

Burden of Domestic Responsibilities and its Impact on Women's Health



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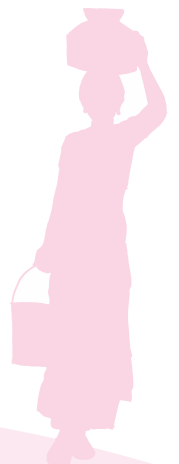
Abhijeet Jadhav

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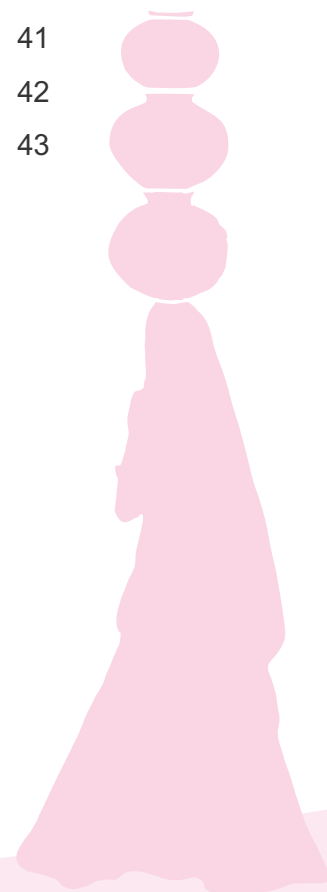
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Average time spent
by women in
domestic work

Rajasthan

Work Inside House | **234**
min/day

Work Inhouse Premises | **183**
min/day

Work Outside House Premises | **241**
min/day

West Bengal

Work Inside House | **174**
min/day

Work Inhouse Premises | **173**
min/day

Work Outside House Premises | **150**
min/day



Executive summary

In rural India, most of the domestic responsibilities are taken care by women. There is some literature looking at this issue from human rights and economics angles. But there is some gap in the understanding of the health impact due to significant drudgery especially in the rural areas of India. This report, developed through various investigation, gives a brief understanding this problem from grass root level and possible solution thereof.

The report brings the realities regarding different types of physical activities women have to do towards their domestic responsibilities, durations and frequencies of these activities and their perceptions of such activities. It also covers the type of drudgery like lifting and carrying headload etc. This information is compiled through an exploratory study which was done in two villages of Maharashtra. The exploratory study found a significant time up to 16 hours a day is spent only on the domestic work including lifting weights and carrying headloads. Much of the work was due to lack of access to basic amenities at the household level.

The research also included a survey to quantify the hardship resulted due to the drudgery and to measure the health impacts of such strenuous physical activities like headload carrying. Data was collected from 565 women in 13 villages around Udaipur in Rajasthan and 100 women in two villages of West Bengal. The survey among the women tried to find the time spent on various physical activities, durations of such physical activities and reported health issues. It was revealed that even without any external employment, women have to work on an average for 11 hours and of them at least four hours spent on strenuous work. Such work pressure also reduces quality time for rest. There is a significant burden of Musculoskeletal Disorders (MSDs) and most of the cases without proper medical attention. Among the elderly women, disability and dysfunctionality were high due to neglected chronic MSDs.

Apart from the exploratory and quantitative study, the report also brings the in-depth understanding of this issue through a multi-location characterization study, focusing on the role of geography and culture on women's drudgery. It was noticed that geography has a major role in shaping the daily physical activities of rural women towards their family responsibilities. The findings across various terrains were unique in terms of the domestic responsibilities and its impact on health of women. There is a difference in the typology of strenuous physical activities and reasons for that across the geographies. Each type of terrain offers particular challenges for women to meet their daily ends. This study tried to capture these factors in five different terrains across India and examined how these factors affect health of the women.

1. Introduction

Women's health has been a matter of great significance for various international organisations including WHO (World Health Organisation) and UNDP (United Nations Development Programme). As per WHO, the health of women is of particular concern, because in many societies the women are disadvantaged by discrimination rooted in socio cultural factors. Socio-cultural footprints keep on burdening the role of women in household irrespective of socio-economic development.

From the times, when humans were hunters and gatherers, women have been given domestic responsibilities as those were relatively safe at that time. However, with a change in human life and modernization, work and physical activities in the domestic domain kept on increasing. With agricultural development, more grain and food came into the kitchen for processing. With increasing family size, the need for water increased; dependency on fire and firewood increased. Ability to domesticate animals also increased domestic work towards that. Women were also got sucked-up in the seasonal labour-work in agriculture due to the sudden need to mass food production. Eventually, modernization reduced this workload on women as various appliances and amenities increased in the domestic domain. Ease in access to water, cooking fuel, electricity and processed food played a significant role. This saved women's time and energy and their representation in other social roles are showing an increasing trend. However, a section of society, especially the rural women, is still devoid of reach to such solutions or amenities and they remain burdened with huge workload towards their domestic responsibilities. For years, they have been working hard on a daily basis. There ought to be the cumulative stress and higher bodily wear and tear. This is super-imposed by mal-nutrition, various micro-nutrient deficiencies like iron in the diet and other co-morbidities. [1- 4] This is also true for adolescent girls [5]. In rural India the birth order is also higher [6], and the health care delivery system is not that good. There is likely to be some effect of all of this cumulatively on health. There is a human cry towards women's drudgery to some extent [7], but there are very few systemic or scientific inquiries made to understand the organization of this drudgery and its impact.

There are few possible reasons why this aspect is neglected in broader public health discourse. It is very difficult to attribute the causation of certain health problem towards domestic work due to multi-factorial and overlapping causality. Also, it is difficult to hold anyone responsible for this drudgery. Another problem is related to defining and measuring domestic work. There has to be a complex application of ergonomics to the various physical activities and results will also have to provide specific action points to solve the health problems. Most of these factors will point towards various typical deficiencies of rural life and doing anything about those is a humongous task.

Globally, the prevalence of low back pain (LBP) is very high and women take a higher burden of this health problem, especially in the age group of 40 to 80 years. [8, 9] MSDs are studied mostly with occupational health perspective in informal or semi-formal set-ups. These diseases are always thought in a frame of occupational set-ups, focusing on occupational hazards. [10, 11, 12] When it comes to unpaid and unaccounted domestic work, there are hardly any studies, especially in India. There is an effort to decide the maximum load bearing norm for women in occupational set up in India, which is 15.4 kgs. [13] But in domestic set up women are helpless and cannot follow any such norm. Unfortunately, there is no detailed data available for India. The existing literature is mainly in the following three perspectives when it comes to women and work.

1.

First is around occupational hazards in formal and informal set-up with a particular focus on pregnant women. These studies have implications on regulations related to working places and compensation in case of injuries, disease or death.

2.

Second is the wage disparities and less representation of women in the higher position. These studies are from human rights' point of view and imply on related legislation.

3.

The third is around training, support, safety, and welfare activities at the employment as well as a pre-employment phase for women empowerment. These studies are mostly from the feministic point of view and push for making society a better place for women.

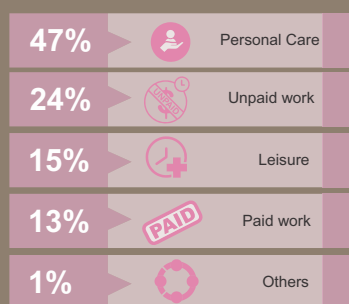
While women's drudgery has been studied from gender and economic perspectives, the health aspect in the domain is rarely explored. Also, the domestic work is rarely analysed from ergonomic perspective due to its diverse nature. It is important to study what kind of physical activities are involved in routine domestic work so that hazardous ones can be identified. These studies try to address this gap.

2. Exploratory qualitative study to understand better

2.1 Women and Domestic workload in India

The data from OECD (Organisation for Economic Co-operation and Development) indicated that India is the second country after Mexico where women are spending maximum time in unpaid work. The unpaid work involves mainly the household routine work and care for household members. Indian women spend 24% of the total time in a day, amounting to 352 minutes in unpaid activities while this proportion is 27% in Mexico (highest) and is 15% in Korea (Lowest).

Daily Time wise distribution of domestic work by women in India



Source: OECD



On the contrary, the men in India spend only 3% of the total available time for any kind of unpaid work. If the total work burden (including both paid work and unpaid work) is taken to the account, women spend 40% (537 minutes a day) of the available time where as men spend only 30% (443 Minutes a day). Irrespective of paid or unpaid work, a women in India is spending around 2.5 hours more every day than their male counterpart.

Women in India currently spend 352 minutes per day on unpaid work which is mostly domestic work, 577% more than what men spend on the same (52 minutes). The time spend in India by women in domestic work is at least 40% more than the time spent by women in South Africa and China, according to OECD.

A national study in USA revealed that women who work for more than 60 hours every week for 3 decades or so have more risk of early onset of diseases like diabetes, heart disease and arthritis than the men who work for similar hours. Thus more work by women in India has definitely put them in disadvantages situations as far as their health is concerned.

2.2 Types of domestic work and responsibility

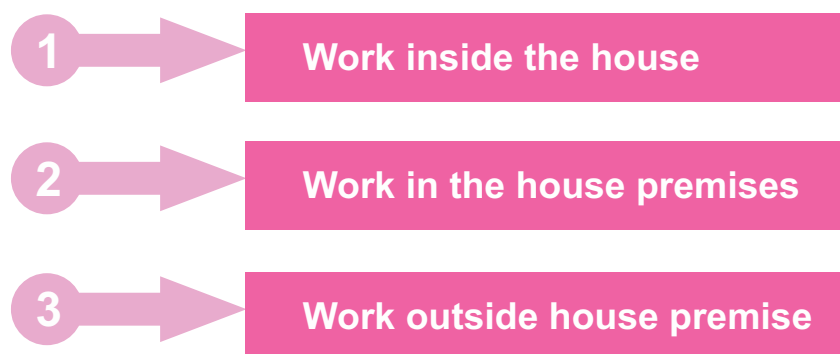
The author undertook a qualitative study to understand the type of domestic work done by women and the resulted burden thereof. For this purpose two villages were selected and a semi structured questionnaire along with qualitative interview was used to generate the information. Among the 29 participants, 14 women were from Undargao, and 15 were from Bubli with inclusion criteria of age more than 25.

Village	Taluka	District	State	Total number of Families in the village	Total number of Women in the village	Other characteristics of the village
Bubli	Surgana	Nashik	Maharashtra	223	671	Underdeveloped
Undargao	Lohara	Osmanabad	Maharashtra	298	598	Draught prone

2.2.1 Daily work and hardship

As per the study, access to basic amenities was highly compromised. Except one, all the families had kaccha houses, 11 did not have electricity. These kaccha houses need regular maintenance in the form of limping with cow-dung and filling the walls, both from inside as well as outside. All of such activities are done by women. There were six families with one room, and 16 had a two-room house. Lesser is the number of rooms, greater is the reliance on house-yard, and it needs to be maintained on a daily basis.

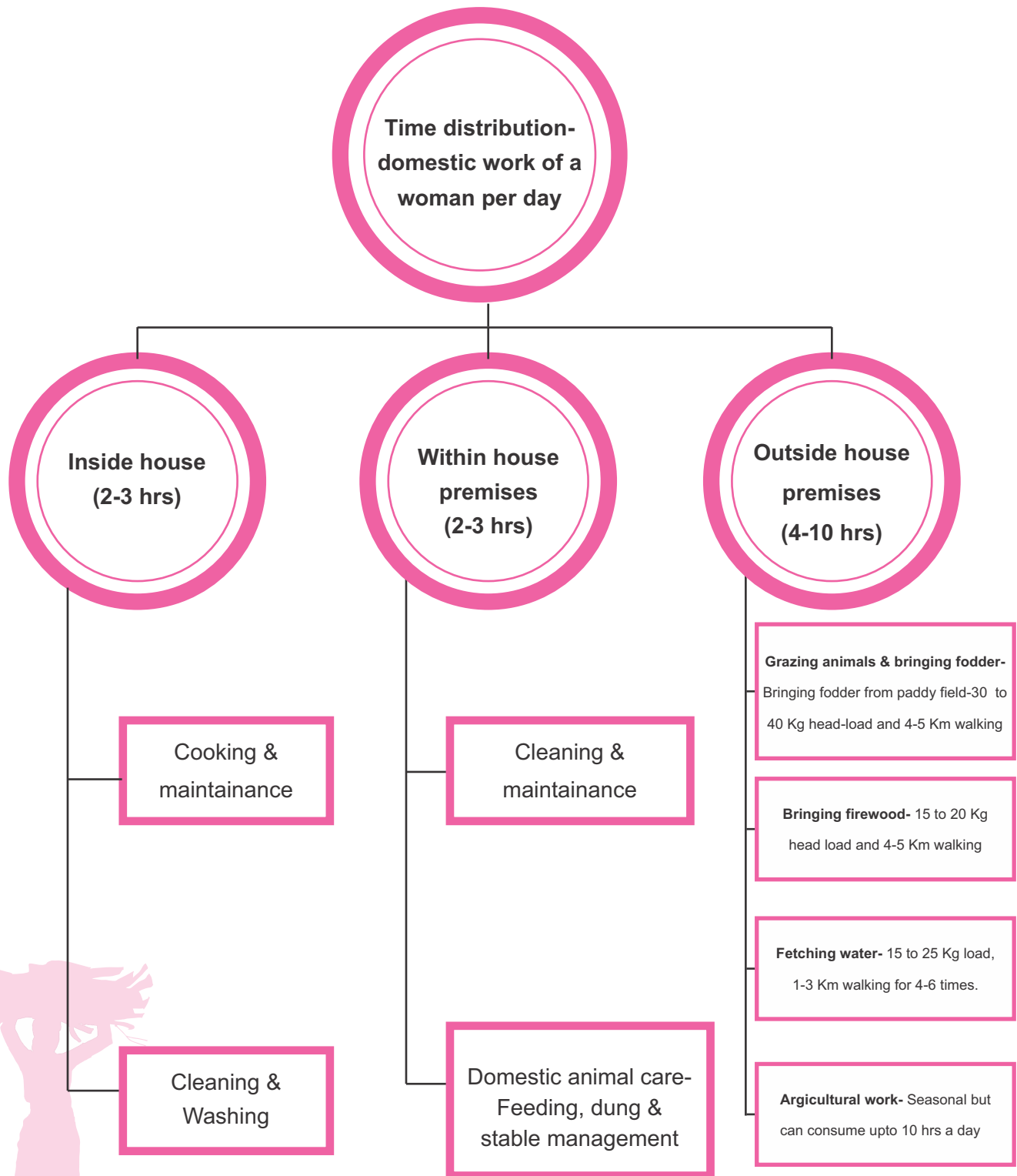
Daily activities were divided into three main categories for better understanding of the type of domestic work and its burden. Those were as follows;



On an average, it took 2-3 hours every day to do the domestic work inside the house. Similar amount of time is spent to fulfil the domestic work needs within the house premises. However, it was observed that a significant high amount of time was spent (4-10 hours a day) for all the activities to be done outside of the house.

One of the work outside of the house premise was to collect the firewood for cooking purpose. Majority of the households are dependant on firewood for cooking, as only one third of the households were having access to LPG gas. Even a small family of four needs around 20 to 25 Kgs of firewood per day. Apart from cooking, there is a need for firewood to heat water for various purpose including bathing. A woman in the village said, *"I need to go far away. Forest people have banned us, but we cannot survive without firewood. Sometimes, I mange with small branches gathered from here and there and dung cakes, but I have to go to the other side of the hill and carry as much as I can."*

Figure 3: Daily Time wise Distribution of domestic work by women in the study villages



2.2.2 Hardship in fetching water

Securing water supply also added to the burden as majority of women walked more than 500 meters and some even walked more than two KMs on a daily basis to fetch water. Most of these women said that they start their day very early and every woman needed to make around five rounds in a day to secure water for their daily use.

One woman narrated, *"I wake up at 4 am. It takes three hours for me to fetch water as I have to make 5-6 trips with two pots... one on the head and one on the waist. Then I sweep mop and clean the house. Make children ready and send them to school. After finishing cooking etc. I have to leave to the farm by 10 am... If I go late, then I'll have to work in the hot sun for a long time."*

Women in the village observed and uttered *"Usually we bring water from nearby hand-pump but in summer the pump dries up, and water becomes less. One needs to pump a lot, and only a trickle of water comes. This increases the waiting time to secure water. We have to wait for our turn in the sun. At times, we have to walk to the well which is away, in the hot and sunny days."*

2.2.3 Agricultural work

Both the villages studied by the researchers were primarily dependent upon agriculture income. Traditionally, women are complementing the activities needed to raise crop. These women were aware that due to challenging work in the agricultural field their life was harsh compared to many other women in cities.

They informed that *"Sowing, planting, weeding, and deseeding etc all the tasks we have to do. All of these tasks are very harsh and strenuous. I can challenge any woman from city to do all these tasks... I am sure they will run away."*

Inquiring further to understand the typical work pressure, a women put it very straight forward,

"I participate in most of the work on our farm. All the tasks are very laborious and in bending position. At times I work in neighbours' farms. Here the rate for working on the farm is Rs. 150 per day. If I do not go to work on their farm, why will they participate in my farm related work? Though this is monetary, it is like helping as well... you will not get outside laborers here. We have to help each other."

Another woman felt that the domestic responsibility along with the agricultural work commitments has made their life quite challenging. She put it as follows;

"After finishing all the work at home, I have to go to the farm. I have to participate in almost every task there. At times we have to water the field by hand when electricity supply is not proper (fetching water from a well and pour it by hand in a systematic manner so that crops do not die). Then my low back pains a lot. This is a very difficult task. Sometimes, we have to take help from a couple of more labours and pay them.

This agricultural work is superadded to their lives making it really tough. It keeps them occupied constantly affecting their health.

2.2.4 Work related to domestic animals

Three fourth families in the villages had domestic animals, mostly milk-producing animals and pair of oxen which is crucial for traditional agricultural practises.

Women had very specific work related to the domestic animal at home.

Women said that "We give them grass and paddy to feed. Processing dung and maintaining stable is also a big task. One ox drinks two buckets of water in a day. How much ever you give them they will eat it. However, we have to make sure that they are well fed, at least in rainy season as they have to work hard in that period."

One woman explained the difficulties and how maintaining these animals stretch their capacities. *"Now we have sold our pair... They aged, and we did not have money to take care of them. But when those were with us, I used to do all the work and took good care of them... however, in summer there used to be problems always. Even we do not get water for ourselves at times. It used to be a big problem to manage water needs of those animals."*



3. Study to measure the drudgery

3.1 Introduction and study area

The health of women engaged in domestic activities has remained one of the neglected areas, both to the researchers and the policymakers, although their contribution to social and economic growth seems to be enormous and in real sense priceless. [14] Women undertake multifarious activities both inside and outside their household premises to fulfil daily household chores. The workload in most of these activities is demanding with telling effects on their health, particularly in the rural areas of India.

Rural women in India have to perform multiple strenuous and hazardous tasks in their daily lives to meet their domestic responsibilities. Their work also includes participation in agricultural or other livelihood activities apart from child-bearing. "The multiple burdens of 'production and reproduction' borne from a position of disadvantage has telling consequences on women's well-being". [15] Most of these tasks are not only strenuous and burdening but also repetitive.

To understand the details of the nature and type of such domestic activities, VAF has conducted in depth studies in two locations of India.

3.1.1 Study Area 1: Rajasthan

One of the quantitative studies was conducted in 13 villages spread across three districts Udaipur, Rajasman and Banswara of Rajasthan. Women of 16 years and above were included in the study. A total number of 565 women were selected from the 13 village for the study.



3.1.2 Study Area 2: West Bengal

This second study was conducted in an island situated at the coastal belt of West Bengal, popularly known as Sundarban, comprising numerous islands on the estuary of the Bay of Bengal. Life in this area is entirely different from other areas of the state and the country at large. Women living in Sundarban have to face several difficulties in carrying out their daily chores. This Sundarban region was made habitable by clearing its forest during the British period around a hundred years back. However, the area has always posed a challenge to human habitations and remains vulnerable to nature's vagaries.

This study was conducted in the Gosaba block in South 24 Parganas district, which is situated in one of the main deltaic islands in the Sundarbans region. This block consists of a number of islands, some having human habitations while dense forest covers the rest. From each of the four study villages, 25 women were selected making a total of 100 participants.



The demographic details of the survey participants are provided in the table given below.

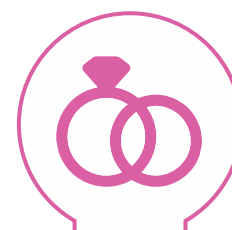
**Socio-Demographic
Parameter**



Rajasthan

West Bengal

121 (22%)	64 (12%)	34 (6%)	347 (62%)	Social Category General	36 (36%)	10 (10%)	53 (53%)	1 (1%)
General	OBC	SC	ST		General	OBC	SC	ST



Rajasthan

West Bengal

12 (3%)	506 (90%)	38 (7%)	7 (3%)	2 (4%)	Marital status	00 (0%)	98 (98%)	02 (2%)	00 (0%)	00 (0%)
Un married	Married	Widow- ed	Separa- ted	Divor- ced		Un married	Married	Widow- ed	Separa- ted	Divor- ced

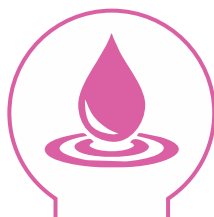


Rajasthan

West Bengal

361 (64%)	94 (17%)	87 (16%)	18 (4%)	5 (8%)	Educ- ation Status	31 (31%)	20 (20%)	41 (41%)	5 (5%)	3 (3%)
Never attended School	Primary School	Secon- dary School	Junior Colle- ge	Grad- uation		Never attended School	Primary School	Secon- dary School	Junior Colle- ge	Grad- uation

Rajasthan



West Bengal

198 (36%)	182 (33%)	95 (17%)	29 (6%)	Source of water	00 (0%)	100 (100%)	00 (0%)	00 (0%)
Well (inside or outside House)	Hand pump	Tap water (in house)	Tap water (outside house)		Well (inside or outside House)	Hand pump	Tap water (in house)	Tap water (outside house)

Rajasthan



West Bengal

168 (30%)	71 (13%)	326 (58%)	Economic Status (as per the colour-code of Ration card)	41 (41%)	----	59 (59%)
Above poverty line	Marginal poverty line	Below poverty line		Above poverty line	Marginal poverty line	Below poverty line

Rajasthan



West Bengal

404 (72%)	61 (29%)	Type of House	61 (61%)	39 (39%)
Kachha House	Pucca House		Kachha House	Pucca House

Rajasthan



West Bengal

379 (67%)	186 (33%)	Source of Income	65 (65%)	35 (35%)
Agriculture	Non- Agriculture		Agriculture	Non- Agriculture

3.2 Nature and type of domestic responsibility

In order to capture physical activities and time spent on those activities, four categories were identified. Each category classified women's work differently. Under each category, there were a set of physical activities and the timing of each physical activity was captured for every participant using self-reports..

Table 3.2 gives the respective timings of various activities under these categories. The timing for activities do not overlap within one category. These timings are self-reported but still helpful in getting gross understanding about the life-style of these women in both the study regions. On average a woman works for around 11 hours a day, within which around eight hours is hard/ strenuous physical work in Rajasthan. In West Bengal, on an average at least two hours of time is spent by women in the household chores. At least four hours of the strenuous task is contributed due to lack of access to basic amenities like LPG or water in both the study regions. Women in Rajasthan get slightly more than one and a half hour on an average for their rest and recreational activities, whereas women in West Bengal get around 4 hours.

Many women in the Sunderban area go to jungle to bring fire-wood and some even plunge in the rivers to catch fish-pin/fish-ling or fish to fulfill their daily necessities. Women in this region on an average wake up at around 5 am in the morning. 18 out of 100 respondents said that after waking up, they go to the nearest canal or river to collect fish-pin, which they sell to the fish-pin collectors.



Physical activity

Average Time spent(in Hrs)

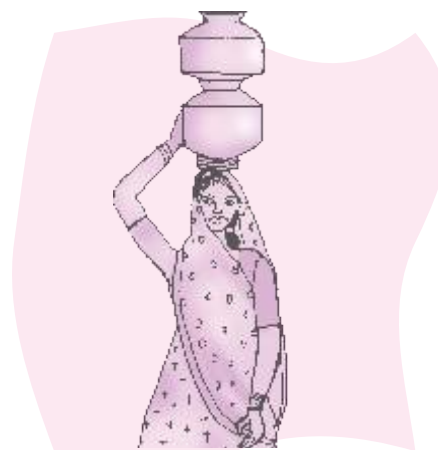
Table 3.2. Mean duration (hours) of various physical activities per day in the study area of Rajasthan and West Bengal

Space of activity	Rajasthan	West Bengal
1.Work inside the house	3.90	2.89
2.Work in house premises	3.05	2.88
3.Work outside of house premises	4.02	2.53



Type of physical activity	Rajasthan	West Bengal
1.Walking	3.15	4.83
2.Carrying any sort of weight	2.07	2.31
3.Work in bending position	2.61	2.65

Reason for activity	Rajasthan	West Bengal
1.Fetching water	1.10	1.19
2.Bringing fodder/ preparing forage	1.17	1.46
3.Bringing firewood	1.70	1.50
4.Working in your farm	2.64	2.66



Leisure activities	Rajasthan	West Bengal
1.Watching TV	0.23	0.91
2.Talking with friends/ neighbours	0.76	1.15
3.Taking rest in day time	0.80	1.45

3.2.1 Most strenuous daily tasks

Responding to a question “Which is the most strenuous task in your daily work?”, 45.13% in Rajasthan mentioned as agriculture-related work in their farm, 19.47 % opined bringing firewood, 8.5 % said fetching water as most strenuous work. Only 5.13 % reported no work as strenuous. 14.51 % of women gave multiple tasks in combination as their responses which mainly involves agriculture, fetching firewood and water.

Almost similar pattern of answer was reported in the study areas of West Bengal. All the respondents said that the most strenuous works involve working in a bending position, and carrying weight. During their work in the agriculture field, they have to spend most of the time in bending position. Forty seven percent women in the study area of West Bengal reported that a significant proportion time is spent to work in bending position. It causes a perpetual ache in the waist area and also causes a feeling of tiredness and dizziness. Another strenuous work reported is fetching water and carrying the same from a distance. The respondents walk on an average 436 meters distance with buckets or pots full of water. They usually carry two pots or buckets at a time and 89 % of respondents have to undertake this journey more than once a day. Only 10 % of respondents have access to a water source within 100 meters from their household. It was also found that 43 % respondents have to go to a secondary water source when their primary water source become defunct.



4. Evidence of impact on women's health

4.1 Strenuous domestic work and health issues

Strenuous daily chores often cause Musculoskeletal Disorders (MSDs) and other diseases at the advanced age. Heavy physical work can cause MSDs, static work postures, frequent bending and twisting, lifting, pushing and pulling, repetitive work, vibration, and psychological and psychosocial stress [16]. Studies have shown that women are more likely to suffer from musculoskeletal illnesses in the upper limbs and lower back [17]. Literature has also shown that physically or psychologically demanding jobs are associated with higher prevalence of neck and back pain [18]. The study assessed the self-reported prevalence rate of various musculo-skeletal and non musculo-skeletal problems in the study areas of Rajasthan and West Bengal.

4.2 Prevalence of Musculo- Skeletal Problems in study areas

More than half of the respondents in the study area of Rajasthan reported some form of musculo-skeletal pain of chronic nature (duration of more than three months). Low Back Pain- LBP was the most common complaint in this category with 165 women (29.2%) reported during the study, followed by 10.09% reported leg and knee pain and 4.25% with shoulder and upper arm pain. Another set of 56 women (9.91%) said that they have pain at multiple joints, neck or other non-specific chronic musculo-skeletal problems.

The reporting of health issues among the women in the study areas of West Bengal was found to be much higher than in Rajasthan. Except for low back pain, the reporting of health issues among women in West Bengal is significantly high. Surprisingly 87% respondents reported leg or knee pain in the study areas of West Bengal. Such different prevalence rates in two study locations point towards the role of geography in shaping women's activities. The prevalence of various self-reported musculo-skeletal problems is given in the table below. Many have multiple MSDs.

The details of the musculo-skeletal problem is illustrated in Table 4.2

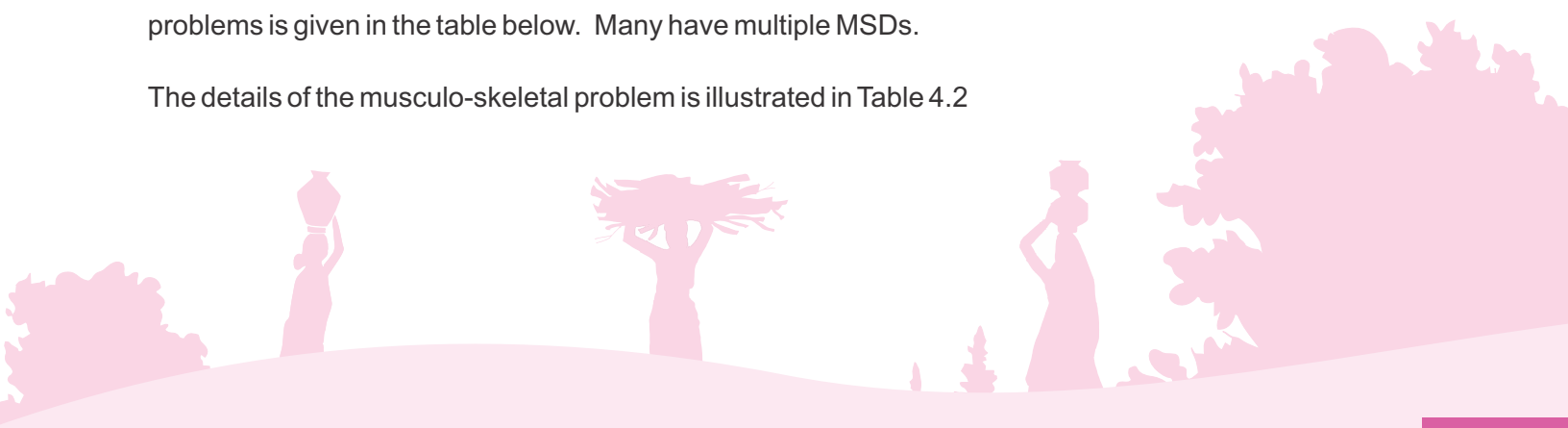






Table 4.2. Reporting of Musculo-Skeletal problems in the study area of Rajasthan and West Bengal



	Musculo-skeletal problem	Reporting Rate in Rajasthan (N= 565)	Reporting Rate in West Bengal(N= 100)
	Low Back Pain (LBP)	29.20%	19.0%
	Shoulder/ upper arm pain	04.25%	21.0%
	Leg/ knee pain	10.09%	87.0%
	Other musculoskeletal problem	09.91%	30.0%

4.3 Prevalence of other health Problems in study areas

Apart from musculo-skeletal chronic health problems, women from the study area have also reported other health issues. More than 7 % women complained of chronic gynaecological problems/ pain in Rajasthan and such health issue among the respondents in West Bengal was found to be 15%. Around 45 women (7.96 %) in Rajasthan and one-fourth of women in West Bengal reported non-specific problems like fever, weakness, respiratory problems, acidity, body ache etc .

The prevalence rate of non-musculo-skeletal chronic health problems is given in Table 4.2.1.

Table 4.3 Prevalence of Non Musculo-Skeletal problems in the study area of Rajasthan and West Bengal



	Non Musculo-skeletal problem	Prevalence Rate in Rajasthan(N= 565)	Prevalence Rate in West Bengal(N= 100)
	Chronic Gynaecological problems/ pain	7.26 %	15 %
	Non Specific problem like fever, weakness, acidity etc.	7.96%	25%

4.4 Health Seeking Behaviour in the study area of Rajasthan and West Bengal

Health seeking for a particular health problem is crucial in order to minimize the burden of disease. In the current study the health seeking behavior was assessed through consultation of a doctor and taking medication.

Health seeking behavior in Rajasthan was found to be better than in the study areas of West Bengal. More than 60% of the women in Rajasthan consulted a doctor for the health issues suffered by them while 53% women in West Bengal consulted a doctor. Although more than half of the women consulted a doctor for health issues, only around 40% women had taken some medication in the study areas of West Bengal.

Table 4.4 Health seeking behaviour of women in the study area of Rajasthan and West Bengal

Study Region		Visited doctor in last one year n (%)	Taken medication in last one year n (%)
Rajasthan		353 (62.48%)	355 (62.83%)
West Bengal		53 (53.0%)	41 (41.0%)

It was also found that more than 4% of the respondents have consumed medicine for Musculo-skeletal problem without consulting the doctor, indicating the seriousness of the issue in the project area.

4.5 Hospitalisation for health issues in the study area of Rajasthan and West Bengal

Total 169 (29.91%) women were found to be hospitalised ever in life-time in Rajasthan. Hospitalisation in the study region of West Bengal was almost double (57%) as compared to the study areas of Rajasthan. The details of the reasons for their last major hospitalization are given in table 4.4.

Table 4.5 Hospitalisation of women in the study area of Rajasthan and West Bengal

Percentage of Women Hospitalised in study areas of Rajasthan	Reason for last hospitalization	Percentage of Women Hospitalised in study areas of West Bengal
7.43%	Obstetrics	21.0%
2.83%	MSDs	2.0%
6.19%	Infective causes	7.0%
8.50%	Other causes	21.0%
4.25%	Hysterectomy	4.0%
0.71%	Worst outcomes of pregnancy	2.0%
29.91%	Total	57.0%

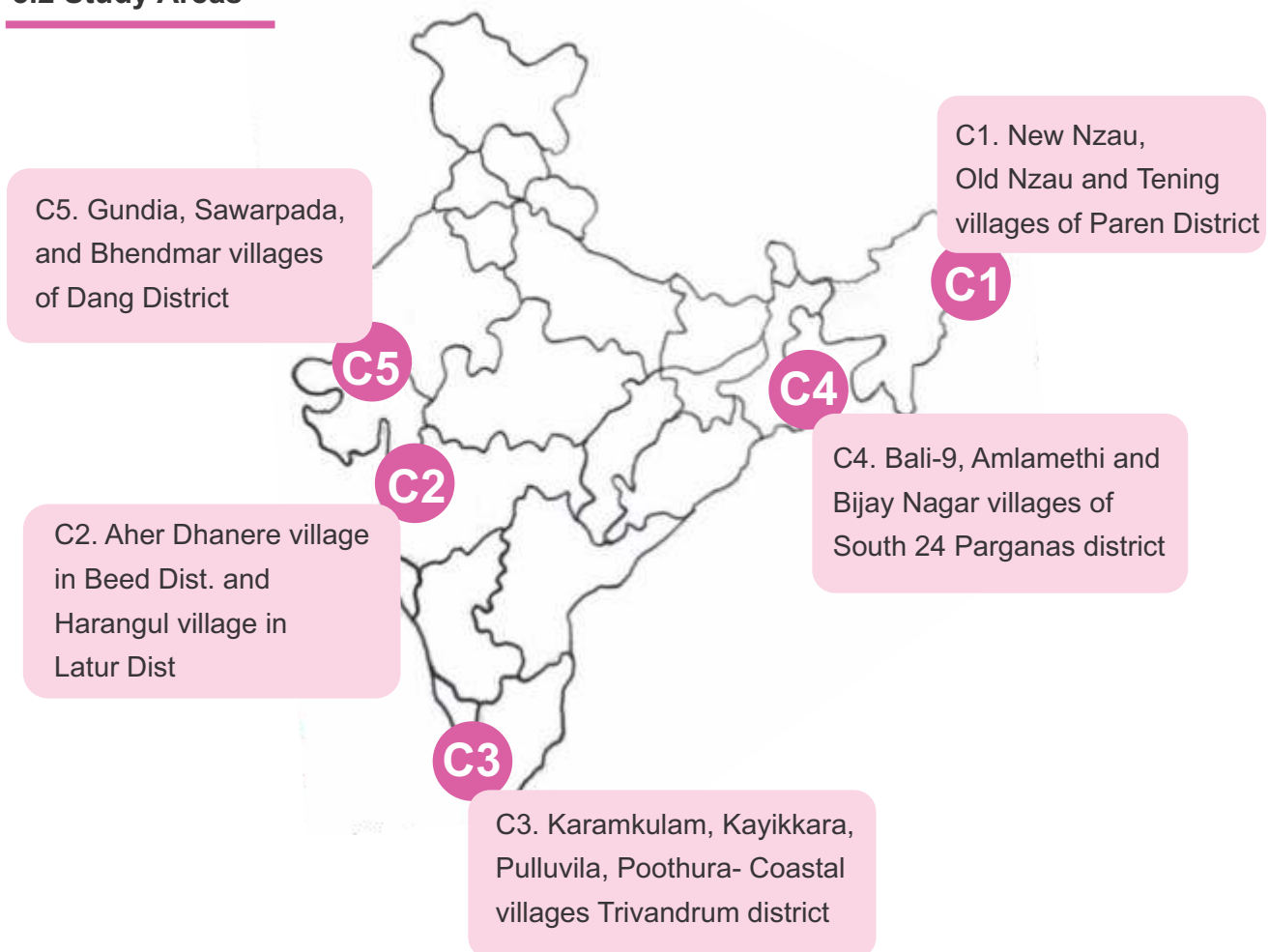
Hospitalization for MSDs is less even though the prevalence for the same is high. It could be due to neglect towards MSDs and slow-progressing nature of the chronic MSDs.

5. Characterisation study for contextual understanding of geographies .

5.1 Introduction

This process of characterization of the issue involved general interactions with 21 diverse women with age more than 30 years using a semi-structured interview schedule and observations. Five geographically diverse locations were covered. This was to gain idea of the types of different tasks and physical activities that women have to do on daily basis. This also helped in understanding the health related vulnerabilities of women in those geographical areas. The description of today's reality is given initially in each section, followed by related info-graphics

5.2 Study Areas



Map not to scale

Location: New Nzau, Old Nzau and Tening villages of Paren District

Terrain: It is a mesmerising terrain but equally difficult journey to reach there due to bad roads. Building sustainable commuting infrastructure is a challenging task here. Reaching to villages on mountain slopes is not easy. The sharp slopes are washed every rainy season. Public transport consists of daring young drivers with 4X4 vehicles and equally daring passengers.

Community: Most of the people are the tribal origin and poor. Male migration is considerably high, and they are not easily available, even for family emergencies.

Daily Routine: Women have to deal with daily chores. Dependence on firewood is very high as it is the only energy source available to these people. Availability of petroleum products is very limited neither the related schemes have reached to these difficult areas. People store wood in house premises for rainy and difficult seasons. This mainly happens when men are around and the whole family stock-up a huge pile of wood after cutting trees from the jungle. Typically, man cuts the trees, make into pieces and women carry the wood to a nearby connecting road and pile it up there. From there the family uses some transport to take it to the house. However, women are supposed to collect wood on a daily basis unless it becomes impossible. Here women have to climb up and down, so, they have adopted a different method of headload carrying. Bamboo case is slung on the back with the help of a strip which comes on head or forehead. This gives better stability while walking in ups and downs of the hills. Firewood is central to the lifestyle here. It is not only required for cooking and heating water but also to get light and warmth. This is why one can see many women carrying firewood anytime in the day.

Water availability is mostly dependent on nature. Very recently there are some interventions towards water supply at the hamlet level. However, many women have to fetch water from the streams down the hills. As women have to take care of their babies while walking these slopes, they strap them on the back in the same way as that of the wood. In rainy season some water-streams open up up-hill. Then it is relatively easier to use pipes to bring such water near colonies. But it is for the rainy season only.

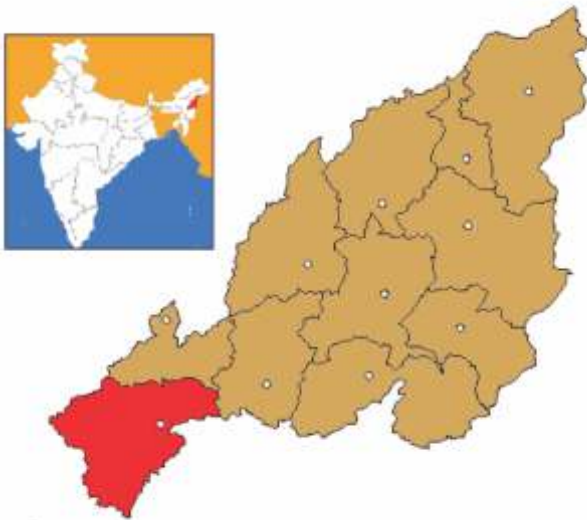
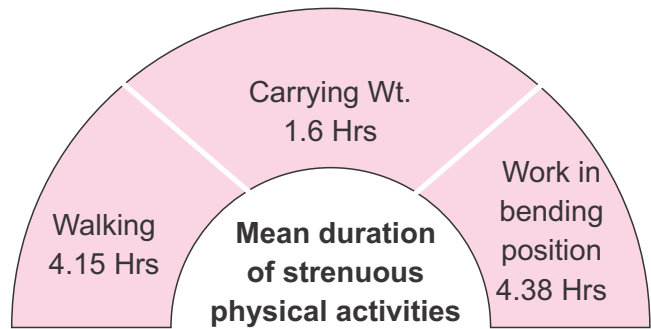
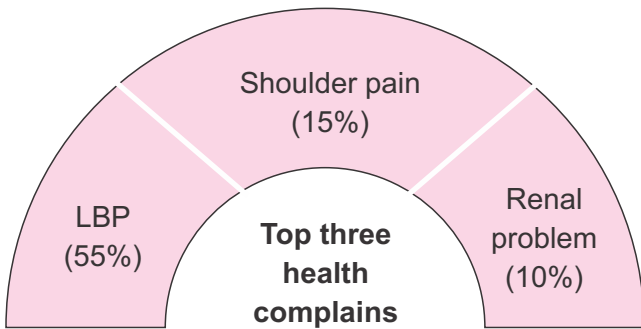
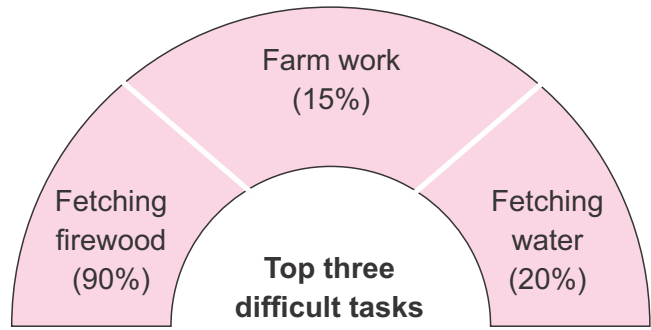
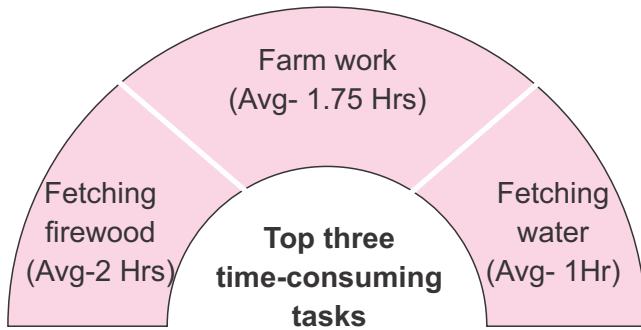
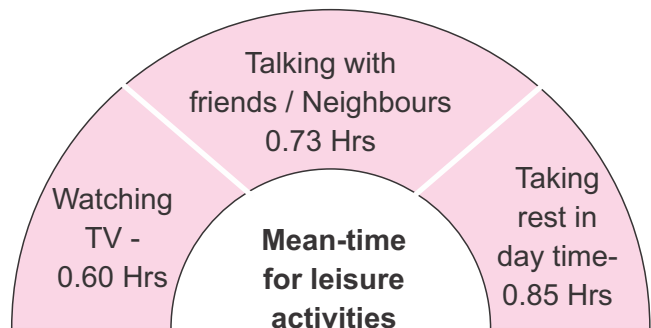
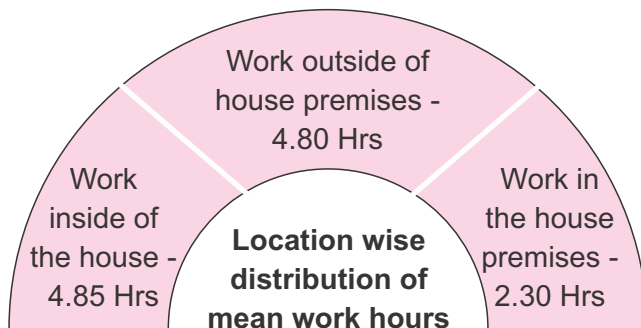


Figure 1 Peren District in Nagaland (Source- Wikipedia)



Figure 2 Tening region in Peren (Source- IndiaGrowing.com)



Location: Aher Dhanere village in Beed Dist. and Harangul village in Latur Dist

Terrain: In the last few decades, the rainfall in Marathwada region has reduced drastically. This is one of the most backward regions of Maharashtra. Latur, Osmanabad and Beed districts have seen the worst situation. In many villages, there was no water at all. No rain for the seasonal cycle is equivalent of a death sentence for an agrarian society here.

Community: Most of the people are dependent on agriculture and are poor. Lack of water has made this region a drought prone area. Famine led to migration, malnutrition, selling of domestic animals, a decrease in livelihood options in these areas.

Daily Routine: Women have to walk a lot to get water in the hot sun. The atmosphere is arid, dry and hot. Women have to innovate ways to save water as much as possible. This makes them to carry the clothes and utensils near the water source for washing. This is an additional burden apart from fetching water. In few villages there are tanks with limited pipeline to colonies. But often the tanks are empty as there is no enough water. In sever problematic days local administration and NGOs bring water in tankers and there is a different struggle to get water from it. There are regular fights and quarrels over water fetching practices. Every woman needs to get a better share for her family. Her day passes by worrying about fetching water, making enough food, and worrying that her husband does not commit suicide. In most of the villages one can find young widows whose husbands committed suicides. There is also the problem of alcoholism in the region.

Like other rural areas here also there is limited reach of LPG or Biogas and cooking is mainly dependant on firewood and dried cow-dung cakes. Management of cow dung is a laborious task. Women collect the dung from cow-shed while cleaning those. They take that heavy dung to a suitable place where they make the cakes and put for sun-drying. Women often go for farm work. If the family is relatively better then women have to work in their own farms and if they have no or very small land, the women have to work in others' farms. Here most of the work is manual and women have to work very hard in farms in the hot sun. Malnutrition and heavy physical work leaves imprint on the health of the women. Most of the elderly women have multiple MSDs and they live life of a crippled.

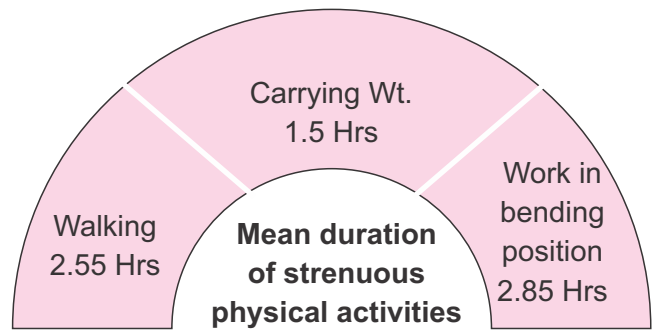
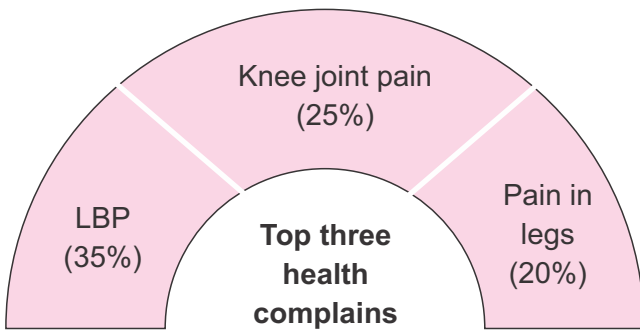
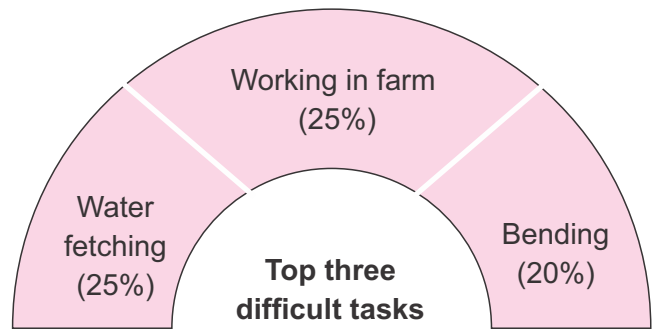
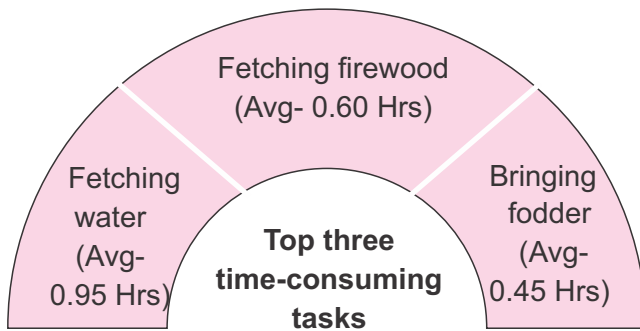
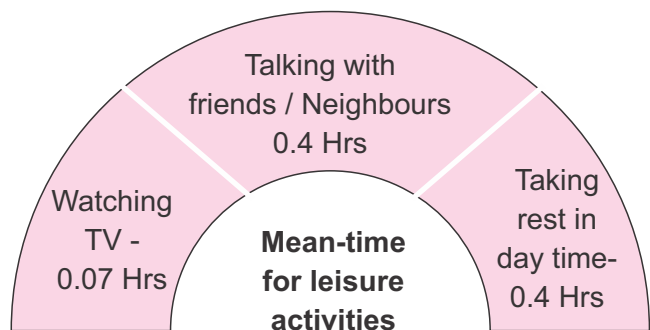
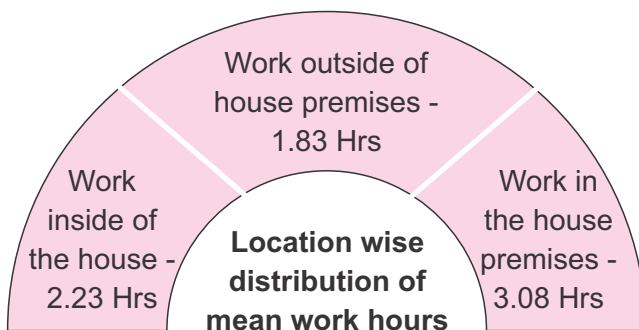


Figure 4 Marathwada region in Maharashtra (Source- Wikipedia)



Figure 3 Latur & Beed Districts in Marathwada region (Source- Wikipedia)



- Location:** Karamkulam, Kayikkara, Pulluvila, Poothura- Coastal villeges Trivandrum district
- Terrain:** These coastal villeges are located on the west coast of India near the extreme south of the mainland.
- Community:** Most of the people are dependent on fishing. Women get up early, and they have to be at the sea-shore where boatmen sell the fish to them. The boatmen can also be from the family, and then there is no need to buy the fishes. However, often women have to buy fishes in order to have a diverse pool in their basket. In the old days they used to carry these fish baskets on the head to the markets by walking or by using public transport.
- Daily Routine:** Women said that the daily activities in their life used to be very tough and tense. Women carry basket load of fish to the market to sell for their daily living. Usually, full baskets can be of 30 to 40 kgs, but there can be larger baskets as well. The markets are spread from five to 20 kms. Women cannot return until they make some profit because the fish will not last till next day unless they have access to a refrigerator. Some women sell fishes door to door which involves more walking with headload. Few types of fishes can be dried but they are processed separately from the start, and these remaining fishes in relatively small quantity cannot be dried. The atmosphere is mostly hot and humid which facilitates purification of fishes, and it also makes these women tired as they spent most of the day time outside. At the time of selling, women have to clean each fish. Women were laughing while saying that they always stink of fish.
- In the old days, women had to walk long distances to fetch drinking water from the wells away from the shore. Water for washing purposes is always available from shallow-wells in the house premises. However, in the last few years government has laid a good network of community taps for drinking water and now women need not walk long distances. Women also said that they have to spend a lot of time in cleaning houses as sand keeps on coming to the house. It requires more efforts to clean clothes in saline water. Also, the high humidity makes any iron thing rust unless kept clean and maintained. One problem frequently mentioned by women was alcoholism by men. They say most of the men drink and a significant proportion of them are addicted.

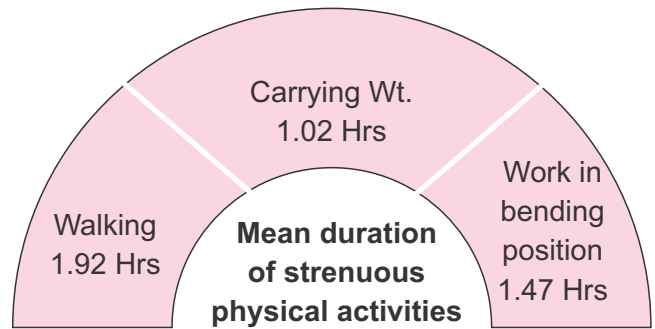
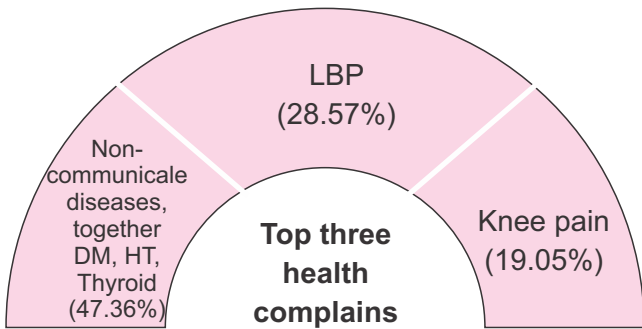
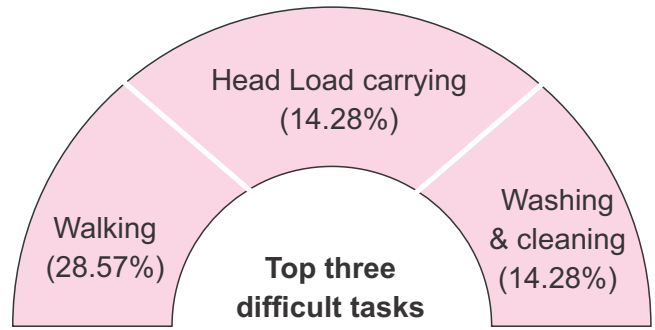
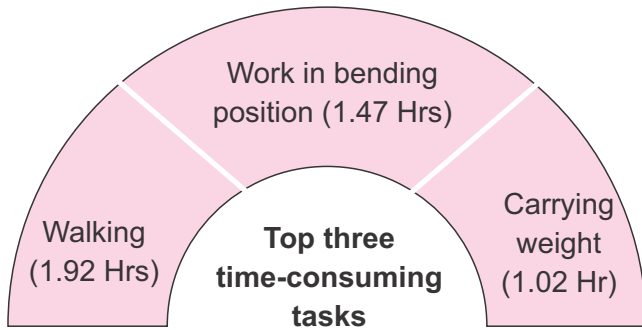
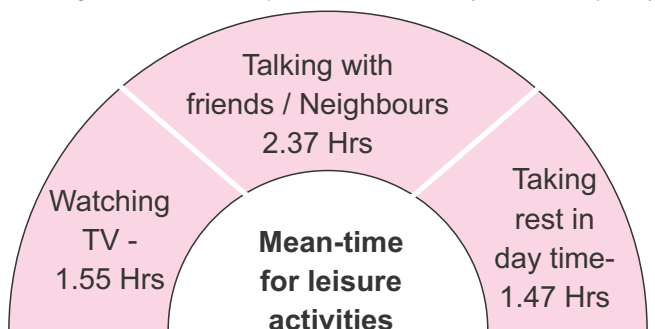
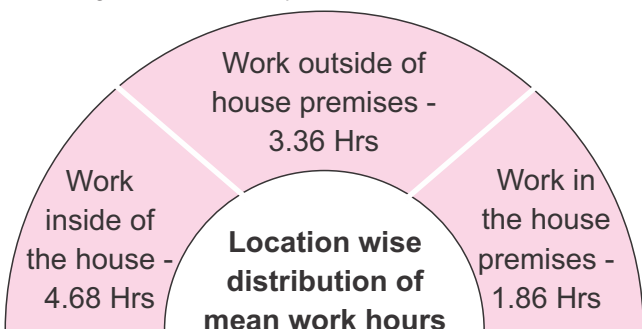


Figure 6 Thiruvananthapuram District In Kerala



Figure 5 Thiruvananthapuram Taluk location (Source- Wikipedia)



Characterization Study- Marshland in Sundarbans of West Bengal

Location: Bali-9, Amlamethi and Bijay Nagar villages of South 24 Parganas district

Terrain: The largest mangrove jungle on earth is divided between India and Bangladesh with 40% of the area in West Bengal, India. With diverse flora-fauna, this is a protected forest area but this is home to many, and they live in these forest areas or near the border. This is a marshy land with multiple islands separated by saline water. The thick mangrove trees evolved here due to no competition from other types of trees. Out of 25 types “Sundari” is the most common type of mangrove tree hence the name “Sundar Ban” (Ban- forest). These trees get blossom for a long time, and naturally, there are many bee-hives. Wild honey fetching used to be a good but risky business here which is banned now after many deaths by tiger attacks. It is replaced by honey bee-keeping. The forest has many wild animals, but most fearsome is the Royal Bengal Tiger which is the most aggressive and cunning variety.

Community: The villages here are predominantly of scheduled casts. Most of them have inhabited this land more than 200 years back as a result of British policy to settle the vast SC population caught-up in some communal conflict, here and gave them free land. As there was no natural drinking water source, people used to dig the land in front of their house which used to get filled with rainwater. Of course, this was not healthy, and these areas used to have very high mortality rates. Huts are made up of wood, clay and hay. Men migrate to cities in search of jobs and get engaged in the worst of the employment. These man-tiger conflict areas seem to be kept underdeveloped to avoid overpopulation. There was no electricity, water-line, pukka roads or mobile coverage in any of the study villages.

Daily Routine: The absolute absence of modern amenities makes women's daily schedule very hectic and full of hardship. For cleaning purposes, they have water at door step, but they need to fetch drinking water every day from the hand pumps. Pumping is strenuous due to the high depth of bores. The depth of the bore well needs to be too deep to avoid saline superficial aqua-pores, up to 700 to 800 meters. Some areas are made cultivable, and few specific types of rice are grown here. People live here with bare minimum things.

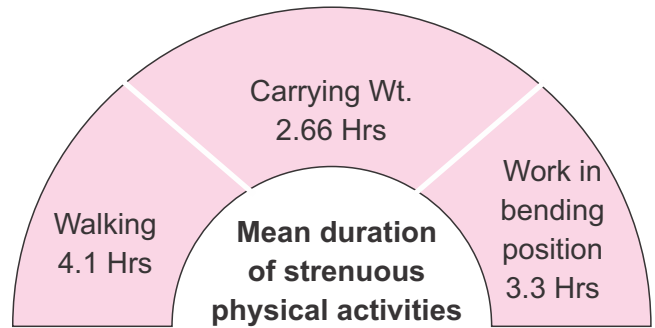
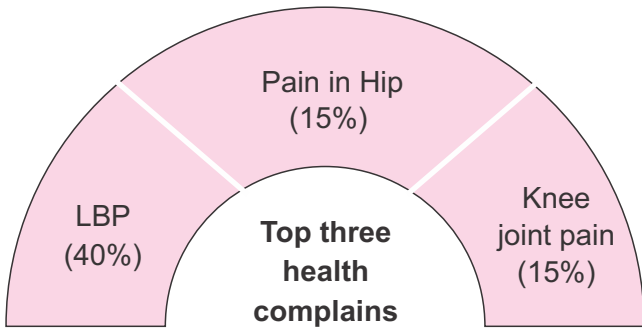
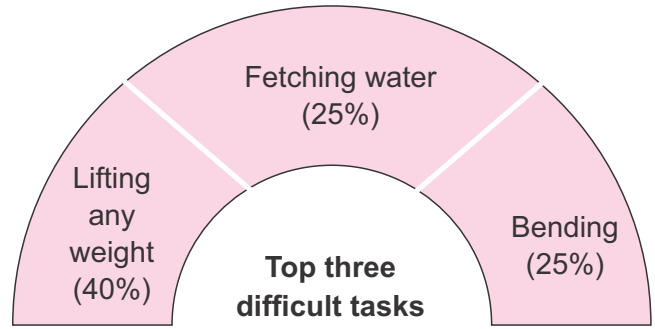
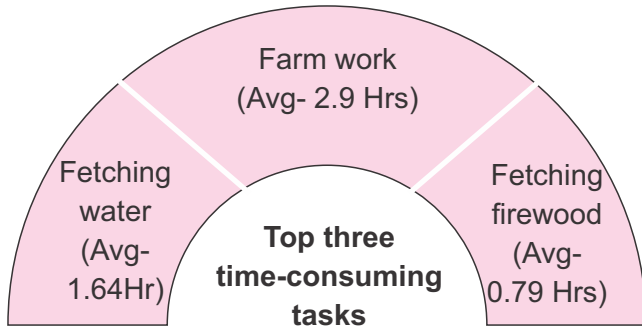
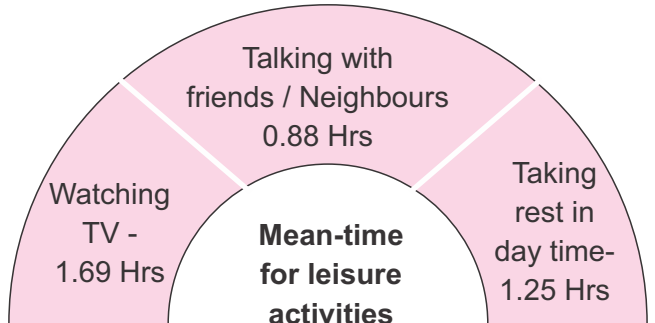
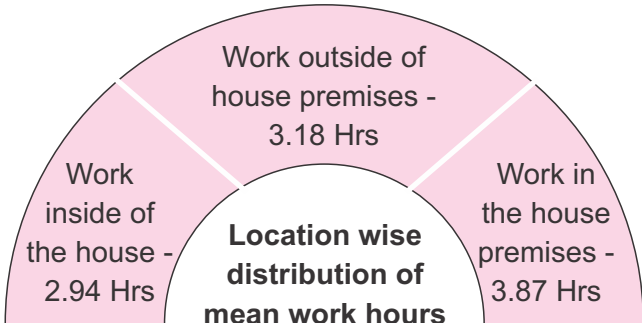


Figure 7 South 24 Pargana district (Source- Veethi.com)



Figure 8 Location of Gosaba Block (Source- wbkvib.org.in)



Location: Gundia, Sawarpada, and Bhendmar villages of Dang District

Terrain: Dang is a relatively backward district of Gujarat which was ruled by a tribal king and British exploited the jungles by completely removing the trees for plantation of teakwood.

Community: Most people are from Kokana and Bhill tribes, and they were converted to Christianity in the British era. Linguistically, they speak different language from the official state language. Today they face many problems and lead a tough life which depends upon nature and its exploitation. They have adapted to agrarian lifestyle recently but methods are primitive and the soil fertility is low. The farm produce is just enough for family consumption and not a surplus. Male migration is seasonal and mainly to the grape-farms or agri-related factories in Nashik region. Men come to their villages when agriculture needs intensive work. Schools and health centers are far in the mountains and hence access to education and health is less. Education among women is less and there are no employment opportunities here, specially for women.

Daily Routine: Women do all the work on the house as well on farm front. Women have to fetch wood and water by walking long distances and carrying headloads. One of the study villages very recently got tap connections at household level due to one NGO intervention. Water from one well is pumped out using a solar pump. In rainy season the pump does not work well and women have to walk in mud to fetch water.

The only asset these people have is teak trees. One family is allowed to sell 10 teak trees from the jungle over five years. Cost of one tree can be from 70 to 100 thousand and girls have a share in this income, even after marriage. But it seems most of the money goes towards marriages, health or other emergencies. In the villages, birth order per women appear to be higher. Many women had gynaecological problems but they were too shy to talk about such problems. Except for Sawarpada, women in other villages had to walk from 200 to 1000 meter to fetch water and in summer the situation is very bad in general. The handpump in Gundia village often dries up in summer.

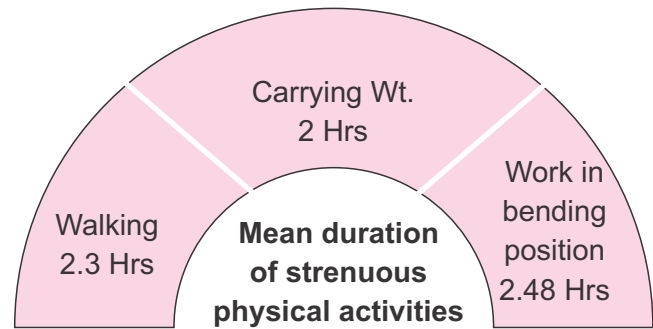
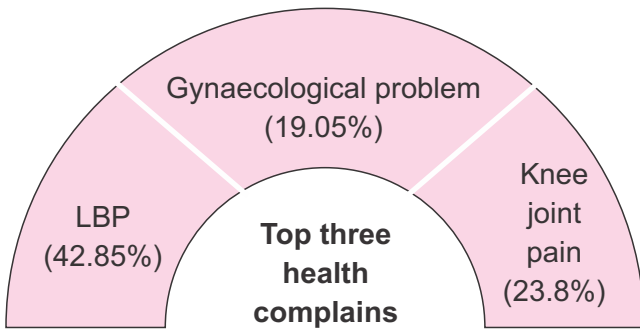
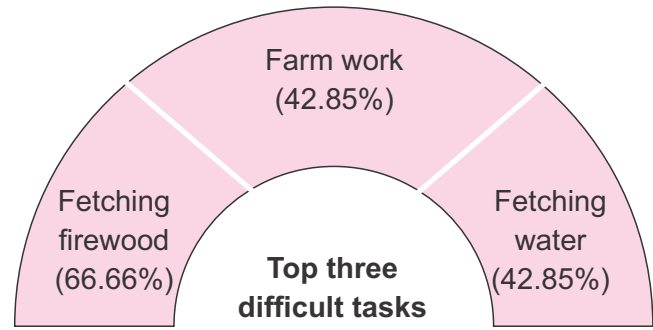
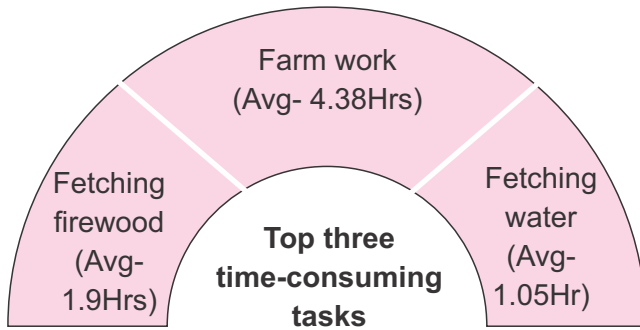
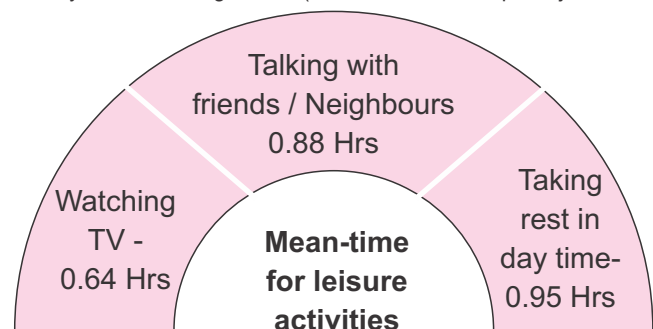
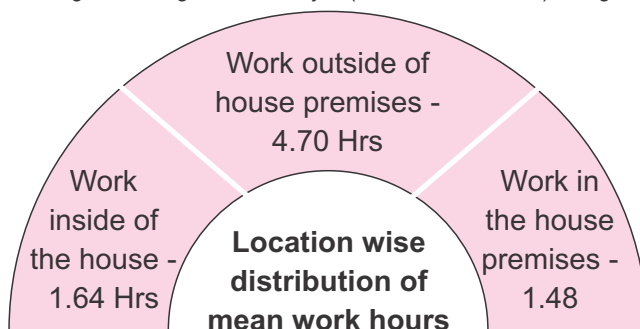


Figure 9 Dang district in Gujrat (Source- Veethi.com)



Figure 10 Study blocks in Dang District (source- Revenue dept, Gujarat state)



5.3 Learning from characterization study

Purpose of the characterization study was to appreciate how geographical parameters shape women's drudgery and affect their health differently. This might contribute towards deciding the typology of interventions geography-wise. Difficult terrains have relatively less population density and there is always scarcity of some or the other essential resource. Such places are considered as remote due to bad commuting options. It is not economical to invest resources for a smaller population. These factors further retard the progress of the communities living in such conditions. The low purchase capacity further retards the trade. Hills of Nagaland and marshy riverine islands of Sundarbans are such examples. People then have to struggle and manage within available natural resources and spend time to make them usable. This is closer to a primitive lifestyle, especially for women who are responsible for running the household.

Non-availability of water was a major concern. Water need vary greatly depending upon the season, family size, presence of animal husbandry etc. Distance to fetch water also varies greatly depending upon the availability of the natural source, season, the reach of interventions etc. Fetching water is one of the most challenging and time-consuming jobs in Sundarbans as well as in dry areas of Marathwada. In hilly areas, natural water resources are down the hill and tend to get dry-up in summer. Similar is the situation in coastal areas due to the salinity of the water. In plain areas, wheelbarrow or water-wheel like interventions can help. Innovative gravity run systems can help in hilly regions.

Difficult geographies also face energy poverty and all energy sources are traditional. Fetching firewood was always among the top list of "Most difficult task". This phenomenon has an impact on the environment as well as the health of the women. There is a vast room to enhance the use of renewable energy sources in such areas. Most of these places have such sources in abundance e.g.- wind, sunlight, cow dung etc. small-scale or individual level means to tap renewable energy can change the picture and might have a positive impact on the health as well as environment. The common health complaints were also different across the geographies but MSDs formed predominant group followed by gynaecological problems. Unfortunately, many women suffer from preventable or curable health problems due to lack of access to health.

To conclude, Environmental determinants of health play a crucial role in rural areas of India. Geographical terrains along with socio-economic factors shape women's drudgery. Related interventions should consider such factors. Places, where agro-climatic conditions are better, will be relatively low hanging fruits. Tough geographical terrain or remote places need more intense interventions to reduce the drudgery of women and main-stream them. Improving access to water and energy sources will ease the lives of women. Till the time all this happens, provision of health care focusing on MSDs is crucial. This will help in improving quality as well as longevity of rural lives.

6. Strategy for Improvement

These studies throw light on the real situation, hardship and status of rural women and their health. On an average, women work hard for 11 hours towards their domestic responsibilities. This work is not restricted to within the house space but largely to the outside spaces as well. The hardship is contributed mainly by two factors. One is the poverty and the other is lack of basic amenities in public sphere. The following could be taken up in order to reduce the burden of women's domestic and livelihood responsibility.

6.1 Implementation of known innovations

The article "Ujjwala and waterwheels: reducing women's drudgery" brought out the possibilities of reducing women's daily drudgery by implementing innovations in social sector. Since one of the major contributor to daily drudgery is collection and carrying of firewood, the Ujjawala Yojana, a scheme by prime minister to provide free cooking gas connection to families below poverty line would bring relief to women to a greater extent. Some organizations have been advocating the use of waterwheels, a high density polyethylene (HDPE) drum that could be filled with water and then rolled home rather than women having to pick water pots and carry on their heads. Although Neelkamal, a plastic product manufacturing company is marketing the waterwheels, further facilitation including better roads, better utility wheels to traverse our rural topography etc. needs to be taken care of to scale up the usage of these innovations.

6.2 Ensuring availability of Basic Amenities

Lack of basic amenities in public sphere is contributing majorly to the burden of domestic and livelihood responsibilities of women. **Availability of basic facilities can reduce the daily hardship of women by half.** Public systems like LPG distribution, which incur cost on consumer are almost absent from rural areas due to low paying capacity of the beneficiaries. This translates into the unavailability of essential things at household level, even for families who can barely afford or desperately need it. Another example is unavailability of electricity. As per the Ministry of Power- Government of India, the coverage of rural Rajasthan is 93.54% which is one of the least compared to other states. [19] As per the census 2011, rural parts of Udaipur district suffer the worst with coverage of 48.43%. Also, electricity connection does not mean constant power supply. In rural India across most of the states the supplies are very erratic and load-shedding is a regular phenomenon. This unavailability of electricity also affects work

done by the women and their hardship. [20] Many tasks related to cooking and water fetching can be made easy with secure electricity supply. Same is the status of access to water and cooking fuel. These two are the worst entities for which women have to work hard daily as per their responses. Access to these things today is greatly compromised even if the families try hard to break the barriers. Government schemes are not helping the situation up to the expectations. [21, 22, 23] All of this adds to the drudgery and physical labour.

From the results, it is evident that on an average, at least 2.9 hours of strenuous physical activity per women per day can be reduced with the provision of the basic facility of LPG and water at the doorstep. If animal forage is provided, 1.17 hours' drudgery can be reduced further. Similarly, provision of electricity can help in mechanization of various tasks of women in domestic and agricultural activities. [24] Lack of such facilities make women slave of a very harsh and laborious life. This also leads to time poverty. It was seen that improving access of very basic facilities will reduce the duration of the drudgery by four hours or so on daily basis and it will give the women time and energy to engage in other productive or development activities. Without this saved time and energy, it is difficult to think about their mainstreaming. [24, 25]

6.3 Adherence to ergonomic norms

It is evident from the results that women are working in excess to any work-related norm in occupational set-ups. As per the Factories Act 1948, work hour limit is nine hours per day for any adult, male or female and it should not exceed 48 hours a week. [26] Maximum weight which an Indian woman worker should carry is 15.4 KGs. [13] But in reality, women in this part of India are working much harder and beyond these norms. Some sensitisation using mass media may help women modify their domestic tasks.

Agricultural work was also on top list as “most strenuous work” by many. It constitutes various tasks which vary largely depending upon season and type of farm produce. But women do a great portion of these activities in farm and mostly without much recognition or compensation. [20, 21] In various surveys related to women's contribution towards agriculture, only monetary part is focused but women's contribution in terms of her suffering and health impact is often not measured. [24] This hardship over many years is affecting the health of these women unlike our assumption that rural people are sturdy. The life expectancy, disability rates and self-reported health tell a different story.

6.4 Innovation for neglected problems

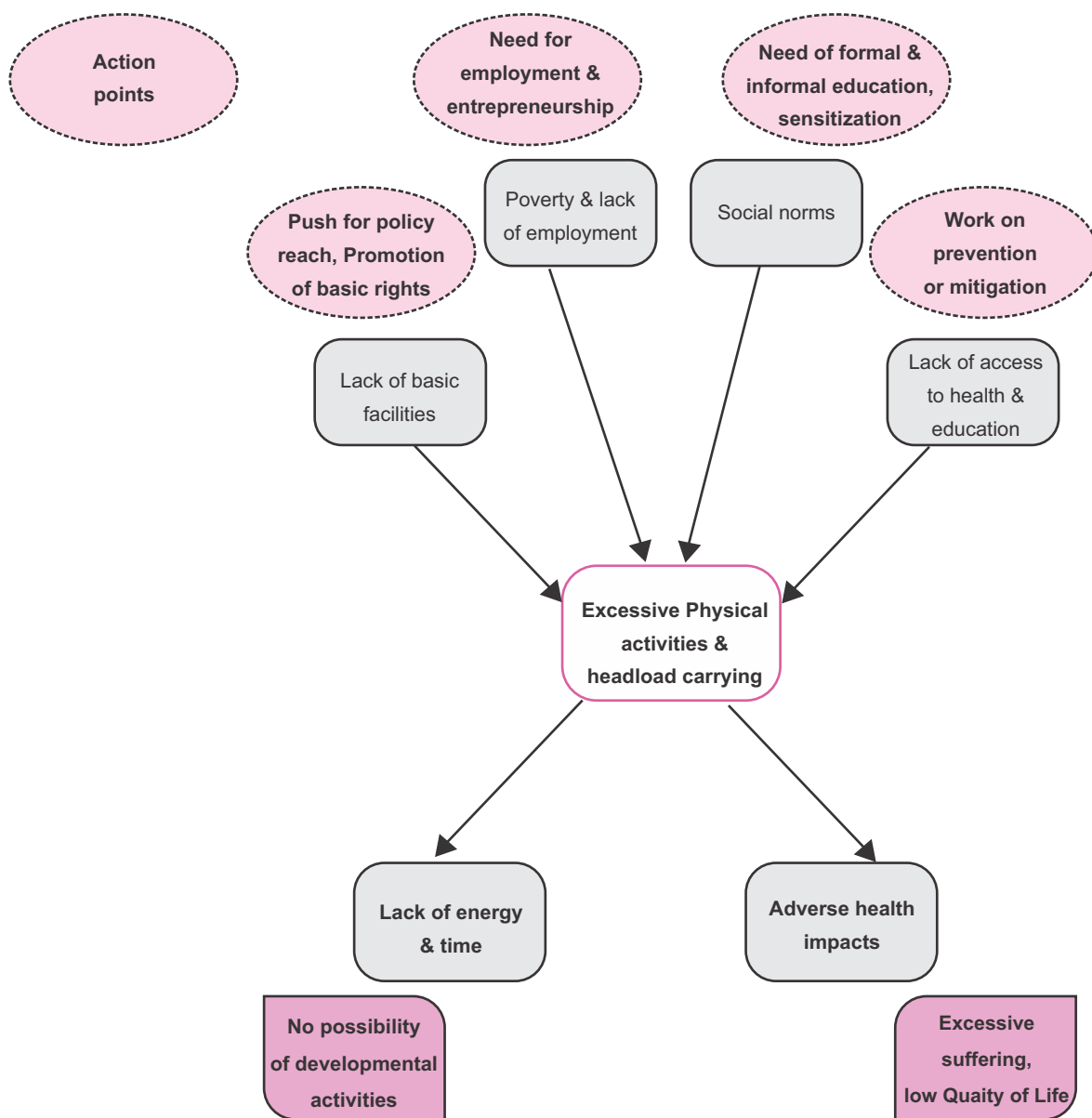
Improving access to water, electricity and LPG are herculean tasks and it will not happen in short time though it is very much required. While aspiring for all these things one can also think about easy, cost-effective and locally adoptable solutions. Surprisingly, there is no much innovation on this front. The methods used by these women are age-old and there is no mechanization since ages. There are many examples which can help women in doing all these jobs. Water-wheel is a barrel with a handle which can be rolled easily. It can reduce the burden of lifting and carrying water pots for long distances by rural women. Bio-gas plants can reduce the efforts to fetch fire-wood on daily basis. Wheel-barrow can help in transporting various things from place to place. Making such crafts locally can also bring some livelihoods to the villages. Profit making entities are not able to enter rural areas or sustain there for long. Hence, responsibility for such initiatives is on welfare organizations.

6.5 Improving access to health

The study found that many women are having various chronic health problems. This drudgery primarily affects two systems viz. Musculoskeletal and Genitourinary. It is evident from the results that MSDs and Hysterectomies are in excess in the study population. This is in line with the findings of global studies indicating women are having higher prevalence of chronic MSDs. [8, 9, 27]

There is a need to understand MSDs outside the restricted frame of formal or informal occupation. There exists vulnerabilities and risks outside this domain at a high scale. It is made evident that those risks in domestic sector is translating into the actual disease by these studies. But there are no preventive efforts on this front as this aspect of MSDs is not focused at all in preventive interventions. A framework for research as well as for prevention of MSDs need to be evolved based on evidences from domestic sector focusing women.





Conclusion

Health hazards due to domestic work are not focused much neither are a public health concern. Though there can be possible solutions to make women's lives easy, there is much less emphasis on it in the public sphere. The findings from these studies are highlighting the issues of MSDs, disability and uterine/ vaginal prolapse which are the direct consequences of their laborious lives. Till today, women's headload is a crucial driver in every rural household but it is not necessary any more. The same time and energy can be diverted to livelihood and educational activities. This will not only have a positive effect on development but also healthier and happier women for long. If these women could participate as consumers, producers or parts of the related network, there will be an economic boost to the rural society. The effects of this drudgery both, current and future, are unfair and completely avoidable.

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