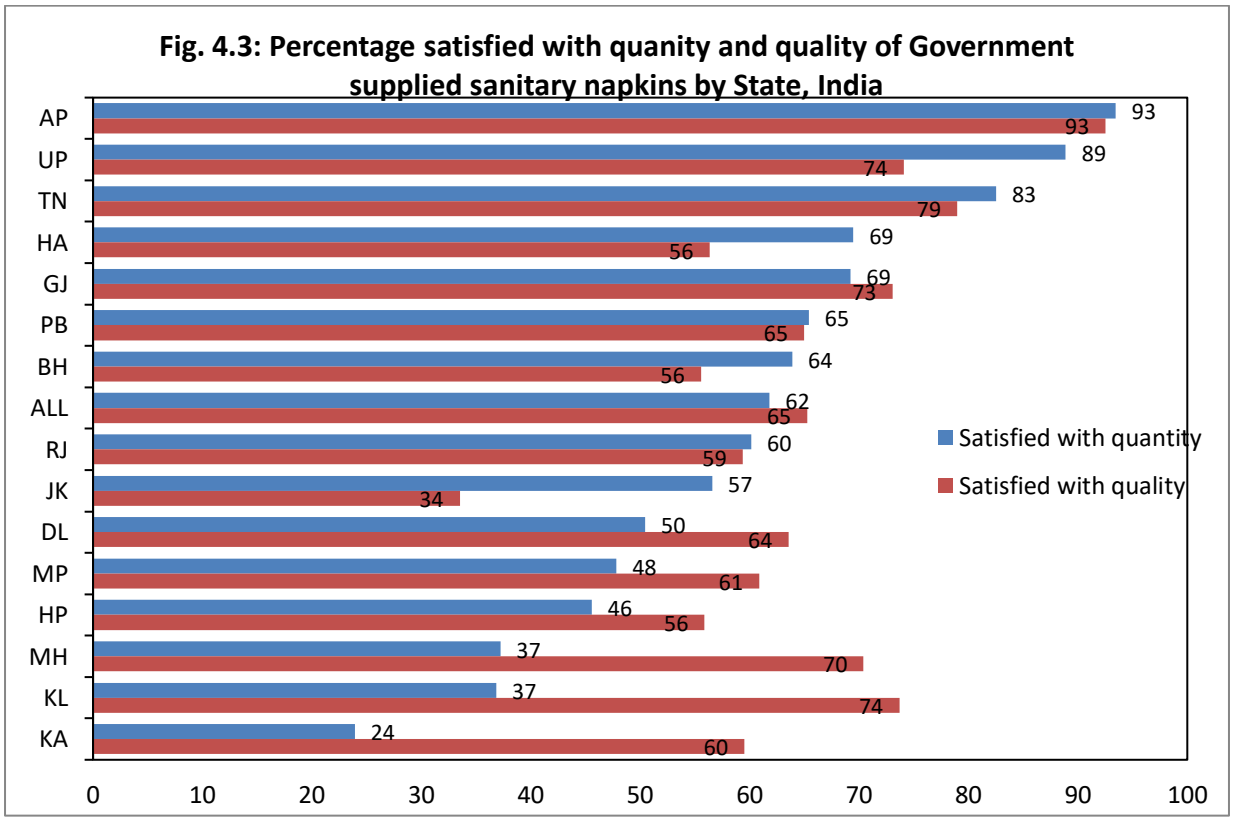
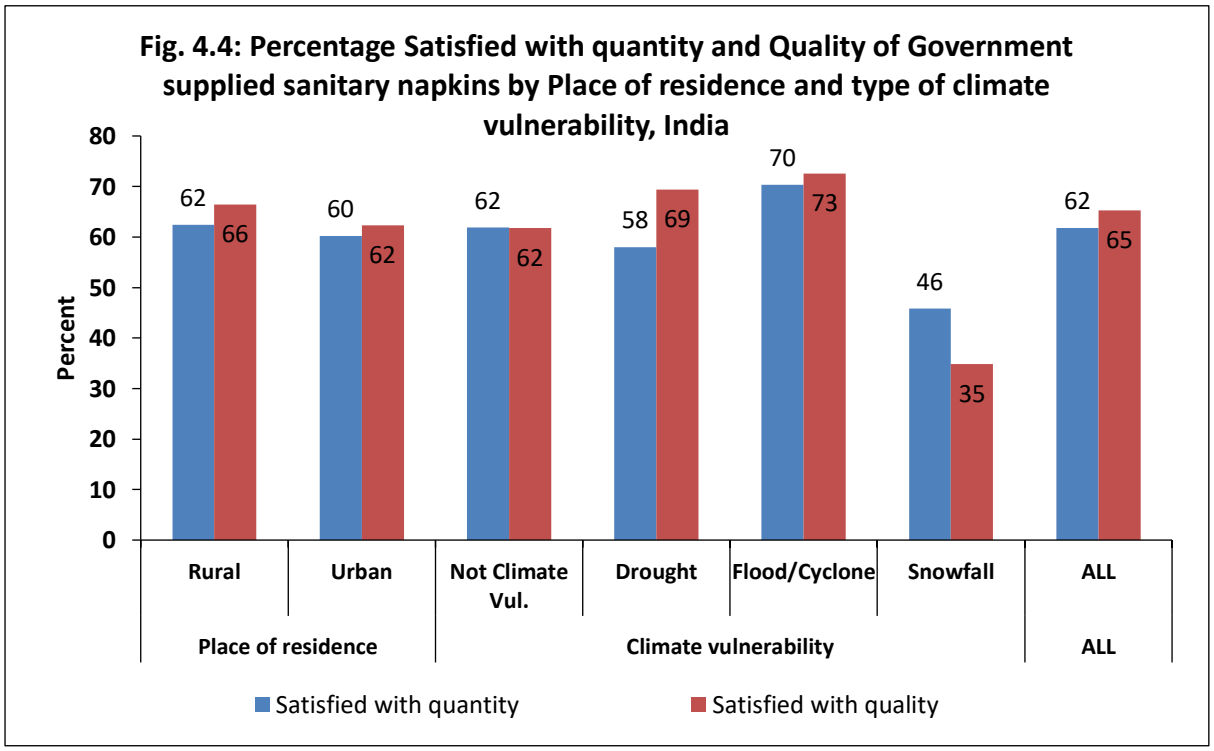


Table 4.1: Percentage of Adolescent girls having access to Government supplied sanitary napkins and Girls' opinion on the quantity and quality of Government supplied napkins by State, Type of Residence and Type of Climate vulnerability

Particulars	Having access to Govt. supplied sanitary napkins		No. of adol. Girls using sanitary napkins	Prop. Get sufficient supply (Quantity)		Prop. Satisfied (Quality)		No. of adol girls having access to Govt. supplied napkins
	N	%		N	%	N	%	
State								
Andhra Pradesh	214	54.2	395	200	93.5	198	92.5	214
Assam	2	0.5	427	1	50.0	0	0.0	2
Bihar	36	9.9	362	23	63.9	20	55.6	36
Delhi	214	54.0	396	108	50.5	136	63.6	214
Gujarat	26	8.9	291	18	69.2	19	73.1	26
Haryana	213	53.8	396	148	69.5	120	56.3	213
Himachal Pradesh	136	33.6	405	62	45.6	76	55.9	136
Jammu Kashmir	182	46.9	388	103	56.6	61	33.5	182
Karnataka	163	44.1	370	39	23.9	97	59.5	163
Kerala	19	4.6	413	7	36.8	14	73.7	19
Madhya Pradesh	23	7.1	324	11	47.8	14	60.9	23
Maharashtra	196	44.1	444	73	37.2	138	70.4	196
Rajasthan	256	64.5	397	154	60.2	152	59.4	256
Punjab	240	60.3	398	157	65.4	156	65.0	240
Tamil Nadu	366	92.0	398	302	82.5	289	79.0	366
Uttar Pradesh	27	10.8	251	24	88.9	20	74.1	27
Type of residence								
Rural	1690	39.5	4274	1055	62.4	1122	66.4	1690
Urban	623	35.0	1781	375	60.2	388	62.3	623
Type of climate vulnerability								
Not Climate Vul.	667	56.1	1190	413	61.9	412	61.8	667
Drought	762	35.9	2121	442	58.0	529	69.4	762
Flood/Cyclone	692	29.4	2351	487	70.4	502	72.5	692
Snowfall	192	48.9	393	88	45.8	67	34.9	192
ALL	**2313**	**38.2**	**6055**	**1430**	**61.8**	**1510**	**65.3**	**2313**

A negligible variation has been found in sufficient supply of sanitary napkins by place of residence. Similarly, as low as 46% of girls from snowfall region reported to have sufficient supply of sanitary napkins (**Fig. 4.4**). Similarly, while seeking girls' satisfaction towards the quality of Government supplied sanitary napkins by States, results suggest that a higher proportion of girls from Andhra Pradesh (93 %), Tamil Nadu (79 %), Punjab (65 %) of girls

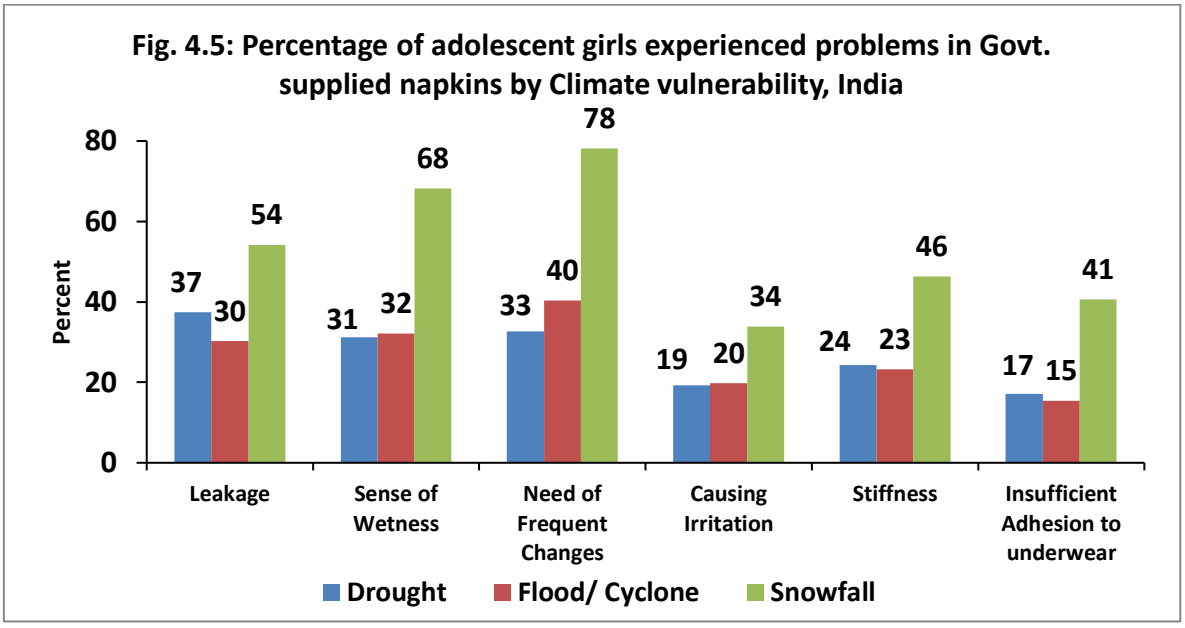
were satisfied with the quality of sanitary napkins. Whereas, a lower proportion of girls from Jammu & Kashmir (34 %) and Haryana and Himachal Pradesh (56 % each) were satisfied with the quality of sanitary napkins. A small variation has been found in satisfaction of quality of sanitary napkins by place of residence. Similarly, as low as 35 percent of girls from snowfall region reported to be satisfied with the quality of Government supplied sanitary napkins.



4.2 Place, Provider and Frequency of Government supplied sanitary napkins and its Quality issues

Additionally, an exploration has been made to understand the place, cost, frequency, its quantity as well as quality of sanitary napkins has been assessed and presented by place of residence and climate vulnerable region in **Table 4.2**. Considering place of getting Government supplied sanitary napkins by place of residence of surveyed girls, analysis suggest that a higher proportion of girls, irrespective of place of residence received the sanitary napkins from school/college (70% of girls from rural and 89% of girls from urban areas). Similarly, a higher proportion of girls from rural areas received the sanitary napkins from ANM/ASHA/AWW (34 %), whereas this figure for urban areas is 10 percent. In case of climate vulnerable region, a higher proportion of girls were received the sanitary napkins from ANM/ASHA/AWW (82 %) in snowfall areas.

Regarding frequency of getting Government supplied sanitary napkins, results suggest that as high as 81 percent of girls reported that received the napkins once in 3 or less than 3 months irrespective of their place of residence. With respect of climate vulnerable regions, as low as 58 percent of girls from snowfall areas reported the frequency of getting Government supplied napkins is once in 3 months or less than that. Similarly, in case of number of sanitary napkins received at one time by place of residence suggest that about 56 percent of girls from rural areas and 43 percent of girls from urban areas reported to have received 1-5 napkins at one time. Similarly, the corresponding figure for girls receiving 6-9 napkins found to be 20 percent for rural and 25 percent for urban areas.



Opinion on quality of Government supplied sanitary napkins hardly varies by place of residence except for sense of dryness (44 vs 51%), adhesion to the underwear (43 vs 50%) and odour prevention (31 vs 36%) respectively for rural and urban girls.

Similarly, an attempt has been made to capture the problem faced by girls in Government supplied napkins and presented by place of residence as well as by climate vulnerable regions (**Fig. 4.5**). Results suggest that need of frequent change (43 %), leakage and sense of wetness (39 %) and not to take shape (31 %) found to be prominent problems faced by girls. The variation by place of residence has been recorded for leakage (41 vs 35%), causing irritation (19 vs 25%) and insufficient adhesion to the underwear (23 vs 19%) respectively for rural and urban girls. Similarly, a higher proportion of girls from snowfall areas reported the issues in Government supplied sanitary napkins particularly for leakage (54 %), not to take shape (51 %), deformation of the surfaces (64 %) and need of frequent change (78 %).

Table 4.2: Place, Cost, frequency and Quantity of getting Govt. supplied sanitary napkins and Girls' opinion on their quality and problems faces while using them by Place of residence and Type of Climate vulnerability

Particulars	Place of Residence		Type of climate vulnerability				ALL
	Rural	Urban	Not Climate Vul.	Drought	Flood/ Cyclone	Snow fall	
Place of getting Govt. supplied sanitary napkins*							
At school/college	70.1	88.9	95.1	75.1	72.0	18.2	75.2
From ANM/ASHA/AWW	34.4	10.4	8.5	29.0	30.6	81.8	28.0
At PHC/CHC/SDH/DH	2.9	2.1	0.1	2.4	3.5	9.9	2.7
Other	0.8	1.3	0.7	1.2	0.6	2.1	1.0
Prop. Received free of cost	72.7	88.9	99.7	78.2	71.7	13.5	77.1
Freq. of getting Govt. supplied napkins							
Once in 3 or < 3 months	80.9	79.1	93.9	79.3	75.1	57.8	80.5
Once in 4-6 months	8.5	5.3	5.8	5.0	9.7	16.7	7.6
Once in 7-12 months	1.7	2.2	0.3	1.8	2.9	3.1	1.8
Received 1-3 years back	4.4	4.2	0.0	3.7	4.2	22.4	4.3
Received >3 years back	3.1	4.7	0.0	4.1	7.4	0.0	3.5
Can't Say/DK	1.4	4.5	0.0	6.2	0.7	0.0	2.2
No. of sanitary napkins received at one time							
1-5	55.6	43.2	77.5	49.6	35.5	35.4	52.3
6-9	20.2	25.0	17.2	29.1	21.8	5.2	21.5
10	3.3	5.9	4.5	2.0	6.8	0.0	4.0
11-20	13.6	18.9	0.6	10.2	30.3	28.6	15.0
More than 20	5.9	1.8	0.1	2.1	4.9	30.7	4.8
Can't say/DK	1.5	5.1	0.0	7.0	0.6	0.0	2.5
Opinion on quality of Govt. supplied napkins*							
Better Absorption	64.7	65.8	59.7	68.8	70.2	50.0	65.0
Sense Of Dryness	44.2	50.7	43.8	46.3	53.5	25.0	46.0
Leakage Prevention	48.0	51.5	50.4	48.2	49.3	46.4	49.0
Thickness	41.5	43.8	46.6	42.5	39.2	35.9	42.2
Soft Surface/ Not Causing Skin Irritation	41.4	46.9	47.1	35.7	42.1	59.4	42.8
Flexibility/ Not Limiting Mobility	36.9	40.6	45.7	33.6	33.7	42.7	37.9
Having Wings	56.1	61.3	62.7	51.7	49.7	90.6	57.5
Adhesion To the Underwear	43.3	50.2	54.0	33.2	41.2	76.0	45.1
Long Time Usability	27.2	30.7	28.9	30.6	27.7	16.7	28.1
Odor Prevention	30.5	36.3	38.8	28.1	28.0	39.1	32.1
Being Long	23.4	23.6	23.4	28.1	19.8	18.8	23.5

Table 4.2: Contd…

Particulars	Place of Residence		Type of climate vulnerability				ALL
	Rural	Urban	Not Climate Vul.	Drought	Flood/ Cyclone	Snow fall	
Problems faced in Govt. supplied napkins*							
Leakage	40.8	34.5	45.9	37.4	30.2	54.2	39.1
Not to Take Shape	30.9	32.4	36.1	27.7	25.3	51.0	31.3
Deformation of the Surface	30.5	28.3	33.1	21.8	26.3	64.1	29.9
Sense of Wetness	38.9	38.7	46.2	31.2	32.1	68.2	38.9
Need of Frequent Changes	43.6	42.7	48.6	32.7	40.3	78.1	43.3
Causing Irritation	19.2	24.7	19.3	19.3	19.8	33.9	20.7
Causing Skin Rashes	20.2	21.8	27.7	18.1	15.0	26.0	20.6
Cause Bacteria/Fungal Infection	14.3	16.2	17.1	15.6	10.1	20.8	14.8
Stiffness	25.7	26.6	24.9	24.3	23.3	46.4	26.0
Excess Adhesion to Underwear	18.7	19.4	20.5	17.8	15.8	28.6	18.9
Insufficient Adhesion to Underwear	22.8	18.8	28.0	17.2	15.5	40.6	21.7
Others	7.6	12.8	13.9	10.0	4.0	6.3	9.0
No. of Adol girls having access to Govt. supplied napkins	**1690**	**623**	**667**	**762**	**692**	**192**	**2313**

***Percentage will not add up to 100 as Multiple responses were received**

4.3 Place and options considered while purchasing sanitary napkins

An analysis has been carried out for the girls who purchase sanitary napkins and options considered while purchasing by place of residence and by climate vulnerability has been presented in **Table 4.3**. Results clearly suggest that most of girls purchased sanitary napkins from shops (77 %) followed by Pharmacy (31 %). A similar pattern has been observed while analysing the data by climate vulnerability. Analysis also carried out regarding options they considered while purchasing sanitary napkins. Analysis suggests that brand matters for most of the girls (60 %) followed by performance properties (57 %) and price of sanitary napkins (55 %). By climate vulnerability, price is the distinguish factor as 55 percent of girls from drought prone areas as well as 54 percent of flood/cyclone prone areas found to be price conscious whereas 75 percent of girls from snowfall area is price conscious (**Fig 4.6**).

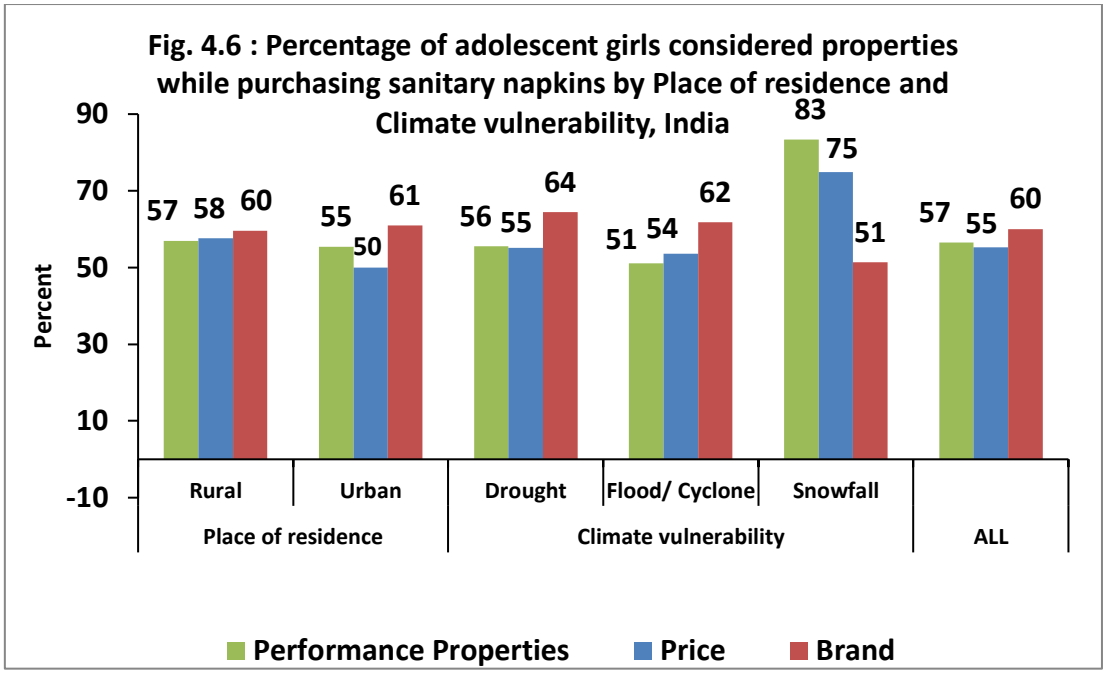


Table 4.3: Place of purchasing sanitary napkins and Options considered while purchasing them by Place of residence and Type of climate vulnerability

Particulars	Place of Residence		Type of climate vulnerability				ALL
	Rural	Urban	Not Climate Vul.	Drought	Flood/ Cyclone	Snow fall	
Place of purchasing sanitary napkins*							
Do not Buy	9.2	6.2	9.0	9.1	7.0	9.9	8.3
Shops	77.2	77.5	79.5	74.4	78.1	81.7	77.3
Pharmacy	29.1	37.1	27.1	34.7	33.3	15.5	31.4
Online	1.3	3.0	1.2	1.2	2.9	0.5	1.8
Other	1.4	1.0	0.9	1.4	1.5	0.3	1.3
Number of girls using sanitary napkins	**4274**	**1781**	**1190**	**2121**	**2351**	**393**	**6055**
Options considered while purchasing sanitary napkins*							
Performance Properties	57.0	55.4	60.5	55.6	51.1	83.3	56.5
Price	57.6	50.0	52.6	55.2	53.6	74.9	55.3
Brand	59.6	61.0	51.7	64.4	61.8	51.4	60.1
Having Perfume	11.7	11.9	14.4	12.8	9.0	15.3	11.8
Made Of Natural Raw Material	6.8	4.3	10.2	4.1	5.1	9.3	6.0
Biodegradability	3.8	2.9	6.3	3.0	2.7	3.1	3.5
Other	2.7	2.5	5.5	1.7	2.4	0.3	2.6
No. of girls purchase sanitary napkins	**3882**	**1670**	**1083**	**1929**	**2186**	**354**	**5552**

***Percentage will not add up to 100 as Multiple responses were received**

4.4 Ways of disposal and Preparations before disposal

In this section, ways of disposing used sanitary napkins and preparations made before disposing them are discussed according to State, place of residence and climate vulnerability and are presented in **Table 4.4**.

Results suggest that most of the girls disposing sanitary napkins by giving to garbage collecting vehicle (36 %) followed by burning (26 %) and about one-fifth of them throw in open area (18 %). State level variation in disposal of used sanitary napkins suggest that girls reported to throw in open areas from the States of Bihar (67 %), Uttar Pradesh (51 %) and Gujarat (41 %). Similarly, in case of girls reporting to throw used sanitary napkins in toilet found higher for the States of Kerala (29%) and Assam (21%). A higher proportion of girls from Delhi (73%), Haryana and Punjab (71 %) and Madhya Pradesh (58 %) reported to give used sanitary napkins to garbage collecting vehicle. Interestingly, a higher proportion of girls from Kerala (78%), Maharashtra (55%) and Tamil Nadu (46%) reported to burn the used sanitary napkins. Additionally, a higher proportion of girls from Assam and Jammu & Kashmir (27%) and Himachal Pradesh (25%) were reported to bury the used sanitary napkins. The ways of disposing the used sanitary napkins by place of residence show an interesting picture. Analysis suggests that a considerable difference in disposing sanitary napkins particularly for giving to garbage collecting vehicle (27 vs 57%), burning (31 vs 16%) and throwing in open areas (20 vs 13%) has been reported by girls from rural and urban areas respectively. Sanitary napkin disposal by climate vulnerable regions suggest that a higher proportion of girls burn to dispose sanitary napkins particularly from drought (33%), flood/cyclone (31%) and snowfall (21%). Similarly, a considerable proportion of girls reported to throw in open areas from snowfall (23%), drought (21%) and flood/cyclone (19%).

In addition to disposing the used sanitary napkins, the preparation done before disposing has also been enquired. Results suggest that most of the girls wrap it with newspaper before disposing (46%) followed by putting it with plastic bag (25%). State level variation in preparation of used sanitary napkins suggest that girls reported to wrap it with newspaper from the States of Delhi (73%) and Maharashtra (72%). Similarly, in case of girls reported to put into plastic bag found higher for the States of Jammu & Kashmir (61%), Gujarat (52%), Bihar (48%) and Karnataka (46%).

Table 4.4: Ways of disposing used sanitary napkins and Preparations made before disposing them by State, Type of residence and Type of Climate vulnerability

Particulars	Ways of disposing used sanitary napkins*							Preparations done before disposing						No. of Adol girls using sanitary napkins
	Throw In Open Area	Throw In Toilet	Give To Garbage Collecting Vehicle	Put In Specially Designed Container	Burn	Burry The Napkins	Others	Throw as it is	Wrap with newspaper	Wrap sanitary napkin cover	Put it in biodegradable bag	Put it in plastic bag	Other	
State														
Andhra Pradesh	18.2	15.2	13.7	2.3	43.0	8.1	1.5	14.9	59.7	10.4	4.3	8.1	2.5	**395**
Assam	14.1	21.1	17.1	5.2	26.7	27.2	1.6	13.8	41.5	9.1	0.9	33.7	0.9	**427**
Bihar	66.9	2.5	28.7	4.4	0.6	2.2	5.0	0.6	34.0	6.9	10.8	47.8	0.0	**362**
Delhi	3.0	2.3	73.2	24.7	0.3	0.3	1.0	2.0	73.2	16.2	0.8	7.8	0.0	**396**
Gujarat	40.9	6.5	16.5	0.3	14.4	12.7	11.0	2.4	4.5	15.5	25.1	51.9	0.7	**291**
Haryana	12.4	5.1	71.5	5.8	5.8	2.5	2.0	4.8	50.3	18.2	3.3	21.5	2.0	**396**
Himachal Pradesh	24.2	4.4	11.4	1.7	44.4	24.7	0.2	26.7	36.0	32.6	0.7	2.7	1.2	**405**
Jammu Kashmir	11.9	0.8	40.2	29.4	5.4	27.1	3.6	13.4	3.9	16.0	2.6	60.8	3.4	**388**
Karnataka	20.8	5.9	26.8	7.8	46.8	5.4	1.9	8.9	28.1	3.0	7.6	46.2	6.2	**370**
Kerala	1.7	28.8	1.2	1.5	77.5	2.9	1.5	20.3	56.2	8.2	0.0	10.2	5.1	**413**
Madhya Pradesh	15.7	3.1	58.3	3.7	5.2	0.3	14.5	7.1	50.0	3.1	1.2	27.2	9.0	**324**
Maharashtra	4.7	0.0	33.3	4.1	54.5	0.2	7.0	2.0	71.8	7.7	0.5	15.1	2.9	**444**
Rajasthan	15.9	1.3	57.7	10.3	13.4	1.3	4.3	1.0	63.0	25.2	4.0	6.8	0.0	**397**
Punjab	9.3	0.5	70.9	9.5	12.6	0.3	0.8	4.8	43.2	37.7	2.0	12.3	0.0	**398**
Tamil Nadu	1.8	0.5	37.4	19.6	46.2	18.8	0.8	4.3	45.7	8.3	2.0	39.2	0.5	**398**
Uttar Pradesh	51.4	0.4	4.0	68.1	1.2	0.8	1.6	4.0	63.3	16.3	4.4	10.0	0.8	**251**
Type of residence														
Rural	20.3	6.6	27.1	10.6	30.7	10.5	3.6	9.7	47.1	15.5	3.9	21.1	2.5	**4274**
Urban	12.6	6.1	56.6	12.9	15.8	4.3	3.1	5.6	43.0	13.0	4.1	32.8	1.5	**1781**
Type of Climate Vulnerability														
Not Climate Vul.	8.2	2.6	71.8	13.4	6.2	1.0	1.3	3.9	55.5	24.0	2.0	13.9	0.7	**1190**
Drought	21.0	8.0	26.3	11.5	33.4	5.8	4.3	8.6	48.1	11.2	5.6	23.1	2.9	**2121**
Flood/Cyclone	19.3	7.5	27.1	8.8	31.1	13.4	4.0	9.1	43.9	10.8	3.8	29.9	2.6	**2351**
Snowfall	23.4	3.3	29.5	18.8	20.6	19.6	1.8	18.3	17.0	29.3	1.8	33.1	0.5	**393**
ALL	**18.0**	**6.4**	**35.8**	**11.3**	**26.3**	**8.7**	**3.4**	**8.5**	**45.9**	**14.7**	**3.9**	**24.6**	**2.2**	**6055**

***Percentage will not add up to 100 as Multiple responses were received**

The preparation done before disposing the used sanitary napkins by place of residence show an interesting picture. Analysis suggests that a considerable difference in preparation for disposing sanitary napkins particularly in putting it into plastic bag (21 vs 33%) and throw as it is (10 vs 6%) respectively for rural and urban areas.

4.5 Frequency of changing sanitary napkins and its considered criteria

The frequency of changing sanitary napkins during heavy and scanty bleeding presented according to States, type of residence and by climate vulnerability and presented in **Table 4.5**. In case of heavy bleeding, overall, the results suggest that 39 percent of the girls changed at least 3 times/day followed by 2 times/days (33%) and only 23 percent reported to change more than three times/day.

State level variation in changing of sanitary napkins suggest that a higher proportion of girls from the State of Kerala (48%), Delhi (45%), Jammu & Kashmir (44%) reported to change at least for 3 times/day. Similarly, States such as Gujarat (48%) and Madhya Pradesh (56%) reported to change the sanitary napkin two times a day. A higher proportion of girls from the States of Andhra Pradesh (46%), Punjab (37%) and Delhi (33%) reported to change more than 3 times a day. A minimal variation in changing sanitary napkins during heavy bleeding by place of residence and by climate vulnerable region has been recorded.

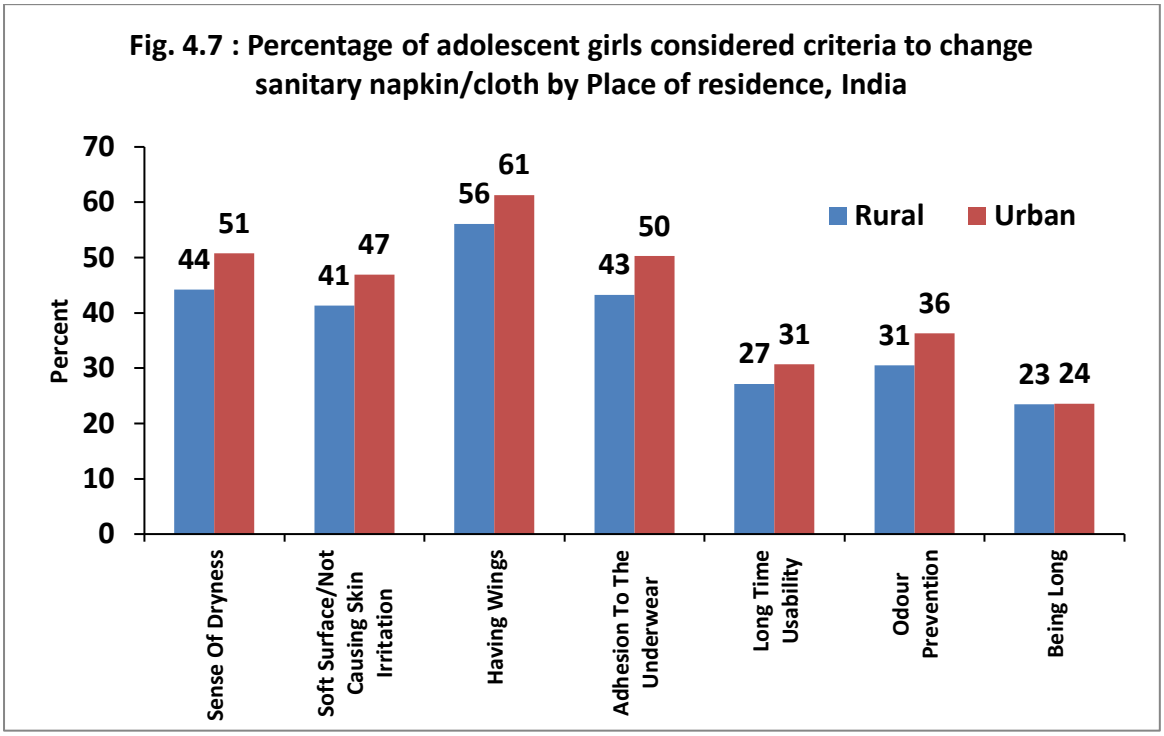
The frequency of changing sanitary napkins during scanty bleeding presented according to States, type of residence and by climate vulnerability. In case of scanty bleeding, overall, the results suggest that 42 percent of the girls changed at least 2 times/day followed by 1 time/days (39%). State level variation in changing of sanitary napkins for scanty bleeding suggest that a higher proportion of girls from the State of Gujarat (74%), Himachal Pradesh (75%), Madhya Pradesh (65%) and Bihar (56%) reported to change the sanitary napkins once a day. Similarly, girls from Maharashtra (62%), Jammu & Kashmir (60%) and Tamil Nadu (56%) reported to change the sanitary napkins twice a day. A marginal differential by place of residence has been observed as a higher proportion of girls from urban areas (7%) than rural areas (5%) change the sanitary napkins more than 3 times a day. Similarly, a higher proportion of girls from flood/cyclone prone areas (14%) change the sanitary napkin at least 3 times a day whereas this figure for drought prone areas found to be 10 percent.

Table 4.5: Frequency of changing sanitary napkins during heavy and scanty bleeding days by the adolescent girls by State, Place of residence and Type of climate vulnerability

Particulars	Number of times changed during heavy bleeding						Number of times changed during scanty bleeding						No. of adol. Girls
	1	2	3	>3	Can't say	Mean	1	2	3	>3	Can't say	Mean	
State													
Andhra Pradesh	0.2	18.0	35.5	46.3	0.0	*3.5*	3.7	24.7	35.9	35.7	0.0	*3.3*	434
Assam	2.7	29.4	41.6	26.3	0.0	*2.9*	14.8	30.3	38.2	16.6	0.0	*2.6*	445
Bihar	0.5	37.4	44.9	17.0	0.2	*2.8*	55.6	41.6	2.3	0.2	0.2	*1.5*	430
Delhi	2.2	19.6	45.3	32.7	0.2	*3.1*	46.0	49.2	4.8	0.0	0.0	*1.6*	413
Gujarat	7.3	48.0	36.8	8.0	0.0	*2.5*	73.5	23.5	3.0	0.0	0.0	*1.3*	400
Haryana	3.3	31.0	40.8	25.0	0.0	*3.0*	27.8	50.0	19.8	2.5	0.0	*2.0*	400
Himachal Pradesh	5.9	45.5	41.1	7.5	0.0	*2.5*	75.4	23.5	1.2	0.0	0.0	*1.3*	426
Jammu Kashmir	1.0	30.7	44.4	23.2	0.7	*2.9*	24.7	59.6	12.2	3.2	0.2	*1.9*	401
Karnataka	4.4	46.6	37.4	11.6	0.0	*2.6*	48.0	46.1	5.4	0.5	0.0	*1.6*	406
Kerala	0.5	24.9	48.1	26.5	0.0	*3.1*	32.9	51.2	12.4	3.5	0.0	*1.9*	426
Madhya Pradesh	15.5	56.4	22.2	4.3	1.6	*2.2*	64.5	28.5	1.6	0.2	5.2	*1.3*	445
Maharashtra	3.5	42.0	38.9	15.5	0.0	*2.7*	26.0	62.1	8.1	3.7	0.0	*1.9*	457
Rajasthan	1.2	37.6	33.9	27.0	0.2	*2.9*	50.1	34.6	11.8	3.2	0.2	*1.7*	407
Punjab	1.0	20.5	42.0	36.5	0.0	*3.2*	21.5	51.3	22.8	4.5	0.0	*2.1*	400
Tamil Nadu	1.2	25.5	41.8	31.4	0.0	*3.2*	32.9	56.2	8.7	2.2	0.0	*1.8*	404
Uttar Pradesh	10.2	20.0	29.2	27.6	13.1	*3.0*	20.0	45.4	12.8	8.8	13.1	*2.2*	421
Type of residence													
Rural	4.0	33.2	37.9	23.8	1.1	*2.9*	38.3	42.2	13.5	4.9	1.1	*1.9*	4797
Urban	3.5	33.9	41.4	20.2	0.9	*2.8*	38.9	42.4	10.4	6.9	1.4	*1.9*	1918
Type of climate vulnerability													
Not Climate Vul.	2.1	23.7	42.7	31.4	0.1	*3.1*	31.9	50.1	15.7	2.3	0.0	*1.9*	1213
Drought	4.8	34.7	36.7	22.9	0.9	*2.9*	42.5	40.9	10.4	5.4	0.9	*1.8*	2441
Flood/Cyclone	3.7	35.7	39.0	19.9	1.6	*2.8*	35.5	40.2	14.4	7.7	2.2	*2.0*	2652
Snowfall	3.9	39.6	40.6	15.6	0.2	*2.7*	53.3	40.3	5.9	0.2	0.2	*1.5*	409
ALL	**3.8**	**33.4**	**38.9**	**22.8**	**1.0**	***2.9***	**38.5**	**42.2**	**12.6**	**5.4**	**1.2**	***1.9***	**6715**

An exploration has been conducted to understand the criterion considered to change the sanitary napkin/cloth according to place of residence and by climate vulnerability and presented in Table 4.6. Results from the table suggest that the sense of wetness (71 %) followed

by leakage (61 %) prominently considered as need of change in sanitary napkins/cloth. These considered criteria hardly vary by place of residence (**Fig. 4.7**).



While considering criteria considered for changing the sanitary napkins by climate vulnerable regions suggest that a higher proportion of girls from snowfall region using the criterion of sense of wetness (89 %), leakage (86 %), bad smell (46 %) and shape deformation (39 %).

Table 4.6: Criteria considered to change sanitary napkin/cloth by Place of residence and Type of climate vulnerability

Criteria considered to change sanitary napkin/cloth*	Place of residence		Type of climate vulnerability				
	Rural	Urban	Not Climate Vul.	Drought	Flood/ Cyclone	Snowfall	ALL
Sense Of Wetness	70.3	73.1	78.1	65.3	70.5	89.0	71.1
Leakage	62.0	59.5	44.2	65.3	61.6	85.8	61.3
Bad Smell	30.2	31.3	25.6	35.6	25.7	46.0	30.5
Shape Deformation	17.7	18.4	12.4	19.5	15.5	39.4	17.9
Others	4.1	4.5	9.8	3.8	2.5	1.2	4.2
No. of adol. Girls	**4797**	**1918**	**1213**	**2441**	**2652**	**409**	**6715**

***Percentage will not add up to 100 as Multiple responses were received**

Summary of findings

The present section discusses about access to sanitary napkins from Government supplies, its source, frequency, quality and its disposal.

In overall, about 38 percent of girls had access to Government supplied sanitary napkins. Of them, about 62 percent were reported of its sufficient supply and about 65 percent were satisfied with the quality of supplied napkins.

By States, a higher proportion of girls reported the access to Government supplied sanitary napkins from Tamil Nadu, Rajasthan and Punjab (>60 %), whereas a lower proportion of girls from Kerala, Madhya Pradesh and Bihar (<10 %) reported the supply of sanitary napkins. Considering climate vulnerable regions, a lower proportion of girls reported to have access to Government supplied napkins particularly from drought (36 %) and flood/cyclone prone areas (29 %).

A higher proportion of girls from Andhra Pradesh, Tamil Nadu, Punjab (>65 %) and a lower proportion observed from Jammu & Kashmir (34 %) and Haryana and Himachal Pradesh (56 % each) were satisfied with the quality of sanitary napkins. Similarly, as low as 35% of girls from snowfall region reported to be satisfied with the quality of Government supplied sanitary napkins.

The need of frequent change, leakage and sense of wetness and not to take shape found to be prominent problems faced by girls in Government supplied napkins. A higher proportion of girls from snowfall areas reported the issues in Government supplied sanitary napkins particularly for leakage, not to take shape, deformation of the surfaces and need of frequent change.

Most of girls purchased sanitary napkins from shops (77 %) followed by Pharmacy (31 %). Analysis suggests that brand matters for most of the girls followed by performance properties and price of sanitary napkins. By climate vulnerability, price is the distinguish factor as girls from drought prone areas, flood/cyclone and snowfall areas found to be price conscious.

Analysis of disposal of sanitary napkins suggest that girls give it to garbage collecting vehicle (36 %) followed by burning (26 %) and about 18% of them throw in open area. Disposal by State suggest that a higher percentage of girls throw in open areas from Bihar, Uttar Pradesh

and Gujarat. Similarly, a higher proportion of girls from Assam and Kerala reported to throw in toilet. Interestingly, a higher proportion of girls from Kerala, Maharashtra and Tamil Nadu reported to burn the used sanitary napkins. Sanitary napkin disposal by climate vulnerable region suggest that a higher proportion of girls burn the used sanitary napkin from drought, flood/cyclone and snowfall regions. Similarly, about one-fifth of girls reported to throw in open areas from snowfall, drought and flood/cyclone.

Regarding frequency of changing sanitary napkins in case of heavy bleeding, results suggest that 39 percent of the girls change at least 3 times a day followed by 2 times a day (33%) and only 23 percent reported to change more than three times a day.

SECTION-5

Menstrual problems, Reproductive Tract Infections (RTI) and Treatment seeking behaviour

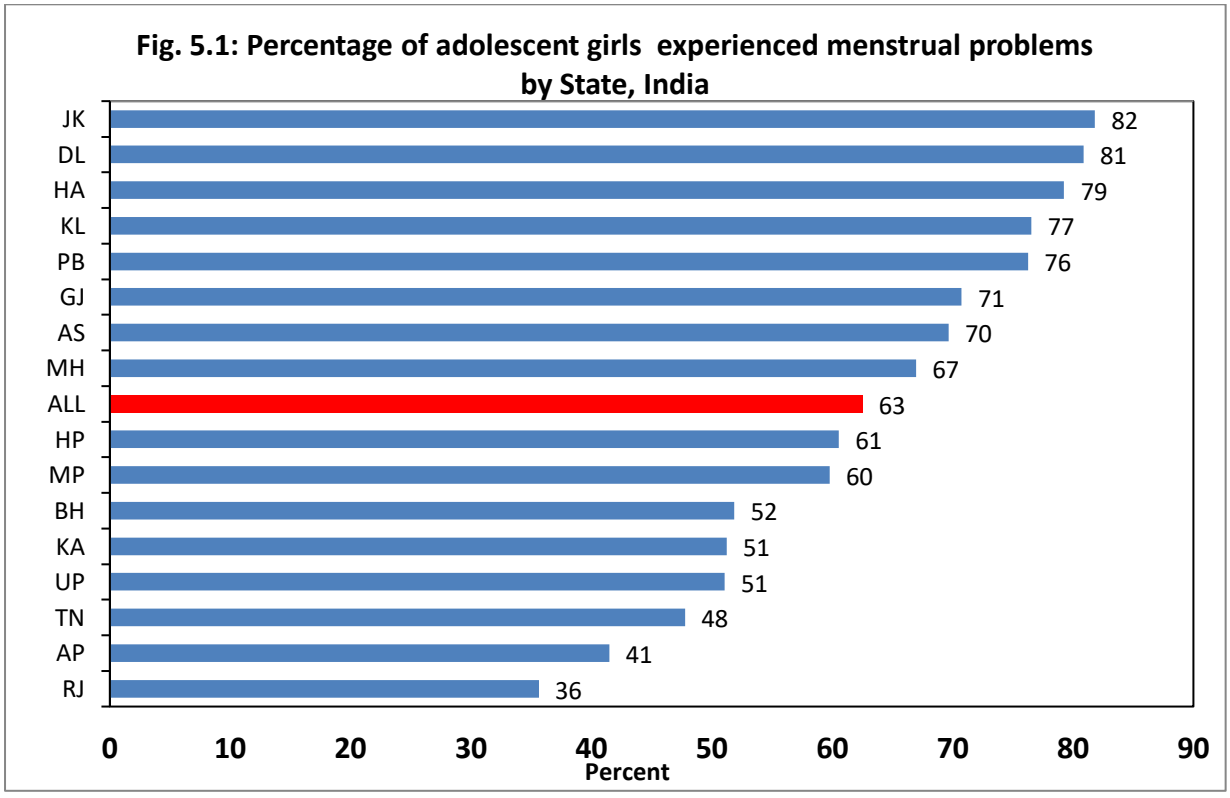
As discussed through earlier studies, menstrual problems and Reproductive Tract Infections (RTI) are common among adolescent girls. Menstrual problems include dysmenorrhea, premenstrual syndrome, abnormal uterine bleeding, and amenorrhea. Most are minor problems, such as variations in cycle length and flow; at times, however, they can be significant enough, such as in cases of severe dysfunctional uterine bleeding, to require hospitalization. These infections are often asymptomatic, or the symptoms are not recognizable. RTIs are generally seen as a 'silent' epidemic and are among the leading public health problems. As observed in DHS surveys, as high as 15 percent of the young women found to suffer from self- reported symptoms of reproductive morbidity but do not seek treatment due to existing taboos and inhibitions regarding sexual and reproductive health in India. An attempt has been made in this section to assess the existence of menstrual problems and self-reported RTI symptoms among adolescent girls and treatment seeking behaviour for these problems.

5.1 Menstrual problems and Treatment seeking behaviour

All the adolescent girls were asked, whether they experience menstrual problems like pain, discomfort and feeling distress during their menstrual period along with frequency of experiencing these problems, persons with whom they share their menstrual problems. Further, it was also asked whether they had sought any treatment for these problems and place of seeking treatment. **Table 5.1** presents percentage of adolescent girls who experience menstrual problems by State and place of residence. Altogether, out of 6715 adolescent girls interviewed, 63 percent of the girls mentioned that they experience one or the other menstrual problem and it is as high as 82 percent in Jammu and Kashmir, followed by Delhi (81%), Haryana (79%), Kerala (77%) and Punjab (76%) (**Figure 5.1**). On the other hand, comparatively less proportion of girls in Rajasthan (36%), Andhra Pradesh (41%) and Tamil Nadu (48%) reported that they experience menstrual problems. When seen the experience of menstrual problem among adolescent girls by place of residence, it is observed that not much variation is found between rural and urban girls. However, State wise, in Assam and Haryana, comparatively higher proportion of girls in rural areas found to experience menstrual problems than their

Table 5.1: Percentage of adolescent girls experienced menstrual problems by State and Place of residence

State	Rural		Urban		Combined	
	Percent	No. of adol. girls	Percent	No. of adol. girls	Percent	No. of adol. girls
Andhra Pradesh	41.7	326	40.7	108	41.5	434
Assam	73.8	298	61.2	147	69.7	445
Bihar	48.9	282	57.4	148	51.9	430
Delhi	81.7	262	79.5	151	80.9	413
Gujarat	70.3	327	72.6	73	70.8	400
Haryana	83.3	258	71.8	142	79.3	400
Himachal Pradesh	59.9	389	67.6	37	60.6	426
Jammu Kashmir	77.1	271	91.5	130	81.8	401
Karnataka	49.8	273	54.1	133	51.2	406
Kerala	77.0	274	75.7	152	76.5	426
Madhya Pradesh	60.4	288	58.6	157	59.8	445
Maharashtra	65.9	337	70.0	120	67.0	457
Rajasthan	36.1	319	34.1	88	35.6	407
Punjab	76.4	381	73.7	19	76.3	400
Tamil Nadu	46.2	199	49.3	205	47.8	404
Uttar Pradesh	52.1	313	48.1	108	51.1	421
ALL	**62.5**	**4797**	**62.5**	**1918**	**62.5**	**6715**



urban counterparts. On the other hand, significantly higher proportion of girls in urban areas of Bihar, Himachal Pradesh and Jammu & Kashmir reported that they experience menstrual problems than their rural counterparts.

Table 5.2: Type and frequency of menstrual problems experienced by the adolescent girls (%), person with whom shared (%) by place of residence and type of climate vulnerability

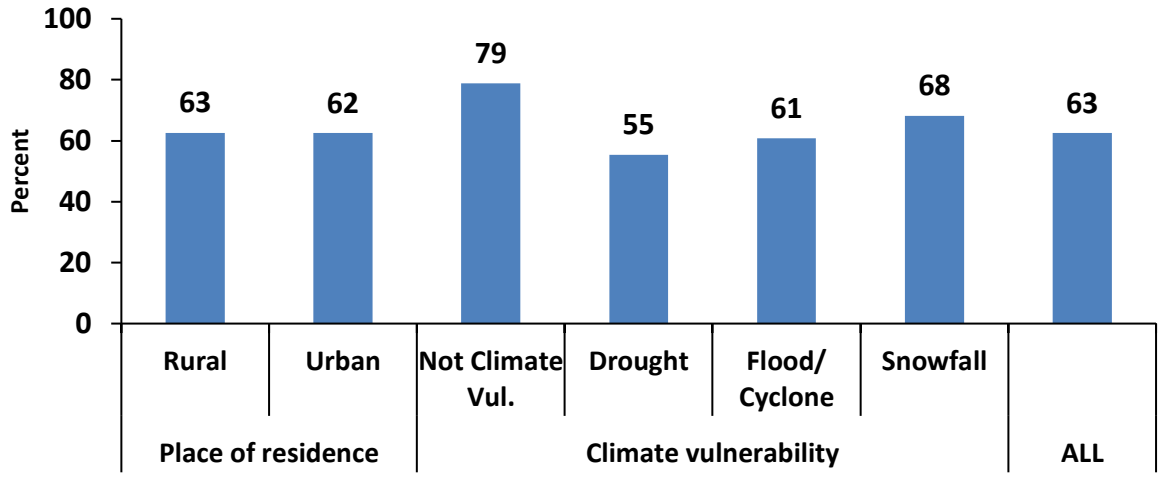
Particulars	Place of residence		Type of climate vulnerability				ALL
	Rural	Urban	Not Climate Vul.	Drought	Flood/ Cyclone	Snow fall	
Prop. Exp. Problems	**62.5**	**62.5**	**78.8**	**55.4**	**60.7**	**68.2**	**62.5**
Type of problem experienced*							
Headache	9.7	8.8	10.3	10.8	7.7	10.5	9.5
Limbs Pain	14.1	14.4	8.4	16.4	12.9	26.7	14.2
Severe Abdominal/Back Pain	55.8	55.0	71.2	48.0	53.7	66.3	55.6
Heavy Bleeding	13.2	13.1	19.9	12.0	11.1	13.0	13.1
Severe Distress/Irritation	16.4	14.7	36.7	11.1	9.0	27.1	15.9
Other	4.3	4.0	14.8	1.6	2.5	0.2	4.2
Number of Adol. girls	**4797**	**1918**	**1213**	**2441**	**2652**	**409**	**6715**
Frequency of experiencing problems							
Every month	62.6	60.4	64.9	60.4	59.4	73.8	61.9
Some time	37.4	39.6	35.0	39.6	40.4	26.2	38.0
Person with whom shared*							
Mother	85.4	87.7	83.3	86.9	89.2	73.1	86.0
Father	1.7	2.3	1.3	4.2	0.7	0.0	1.9
Sister	19.8	16.8	18.0	21.1	16.9	23.3	18.9
Other Female Family Member	8.1	10.0	6.0	10.5	9.6	3.6	8.7
Teacher	8.5	4.8	14.1	8.3	3.9	0.7	7.4
Friends	21.9	22.3	26.3	25.1	18.1	15.8	22.0
ASHA/ANM/AWW	8.5	3.0	9.2	8.7	4.7	3.6	6.9
Doctor	6.3	4.6	8.5	6.6	3.8	4.3	5.8
Don't Discuss	6.1	6.0	9.3	4.1	3.9	17.2	6.1
Other	0.9	0.4	0.6	1.4	0.4	0.0	0.8
No. of adol. girls Exp. problems	**2999**	**1198**	**956**	**1352**	**1610**	**279**	**4197**

***Percentage will not add up to 100 as Multiple responses were received**

Table 5.2 gives the type and frequency of experiencing menstrual problems and person with whom they share these problems by place of residence and type of climate vulnerability. Comparatively larger proportion of adolescent girls from areas which are Not climate

vulnerable (79%) experience menstrual problems, and it is comparatively less in drought affected areas (55%) (**Figure 5.2**).

Fig. 5.2: Percentage of adolescent girls experienced menstrual problems by Place of residence and climate vulnerability, India



Experience of severe abdominal pain or back pain is the major discomfort as mentioned by 56 percent of girls altogether, followed by severe distress or irritation (16%) and Limbs pain (14%) during menstrual period. Other problems experienced by adolescent girls are heavy bleeding (13%) and headache (10%). As such not much variation is observed between rural and urban girls even in type of problem experienced during their menstrual period. The tendency of mentioning severe abdominal pain or back pain as the major problem is noticed both in rural and urban areas as well as in all the four climate vulnerable categories considered here. Proportion of girls who experience abdominal or back pain is comparatively high in climatically not vulnerable areas (71%) and snowfall areas (66%) than their counterparts. Further, limbs pain is reported by comparatively higher proportion of girls in snowfall areas (27%) and heavy bleeding (20%) and Severe distress/irritation (37%) are mentioned by comparatively larger proportion of girls in Not Climate Vulnerable areas.

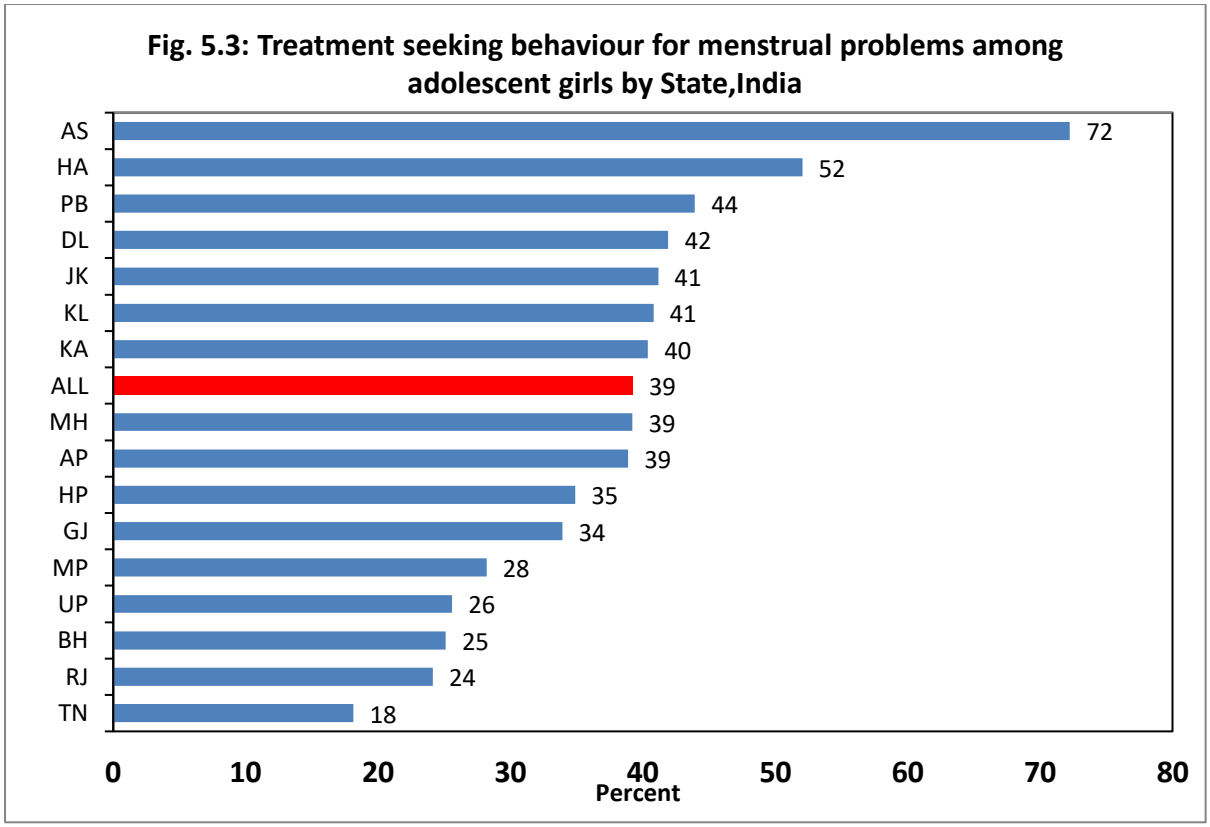
Among those 4197 adolescent girls who reported menstrual problem, 62 percent of the girls mentioned that they experience these problems almost every month and for remaining 38 percent it was during some months only. Experience of menstrual problem during every month is comparatively high in snowfall areas (74%) and not much variation is observed between rural and urban areas. Mostly if a girl experience menstrual problem, she shares it with her mother, as 86 percent of the girls reported like that. This tendency is observed in both rural and urban areas as well as all the four climate vulnerable categories considered here, though it

is observed to be comparatively less in snowfall affected areas (73%). Other than mother, it is the friends (22%) and sister (19 %) with whom girls share their menstrual problems. Sharing the problems with teacher, Frontline health workers or doctors is comparatively higher in rural areas than in urban areas and it is comparatively more in Climatically not vulnerable areas than in other three categories. Around 4 percent of the girls in drought affected areas reported that they share their problems with their fathers. Altogether around 6 percent of the girls reported that they don't discuss their menstrual problems with anybody and it is as high as 17 percent in snowfall areas.

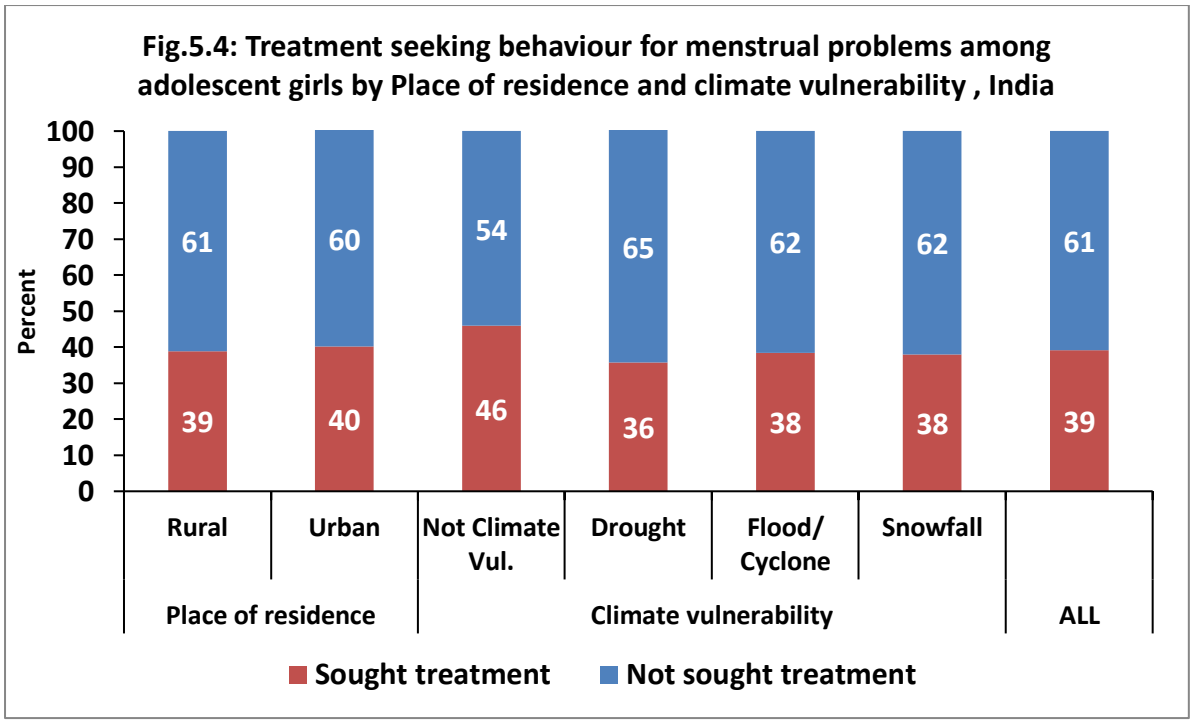
Further, all the 4197 adolescent girls who experience menstrual problems were asked whether they have sought any treatment for these problems and responses are presented State wise in **Table 5.3** and **Figure 5.3**.

Table 5.3: Percentage of adolescent girls sought treatment if they experience menstrual problems by State and place of residence

State	Rural		Urban		Combined	
	Percent	No. of adol. girls	Percent	No. of adol. girls	Percent	No. of adol. girls
Andhra Pradesh	35.3	136	50.0	44	38.9	180
Assam	75.9	220	63.3	90	72.3	310
Bihar	24.6	138	25.9	85	25.1	223
Delhi	42.5	214	40.8	120	41.9	334
Gujarat	31.7	230	43.4	53	33.9	283
Haryana	45.1	215	66.7	102	52.1	317
Himachal Pradesh	35.2	233	32.0	25	34.9	258
Jammu Kashmir	37.8	209	47.1	119	41.2	328
Karnataka	41.2	136	38.9	72	40.4	208
Kerala	39.3	211	43.5	115	40.8	326
Madhya Pradesh	25.3	174	33.7	92	28.2	266
Maharashtra	44.6	222	25.0	84	39.2	306
Rajasthan	25.2	115	20.0	30	24.1	145
Punjab	43.0	291	64.3	14	43.9	305
Tamil Nadu	21.7	92	14.9	101	18.1	193
Uttar Pradesh	23.9	163	30.8	52	25.6	215
ALL	**38.9**	**2999**	**40.2**	**1198**	**39.2**	**4197**



Altogether, 39 percent of the girls mentioned that they have sought some treatment for their menstrual problems and remaining 61% mentioned that they had not sought any treatment for the menstrual problems (**Figure 5.4**).



Percentage of girls who had sought treatment for menstrual problems is as high as 72 percent in Assam, followed by 52 percent in Haryana. On the other hand, percentage of girls who had sought treatment for menstrual problem is less than 25 percent Tamil Nadu (18 %), Rajasthan (24%) and Bihar (25%). Not much variation is observed between rural and urban girls in treatment seeking behaviour. Whereas comparatively larger proportion of girls in *Climatically not Vulnerable* areas (46%) had sought treatment compared to the girls in other three categories (36-38%). When seen variation by Place of residence among States, in Andhra Pradesh, Gujarat, Haryana, Jammu Kashmir and Punjab, comparatively larger proportion of girls in urban areas had sought treatment than their rural counterparts. On the other hand, in Assam, Maharashtra, and Tamil Nadu comparatively higher proportion of girls in rural areas had sought treatment for their menstrual problems than their urban counterparts.

When it comes to the place from where the girls had sought treatment, it is mostly the Home remedy, as 57 percent of the girls mentioned that they did home remedy only for their menstrual problems (**Table 5.4**).

Table 5.4: Percentage of adolescent girls sought treatment for the menstrual problems and Place of seeking treatment by place of residence and type of climate vulnerability

Percentage sought treatment and Place of seeking treatment	Place of residence		Type of climate vulnerability				ALL
	Rural	Urban	Not Climate Vul.	Drought	Flood/ Cyclone	Snow fall	
Girls Sought treatment	38.9	40.2	45.9	35.7	38.4	38.0	39.2
No. of adol. girls Exp. problems	**2999**	**1198**	**956**	**1352**	**1610**	**279**	**4197**
Place sought treatment*							
Home Remedy	56.0	59.3	67.2	49.5	55.4	57.5	57.0
Pharmacy	23.6	27.0	23.9	27.7	23.4	19.8	24.6
ANM	8.7	1.2	0.2	9.3	9.5	1.9	6.5
ASHA	8.9	2.7	2.3	13.3	5.8	6.6	7.1
PHC	6.2	4.6	5.7	6.0	5.7	4.7	5.7
CHC	1.6	0.8	1.8	1.2	1.3	0.9	1.4
SDH/DH	1.7	1.5	0.2	1.4	2.3	4.7	1.6
Private clinic/Doctor	21.7	20.2	13.9	24.2	23.1	27.4	21.3
RMP	2.0	0.6	0.7	2.9	1.5	0.0	1.6
Other	1.3	1.9	1.1	2.3	0.8	2.8	1.5
No. of adol. Girls sought treatment	**1166**	**481**	**439**	**483**	**619**	**106**	**1647**

***Percentage will not add up to 100 as Multiple responses were received**

Around 25 percent of the girls had approached a Pharmacy and another 21 percent had consulted a private clinic or doctor. Practice of seeking the remedy from home or approaching

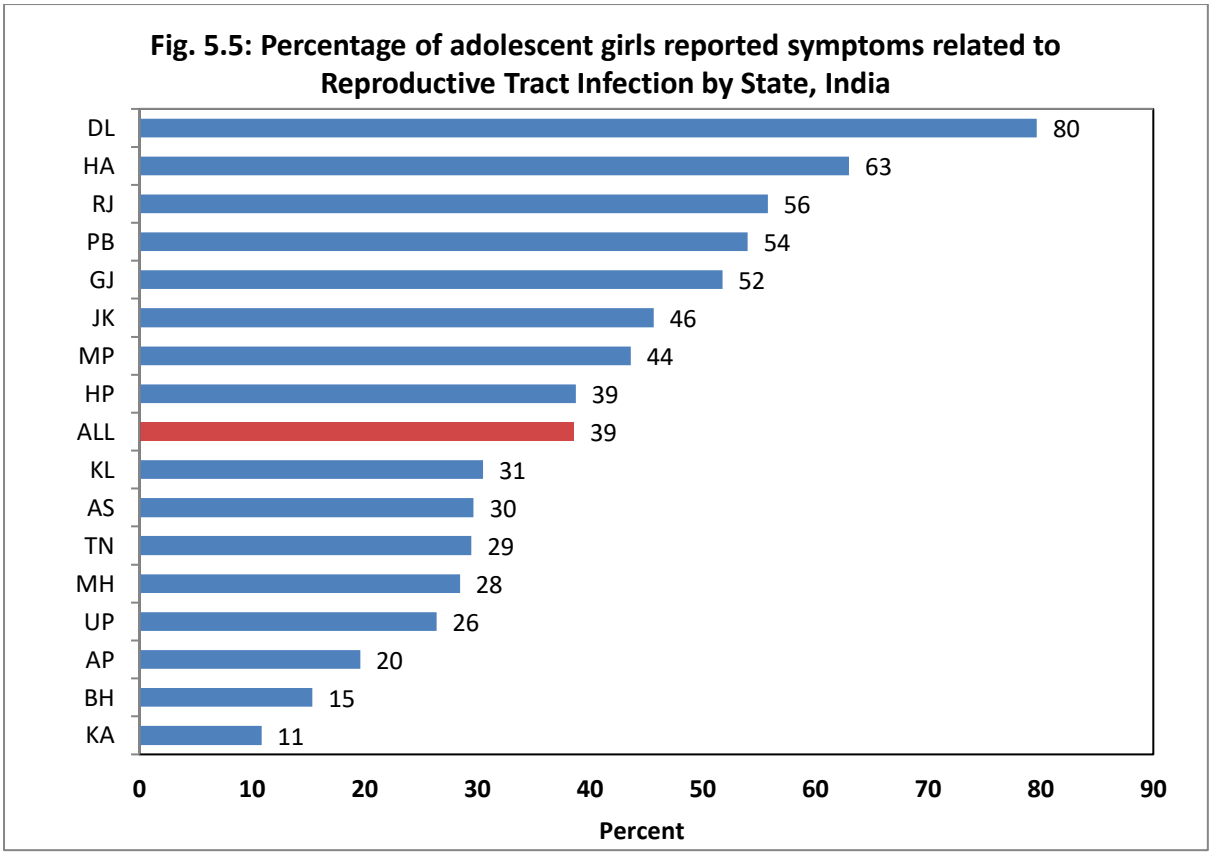
a Pharmacy or a private clinic is observed to be uniformly common in both rural and urban areas as well as in all the four categories of climate vulnerability. Comparatively higher proportion of adolescent girls found to consult Front line workers like ANM/ASHA and PHC in rural areas for their menstrual problems. Depending upon the home remedy is comparatively high in *Not climate vulnerable areas* (67%) and it is comparatively less in drought affected areas (50%). On the other hand, consulting a private doctor is comparatively high in snowfall areas (27%) and less in *Not climate vulnerable areas* (14%).

5.2 Reproductive Tract Infections and Treatment seeking behaviour

Further, all the girls were asked whether they experienced any symptoms related to Reproductive Tract Infections during last 1 year. This question was asked by referring the symptoms like any pain or burning sensation while urinating, frequent or difficulty in urination, having rashes or ulcers on genitals, having itching or irritation at vaginal area with discharge, bad odour along with discharge, severe abdominal pain with discharge not during menstruation, fever along with discharge. If a girl has experienced any of these 6 symptoms, then, further it was asked to her whether she has sought any treatment for these symptoms and the place from where she has sought the treatment.

Table 5.5: Percentage of adolescent girls experienced symptoms related to Reproductive Tract Infections during last one year by State and place of residence

State	Rural		Urban		Combined	
	Percent	No. of adol. girls	Percent	No. of adol. girls	Percent	No. of adol. girls
Andhra Pradesh	18.7	326	22.2	108	19.6	434
Assam	26.5	298	36.1	147	29.7	445
Bihar	14.5	282	16.9	148	15.3	430
Delhi	79.0	262	80.8	151	79.7	413
Gujarat	52.3	327	49.3	73	51.8	400
Haryana	69.0	258	52.1	142	63.0	400
Himachal Pradesh	36.5	389	62.2	37	38.7	426
Jammu Kashmir	35.4	271	66.9	130	45.6	401
Karnataka	10.6	273	11.3	133	10.8	406
Kerala	27.0	274	36.8	152	30.5	426
Madhya Pradesh	41.7	288	47.1	157	43.6	445
Maharashtra	25.8	337	35.8	120	28.4	457
Rajasthan	54.5	319	60.2	88	55.8	407
Punjab	53.8	381	57.9	19	54.0	400
Tamil Nadu	25.1	199	33.7	205	29.5	404
Uttar Pradesh	25.2	313	29.6	108	26.4	421
ALL	**37.4**	**4797**	**41.6**	**1918**	**38.6**	**6715**



The responses of the girls on experience of symptoms related to RTI are presented in **Table 5.5** by State and Place of residence. Altogether, 39 percent of the girls agreed that they have any one of the symptoms listed above during last one year and it is slightly high in urban areas (42%) than in rural areas (37%). A greater proportion of girls in Delhi (80%) reported the RTI related symptoms followed by girls in Haryana (63%), Rajasthan (56%) and Punjab (54%) (**Figure 5.5**). On the other hand, one -fifth or less than that of the girls in Karnataka (11%), Bihar (15%) and Andhra Pradesh (20%) reported to have these symptoms. In Assam, Himachal Pradesh, Jammu Kashmir, Kerala, and Maharashtra prevalence of RTI symptoms are comparatively more among urban girls than their counterparts. On the other hand, these symptoms are found to be comparatively more among rural girls than among urban girls in Gujarat and Haryana.

When compared the experience of RTI related symptoms by climate vulnerability categories, higher percentage of girls in *Not vulnerable areas* (66%) and snow fall areas (40%) reported these symptoms and it is less at 29 percent in flood/cyclone affected areas (**Figure 5.6**). Among all the symptoms mentioned, severe abdominal pain along with discharge not during menstruation is mentioned by 24 percent of girls, comparatively high in Not vulnerable areas (43%) and from urban areas (27%) (**Table 5.6**). Around 16 percent of the girls mentioned

itching/irritation, 12 percent of the girls mentioned bad odor with discharge. All the symptoms are observed to be more among urban girls when compared with the rural girls and they are found to be significantly high among climatically not vulnerable areas.

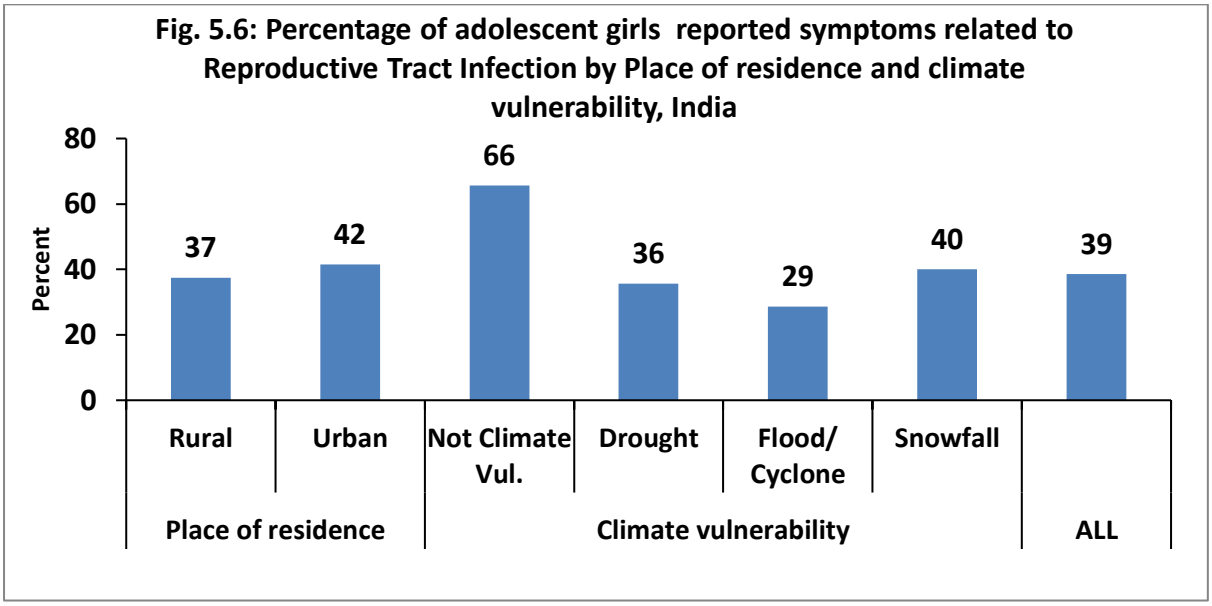


Table 5.6: Percentage of adolescent girls experienced symptoms related to Reproductive Tract Infections by place of residence and type of climate vulnerability

Experience of symptoms related to RTI during last one year	Place of residence		Type of climate vulnerability				ALL
	Rural	Urban	Not Climate Vul.	Drought	Flood/ Cyclone	Snow fall	
Experienced at least one symptom	**37.4**	**41.6**	**65.7**	**35.6**	**28.7**	**40.1**	**38.6**
Pain/Burning while urinating or frequent/difficult urination	10.2	11.8	15.6	10.3	8.2	13.9	10.6
Rashes/ulcers on genitals	6.6	9.5	10.3	8.5	5.2	7.3	7.5
Itching/Irritation in vaginal area with discharge	15.0	17.3	27.1	13.5	11.2	23.2	15.6
Bad Odor along with discharge	12.3	12.5	26.0	10.0	7.3	19.6	12.4
Severe Abdominal Pain along with discharge not during menstruation	23.2	27.4	43.0	23.0	17.9	20.3	24.4
Fever along with Discharge	4.6	5.0	6.5	6.0	3.0	2.7	4.7
Number of adol. Girls	**4797**	**1918**	**1213**	**2441**	**2652**	**409**	**6715**

Among those 2590 adolescent girls who reported the experience of RTI symptoms, 68 percent had not sought any treatment and it is high in rural areas than in urban areas (70% Vs. 65%)

(**Table 5.7**). Percentage of girls who had not sought any treatment for the RTI symptoms is as high as 90 percent in Gujarat and 86 percent in Tamil Nadu and very low in Assam (1%), Andhra Pradesh (37%) and Karnataka (45.5%) (**Figure 5.7**).

Table 5.7: Percentage of adolescent girls NOT sought treatment though experienced symptoms related to Reproductive Tract Infections during last one year by State and place of residence

State	Rural		Urban		Combined	
	Percent	No. of adol. girls	Percent	No. of adol. girls	Percent	No. of adol. girls
Andhra Pradesh	31.1	61	50.0	24	36.5	85
Assam	0.0	79	1.9	53	0.8	132
Bihar	58.5	41	56.0	25	57.6	66
Delhi	79.7	207	69.7	122	76.0	329
Gujarat	91.8	171	80.6	36	89.9	207
Haryana	69.7	178	55.4	74	65.5	252
Himachal Pradesh	71.1	142	87.0	23	73.3	165
Jammu Kashmir	66.7	96	60.9	87	63.9	183
Karnataka	51.7	29	33.3	15	45.5	44
Kerala	78.4	74	73.2	56	76.2	130
Madhya Pradesh	65.8	120	75.7	74	69.6	194
Maharashtra	64.4	87	72.1	43	66.9	130
Rajasthan	71.3	174	90.6	53	75.8	227
Punjab	82.9	205	72.7	11	82.4	216
Tamil Nadu	84.0	50	87.0	69	85.7	119
Uttar Pradesh	65.8	79	46.9	32	60.4	111
ALL	**69.7**	**1793**	**65.1**	**797**	**68.3**	**2590**

In Delhi, Gujarat, Haryana, Karnataka and Uttar Pradesh States, proportion of girls not sought treatment is comparatively high in rural areas, whereas in Andhra Pradesh, Himachal Pradesh, Madhya Pradesh and Rajasthan, percentage of girls who had not sought treatment is comparatively higher in urban areas than in rural areas.

Fig. 5.7: Percentage of adolescent girls NOT sought Treatment for Reproductive Tract Infection by State,India

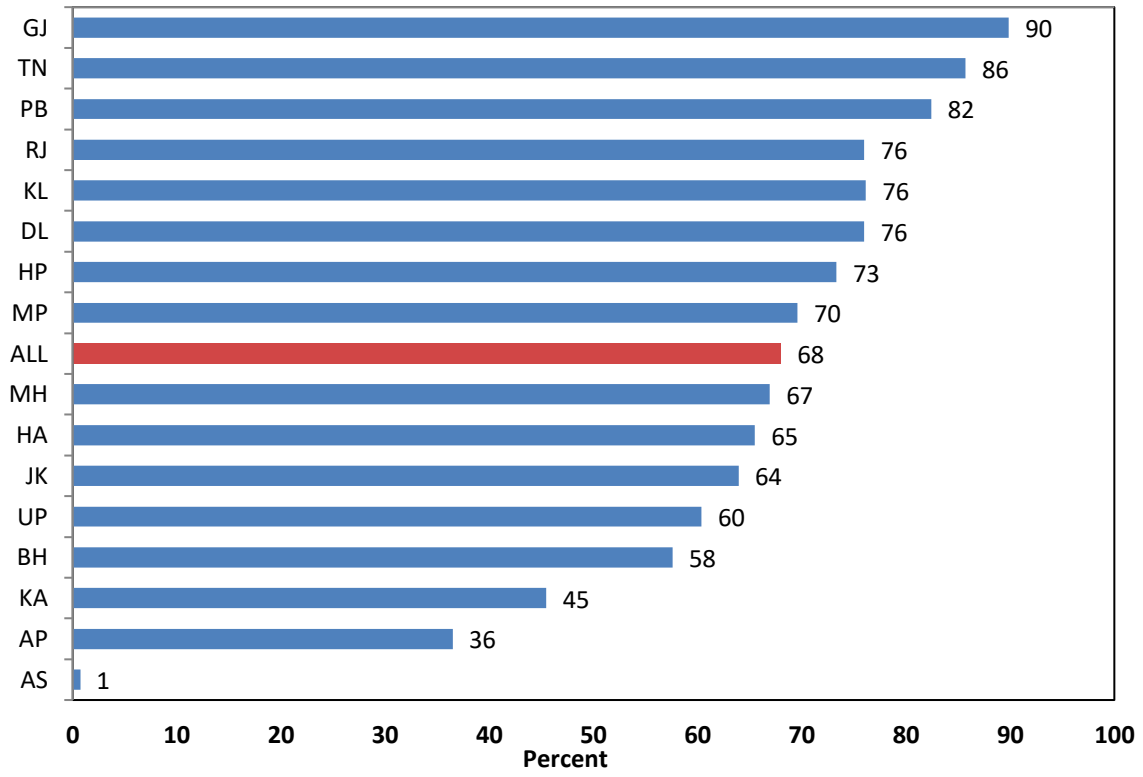


Fig.5.8: Treatment seeking behaviour for symptoms related to Reproductive Tract Infection among adolescent girls by Place of residence and climate vulnerability , India

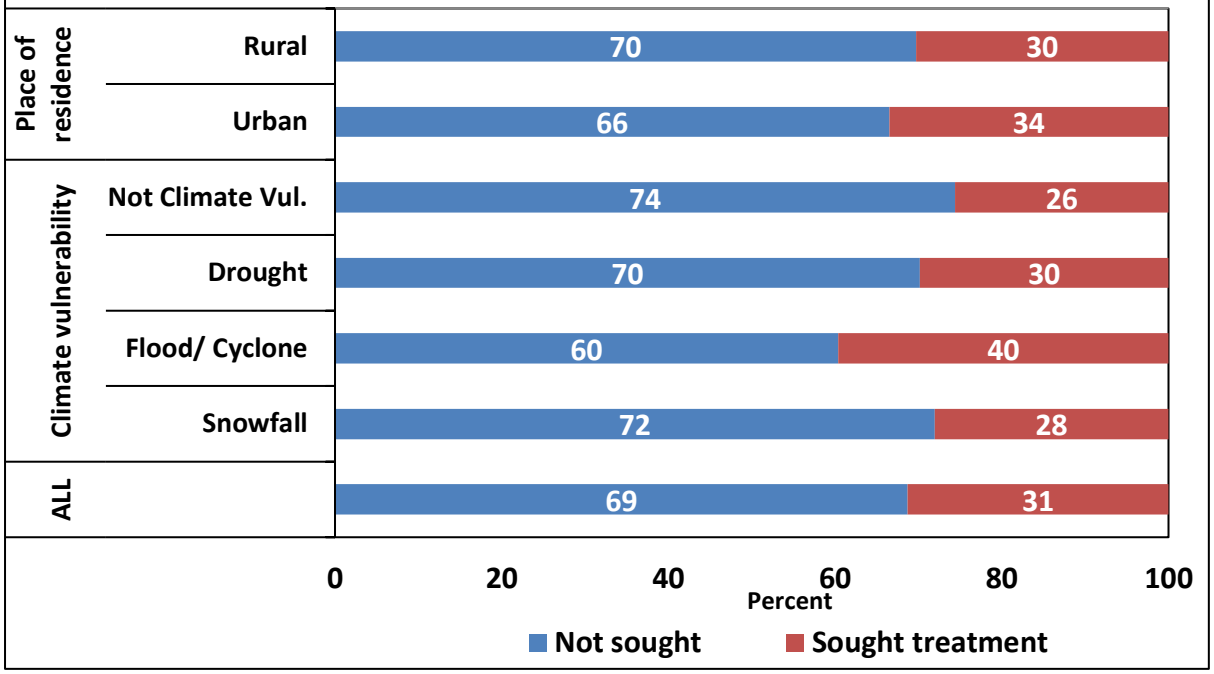


Table 5.8: Percentage of adolescent girls sought treatment for the symptoms related to Reproductive Tract Infections by place of residence and type of climate vulnerability

Place sought treatment	Place of residence		Type of climate vulnerability				ALL
	Rural	Urban	Not Climate Vul.	Drought	Flood/ Cyclone	Snow fall	
Not sought treatment	**69.7**	**66.5**	**74.4**	**70.2**	**60.4**	**72.0**	**68.7**
Place of seeking treatment							
Pharmacy	10.7	10.7	10.7	10.9	11.1	7.3	10.7
ANM	1.0	0.4	0.8	0.7	1.2	0.0	0.8
ASHA	1.4	1.3	0.8	1.7	1.7	0.6	1.4
PHC	2.3	1.5	2.3	2.0	1.7	3.0	2.0
CHC	0.4	0.4	0.5	0.5	0.4	0.0	0.4
SDH/DH	0.6	0.9	0.0	1.0	0.9	1.2	0.7
Private clinic/Doctor	9.8	16.4	6.3	9.4	19.7	15.2	11.9
RMP	1.5	0.3	0.5	2.4	0.5	0.0	1.1
Others	2.2	3.4	3.9	2.3	2.0	0.6	2.6
No. of adol. Girls exp. RTI symptoms	**1793**	**797**	**797**	**869**	**760**	**164**	**2590**

The percentage of girls who had not sought treatment for the RTI symptoms is comparatively less in flood/cyclone areas (60%) than in the other three categories of climate vulnerability (70-74%) (**Figure 5.8**). Further, as regards to the place from where the girls had sought treatment, it is mostly a private clinic (12%) or a Pharmacy (11%) (**Table 5.8**). Approaching a private doctor for getting treatment for the RTI symptoms is comparatively more among urban girls (16%) than among rural girls (10%) and this tendency is comparatively more among girls who reside in the flood/cyclone affected areas (20%) when compared to other three categories.

Summary of Findings

Experience of discomfort or some problem during menstruation is quite common among adolescent girls as 63 percent of them reported these problems and it is mainly severe abdominal or back pain. Experience of such discomfort is reported by both rural and urban girls, and slightly less in drought affected areas. Most of the girls share their discomfort with their mothers. As such girls don't seek any treatment for their discomfort unless it is too severe. Usually, girls approach pharmacy or private clinics during such severe situation.

As high as 39 percent of the adolescent girls reported symptoms related to RTI but as high as 69 percent of them had not sought any treatment for them.

SECTION-6

Cultural Practices around Menstruation

Menstruation is always been surrounded by taboos and myths that exclude women from many aspects of socio-cultural life. Many girls and women are subject to restrictions in their daily lives simply because they are menstruating. In India, such practices about menstruation present in many societies and they impact on girls' and women's emotional state, mentality and lifestyle and most importantly, health.

This section covers certain practices that are followed by adolescent girls during their menstruation time.

6.1 Cultural Practices around Menstruation

To understand the existing taboos, all the 6715 adolescent girls were asked about few common practices related to menstruation which they follow like observing separation, not touching children, not going to worship centres/places, restricting activities, going to school, bathing and dietary restrictions during menstruation. The responses of the girls are presented in **Figure 6.1** and in **Table 6.1** by State.

Fig. 6.1: Percentage of adolescent girls following certain practices around menstruation , India

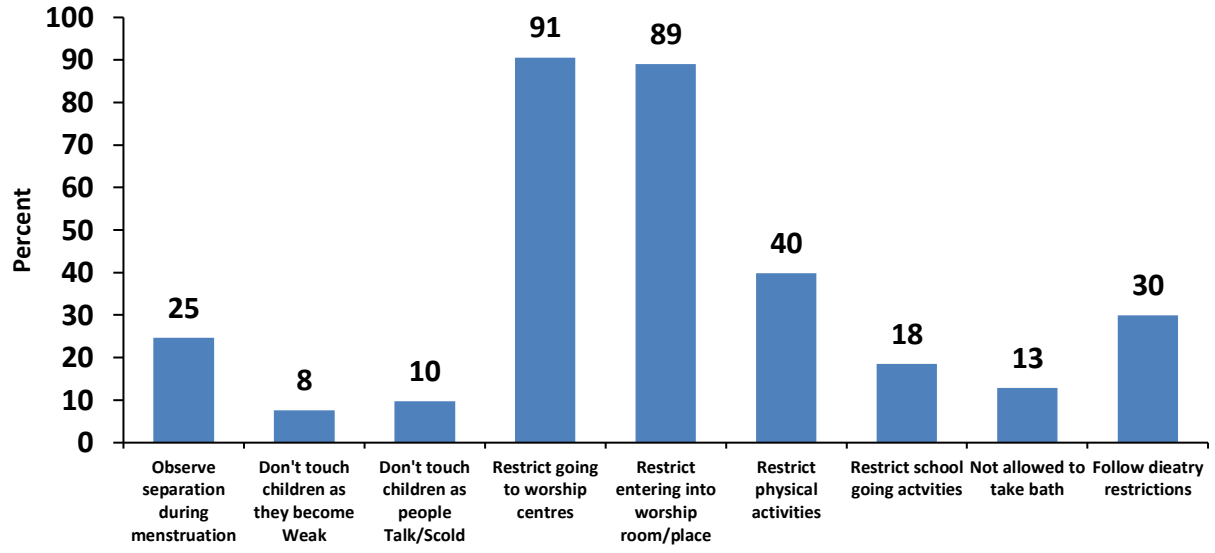


Table 6.1: Practices around menstruation like observing separation, not touching children, not going to worship places, restricting physical, school going, bathing and eating activities followed by adolescent girls by State according to place of residence

State	Observe separation	Don't touch children	Don't go to worship centers	Don't go to worship room/Place	Restrict Phy. Activities	Restrict school going	Not allowed to take bath	Follow dietary rest.	Number of adol. girls
Andhra Pradesh	46.1	46.8	71.7	68.7	52.1	34.8	19.6	12.9	434
Assam	60.0	62.5	97.5	99.6	70.1	25.4	0.4	19.3	445
Bihar	0.9	3.5	98.1	99.1	35.8	11.6	5.3	55.1	430
Delhi	20.6	3.1	95.2	95.2	39.5	11.4	21.3	53.8	413
Gujarat	20.3	4.0	98.8	98.0	33.8	11.3	3.0	48.5	400
Haryana	18.0	5.8	90.3	90.0	37.3	25.8	7.5	56.8	400
Himachal Pradesh	5.2	9.6	77.0	75.4	21.6	10.8	7.0	29.1	426
Jammu Kashmir	19.2	0.5	98.5	85.5	54.4	35.2	69.1	59.1	401
Karnataka	24.4	33.5	97.3	96.1	66.7	13.1	4.2	36.0	406
Kerala	8.2	4.9	93.0	92.7	20.9	16.7	1.4	10.1	426
Madhya Pradesh	29.4	17.8	94.4	92.1	34.8	10.6	22.7	9.9	445
Maharashtra	33.9	5.3	93.0	88.6	28.9	8.3	6.1	5.5	457
Rajasthan	54.5	23.6	94.3	94.1	40.5	24.1	9.8	24.1	407
Punjab	5.0	0.3	64.3	66.0	35.8	25.3	7.5	39.0	400
Tamil Nadu	31.2	26.0	85.9	84.4	26.2	15.8	1.7	17.6	404
Uttar Pradesh	14.3	25.9	98.8	99.0	39.4	17.1	21.4	11.2	421
ALL	**24.7**	**17.3**	**90.5**	**89.1**	**39.9**	**18.5**	**12.9**	**30.0**	**6715**

Around one-fourth of the adolescent girls mentioned that they observe separation during menstruation. This practice is found to be very high in Assam (60%), Rajasthan (55%) and Andhra Pradesh (46%). On the other hand, practice of observing separation during menstruation is found to very less in Bihar (1%), Himachal Pradesh (5%), Punjab (5%) and Kerala (8%).

Further, 18 percent of the girls mentioned that they don't touch small children while menstruating either because children become weak or people scold (**Figure 6.1**). This practice is high in Assam (63%), Andhra Pradesh (47%) and Karnataka (34%) and observed to be very low in Bihar, Delhi, Gujarat, Jammu Kashmir, Kerala and Punjab (less than 5 % each).

As regards to the two practices of not going to the worship centres and not entering into the worship place/room at home, almost all (90%) the girls agreed that they follow these practices and it is observed in most of the States though observed to be less in Andhra Pradesh, Himachal Pradesh and Punjab comparatively.

Around 40 percent of the girls mentioned that they restrict physical activities during menstruation and it is comparatively high in Assam (70%), Karnataka (67%), Jammu Kashmir (54%), and Andhra Pradesh (52%). Less percentage of Girls in Himachal Pradesh (22%), Kerala (21%), Tamil Nadu (26%) and Maharashtra (29%) observed to restrict their physical activities while menstruating.

It is to be noted here that 19 percent of the school going girls mentioned that they restrict school going activities during their menstrual periods and it is high in Andhra Pradesh and Jammu Kashmir (35% each) and low at Maharashtra (8%).

Around 13 percent of the girls are not allowed to take bath while menstruating and this practice is as high as 69 percent in Jammu Kashmir, followed by Delhi, Andhra Pradesh, Uttar Pradesh and Madhya Pradesh (20-23 %). This practice of not taking bath during menstruation is observed to be very less in Assam, Gujarat, Karnataka, Kerala and Tamil Nadu.

As far following certain dietary restrictions, 30 percent of the adolescent girls mentioned that they follow dietary restrictions and it is comparatively more among girls in Bihar, Delhi, Haryana and Jammu Kashmir and dietary restrictions are comparatively less in Kerala, Madhya Pradesh and Maharashtra.

Table 6.2: Practices around menstruation like observing separation, not touching children, not going to worship places, restricting physical, school going, bathing and eating activities followed by adolescent girls by place of residence and type of climate vulnerability

	Place of residence		Type of climate vulnerability				
Practices around menstruation	**Rural**	**Urban**	**Not Climate Vul.**	**Drought**	**Flood/ Cyclone**	**Snow fall**	**ALL**
Observe separation during menstruation	25.2	23.3	14.6	32.8	23.8	11.7	24.7
Don't touch children as they become Weak	8.3	6.0	1.6	9.3	9.3	4.4	7.6
Don't touch children as people Talk/Scold	9.8	9.4	1.4	11.0	13.7	0.2	9.7
Restrict going to worship centers	88.9	94.5	83.3	94.1	92.0	80.9	90.5
Restrict entering into worship room/place	87.8	92.2	83.8	91.6	91.9	71.4	89.1
Restrict physical activities	39.7	40.3	37.5	40.9	40.2	38.1	39.9
Restrict school going activities	18.1	19.3	20.7	19.9	15.5	22.2	18.5
Not allowed to take bath	11.9	15.4	12.2	12.5	8.7	45.0	12.9
Follow dietary restrictions	29.7	30.6	49.9	23.6	24.5	44.0	30.0
Number of adol. Girls	**4797**	**1918**	**1213**	**2441**	**2652**	**409**	**6715**

When compared these cultural practices by place of residence and type of climate vulnerability, it is observed that practices of observing separation, not touching children are comparatively followed more in rural areas than among urban girls (**Table 6.2**). As far as entering worship centers/worship room at home the practice is comparatively followed more in urban areas. Not taking bath during menstruation is comparatively reported by more girls in urban areas than in rural areas.

Table 6.3: Percentage of adolescent girls who AVOID certain food during menstruation by Place of residence and Type of climate vulnerability

	Place of Residence		Type of Climate vulnerability				
Food AVOIDED	Rural	Urban	Not Climate Vul.	Drought	Flood/ Cyclone	Snow fall	ALL
Onion	37.3	36.8	99.8	17.7	6.5	0.0	37.2
Pickle	22.4	22.0	2.3	22.4	32.6	52.2	22.3
Curd	11.8	15.3	6.6	15.1	12.1	28.9	12.8
Banana	11.3	7.8	11.1	7.1	13.8	5.0	10.3
Spicy Items	9.5	7.3	0.3	10.1	18.1	0.6	8.9
Sugar Items	8.6	8.7	0.0	23.7	5.1	1.7	8.6
Oily Food	7.0	3.2	0.3	5.4	12.7	1.7	5.9
Tomato	5.0	8.0	0.0	7.3	2.0	35.6	5.9
Papaya	4.8	3.7	6.0	5.4	3.7	0.0	4.5
Other	4.0	4.9	0.0	3.1	8.3	7.8	4.3
No. of adol girls follow dietary restrictions	**1426**	**587**	**605**	**577**	**651**	**180**	**2013**

When analyzed the practices around menstruation by climate vulnerability, it is observed that comparatively higher proportion of girls in drought (33%) follow separation and it is very less in snowfall areas (12%). Practice of not touching the children while menstruating is comparatively more prevalent in drought and flood/cyclone areas. Restrictions to enter into the worship centers or worship place at home are comparatively less in snowfall areas (81% and 71% respectively). Restricting physical activities during menstrual period is observed to be similar in all the 4 climate vulnerable areas. Restricting school going activities is less affected in flood/cyclone areas (16%) and more affected in snowfall areas (22%). Not allowed to take bath during menstruation as well as dietary restrictions are found to be comparatively very high in snowfall areas (45 % and 44% respectively) compared to other 3 categories.

Table 6.3 gives type of food the girls usually avoid during menstruation by Place of residence and Type of climate vulnerability. Among 2013 girls who reported that they follow dietary restrictions during menstrual period, usually onion (37%), pickle (22%), curd (12%) and banana (10%) are avoided. This practice is observed in both rural and urban areas. However, practice of avoiding pickle, curd and tomato is more common in snowfall areas and avoiding onion is more common in not climatically vulnerable areas and avoiding sugar items seems to be more common in drought affected areas during menstrual period.

Further, as observed in **Table 6.4**, girls reported that usually they eat more of fruits, vegetables and drink milk during menstrual periods. Practice of eating more fruits and vegetables is found to be common in flood/cyclone affected areas and practice of drinking milk and eating chocolates and dry fruits is reported by higher proportion of girls in snowfall areas.

Table 6.4: Percentage of adolescent girls who EAT MORE certain food during menstruation by Place of residence and Type of climate vulnerability

	Place of Residence		Type of Climate vulnerability				
Food EAT MORE	Rural	Urban	Not Climate Vul.	Drought	Flood/ Cyclone	Snow fall	ALL
Fruits	14.4	13.3	10.6	9.9	21.2	13.9	14.1
Vegetables	14.2	10.1	3.1	9.7	28.0	2.8	13.0
Milk	6.3	9.0	0.0	8.0	2.8	43.9	7.1
Chocolates	2.0	3.1	0.0	3.3	1.2	10.6	2.3
Dry Fruits	1.5	2.7	0.0	2.4	0.6	11.1	1.9
Green Leafy Vegetables	2.0	1.4	0.2	2.8	2.8	0.6	1.8
Sugar Cane Juice	1.8	1.2	4.8	0.7	0.0	0.0	1.6
Fruit Juice	1.1	1.7	0.0	1.7	2.5	0.0	1.3
Egg	0.9	2.0	0.3	2.4	0.8	2.2	1.2
Other	1.1	0.7	1.2	1.6	0.6	0.0	1.0
No. of adol girls follow dietary restrictions	**1426**	**587**	**605**	**577**	**651**	**180**	**2013**

Summary of findings

Observing separation and refraining from touching children is though declining among adolescent girls, still around one fourth of girls observe separation and one-fifth of girls don't touch small children while menstruating.

It is unanimous that adolescent girls refrain from all types of worshipping activities during menstruation as they don't enter into the worship centers outside home or go near the worship places at home.

Quite a large proportion of girls (40%) restrict their physical activities during such period. As high as 19 percent of the girls found to observe restricting their school activities also and 13 percent of the girls are not allowed take bath during menstruation. Following dietary restrictions are also found to be quite common in the study area.

Observing cultural practices like separation and not touching children are comparatively more common in rural areas whereas entering worship places and not taking bath while menstruating are observed to be more common among urban girls than their counterparts.

Observing separation is comparatively more in drought prone areas whereas not touching children, not entering worship places are comparatively more common in the drought and flood affected areas than in the other two categories. Practice of not taking bath while menstruation is quite common in snowfall areas.

SECTION-7

Impact of National programmes on adolescent girls related to Menstrual Health and Hygiene

In order to ensure holistic development of adolescent population, the Ministry of Health and Family Welfare, Government of India has launched many National Health programmes focused on adolescent girls. To list some of them are Rashtriya Kishor Swasthya Karyakram (RKSK), Peer education Programme, Adolescent Friendly Health Clinics (AFHC) and Anemia Mukt Bharat Abhiyan. These programmes provide core package of services including preventive, promotive, curative and counselling services, routine check-ups at primary, secondary and tertiary levels of care and distribution of materials including food ingredients, IFA tablets and sanitary napkins.

An attempt has been made in this section to understand the role of national health programmes on imparting knowledge on menstrual health and hygiene by asking various questions like whether they received knowledge on menstrual health and hygiene through any National Programmes, if yes, persons who have provided the knowledge, place of getting the knowledge and girls' perspective on, in what ways the acquired information changed their behaviour.

7.1 Role of National programmes in creating awareness on Menstrual Health and Hygiene

To understand, to what extent National Programmes on Menstrual Health and Hygiene (MHH) have reached adolescent girls, all the 6715 adolescent girls were asked whether they have received any knowledge on menstrual health and hygiene from any of the personnel like ASHA worker, Auxiliary Nurse Midwife (ANM), Other health staff, Anganawadi worker (AWW), School teacher, Peer Educator (PE) and any Non-Government Organisation (NGO) person. The percentage of adolescent girls who have received knowledge from the above listed personnel are presented by State in **Table 7.1** and by Place of residence **(Figure 7.1)** and Type of climate vulnerability in **Table 7.2**.

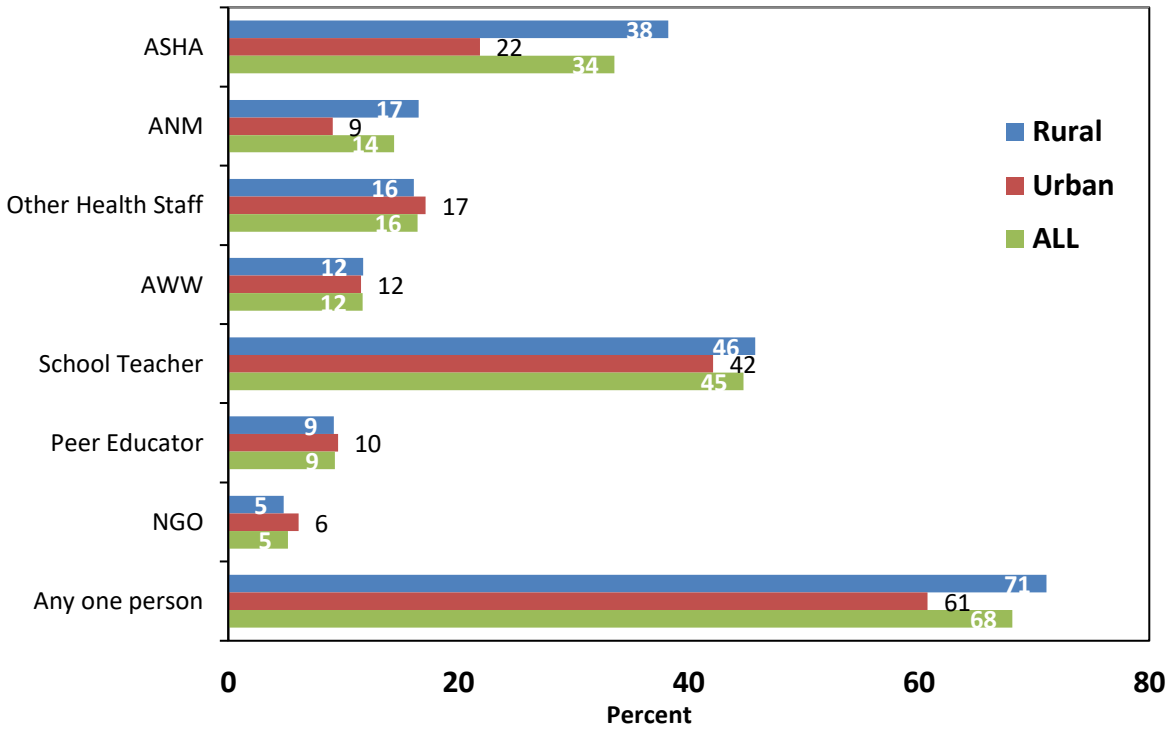
Table 7.1: Percentage of adolescent girls received knowledge on menstrual health and hygiene through National Programs and person who provided the knowledge by State

State	ASHA	ANM	Other Health Staff	AWW	School teacher	Peer educator	NGO	From any one person	No. of adol. girls
Andhra Pradesh	62.9	55.1	13.1	11.5	29.5	3.5	2.5	**84.3**	**434**
Assam	80.4	32.8	39.8	6.5	24.3	14.4	0.9	**87.0**	**445**
Bihar	7.9	1.6	1.2	3.7	27.2	4.2	0.2	**39.5**	**430**
Delhi	37.3	1.5	6.5	10.9	64.6	31.5	22.8	**82.6**	**413**
Gujarat	31.8	9.3	6.5	21.3	47.3	0.0	0.0	**65.8**	**400**
Haryana	62.8	10.8	26.8	21.0	74.0	20.3	8.3	**92.3**	**400**
Himachal Pradesh	31.2	1.6	1.4	11.3	58.0	0.5	5.6	**63.1**	**426**
Jammu Kashmir	44.9	4.5	6.2	11.5	29.4	0.2	0.7	**57.1**	**401**
Karnataka	29.6	22.4	44.3	10.6	50.5	6.7	16.7	**74.9**	**406**
Kerala	21.8	9.6	26.1	30.5	58.5	2.1	3.5	**81.9**	**426**
Madhya Pradesh	20.4	4.0	3.6	9.9	2.0	2.0	5.4	**30.3**	**445**
Maharashtra	45.5	22.3	20.1	5.3	49.5	7.9	2.6	**74.4**	**457**
Rajasthan	31.0	15.7	12.8	8.4	43.7	2.2	1.0	**60.9**	**407**
Punjab	21.0	5.3	14.8	3.0	78.8	11.8	5.0	**87.5**	**400**
Tamil Nadu	0.0	26.0	39.9	21.5	76.2	42.3	8.4	**90.6**	**404**
Uttar Pradesh	5.0	5.5	0.5	1.7	10.5	0.7	0.0	**20.9**	**421**
ALL	**33.6**	**14.4**	**16.4**	**11.7**	**44.7**	**9.3**	**5.2**	**68.1**	**6715**

Table 7.2: Percentage of adolescent girls received knowledge on menstrual health and hygiene through National Programs and person who provided the knowledge by Place of residence and Type of climate vulnerability

Prop. Received knowledge from*	Place of residence		Type of climate vulnerability				ALL
	Rural	Urban	Not Climate Vul.	Drought	Flood/ Cyclone	Snowfall	
ASHA	38.2	21.8	40.3	28.3	33.8	43.0	33.6
ANM	16.6	9.1	5.8	18.0	16.7	3.7	14.4
Other Health Staff	16.1	17.2	15.9	15.3	19.6	4.2	16.4
AWW	11.7	11.5	11.6	13.9	9.5	12.7	11.7
School Teacher	45.8	42.1	72.4	38.8	38.0	42.3	44.7
Peer Educator	9.2	9.5	21.3	4.1	10.0	0.0	9.3
NGO	4.8	6.1	12.1	3.2	4.1	3.2	5.2
Any one person	**71.1**	**60.7**	**87.4**	**62.6**	**65.4**	**61.9**	**68.1**
No. of adol. Girls	**4797**	**1918**	**1213**	**2441**	**2652**	**409**	**6715**

Fig. 7.1: Percentage of adolescent girls received knowledge on MHH and person provided the knowledge by Place of residence, India



Altogether 68 percent of the girls mentioned that they have received knowledge on menstrual health and hygiene through National Programmes at least from any one of the personnel listed above. It is as high as more than 90 percent in Haryana (92%) and Tamil Nadu (91%) and less than 40 percent in Uttar Pradesh (21%), Madhya Pradesh (30%) and Bihar (40%). Among all the personnel considered here, 45 percent of the girls mentioned that they have received knowledge on menstrual health and hygiene from teachers, followed by ASHA workers (34%), Other health staff (16%), ANM (14%) and only 9 percent of the girls mentioned about peer educator.

Significant variation has been observed between States as percentage of girls received knowledge from school teachers is comparatively high in Punjab (79%), Haryana (74%), Tamil Nadu (76%) and Delhi (65%) and it is very less in Madhya Pradesh (2%) and Uttar Pradesh (11%). Role of ASHA worker in imparting knowledge to adolescent girls is observed to be comparatively more in Andhra Pradesh, Assam and Haryana (more than 60 % each) and comparatively very less in Bihar and Uttar Pradesh (8 % and 5 % respectively). Further larger proportion of girls in Andhra Pradesh (55%), Assam (33%) and Tamil Nadu (26%) mentioned that they have received knowledge on MHH from ANM and it is very low in Bihar, Delhi, Himachal Pradesh, Madhya Pradesh and Uttar Pradesh (< 5 % each).

Other Health staff are found to play an active role in imparting knowledge to the adolescent girls in Karnataka (44%), Assam and Tamil Nadu (40% each). Adolescent girls in Kerala (31%), Gujarat, Haryana and Tamil Nadu (21% each) accepted that they have received the knowledge from AWW. Peer Education Programme seems to be implemented effectively in Tamil Nadu (42%), Delhi (32%) and Haryana (20%) as comparatively higher proportion of girls mentioned that their peer educators have given knowledge to them. Active role of NGO workers is observed in Delhi, as 23 percent of the girls mentioned that they have received knowledge from NGO personnel.

Further, when analyzed the variation by place of residence, it is observed that 71 percent of the girls in rural areas had received knowledge from any one personnel compared to 61 percent in urban areas. Role of ASHA, ANM and School teacher in imparting the knowledge seems to be more in Rural areas and that of NGO workers is observed slightly more in urban areas comparatively. Not much variation is observed as far as the role of Other health staff, AWW and Peer educators are concerned between rural and Urban areas.

Among the 4 climatic categories considered here, 87 percent of the girls in *Not vulnerable areas* had received knowledge on MHH from any one person, where as it is 62-65 percent in other three categories of climate vulnerability. Significantly higher proportion of girls in *Not vulnerable areas* mentioned that they have received knowledge on MHH from School teacher (72%), Peer educator (21%) and NGO (12%). No Peer educators have played a role in imparting the knowledge in snowfall areas; Role of ASHA workers is observed to be more in Snowfall areas (43%) and that of ANM in Drought areas (18%), when compared with other climate vulnerable categories.

7.2 Place of getting the knowledge, Issues covered and its impact on change in behaviour

Table 7.3 gives the percent distribution of girls who have received the knowledge on MHH by place of getting the knowledge, issues covered during such programmes/sessions and girls' perception on how the acquired knowledge has changed their behaviour by Place of residence and Type of climate vulnerability.

Among 4574 girls who had received knowledge through such programmes, 72 percent of the girls mentioned that they got the knowledge at their schools/colleges, followed by 50 percent of the girls who mentioned that they received the knowledge at their home itself when the Health staff visited their home.

Table 7.3: Place of getting the knowledge, Issues covered and opinion of girls on how the knowledge changed their behavior by Place of residence and Type of climate vulnerability

Particulars	Place of residence		Type of climate vulnerability				
	Rural	Urban	Not Climate Vul.	Drought	Flood/ Cyclone	Snow fall	ALL
Place of getting the knowledge*							
AWC	20.1	19.1	11.0	24.4	18.6	38.3	19.9
Public Health Facility	21.1	22.3	8.4	23.2	30.2	5.1	21.4
School/College	70.8	74.7	81.7	69.6	68.0	68.8	71.8
Home	49.1	52.4	62.5	40.9	49.0	57.7	49.9
Other	3.5	3.3	4.2	2.6	4.2	0.0	3.4
Received knowledge on*							
Menstrual Hygiene/Cleanliness	89.2	88.2	95.7	82.9	88.5	100.0	88.9
Menstrual Problems	67.8	63.3	65.3	64.0	67.2	84.2	66.6
Reproductive Health System	26.0	21.6	33.2	23.3	19.3	38.7	24.9
RTI/STI/HIV	17.1	12.4	24.3	14.6	12.2	13.4	15.9
Nutritious Food	57.1	58.5	81.4	46.4	50.1	75.1	57.5
Family Planning Methods	13.0	8.9	25.1	8.6	8.2	2.8	11.9
Importance of IFA / WIFS Tablets	32.0	32.4	51.4	23.2	28.7	27.3	32.1
Proper Use of Medication	24.0	23.3	50.8	15.8	16.1	11.9	23.8
Other	7.6	2.7	20.2	1.4	3.2	0.0	6.4
Prop. Opined the knowledge changed behavior as*							
Following Hygienic practices	55.8	50.8	67.4	41.3	53.7	87.0	54.5
Taking bath during menstruation	62.2	57.3	82.4	47.7	59.3	62.8	61.0
Changing sanitary Pads/Cloth frequently	66.8	65.2	88.6	53.0	60.7	92.9	66.4
Proper disposal of Sanitary Pads	66.7	62.9	88.2	50.4	62.1	89.7	65.8
Washing & drying the menstrual clothes under Sunshine	50.2	38.5	62.6	38.6	42.7	65.2	47.2
Taking Nutritious Food	56.7	52.1	84.1	40.2	48.5	77.1	55.6
Other	5.7	3.4	12.8	2.4	3.3	1.2	5.1
No. of adol. girls Received knowledge	**3409**	**1165**	**1060**	**1527**	**1734**	**253**	**4574**

***Percentage will not add up to 100 as Multiple responses were received**

As such, not much variation is found between rural and urban girls in terms of place where they have got the knowledge on MHH, except that slightly higher proportion of girls in rural areas (52%) mentioned that they received the knowledge at their home compared with that of

urban girls (49%). School/college is mentioned by comparatively higher proportion of girls in urban areas (75%) than in rural areas (71%).

With regards to the issues covered, during such programmes, 89 percent of the girls mentioned that menstrual hygiene and cleanliness topic was covered and 67 percent of the girls recalled that menstrual problems were also covered during such programmes. Other issues covered are Nutritious food (58%), Importance of IFA/WIFS tablets (32%). Between rural and urban areas, slightly higher percentage of girls in rural areas mentioned that issues on menstrual problems, Reproductive Health system, RTI/STI, and Family planning methods are covered compared to urban girls. No variation is observed between place of residence on other issues covered. When compared different climate vulnerable areas, issue of menstrual hygiene and cleanliness is covered extensively in snowfall areas (100%) and *Not vulnerable areas* (96%). As high as 84 percent of the girls in snowfall areas mentioned that an issue of menstrual problems was covered which is around 65 percent in other 3 categories. Issues related to Reproductive health system, RTI/STI, Nutritious food, IFA/ WIFS are covered quite extensively in *climatically not vulnerable areas* when compared to other three categories.

Further, 66 percent of the girls who have received knowledge on MHH accepted that they change sanitary napkins/cloth frequently and doing proper disposal of sanitary pads after attending such programmes. Further, 61 percent of the girls agreed that they are taking bath during menstruation and 47 percent of the girls mentioned that they are washing and drying the menstrual cloth under sunshine. Change in the behaviour of girls as regards to MHH is noticed in both urban and rural areas though the effect seems to be more in rural areas. Among all the 4 categories of climate, change in the behaviour in terms of taking bath, frequent changing of sanitary napkins, proper disposal and washing cloth is observed to be more in *Not climate vulnerable areas* and snowfall areas than that in the drought and flood/cyclone affected areas.

Summary of findings

National programmes on adolescent girls are working quite efficiently as 68 percent of the girls mentioned that they have received knowledge through such programmes. Mainly school teacher organizes such programmes at schools and ASHA worker does home visits. Role of Peer educators and NGO workers is found to be quite significant in *climatically not vulnerable areas*.

Findings indicate that most of the national programmes on adolescent girls concentrate on menstrual health and hygiene and menstrual problem and to some extent nutritional aspects.

As such, they do not focus on reproductive health system or RTI and STI related symptoms and problems including FP methods.

Around one-third of the girls agreed that they have changed their behaviour after attending such programmes. However, Still more focus is needed to change the behaviour of girls especially on hygienic practices and consuming nutritious food.

SECTION-8

Climate vulnerability and Menstrual hygiene

Menstrual hygiene management in disaster-prone and fragile contexts is a challenge to adolescent girls and women. Availability of natural resources like water and sunshine, along with privacy and space affect many menstrual hygiene related activities like taking bath, frequent change of absorbent, washing/drying or proper disposal of absorbent used during menstruation. Such situation affects physical activities of girls as well as their physical and mental health. As mentioned earlier, the main objective of the study is to understand the menstrual health and hygiene among adolescent girls in climate vulnerable areas and hence, the girls were selected purposely from different climate vulnerable areas including drought, flood/cyclone and snowfall. This section covers only those States which are affected by different climate vulnerability like Drought, Flood/Cyclone or Snowfall. Hence, 3 States Delhi, Punjab and Haryana are not included in the analysis of this section.

8.1 Experiences of Adolescent girls relating to Menstrual hygiene during climate vulnerable situation

An assessment has been made in this section to understand the experiences of girls during such climatic crisis situation especially, relating to menstrual hygiene like getting water, washing menstrual clothes, taking bath and shifting from house and staying in camps/ tents. The percentage of girls who experienced crisis situation due to climate extremes are presented by State (**Figure 8.1**) and according to Place of residence in **Table 8.1**.

Overall 46 percent of the girls expressed that they have to face crisis situation due to climate extremes. Among all the 13 States considered, adolescent girls from Jammu Kashmir (94%), Tamil Nadu (84%), Assam (83%), Himachal Pradesh (73%) and Kerala (67%) have experienced crisis situation due to climate extremes. On the other hand, very less percentage of girls from Uttar Pradesh (3%), Madhya Pradesh (4%), Rajasthan (13%) and Karnataka (13%) expressed that they have faced extreme climate situation.

Between urban and rural girls, higher percentage of girls from rural areas (49%) had to face the climate extremes than that of urban girls (40%). This tendency is observed in almost all the States except Bihar, Himachal Pradesh and Maharashtra wherein climate extremes are faced by comparatively larger proportion of girls in urban areas than in rural areas.

Fig. 8.1: Percentage of adolescent girls experienced crisis situation due to climate by State, India

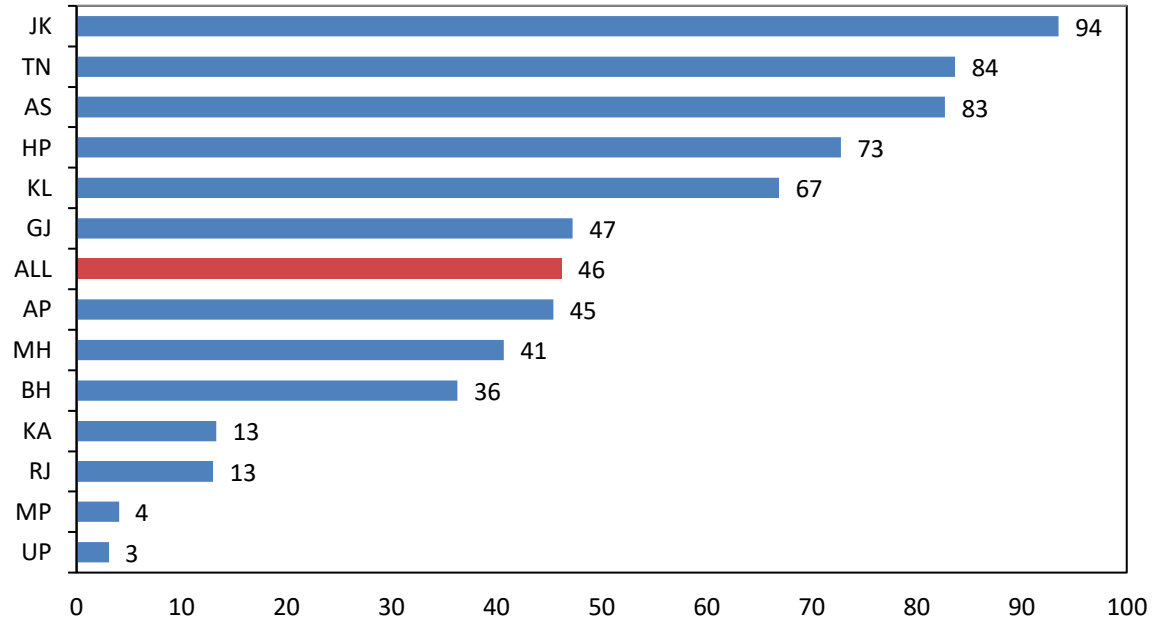
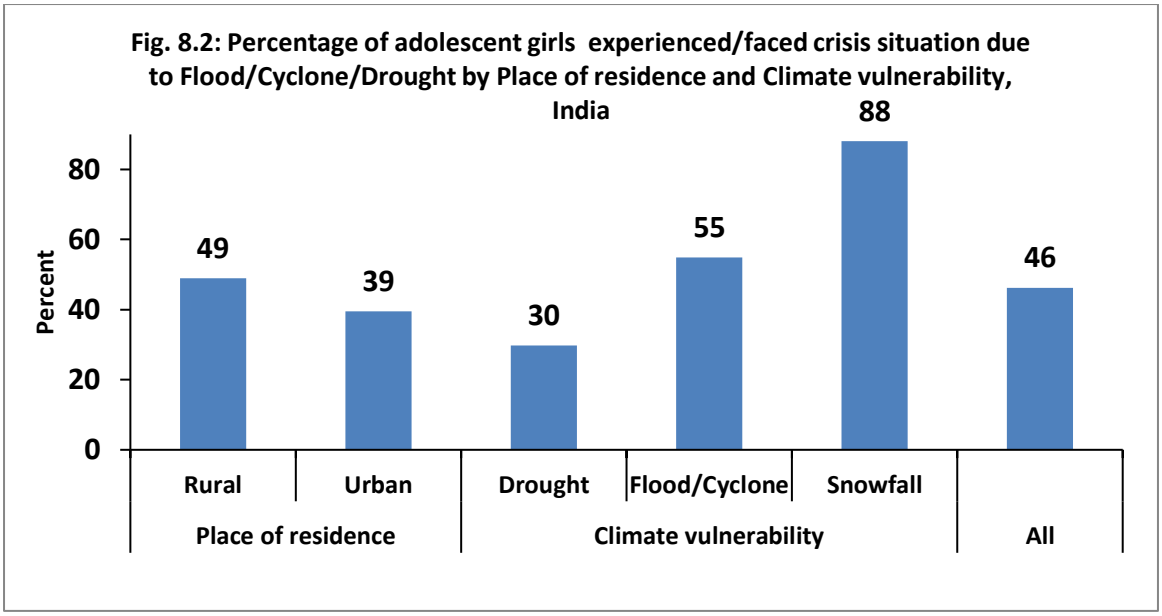


Table 8.1: Percentage of adolescent girls experienced crisis situation due to climate extremes by State according to Place of residence

State	Rural		Urban		Combined	
	%	Number	%	Number	%	Number
Andhra Pradesh	51.2	326	27.8	108	45.4	434
Assam	97.3	298	53.1	147	82.7	445
Bihar	33.7	282	41.2	148	36.3	430
Gujarat	50.5	327	32.9	73	47.3	400
Himachal Pradesh	71.2	389	89.2	37	72.8	426
Jammu Kashmir	96.3	271	87.7	130	93.5	401
Karnataka	16.8	273	6.0	133	13.3	406
Kerala	80.7	274	42.1	152	66.9	426
Madhya Pradesh	5.2	288	1.9	157	4.0	445
Maharashtra	38.0	337	48.3	120	40.7	457
Rajasthan	16.6	319	0.0	88	13.0	407
Tamil Nadu	89.4	199	78.0	205	83.7	404
Uttar Pradesh	3.8	313	0.9	108	3.1	421
ALL	**49.0**	**3896**	**39.5**	**1606**	**46.2**	**5502**

Further, as observed in **Figure 8.2**, as high as 88 percent of girls from snowfall areas mentioned that they have faced the climatic extremes, compared to 55 percent of girls in flood/cyclone areas and 30 percent of girls in drought affected areas.



8.2 Duration of crisis situation experienced

Table 8.2 presents the duration of crisis situation experienced by the girls in a year by Place of residence and Type of climate vulnerability. Among 2542 adolescent girls, who experienced climatic extremes, 76 percent mentioned that such extreme weather condition exists for about 1-3 months, 14 percent mentioned that such condition occurs for less than a month and for remaining 10 percent girls extreme weather exists for 4-6 months in a year. When compared between place of residence, extreme weather condition exists either for a short duration of less than a month or for a longer duration of 4-6 months in a year in rural areas (15% and 11% respectively) compared to urban girls (10% and 7% respectively) as it is usually 1-3 months for urban areas.

Table 8.2: Percentage of girls experienced crisis situation due to climate and Duration of crisis situation faced in a year by place of residence and type of climate vulnerability

Particulars	Place of residence		Type of climate vulnerability			All
	Rural	Urban	Drought	Flood/ Cyclone	Snow fall	
Prop. Experienced crisis situation	49.0	39.5	29.8	54.9	88.0	46.2
No. of adol. Girls	**3896**	**1606**	**2441**	**2652**	**409**	**5502**
Duration of crisis situation in a year						
Less than a month	15.0	9.6	11.0	11.3	28.6	13.7
1-3 months	74.0	83.4	68.9	81.3	71.4	76.4
4-6 months	11.0	6.9	20.1	7.4	0.0	10.0
No. of girls Experienced crisis situation	**1908**	**634**	**727**	**1455**	**360**	**2542**

When compared the duration of extreme weather by climate type, it is very much prominent that snow fall condition exists usually 1-3 months. Comparatively larger percentage of girls in drought affected areas (20%) and flood affected areas (7%) have to face the extreme situation for a duration of 4-6 months.

8.3 Problems related to getting water and ways to manage

Further, all the 2542 girls who expressed extreme climatic situation asked about what specific problems or challenges they or their neighbors have to face during such situation relating to getting water for drinking or for household use and how usually they manage. The responses of the girls are given in **Table 8.3** by place of residence and Type of climate vulnerability.

Table 8.3: Problems faced relating to getting water and ways to manage (%) by place of residence and type of climate vulnerability

Problems in getting water and ways to manage	Place of residence		Type of climate vulnerability			All
	Rural	Urban	Drought	Flood/ Cyclone	Snowfall	
Problems *						
No Problem	47.2	60.6	46.1	50.7	58.6	50.5
Non-Availability of Water at All	21.4	12.9	20.1	23.0	3.1	19.3
No Clean Water for Drinking	37.9	23.0	32.5	39.0	18.1	34.2
Non-Availability of Water for Bath	33.0	23.8	30.9	30.0	33.1	30.7
No Water for Washing Cloth	27.9	23.5	32.6	22.0	34.4	26.8
Other	4.1	7.1	7.2	3.6	5.3	4.8
Ways to manage*						
Boiled Water for Drinking	22.6	18.0	19.3	23.8	16.4	21.5
Supplied by Tank Water	15.9	8.7	24.3	12.4	0.3	14.1
Purchased Bottle Water	9.7	9.1	12.7	10.0	1.7	9.6
Brought It from Unaffected Area	28.8	12.3	22.4	26.3	22.8	24.7
Cloths Not Washed	16.9	21.3	17.1	15.3	31.1	18.0
Did Not Take Bath	12.6	18.1	13.9	10.1	29.7	14.0
No. of girls Experienced crisis situation	**1908**	**634**	**727**	**1455**	**360**	**2542**

***Percentage will not add up to 100 as Multiple responses were received**

As such half of the girls (51%) mentioned that they don't have to worry about getting water and it is comparatively high in urban areas (61%) than in rural areas (47%); and is 59 percent in snow fall areas compared to 46 percent in drought affected areas. It means that problems in getting sufficient water exists mainly in rural areas of drought affected regions. Around 34 percent of the girls, comparatively high from rural areas (38%) and both flood (39%) and drought (33%) affected regions expressed that they don't get clean water for drinking. Around

30 percent of girls, mostly from rural areas and in all the 3 climatic conditions expressed they don't get water for bathing or for household use.

As regards to managing the non-availability of clean water, 22 percent of the girls mentioned that they boil water for drinking and another 10 percent of the girls mentioned they purchase bottled water. For 14 percent of the girls, water is supplied by a water tanker and 25 percent have to bring the water from an unaffected area. Further 14 percent of the girls mentioned that they do not take bath regularly during such situation and 18 percent of the girls mentioned they don't wash the cloths during scarcity of water. Depending upon an alternative sources like boiling, water tanker, bringing from unaffected areas is comparatively higher in rural areas whereas not taking bath or not washing clothes are reported more proportion of girls in urban areas than in rural areas. Between three climatic situations, practice of boiling the water (24%) and bringing from unaffected areas (26%) is observed comparatively high in flood affected areas where as supplied by tank water (24%) is observed to be more comparatively in drought affected areas. The practice of not taking bath or not washing cloths is observed to be more in snowfall areas (30 % and 31% respectively).

8.4 Problems related washing /drying menstrual cloth or disposal of sanitary pads and ways to manage

For a question on problems or challenges faced by the girls relating to washing and drying of menstrual cloth and Disposal of used sanitary napkins during such crisis situation, overall 73 percent of the girls mentioned that as such they don't have any problem while washing the cloth or disposing the napkin. Percentage of girls who mentioned that they don't have any problem in this regard is comparatively high in urban areas (76%) than in rural areas (71%) and between three conditions of weather, 82 percent of the girls in snowfall areas did not face any problem compared to only 67 percent in flood affected areas. It means that comparatively, adolescent girls flood affected areas, specifically in rural areas have to face this problem. Overall 16 percent of the girls expressed that they don't have any option for the safe disposal of used sanitary napkins which is 17 percent in rural areas and 20 percent in flood affected areas. The problem of no place to wash, no place to dry the menstrual cloth and no sunshine to dry it, is mentioned by comparatively higher proportion of girls in flood affected areas, mostly from rural areas.

For the ways to manage, 11 percent of the girls, (16 percent in flood affected areas, 13 percent in rural areas) had to depend upon newspaper as an absorbent for the menstrual bleeding. Further, 8 percent of the girls, (11 % in flood areas) had to burn/burry the used napkins. Around 9 percent of the girls each, handed over the used napkins to garbage collector or throw them in open areas.

Table 8.4: Problems faced relating washing menstrual cloth/disposal of sanitary napkins and ways managed by place of residence and type of climate vulnerability

Problems in washing and disposal of absorbent	Place of residence		Type of climate vulnerability			All
	Rural	Urban	Drought	Flood/ Cyclone	Snowfall	
Problems related to washing/drying menstrual cloth or disposal of sanitary pads*						
No problem	71.2	76.2	78.4	67.1	82.2	72.5
No Place to Wash	8.6	8.7	3.7	12.9	1.4	8.7
No Place to Dry	9.9	8.7	3.0	14.6	2.2	9.6
No Sunshine to Dry	6.6	6.5	2.6	9.3	3.3	6.6
No Options for the Safe Disposal	17.1	13.4	8.8	19.9	16.1	16.2
Ways to manage*						
New Clothes Supplied	6.5	2.5	5.0	6.7	1.9	5.5
Burnt/Burry the Napkins	9.9	3.8	5.1	11.0	4.4	8.4
Use Newspapers	13.1	6.6	7.2	16.0	1.7	11.4
Hand Over to the Garbage Collector	8.4	9.5	5.2	11.0	6.1	8.7
Throw in Open Area	9.9	6.9	7.8	9.4	10.6	9.1
Use Neither Clothes nor Napkins	1.4	1.6	0.7	2.2	0.0	1.5
No. of girls Experienced crisis situation	**1908**	**634**	**727**	**1455**	**360**	**2542**

***Percentage will not add up to 100 as Multiple responses were received**

8.5 Problems related bathing

As observed in earlier discussion quite a large proportion of girls are not allowed to take bath during menstruation. Hence, all the girls were asked do they face any problem relating to bathing during climatic extremes and responses are presented by Place of residence and Type of climate vulnerability in **Table 8.5**. Around one-third of the girls (72%), mentioned that they don't have any problem as regards to take a bath during climatic crisis, which is 76 percent in urban areas and almost same in different climatic situations. Hence, comparatively problems related to taking bath are expressed by rural girls. 12 percent of the girls further mentioned that

they did not bath during menstrual period which is as high as 24 percent in snow fall areas. Around 18 percent of the girls, (more so in snowfall areas, 25 %) expressed that they don't get sufficient water to bath, 12 percent of the girls (14% in rural areas, 19 % in flood affected areas) expressed lack of privacy to bath. Further 9 percent of the girls (mostly in rural areas and flood affected areas) bathed using contaminated water. Around 3 percent of the girls mentioned that they had to take a bath in an open area.

Table 8.5: Problems faced relating to bathing during climate extremes by place of residence and type of climate vulnerability

	Place of residence		Type of climate vulnerability			
Problems related to bathing*	**Rural**	**Urban**	**Drought**	**Flood/ Cyclone**	**Snowfall**	**All**
No Problems	70.6	76.0	71.9	71.5	73.9	72.0
Not Bathed During Men. Period	11.1	13.2	11.7	8.4	24.4	11.6
No Water Available to Bath	18.9	15.9	19.1	15.9	25.3	18.2
Privacy Is Not Available for Bathing	14.0	6.0	4.3	18.8	0.0	12.0
Bathed By Using Contaminated Water	10.3	3.6	5.8	12.2	0.3	8.7
Bathed In Open Place	3.1	1.6	1.5	4.0	0.0	2.7
No. of girls Experienced crisis situation	**1908**	**634**	**727**	**1455**	**360**	**2542**

***Percentage will not add up to 100 as Multiple responses were received**

8.6 Staying in Camps/Tents during climatic crisis

Further, all the 2542 girls who have to face climatic crisis were asked whether they had to move away from their home any time and have to stay in tents/camps. For that, 14 percent of the girls (365 in number) responded that they had to shift to camps or tents for some time (**Table 8.6**). Proportion of girls shifted to tents or camps is comparatively high in rural areas (15%) than in urban areas (13%) and more in flood affected areas (22%) compared to 6% percent in drought prone areas and none in snow fall areas.

Further, all these 365 girls were asked what all problems or challenges they had to face in camps/tents and responses are given by Place of residence and Type of climate vulnerability. Around half of the girls (47 %) complained not getting enough sleep and 42 percent of them mentioned not getting proper food while staying at the camps/Tents. As high as 42 percent of

the girls (mostly in rural areas- 48% and in flood areas- 45%) had to spend in open area. Other problems expressed by the girls are 'no privacy' (30%), No free movement (42%), No place to change dress or pads (38%), no medicine (20%), it affected education (28%) and work (13%).

Problems related to spending in open area, lack of sleep, no place to change dress, no food are mentioned by girls from rural areas whereas the problems related to privacy, free movement, medicine, affecting education and work are mentioned by comparatively higher percentage of girls in urban areas. Similarly, problems related to sleep, lack of place to change dress, and food problems are expressed by girls in flood affected areas whereas problems related to privacy, medicine, affecting education or work is mentioned by higher proportion of girls in drought affected regions than in flood affected areas.

Table 8.6: Percentage of girls who had to move away from home and stayed in camps/tents during climate extremes and problems faced while shifting by place of residence and type of climate vulnerability

Move away from home and staying in camps/Tents	Place of residence		Type of climate vulnerability			All
	Rural	Urban	Drought	Flood/ Cyclone	Snowfall	
Had to move away from home and stayed in tents/camps						
Moved away	14.9	12.6	6.2	22.0	0.0	14.4
Not moved away anytime	85.0	87.4	93.7	78.0	100.0	85.6
No. of girls Experienced crisis situation	**1908**	**634**	**727**	**1455**	**360**	**2542**
Problems/Challenges faced in camps*						
No Privacy and Security	27.7	38.8	42.2	28.4	NA	30.1
Spent in Open Place	48.4	20.0	20.0	45.3	NA	42.2
Not Got Enough Sleep	50.9	35.0	37.8	48.8	NA	47.4
No Free Movement	41.1	45.0	42.2	41.9	NA	41.9
No Place to Change Dress/Pads	41.1	26.3	22.2	40.0	NA	37.8
No Water Available	34.4	35.0	37.8	34.1	NA	34.5
No Proper Food	47.7	20.0	24.4	44.1	NA	41.6
No Medicines	19.6	21.3	40.0	17.2	NA	20.0
Affect Education	26.7	31.3	51.1	24.4	NA	27.7
Affect Work/Job	9.8	22.5	40.0	8.8	NA	12.6
No. of girls Moved to camps/Tents	**285**	**80**	**45**	**320**	**0**	**365**

***Percentage will not add up to 100 as Multiple responses were received**

Summary of findings

Adolescent girls in Jammu and Kashmir and Himachal Pradesh reported climatic crisis due to snowfall and those in Tamil Nādu, Assam and Kerala expressed that they have to experience crisis situation due to flood/cyclone compared to other States. Experience of crisis situation due to climate extremes are comparatively more in rural areas than in urban areas. Usually, such climatic crisis exists for maximum three months. Hence, as such climate vulnerability do not affect menstrual hygiene practices among adolescent girls much. Majority of the girls did not face major difficulty in getting water, washing and drying menstrual cloth, or disposal of sanitary napkin as well as bathing during such crisis situation.

Supply of clean water for drinking and sufficient water for bathing and washing clothes has to be made in drought prone areas especially in urban areas during drought situation.

Around 14 percent of the girls had to shift to camps or tents, mainly during flood/cyclone situation, wherein they had to face many problems related to sleeping, food and privacy issues.

SECTION-9

Conclusion and Recommendations

The present study findings which filled the gap in knowledge regarding menstrual health and hygiene in climate vulnerable areas truly highlights the States initiative in promoting adolescent health. The National Health programmes for adolescents have shown its impact in improving menstrual health and hygiene of adolescent girls.

Menstrual hygiene in the climate vulnerable areas is good as evident from the use of sanitary napkins by majority of the girls, frequent change of napkins on days of heavy bleeding and also safe disposal of napkins even as disasters in the form of flood and drought bother them. The small proportion of girls who use cloth also follow hygienic practices in drying under sunlight. This indicates the impact of the wider range of programmes in place like the School Health Programme/RBSK, RKSK, Menstrual Hygiene Scheme in creating awareness on menstrual health and hygiene and reproductive health problems among adolescent girls.

Yet there are few concerns that need to be addressed

- Still quite a significant proportion of adolescent girls either never attend the schools or discontinue their education quite early, and for some of them reason for discontinuation being the menarche.
- Still many girls don't perceive menarche as a normal phenomenon and not given prior knowledge on Menarche.
- Lot of changes occur in dress pattern, movement, activities and work of adolescent girls, once they attain menarche.
- The most important concern being the failure to supply sanitary napkins to all the girls under the MHS programme. Government supplied free sanitary napkins are not available to most of the girls. Even if some girls get, they are not sufficient in quantity and few quality issues are also raised.
- Girls are to be made aware on hygienic ways of disposal of used sanitary napkins. Lack of awareness in the disposal of pads systematically, especially in the flood affected areas is observed, at least among a few girls. It needs to be taken care of either by the parents or the FLHWs.

- Menstrual problems and symptoms related to RTI are reported by a substantial proportion of the girls but failure to seek treatment for the problems by a large majority of these girls puts them at risk of reproductive tract infections. Interventions to promote proper treatment seeking behaviour is needed and the girls including the parents need to be sensitized on the risk of RTI problems in the absence of proper care.
- Many cultural practices exist around menstruation in different States. Some of them may affect the health- both physical and mental- of girls like Not allowing to take bath, restricting school going and observing separation, which are to be removed by creating awareness.
- Care should be given for supply of clean water for drinking and sufficient water for use, during summer in the drought prone areas.
- Whenever people are to be shifted to camps or tents, specific needs of adolescent girls are to be kept in mind.

Good practices Observed

- The practice of conducting a ceremony during menarche is decreasing and present in certain pockets of Southern States and Assam
- Use of sanitary napkins has become quite common among adolescent girls now a days, both in rural and Urban areas and different type of climate vulnerable areas. Still, some awareness is required among girls in drought prone areas on menstrual hygienic practices.
- Girls are aware of frequent change of absorbent in rural as well as urban areas and different climatic condition. Still more awareness is required among girls in snowfall areas on frequent change of absorbent.
- School teachers and ASHA workers play a major role in imparting knowledge among girls, there by changing their behaviour.
- As such climate vulnerability like flood, drought and snowfall do not affect the menstrual health and hygiene practices among adolescent girls significantly, as such climatic crisis exists for a shorter duration and many supportive arrangements are being made by the Government.
- Local Government support in mitigating the crisis situation is appreciable which has helped the girls to overcome the fear of natural calamities.

- The residents in the flood/drought/snowfall hit areas are well prepared to overcome the crisis situation as evident from the large proportion of adolescent girls who report no problems during menstruation in climate vulnerable areas.
- The impact of the various National Level programmes in creating awareness among adolescent girls on important aspects of menarche and menstrual hygiene is evident from the study findings.

SECTION-10

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Appendix

Study Tools

POPULATION RESEARCH CENTRE, _____

Menstrual Health and Hygiene among Adolescent Girls in Climate Vulnerable areas in India

Schedule to interview Adolescent Girls (13-19 years)

IDENTIFICATION

NAME OF STATE (01-17) _____ ☐☐

(1-Andhra Pradesh, 2-Assam, 3-Bihar, 4-Delhi, 5-Gujarat, 6-Haryana, 7-Himachal Pradesh, 8- Jammu Kashmir, 9-Karnataka, 10-Kerala, 11-Madhya Pradesh, 12- Maharashtra, 13- Odisha, 14-Rajasthan, 15-Punjab, 16-Tamil Nadu, 17-Uttar Pradesh

NAME OF DISTRICT (1-4) _____ ☐

TYPE OF CLIMATE VULNERABILITY...1- DROUGHT, 2-FLOOD/CYCLONE, 3-SNOWFALL ☐

SERIAL NUMBER OF ADOL. (001-480) ..... ☐☐☐

TYPE OF RESIDENCE... ..... RURAL- 1, URBAN- 2 ☐

NAME OF RESPONDENT_____

DATE OF INTERVIEW (DD MM YYYY) ☐☐ ☐☐ ☐☐☐☐

NAME OF THE INVESTIGATOR ☐ _____

KEYED BY ☐ _____

INTRODUCTION AND INFORMED CONSENT FOR PARENT (IF ADOL. GIRL <18 years)

Namaste, My name is _____ and I am working with Population Research Centre, _____. We are conducting a Survey to understand the **Menstrual Health and Hygiene among Adolescent Girls**. We would very much appreciate the participation of your daughter in this survey. I would like to ask your daughter some questions and it takes about 45 minutes to complete.

Whatever information your daughter provides will be kept strictly confidential. Participation in this survey is voluntary and your daughter can choose not to answer any question or all of the questions. However, we hope that your daughter will participate in this survey since your daughter's participation is important.

At this time, do you want to ask me anything about the survey?

ANSWER ANY QUESTIONS AND ADDRESS PARENT'S CONCERNS.

May I begin the interview with your daughter now? **AGREE….1, DO NOT AGREE….2 END**

Signature of the Interviewer :_____

INTRODUCTION AND INFORMED ASSENT/CONSENT FORM (FOR ALL ADOLESCENT GIRLS)

My name is_____. I am working with Population Research Centre, _____. I am inviting you to participate in a research study on to Menstrual Health and Hygiene among Adolescent Girls in India. I have taken your Father's/Mother's consent about your participation in this study.

We will be collecting information on your demographics, health, family, menstrual health and hygiene and your access to health care services. The information will be valuable for the Government to formulate health and economic policies and in improving menstrual health care services for the Adolescent Girls in the country. The interview will take approximately 45 minutes.

Taking part in this study may not have direct benefits to you, but it will be valuable for the Government to formulate health and economic policies and in improving menstrual health care services for the Adolescent Girls in the country.

The information provided by you will be kept confidential strictly. The data will only be used for research and planning purposes without any personal identification. Your participation is entirely voluntary and you can withdraw from the survey at any point of time even after having agreed to participate. You are free to refuse to answer any question that is asked in the questionnaire.

If you have questions about the study, you can ask me now or anytime during the study. You can also call at [insert office phone number] or e-mail us at [insert office e-mail address].

I Signing below means you are willing to be in this study: **AGREE…….1, DO NOT AGREE…….2 END**

Signature of the Interviewer:_____

1. Household Background Characteristics

No.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
100	**Have you attained menarche?**	**YES..... 1** **NO..... 2** →	END
101	What is your religion?	HINDU……1 MUSLIM……2 CHRISTIAN……3 SIKH……4 BUDDIST……5 JAIN ……6 NO RELIGION……7 OTHER **(SPECIFY)** _____8	
102	What is your caste?	SCHEDULED CASTE ……1 SCHEDULED TRIBE ……2 OTHER BACKWARD CLASS……3 GENERAL/FORWARD……4 NO CASTE……5	
103	Type of family	NUCLEAR ……1 EXTENDED ……2 JOINT……3	
104	Total how many persons stay with you at present (Including respondent)?	☐☐	
105	Is your family currently living in a kuchha, semi-pucca or a pucca house? (OBSERVE & RECORD)	KUCHHA..... 1 SEMI-PUCCA..... 2 PUCCA..... 3	
106	Is the house owned by your family or rented?	OWN..... 1 RENTED..... 2 OTHER (SPECIFY)_____3	
107	Do your family own a house elsewhere?	YES, FULLY OWNED..... 1 YES, SHARED HOUSE..... 2 NO..... 3	
108	What is the **<u>main</u>** source of drinking water for members of your household?	PIPED WATER……1 TUBE WELL OR BOREHOLE……2 DUG WELL……3 WATER FROM SPRING……4 RAINWATER……5 TANKER TRUCK……6 CART WITH SMALL TANK……7 SURFACE WATER (RIVER/DAM/LAKE/POND /STREAM/CANAL/ IRRIGATION CHANNEL) ……8 BOTTLED WATER……9 COMMUNITY RO PLANT……10 OTHER (SPECIFY)_____11	

108a	Where is the water source located?	IN OWN DWELLING. . . . . .1 IN OWN YARD/PLOT. . . . . .2 ELSEWHERE. 3	Q109
108b	How long does it take to go there, get water, and come back in one trip?	MINUTES. . . . . [ ][ ][ ] DON'T KNOW. 998	
109	What type of fuel does your household **mainly** use for cooking?	ELECTRICITY……1 LPG/NATURAL GAS……2 BIOGAS……3 KEROSENE……4 COAL/LIGNITE……5 CHARCOAL……6 WOOD……7 STRAW/SHRUBS/GRASS……8 AGRICULTURAL CROP WASTE……9 DUNG CAKES……10 NO FOOD COOKED IN HOUSEHOLD……11 OTHER (SPECIFY)_____12	
110	What is the **main** source of lighting for this household?	ELECTRICITY ……1 KEROSENE ……2 BIO GAS ……3 SOLAR ……4 OTHER(SPECIFY) _____ 5	
111	What kind of toilet facility do members of your household **usually** use?	FLUSH OR POUR FLUSH TOILET……1 PIT LATRINE……2 TWIN PIT/COMPOSTING TOILET……3 DRY TOILET……4 NO FACILITY/USES OPEN SPACE/ FIELD…..5 OTHER (SPECIFY)_____6	Q112
111a	Where does this toilet located?	IN OWN DWELLING. . . . . .1 IN OWN YARD/PLOT. . . . . .2 PUBLIC……. 3	
112	Does your household have any of the following?	YES NO BICYCLE :……1 2 TWO WHEELER:…… 1 2 FOUR WHEELER:…… 1 2 TELEVISION :…… 1 2 REFRIGERATOR……1 2 PHONE/MOBILE…… 1 2 TABLET…… 1 2 BULLOCK CART :…… 1 2 TRACTOR :…… 1 2 SEWING MACHINE :…… 1 2 COMPUTER/LAPTOP…… 1 2	

Bicycle?
Two Wheeler?
Four Wheeler?
Television?
Refrigerator
Phone/Mobile?
Electronic Tablet?
Bullock Cart?
Tractor?
Sewing Machine?
Computer/laptop?

113	Does your household own any agriculture land?	YES……..……..……..…1 NO..... 2	
114	Does your household have Below Poverty Line card? Can I see it?	YES, SEEN BPL CARD.....……..…..1 YES, NOT SEEN BPL CARD.....…..……2 NO BPL CARD/APL HH..…….……..…… 3 DON'T KNOW……8	
115	What is the **primary/major source** of income of your family?	CULTIVATION…….....1 AGRI/NON AGRI COOLIE…….....….2 BUSINESS RELATED…….....3 SALARIED EMPLOYMENT……..……..4 OTHER**(SPECIFY)**_____5	

2. Background characteristics, Education and Occupation status of adolescent girls

No.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
201	How old are you? What is your date of birth?	AGE IN COMPLETED YEARS..... ☐☐ DATE OF BIRTH ☐☐ ☐☐ ☐☐☐☐ DATE DON'T KNOW.....99	
202	Are you staying with your Parents?	YES, WITH BOTH..... 1 WITH MOTHER, FATHER AWAY……... 2 WITH MOTHER, FATHER DIED..... 3 WITH FATHER, MOTHER AWAY……... 4 WITH FATHER, MOTHER DIED..... 5 BOTH FATHER & MOTHER AWAY…….. 6 BOTH MOTHER & FATHER DIED..... 7	
203	How old are your parents?	FATHER : MOTHER YEARS..... ☐☐ ☐☐ DON'T KNOW..... 97.....97 DIED.....98.....98	
204	Can your parents read and write? What is the highest grade your parents have completed?	FATHER : MOTHER GRADE..... ☐☐ ☐☐ LIT,NO SCHOOLING……. 96……...96 ILLITERATE.....97.....97 DIED.....98……...98	
205	What kind of work your parents mainly do? (IF Retired put under OTHER)	FATHER : MOTHER CULTIVATION..... 1 1 AGRICULTURAL COOLIE…….. 2 2 NON-AGRI. COOLIE ..... 3 3 BUSINESS RELATED..... 4 4 SALARIED EMPLOYMENT..... 5 5 HOUSEHOLD/NO WORK..... 6 6 SELF EMPLOYED (ARTISAN)... 7 7 OTHER_____8 8 NA/DIED..... 9 9	

206	How many brothers and sisters do you have at present? If None – 0 (Include married siblings)	BROTHERS..... ☐ SISTERS..... ☐	
207	Are you studying now?	YES..... 1 NO..... 2 →	Q218
208	In which standard are you studying?	STANDARD..... ☐☐	
209	Is it a private or government school/ college?	PRIVATE..... 1 GOVERNMENT..... 2	
210	What is the medium of instruction?	LOCAL LANGUAGE (SPECIFY)_____ 1 ENGLISH..... 2 OTHER (SPECIFY)_____3	
211	Is it Co-educated? (Both boys and girls together in a class)	YES..... 1 NO..... 2	
212	How far is your school/college from your residence?	NUMBER OF KMS..... ☐☐ <1KM..... 00	
213	By what means of transportation do you go to school/college? (SCHOOL BUS/VAN - PRIVATE TRANSPORT)	BY WALK..... 1 BICYCLE..... 2 MOTOR CYCLE (ANY TYPE)..... 3 PUBLIC TRANSPORT..... 4 PRIVATE TRANSPORT..... 5	
214	How long it takes to reach the school/ college?	MINUTES..... ☐☐☐	
215	Up to what level do you like to continue your studies?	UP TO STANDARD..... ☐☐ 12th STD..... 11 TEACHER TRAINING/ITI..... 12 GRADUATION..... 13 POST GRADUATION..... 14 ENGINEERING..... 15 MEDICAL..... 16 OTHER PROFESSIONAL COURSE. ….17 OTHER(SPECIFY)_____ 18 UNTIL NOT FAILED..... 19 AS LONG AS POSSIBLE..... 20 AS LONG AS PARENTS DESIRE. ……..21 CAN'T SAY..... 22	
216	How is the encouragement from your parents for your education?	VERY HIGH..... 1 POSITIVE..... 2 NEUTRAL..... 3 NEGATIVE..... 4 CAN'T SAY..... 5	

217	Up to what level your parents like you to continue your studies?	UP TO STANDARD..... ☐☐ 12th STD..... 11 TEACHER TRAINING/ITI..... 12 GRADUATION..... 13 POST GRADUATION..... 14 ENGINEERING..... 15 MEDICAL..... 16 OTHER PROFESSIONAL COURSE. 17 UNTIL NOT FAILED..... 18 AS LONG AS I DESIRE..... 19 CAN NOT SAY..... 20 OTHER _____21	All skip to Q222
218	Did you ever have formal schooling?	YES..... 1 NO..... 2 →	Q221
219	After what standard did you discontinue studies?	STANDARD..... ☐☐	
220	During your schooling, did you attend school regularly?	REGULAR..... 1 IRREGULAR..... 2 CAN'T SAY..... 3	
221	Why did you discontinue your studies/did you not go to school at all?	FAMILY PROBLEMS..... 1 FINANCIAL PROBLEMS..... 2 PARENTS NOT PERMITTED..... 3 NO FACILITY/FAR AWAY ..... 4 NOT INTERESTED/FAILED..... 5 DUE TO MENSTRUATION/MENARCHE…….6 NO BASIC SANITATION FACILITIES AT SCHOOL/COLLEGE……7 NO WATER AT SCHOOL/COLLEGE……8 LACK OF PRIVACY FOR WASHING OR CLEANING……9 OTHER(SPECIFY)_____ 10	
222	CHECK IF RESPONDENT IS STUDYING IN Q207	YES..... 1 → NO..... 2 →	Q223A Q223B
223	A: Apart from your studies, do you work for cash or work in your own family farm? B: Do you work for cash or work in your own family farm?	YES..... 1 NO..... 2 →	Q230
224	What is the nature of work?	FAMILY FARM..... 1 FAMILY BUSINESS..... 2 AGRI COOILE WORK..... 3 NON-AGRI COOLIE WORK..... 4 WORK IN FACTORY/INST..... 5 WORK IN BUSINESS HOUSE..... 6 SELF EMPLOYED..... 7 OTHER(SPECIFY)_____ 8	

225	How often do you work?	FULLTIME..... 1 PART-TIME.....2 SEASONAL/OCCASIONAL..... 3 →	Q227
226	How many hours do you work in a day?	HOURS PER DAY..... ☐☐	
227	How much do you get in a day, week or month?	DAY.....1 Rs WEEK……...2 ☐ ☐☐☐ MONTH…….3 FAMILY FARM/BUSI/NO CASH... 8 →	Q230
228	Do you get the amount/salary in your hand or somebody else receives it? Who?	SELF..... 1 FATHER..... 2 MOTHER..... 3 OTHER FAMILY MEMBER..... 4 SPOUSE..... 5 OTHER(SPECIFY)_____ 6	Q230
229	How much of your salary is given to your parents/family?	ALL..... 1 MAJOR PART..... 2 AROUND HALF..... 3 LESS THAN HALF..... 4 VERY LITTLE/NONE..... 5	
230	What household activities you do at home (apart from studies/outside work if any)?	YES NO COOKING..... 1 2 CLEANING HOUSE..... 1 2 CLEANING CATTLESHED/ENV..... 1 2 WASHING CLOTHES/VESSELS..... 1 2 BRINGING WATER..... 1 2 ASSIST IN FIELD ACTIVITIES…… 1 2 OUTSIDE DEALINGS/SHOPPING.. ……1 2 CAREING FOR SMALL CHILDREN…… 1 2 GRAZING/CARING ANIMALS..... 1 2 COLLECT FIRE WOOD/COW DUNG. ….. 1 2 OTHER(SPECIFY)_____ 1 2	

3. Menarche & Menstruation

No.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
301	Usually at what age girls start to menstruate?	AGE MENARCHE ☐☐ DON'T KNOW..... 98	
302	What was your age at the time of your menarche? (Completed years)	AGE AT MENARCHE..... ☐☐	
303	Was there any ceremony for your menarche? Is it a grand ceremony?	GRAND CEREMONY..... 1 JUST FORMAL CEREMONY..... 2 NO CEREMONY..... 3	

304	How did you feel or react on having your first menstruation?	NORMAL..... 1 EXCITED..... 2 FRIGHTENED..... 3 OTHER_____4 (SPECIFY)	
305	**IF Q207=2 (CURRENTLY NOT STUDYING) THEN**, Did you discontinue your studies due to your attaining menarche?	YES..... 1 NO..... 2	
306	Was there any immediate change in these items after menarche? Dress Movement Playing outside Household work Out-door work	YES NO DRESS..... 1 2 MOVEMENT..... 1 2 PLAYING..... 1 2 HH WORK..... 1 2 OUT WORK..... 1 2	
307	Did you know about **menarche and menstruation before you attained menarche**?	YES..... 1 NO..... 2 →	Q309
308	By what source? PROBE, WHAT ELSE?	YES NO MOTHER..... 1 2 FATHER……..1 2 SISTER..... 1 2 OTHER FEMALE FAMILY MEMBER…… 1 2 TEACHER..... 1 2 FRIENDS..... 1 2 DOCTOR/HEALTH STAFF..... 1 2 SOCIAL WORKERS..... 1 2 MAGAZINE/LITERATURE..... 1 2 TV/CINEMA..... 1 2 SOCIAL MEDIA…… 1 2 OTHER_____ 1 2 (SPECIFY)	
309	Did anybody tell you about **menstrual hygiene before or soon after menarche**?	YES..... 1 NO..... 2 →	Q311
310	Who all had told you about menstrual hygiene? PROBE, WHO ELSE?	YES NO MOTHER..... 1 2 FATHER……1 2 SISTER..... 1 2 OTHER FEMALE FAMILY MEMBER……1 2 TEACHER..... 1 2 FRIENDS..... 1 2 DOCTOR/HEALTH STAFF.....1 2 SOCIAL WORKERS..... 1 2 OTHER(SPECIFY)_____1 2	
311	Is your menstruation regular? (AROUND 1 MONTH is REGULAR)	REGULAR..... 1 IRREGULAR..... 2 DISCONTINUED..... 3	Q313

312	How long are you not having the period?	MONTHS..... 1 YEARS..... 2 ☐☐ DON'T KNOW..... 8	
313	What was the interval between your last two cycles?	DAYS..... 1 MONTHS..... 2 ☐☐	
314	How long the bleeding continued?	DAYS..... ☐	
315	How was the flow of bleeding?	NORMAL..... 1 HEAVY..... 2 SCANTY..... 3	
316	What do you use to absorb the bleeding?	YES NO SANITARY NAPKIN..... 1 2 → CLOTH..... 1 2 MENSTRUAL CUPS..... 1 2	IF No Q329
317	Do you have access to Govt. supplied sanitary napkins?	YES..... 1 NO..... 2 →	Q325
318	Where do you get the Govt. supplied sanitary napkins?	YES NO AT SCHOOL/COLLEGE.....1 2 FROM ANM/ASHA/AWW.....1 2 AT PHC/CHC/SDH/DH.....1 2 OTHERS(SPECIFY)_____1 2	
319	How much they charge for the Govt. supplied napkin, per pack?	RS ☐☐ FOR A PACK OF ☐☐ IF FREE, ENTER "00" and **skip to Q320**	
320	How frequently do you receive sanitary napkins usually and how many sanitary napkins do you receive at one time?	FREQUENCY (MONTHS)... ☐☐ NUMBER AT ONE TIME..... ☐☐	
321	Are you satisfied with the quality (shape and size of sanitary napkins) supplied by the Govt.?	SATISFIED.....1 NOT SATISFIED.....2 CAN'T SAY.....3	
322	Did they supply enough quantity?	SUFFICIENT.....1 INSUFFICIENT.....2	
323	What is the quality of Govt. supplied sanitary napkins? **(READ ALL OPTIONS)**	YES NO BETTER ABSORPTION.....1 2 SENSE OF DRYNESS.....1 2 LEAKAGE PREVENTION.....1 2 THICKNESS.....1 2 SOFT SURFACE/ NOT CAUSING SKIN IRRITATION.....1 2 FLEXIBILITY/ NOT LIMITING MOBILITY....1 2 HAVING WINGS.....1 2 ADHESION TO THE UNDERWEAR.....1 2 LONG TIME USABILITY.....1 2 ODOUR PREVENTION.....1 2 BEING LONG.....1 2	

324	What are the problems in existing sanitary napkins supplied by the Govt.? **(READ ALL OPTIONS)**	YES NO LEAKAGE……1 2 NOT TO TAKE SHAPE……..1 2 DEFORMATION OF THE SURFACE……..1 2 SENSE OF WETNESS……..…1 2 NEED OF FREQUENT CHANGES……..1 2 CAUSING IRRITATION…….……..…1 2 CAUSING SKIN RASH……1 2 CAUSE BACTERIA/FUNGAL INFECTION….1 2 STIFFNESS……1 2 EXCESS ADHESION TO UNDERWEAR……..1 2 INSUFFICIENT ADHESION TO UNDERWEAR.1 2 OTHERS(SPECIFY)_____1 2	
325	Where do you buy your sanitary napkins?	YES NO SHOPS……1 2 PHARMACY……1 2 ONLINE……1 2 OTHERS (SPECIFY)_____1 2 DONOT BUY……1 2 → Q327	
326	What all options do you look while selecting sanitary napkins?	YES NO PERFORMANCE PROPERTIES……1 2 PRICE……..…1 2 BRAND……..1 2 HAVING PERFUME……1 2 MADE OF NATURAL RAW MATERIAL…… 1 2 BIODEGRADABILITY……..1 2 OTHERS(SPECIFY)_____1 2	
327	How do you dispose your used sanitary napkins off?	YES NO THROW IN OPEN AREA…….. 1 2 THROW IN TOILET…….. 1 2 GIVE TO GARBAGE COLLECTING VEHICLE. 1 2 PUT IN SPECIALLY DESIGNED CONTAINER...1 2 BURN……1 2 BURRY THE NAPKINS…….. 1 2 OTHERS (SPECIFY)_____1 2	
328	Do you make any preparation before disposing your sanitary napkins **usually**?	THROW AS IT IS……..…1 WRAP WITH NEWSPAPER……2 WRAP SANITARY NAPKIN'S COVER…….....3 PUT IT IN BIODEGRADABLE BAG……..…..4 PUT IT IN PLASTIC BAG ……..…..5 OTHERS(SPECIFY)_____6	
329	How often do you change the pad/cloth/cups in a day usually? During Heavy bleeding days…… During Scanty bleeding days……	NO OF TIMES DURING HEAVY BLEEDING... ☐ NO OF TIMES DURING SCANTY BLEEDING ☐	

330	How do you decide to change your sanitary napkin/cloth/cups?	YES NO SENSE OF WETNESS……..1 2 LEAKAGE……..1 2 BAD SMELL……1 2 SHAPE DEFORMATION……..1 2 OTHERS(SPECIFY)_____1 2	
331	CHECK Q316: IF USES CLOTH	USE CLOTH……..1 DON'T USE CLOTH……2 →	333
332	How do you clean and dry the cloth?	HOT WATER & SUN SHINE..... 1 HOT WATER & SHADE PLACE..... 2 ORDINARY WATER & SUN SHINE……..3 ORDINARY WATER & SHADE PLACE…….. 4 DON'T USE MORE THAN ONCE..... 5 OTHER (SPECIFY) _____6	
333	CHECK Q316: IF USES MENSTRUAL CUPS	USE MENSTRUAL CUPS……..1 DON'T USE MENSTRAUL CUPS……..2 →	Q337
334	From where do you get the menstrual cups?	SCHOOL/COLLEGE……1 HEALTH WORKERS……..2 SHOPS……3 OTHER (SPECIFY)_____4	
335	Tell me about your experience of using menstrual cups, Its use, quality, washing etc.	QUALITY_____ _____ SHAPE & SIZE _____ _____ USE_____ _____ WASHING_____ _____	
336	Are you satisfied with the use of menstrual cups?	YES……..1 NO……..2	
337	Do you experience any pain, discomfort, and feeling distress during your periods?	YES..... 1 NO..... 2 →	Q343
338	What are the problems?	YES NO HEADACHE……..1 2 LIMBS PAIN……..1 2 SEVERE ABDOMINAL/BACK PAIN…… 1 2 HEAVY BLEEDING..... 1 2 SEVERE DISTRESS/IRRITATION…….. 1 2 OTHER(SPECIFY)_____ 1 2	
339	How long are you experiencing these problems?	EVERY MONTH……1 SOMETIME……2	

340	With whom do you discuss your menstrual problems?	YES NO MOTHER..... 1 2 FATHER……1 2 SISTER..... 1 2 OTHER FEMALE FAMILY MEMBER……1 2 TEACHER..... 1 2 FRIENDS..... 1 2 ASHA/ANM/AWW..... 1 2 DOCTOR……..... 1 2 DON'T DISCUSS..... 1 2 OTHER(SPECIFY)_____ 1 2	
341	Have you sought any treatment or home remedy for the problems?	YES..... 1 NO..... 2 →	Q343
342	Where did you seek treatment/remedy?	YES NO HOME REMEDY.....1 2 PHARMACY……..... 1 2 ANM..... 1 2 ASHA……1 2 PHC……1 2 CHC……1 2 SDH/DH……..... 1 2 PRIVATE CLINIC/DOCTOR..... 1 2 RMP..... 1 2 OTHER(SPECIFY) _____ 1 2	
343	During last one year, have you had any problem of pain or burning sensation while urinating, or more frequent or difficult urination?	YES..... 1 NO..... 2	
344	During last one year, have you had rashes or ulcers on your genitals?	YES..... 1 NO..... 2	
345	Have you had any of the following with your vaginal discharge During last one year? a. Any itching or irritation in Vaginal area with the discharge? b. Any bad odor along with the discharge? c. Severe abdominal pain with the discharge not during menstruation? d. Fever along with the discharge?	YES NO ITCHING..... 1 2 BAD ODOR..... 1 2 SEVERE ABDOMINAL PAIN..... 1 2 FEVER with DISCHARGE..... 1 2	

346	CHECK: WHETHER 'YES' TO ANY OF THE PROBLEMS (For Q343 to Q345)	HAD PROBLEMS..... 1 NO PROBLEM..... 2 →	Q401
347	Have you sought any treatment? If yes Where?	NOT SOUGHT..... 1 PHARMACY……..... 2 ANM..... 3 ASHA……4 PHC……5 CHC……6 SDH/DH……..... 7 PRIVATE CLINIC/DOCTOR..... 8 RMP..... 9 OTHER(SPECIFY) _____ 10	

4. Marriage and Fertility

No.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
401	Are you married?	YES..... 1 NO..... 2 →	Q501
402	At what age have you got married?	AGE AT MARRIAGE..... ☐☐	
403	Has consummation of marriage taken place?	YES..... 1 NO..... 2 →	Q501
404	Did you ever become pregnant?	YES..... 1 NO..... 2 →	Q407
405	How many times you became pregnant?	TIMES..... ☐	
406	What were the outcomes of the pregnancy terminations?	LIVE BIRTHS..... ☐ STILL BIRTHS..... ☐ SPONTANEOUS ABORTIONS.... ☐ INDUCED ABORTIONS..... ☐	
407	Are you or your spouse using any family planning method to avoid or postpone pregnancy?	YES..... 1 NO..... 2 →	Q501
408	Which method you or your spouse using currently?	YES NO FEMALE STERILISATION..... 1 2 MALE STERILISATION..... 1 2 IUCD……..... 1 2 ORAL PILLS..... 1 2 MALE CONDOM..... 1 2 INJECTABLES..... 1 2 OTHER_____ 1 2 NATURAL METHOD_____ 1 2 (SPECIFY)	

5. Practices around menstruation

No.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
501	Do you observe separation during menstruation?	YES..... 1 NO..... 2	
502	Do you observe NOT Touching or coming into contact with small children during menstruation? If yes, why?	YES, CHILDREN BECOME WEAK….. 1 YES, PEOPLE TALK/SCOLD..... 2 NO (NOT REFRAIN)..... 3	
503	Do you observe NOT going to worship centres during menstruation?	DON'T GO..... 1 GO TO WORSHIP CENTRE..... 2	
504	Do you observe NOT entering into worship room/place during menstruation?	DON'T GO..... 1 GO TO WORSHIP ROOM/PLACE..... 2	
505	Do you restrict your activities like exercise and sports during Menstruation?	YES, RESTRICT..... 1 DON'T RESTRICT..... 2	
506	Do you restrict your school going activities during menstruation?	YES, RESTRICT..... 1 DON'T RESTRICT..... 2 NOT APPLICABLE……..3	
507	Are you allowed to take bath during your menstrual period?	YES..... 1 NO..... 2	
508	Do you follow any dietary restrictions during menstruation? If yes, what all you avoid or eat more?	YES..... 1 NO..... 2 → **Q509** **AVOID** 1_____ 2_____ 3_____ 4_____ **EAT MORE** 1_____ 2_____ 3_____ 4_____	
509	Are there any specific practices and difficulties experienced relating to menstruation like going to open defecation, fetching water, outside work, separation, etc.?	YES..... 1 NO..... 2 → **Q601** 1_____ _____ 2_____ _____ 3_____ _____	

6. National Adolescent Programmes and its impact on Menstrual hygiene

601	Have you received any knowledge on **menstrual health and hygiene from** ASHA worker? ANM? Other Health staff? AWW? School teacher? Peer educator? NGO person?	YES NO ASHA……..…… 1 2 ANM……..…..1 2 OTHER HEALTH STAFF……..1 2 AWW……..1 2 SCHOOL TEACHER…… 1 2 PEER EDUCATOR……..1 2 NGO……1 2	**NO FOR ALL SKIP to Q701**
602	Where did you get this knowledge?	YES NO AT AWC……..…… 1 2 AT PUBLIC HELATH FACILITY….. 1 2 AT SCHOOL/COLLEGE……..…… 1 2 HOME……1 2 OTHER (SPECIFY)_____ 1 2	
603	What all knowledge you have received from these persons regarding menstrual health and hygiene? Explain	YES NO MENSTRUAL HYGIENE/CLEANLINESS….. 1 2 MENSTRUAL PROBLEMS …….. .. .. 1 2 REPRODUCTIVE HEALTH SYSTEM…….. 1 2 RTI/STI/HIV……..... 1 2 NUTRITIOUS FOOD……..…….. 1 2 FAMILY PLANNING METHODS…….. 1 2 IMPORTANCE OF IFA/WIFS TABLETS…….. 1 2 PROPER USE OF MEDICATION…….. 1 2 OTHER (SPECIFY)_____ 1 2	
604	In what way this information regarding menstrual health and hygiene benefitted you? What else?	YES NO GOT THE KNOWLEDGE ON MENSTRUAL. HEALTH AND HYGIENE 1 2 NUTRITION…….. 1 2 SEXUAL & REPRODUCTIVE HEALTH……..1 2 IDENT. OF SYMPTOMS RELATED TO GYNEC PROBLEMS……1 2 GOT TAKE HOME RATION…….…… 1 2 GOT SANITARY NAPKINS……..……1 2 GOT IFA/WIFS/DEWORMING TABLETS……1 2 GOT HEALTH CHECK UP……..1 2 GOT IMMUNIZATION……..1 2 FOLLOWING HYGIENIC PRACTICES…….1 2 TAKING BATH DURING MENSTRUATION…..1 2 CHANGING PADS/CLOTH FREQUENTLY….1 2	

		PROPER DISPOSAL OF SANITRARY PADS….1 2 WASHING& DRYING UNDER SUNSHINE……1 2 TAKING NUTRITIOUS FOOD……..…..1 2 OTHER (SPECIFY)_____ 1 2	

7. Impact of climate vulnerability on menstrual hygiene

701	Do you experience/face crisis situation (Flood/Cyclone/Drought/Snowfall) in your area. (TICK THE OPTION)	YES..... 1 NO..... 2 →	**If NO, End**
702	**Usually** How long this crisis situation continues in a year?	MONTHS……..... ☐☐	
703	What specific problems/challenges do you/your neighbors face during this situation relating to **getting water** for drinking/bathing/washing cloths etc.?	YES NO NO PROBLEM……1 2 → NON AVAILABILITY OF WATER AT ALL….. 1 2 NO CLEAN WATER FOR DRINKING……..1 2 NON AVAIALBILITY OF WATER FOR BATH.. 1 2 NO WATER FOR WASHING CLOTH…..…..… 1 2 OTHER (SPECIFY)_____ 1 2 OTHER (SPECIFY)_____ 1 2	**IF YES SKIP TO 705**
704	How do you or your neighbours usually manage it?	YES NO BOILED WATER FOR DRINKING..……..…..1 2 SUPPLIED BY TANK WATER……..……1 2 PURCHASED BOTTLE WATER..…….. 1 2 BROUGHT IT FROM UNAFFECTED AREA.. 1 2 CLOTHS NOT WASHED..……..…... 1 2 DID NOT TAKE BATH……...…….. 1 2 OTHER (SPECIFY)_____ 1 2 OTHER (SPECIFY)_____ 1 2	
705	What all specific problems/challenges do you/your friends face relating to **washing and drying of menstrual cloth and /or disposal of sanitary pads during such situation**?	YES NO NO PROBLEM……1 2 → NO WATER TO WASH MEN. CLOTHES…..... 1 2 NO PLACE TO WASH…… . 1 2 NO PLACE TO DRY……1 2 NO SUNSHINE TO DRY…… ……... 1 2 NO OPTIONS FOR THE SAFE DISPOSAL ……... 1 2 OTHER 1 (SPECIFY)_____ 1 OTHER 2 (SPECIFY)_____ 1	**IF YES SKIP TO 707**

706	How do you /your friends usually manage in such situation?	YES NO NEW CLOTHES SUPPLIED ....1 2 BURNT/BURRY THE NAPKINS .....1 2 USE NEWSPAPERS ..... 1 2 HAND OVER TO THE GARBAGE COLLECTOR..... 1 2 THROW IN OPEN AREA.....1 2 USE NEITHER CLOTHES NOR NAPKINS .....1 2 OTHER 1 (SPECIFY)_____ 1 2 OTHER 2 (SPECIFY)_____ 1 2	
707	What are the problems/challenges do you/your friends face relating to **bathing during such situation**?	YES NO NO PROBLEMS..... 1 2 → NOT BATHED DURING MEN. PERIOD.....1 2 NO WATER AVAILABLE TO BATH .....1 2 PRIVACY IS NOT AVAILABLE FOR BATHING.....1 2 BATHED BY USING CONTAMINATED WATER ..... 1 2 BATHED IN OPEN PLACE ..... 1 2 OTHER 1 (SPECIFY)_____ 1 2 OTHER 2 (SPECIFY)_____ 1 2	IF YES SKIP TO 708
708	Have you had to move away from your home like in tents/camps during such situation anytime?	YES..... 1 NO..... 2 →	**END**
709	What all problems /challenges you faced in camps/tents?	YES NO NO PRIVACY AND SECURITY.....1 2 SPENT IN OPEN PLACE .....1 2 NOT GOT ENOUGH SLEEP .....1 2 NO FREE MOVEMENT ..... 1 2 NO PLACE TO CHANGE DRESS/PADS .....1 2 NO WATER AVAILABLE ..... 1 2 NO PROPER FOOD.....1 2 NO MEDICINES.....1 2 AFFECT EDUCATION..... 1 2 AFFECT WORK/JOB..... 1 2 OTHER 1 (SPECIFY)_____ 1 2 OTHER 2 (SPECIFY)_____ 1 2	

OBSERVATION SHEET

I am thankful to you for your time and answering all queries. The information shared by you will help us meet our research objective. I would be happy to answer if you have any question.

INTERVIEWER'S OBSERVATIONS

TO BE FILLED IN AFTER COMPLETING INTERVIEW

COMMENTS ABOUT RESPONDENT:

COMMENTS ON SPECIFIC QUESTIONS:

ANY OTHER COMMENTS:

SUPERVISOR'S SIGNATURE_____