



Socio-Economic Analysis of Women Time-Use Pattern With Regard To Carrying Out E-SNA Activities In Hilly Rural Regions Of Uttarakhand

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Abstract: Hilly rural regions of the state of Uttarakhand have always faced the issue of ‘Area Deprivation’ and ‘poverty traps’ mainly because of their harsh geographical settings and poor infrastructural facilities along with the problems in resource delivery and their accessibility. These issues have led to continuous out-migration from these regions of the state. Women of these deprived regions, amidst these issues play a prominent role in not only within their households but also in the economy of these regions. The major reason for the dominant role of women is the customary division of gender role and huge rural-out migration mainly of male youths from these regions of the state. Although the women participation in employment has been increasing in these regions but the major section of this population even after being over-burdened by work is engaged in activities which are categorised as ‘unpaid’. Her work participation in SNA activities goes unpaid as she takes part in such activities largely as helper or subsidiary worker while her higher rate of participation in E-SNA activities by nature is considered as non-economical or categorised as unpaid activities. The participation of Women in E-SNA activities leads to ‘time poverty’ among women, as it reduces the time which they could contribute in economic activities. Further the higher time spending by women in such activities also reduces their time in self-care leading to poor health status and even in pulling them off from education mainly in case of teenage girls. The present paper using the time use survey not only examines the gender-based participation in E-SNA activities but also examines the socio-economic and demographic factors which lead to higher time spending in E-SNA activities by rural women of these hill rural regions of the state. The study further introspects the impact of few prominent government policy interventions to reduce the work burden of women mainly in E-SNA activities.

Key Words: Hill Rural regions, Time Use, Time poverty, Gender roles, E-SAN activities

Introduction

Uttarakhand economy has been a ‘money order economy’ (Bora, 1986) marked by continuous rural-urban migration which has a prominence of migration from mountain/hill to plain regions. Money order word emerges from the trend of remittances send by the migrants back to these hill regions through money orders (Dhyani, 1994). Migration in the state is largely pushed by the issue of ‘Area deprivation’ (Spicker, 2007), reflective of

hilly rural regions of the state. Such regions which fail to deliver to the community the command over the resources or facilitate easy access to different resources due to their being deprived often pushes such regions into ‘poverty traps’ (Booth, 1902) eventually leading to push migration from such regions. The demographic analysis of such migration from rural hills to plain regions depicts the dominance of male migrants that too belonging



to younger age groups (Das, 2021). Migration pattern depicts that while able bodied male migrates to urban regions, women are generally left back for agriculture activities and taking care of elderly (Nautiyal, 2003)). Traditionally women have always played a significant role in the hill economy of the state with equal contribution as by their male counterparts. The women along with sharing agriculture activities with males have always been actively engaged in collection of fuel wood, fodder, water while being carrying out the burden of domestic chores. The gender inclined migration has increased the work burden of women as they now have to undertake those activities also which were earlier carried out by males (Mamgain, et al., 2016). The male migration has led to feminisation of agriculture in these regions with extension of their activities which are generally demarcated for males. A study conducted in Uttarakhand found that women work burden is higher in the migrant households than the women in non-migrant households (Bhandari, et al., 2015). The women work in the state completely goes unpaid under the E-SNA activities while under the SNA¹ activities which mainly comprises of agriculture is also largely unpaid as it is done mainly for household consumption. The work burden of hill rural women and associated drudgery of women does not reduce due to remittances send by male migrant members (Mamgain, et al., 2016). The women work burden has not only increased due to migration issues but has also enhanced due to the negative impact of climate change which has extended her time and effort in collection of fuel wood, fodder, non-timer forest products and water. The climate will have different level of impacts on regions and communities, in which the most vulnerable will be Women, Children, poor and

marginalised groups of these hill regions. (UAPCC, 2014). The climate change has led to depletion of natural resources which has pushed women to work for larger hours to manage risk and resources (Sherpa, 2007). The larger time spend by women in outdoor E-SNA activities are detrimental for the health and acts as a barrier in the economic empowerment of women in these hilly regions of the state. Government has come up with various policy interventions to reduce the work burden of women mainly in the outdoor extended-SNA activities. *Pradhan Mantri Ujjawal Yojana* was introduced with the purpose to reduce the time of women she spends in collecting fuel wood, the scheme was further meant to address the issue of health which is associated with carrying heavy work load (in fetching fuel wood) and secondly, cooking through fuel wood (higher exposure to smoke). *Mukhayamantri Ghasyari Kalyan yojana* is state government scheme to reduce women time, which goes in collection of fodder. Another government scheme The Jal Jeevan Mission (*Har Ghar Jal Yojna scheme*) was introduced to deliver piped water to every household. All such schemes not only aim to increase the facilitation of necessary resources but also aims towards reducing the work burden of mainly the women who have been demarcated the role for carrying out activities under the gender roles conventionally established in these regions.

The women participation although has increased in paid SNA activities but it is still higher in unpaid SNA and E-SNA. Women across the globe contributes by carrying out majority of care work which is totally unpaid (UNS, 2015), further relatively to males, women have to contribute about two to ten times more time on such unpaid care work (Ferrant, et al., 2014). Further the higher work

compared. Generally, we have demarcation of three set of activities under it, which are, SNA activities, E-SNA activities and non-SNA activities.

¹ SNA, The System of National accounts is a set of standards which have been internationally recognised and accepted to demarcate the different economic activities and process and method to compile measures of economic activity so that they could be internationally



burden of women mainly due to their engagement in Extended-SNA activities reduces their time contribution in SNA activities, i.e., lower participation in SNA activities, thereby leading to time poverty, which thereby puts a negative impact on their capacities to earn or to get economically empowered while limiting their command and access to resources (Hyde, et al. 2020) and their utilisation for their benefit. Time poverty further limits the time of women towards self-care which has repercussions on their health and wellbeing (Ranji, et al., 2017). The socio-economic factors hold vital importance in underdeveloped rural societies where gender norms are more biased and socio-economic differences are largely observed. The gender norms result in biased gender demarcations of roles which leads to gender bias in employment. Such gender bias is prominent in rural societies as the working of such societies is governed by traditions, customs and social norms (ILO, 2012). Thus, the social structure of rural communities such as in hill regions not only influences the gender bias but also leads to discrimination among marginalised groups on the basis of caste, income status etc, thus pushing such groups towards poverty which subsequently throws them in the circle of poverty and acts as a hindrance in their overall empowerment. To understand the role of socio-economic factors in setting up the work burden of women, the present study focuses on the analysis of women work burden due to their participation in E-SNA activities and examines how this participation differs as per socio-economic scenario in these hilly rural regions of the state.

Study Area and Research Methods

The study is conducted in the hilly rural regions of the state of Uttarakhand which comprises of a total of 13 districts of which 10 districts due to their geographical settings are termed as hill districts while the other three are called as plain districts. The mountain or hilly regions of the state depict the

underdeveloped and resource-infrastructure deprived regions of the state. The hill regions show lesser economic opportunities than plain regions leading to greater income inequalities (Mamgain, et al., 2016) between the two. Primary sector is the major source of dependence for people residing in hill regions. Hill districts have about 90 percent hill terrain which creates a harsh environment for carrying out agriculture activities further Hill regions comprises of about 14% while plain districts comprise about 86% of the gross cropped area (PHD Chamber, 2011). Relatively the agriculture yield per hectare is also lower in hill regions than the plains of the state which is the result of marginal and scattered land holdings, traditional production methods, low usage of market inputs and lack of market. (Barah, 2010)

Out of 10 hill districts five districts, Champawat, Almora, Chamoli, Rudraprayag and Pauri were covered in the study. A total of 1974 females belonging to the age group of 15-59 years was selected with the help of multi-stage random sampling method. Almora and Pauri are the two districts which have observed negative decadal population growth rate due to large scale migration from the them. (Census, 2011). Among the other factors, lack of employment opportunities (Jangwan, et al., 2019) and poor education infrastructure are the basic reason for migration from the hill regions of the state. (Rural development & Migration commission, 2021). Time use survey method was utilised for collection the data. Under the time use survey a seven days recall period, prior to the day of survey, methodology was utilised to measure the average time devoted by women in the different E-SNA activities. To calculate the time spending the 24 hrs days period was divided into four equal house time phases. The data was collected through local enumerators who have the knowledge of local language and region.



Research Findings

The study has examined the time spending of hilly rural women in different extended-SNA activities which they carry out outside their home and other which are carried out inside their home. The time

contributed in E-SNA activities is associated with ‘time poverty’ as it firstly does not lead to economic or monetary gain to the women and secondly as it reduces the women participation in economic activities as they are left with very less or no time for participating in economic activities.

A. Gender-based participation of Rural Communities in E-SNA Activities

Table No. A.1 Gender-based participation of rural communities in collecting fodder, fire wood and water

Collection of fodder and NTFPs		Collecting firewood		Carrying water	
%age of females participating	%age of males participating	%age of females participating	%age of males participating	%age of females participating	%age of males participating
62.77	6.79	58.31	3.39	36.22	14.13

Source: *Field Work, 2021*

The study shows that in the case of outdoor E-SNA activities i.e., collection of fodder, firewood and water, women participation is very high in comparison to the male participation in the hilly rural regions of the state. The higher participation

of women in such activities is the result of gender division of household work as traditionally being established in the rural societies of these regions. These activities are totally unpaid activities but leads to indirect savings of these households.

Table No. A.2 Gender-based participation of rural communities in Household maintenance and management

Cleaning		Washing Clothes		Repairing household goods		Cooking & serving	
%age of females participating	%age of males participating	%age of females participating	%age of males participating	%age of females participating	%age of males participating	%age of females participating	%age of males participating
60.49	12.06	41.64	17.27	1.52	1.27	91.84	21.43

Source: *Field Work, 2021*

The study reveals the relatively very high participation of women in household maintenance and management E-SNA activities than the male in these regions of the state. This

indicates towards higher work burden on women when we observe it along with their higher participation in outdoor E-SNA activities als



Table No. A.3 Gender-based participation of rural communities in Care of children, the sick, elderly and disabled of own household

Child Care		Teaching Children		Caring sick	
%age of females participating	%age of males participating	%age of females participating	%age of males participating	%age of females participating	%age of males participating
49.34	7.45	1.37	1.06	17.73	2.68

Source: *Field Work, 2021*

The participation of women is also very high in the above-mentioned E-SNA activities and again reflects towards the relative higher work burden on them than the males of these regions. All the aforementioned E-SNA activities are important part of these rural communities and are totally unpaid in nature.

B. Average time shared by women in E-SNA activities

The study has examined the average time shared by women in different E-SNA activities to learn the amount of work burden on women and the extent of time poverty they have to spend in carrying out such activities.

Table No. B.1 Average time per day shared by women in E-SNA activities

Type of Activities	Total No. of females	Participation Percentage of Females	Average Minutes per day (within participation)
Collection of fodder and NTFPs			
1. Collection of fodder and NTFPs	1239	62.8	87.68
2. Collecting firewood	1151	58.3	120.40
3. Carrying water	715	36.22	81.27
Household maintenance and management			
1. Cleaning	1194	60.5	56.61
2. Washing Clothes	822	41.6	37.10
3. Repairing household goods	30	1.5	72.0
4. Cooking & Serving	1813	91.8	112.06
Care of children, the sick, elderly and disabled of own household			
1. Child Care	974	50.7	94.25
2. Teaching Children	27	1.4	86.67
3. Caring sick	350	17.7	68.57

Source: *Field Work, 2021*

The survey results shows that within different E-SNA activities, women in hill rural regions are their spending highest time in collecting firewood/fuel wood for their households. Indoor

household activities such as Cooking and serving, cleaning along with other outdoor E-SNA activities such as collecting fodder and water are the activities in which women participation is



higher along with higher time contribution. Its very important to mention that women time contribution is very high in collection of fire wood even after having LPG as a source of fuel for cooking. The LPG distribution under *PM Ujawala Scheme* has enhanced the holding of LPG connection within almost each and every rural household in these regions.

C. Socio-Economic analysis of and Women time Use pattern

C.1 Caste status and time use

Table No. C.1.1 Women per day work time distribution as per Caste status

Activity status	Average working minutes per day			
	ST	SC	OBC	Others
E-SNA	375.06	376.69	287.83	366.93

Source: *Field Work, 2021*

Due to non-normality of the data, Kruskal-Wallis test was implied to analyze the statistical significance of the difference in working time of women between the different caste groups under

The study observes the fact that socio-economic variables play a pivotal role in undermining the autonomy of women and their economic empowerment through prioritizing gender bias, mainly in the rural regions. To analyse the impact of such variables the study separately examines the association of such variables with the amount of time they contribute in Extended-SNA activities.

E-SNA activities. The results of the study are as follows:

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Time shared in Extended-SNA activities is the same across categories of Caste.	Independent-Samples Kruskal-Wallis Test	.603	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

The results of the test help us to conclude that there is no association between the caste status and time contributed by women in Extended-SNA activities which indicates that work burden of women towards carrying out E-SNA activities

is equal among all the caste category women. This indicates towards observance of similar gender division of households work across caste categories.

C.2 Economic Status and time use

Table No: C.2.1 Female per day work time distribution as per Economic status

Activity status	Average working minutes per day		
	APL	BPL	Antodaya
E-SNA	357.16	372.26	406.90

Source: *Field Work, 2021*

Kruskal-Wallis test was used to test the significance of difference in time spend by women belonging to different economic category households. The results of the test are as follows:



Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Time contributed in Extended SNA activities is the same across categories of Economic_Status.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

The test results depict that time spend by women is different among the women belonging to different economic category households such as APL, BPL and Antodaya. The model summary further reveals that the mean rank on the basis of time spend by women in E-SNA activities is relatively higher in case of Antodaya households than the BPL and APL households. The test results further indicate towards higher mean rank in case of BPL families than the APL households.

The overall results reveal the higher work pressure on women belonging to poorer households towards carrying out E-SNA activities. The results suggest the impact of poverty in pushing only the women of such households to work more, resulting in larger burden on women, mainly for carrying our E-SNA activities which further aggravates their poverty with larger intensification in time poverty.

C.3 Household Head and time use

Table No: C.3.1 Female per day work time distribution as per household head status

Activity status	Average working minutes per day	
	FHH	MHH
E-SNA	377.58	366.58

Source: *Field Work, 2021*

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Time shared in SNA activities is the same across categories of Household_head.	Independent-Samples Mann-Whitney U Test	.298	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

The test results shows that women work load mainly in carrying out E-SNA activities is similar in Female and male headed households.

To study the correlation between demographic variables and time contributed by rural women in

E-SNA activities Spearman's rho test was utilized. The results of the test as presented as follows:



Table No. C.4 Correlation between Age, years of schooling and time contributed in E-SNA activities

Demographic Variable	Time shared in E-SNA activities	Correlation observed
Age	.224**	Low, positive
Years of schooling	-.137**	Low, negative

****. Correlation is significant at the 0.01 level (2-tailed).

The correlation analysis shows that age of women has very low correlation with the time spend by women in E-SNA activities which indicates towards participation of all age group females in such activities with a slightly higher participation of middle and upper age group females. The correlation analysis further indicates that impact of education on reducing the work burden of

women is very low which help us to conclude that education has very marginal impact on reducing the time contributed by women in E-SNA activities in these regions.

D. Time shared in major E-SNA activities

The study examined the time spend by women in three major outdoor Extended-SNA activities in which rural women are involved.

Table No. D.1 Time share in major three outdoor E-SNA activities

S.No	Major E-SNA Activity	Average working minutes per day		
		APL	BPL	Antodaya
1	Collection of fodder, NTFPs etc.	80.31	90.14	111.57
2	Collection of firewood	109.90	126.46	134.29
3	Collection of water	77.87	79.63	111.92
Total		160.86	189.11	216.24

Source: *Field Work, 2021*

The above data shows that time contributed by women in three major outdoor E-SNA activities is higher among the women belonging to the poorer households i.e., Antodaya and BPL households. To validate the observance of higher time contribution by women of poorer households in the three major E-SNA activities we tested the results using Kruskal-Wallis test, the results of the test are as follows:

- Time contributed in all three major E-SNA activities is higher in Female headed households than male headed households.
- Time spend by females in all 3 outdoor E-SNA activities is relatively higher in case of females belonging to Antodaya

and BPL households than the females belonging to the APL families.

The test results clearly validate the results that women of hilly rural regions belonging to Antodaya and BPL households has to spend more time in the three major outdoor E-SNA activities. This shows that women of poor households are pushed towards time poverty mainly because of their poor economic status which further limits their contribution in paid economic activities/SNA activities thus reducing their economic contribution to the households along with hindering their economic empowerment. The condition of female work burden in female headed households is worse as time spend by women of these households have to spend relatively more time than the women of male headed households.



To study the correlation between age/years of schooling variables and time contributed by rural women in the three major outdoor E-SNA

activities Spearman’s rho test was utilized. The results of the test are as follows:

Table No. D.2 Correlation between Age, years of schooling and time contributed in E-SNA activities

Demographic Variable	Time shared in E-SNA activities	Correlation observed
Age	-.238**	Low, negative
Years of schooling	-.361**	Low, negative

****. Correlation is significant at the 0.01 level (2-tailed).

The results indicates that the time spending by females in these major outdoor E-SNA activities decreases with increase in education status of females while the time shared by women in these activities also decreases with increase in age of females. The results shows that education has higher impact on reducing women time share in these three major outdoor E-SNA activities than the other E-SNA activities which are carried in the limits of indoor/within the house. Further the test results indicates that largely the women belonging to younger and mid age group are engaged in higher numbers in these three E-SNA activities while the women of higher age group are largely engaged in E-SNA activities which are carried out indoor.

Conclusion

The study supports the differentiation in time use by women in E-SNA activities as per the socio-economic status of households which indicates towards higher time spending by poor households’ women in E-SNA activities which entraps them in the circle of poverty and further acts as a major hurdle in their economic empowerment. This time spending among the more economically deprived household women is higher in case in of outdoor E-SNA activities. The higher participation and larger time spending by young teenage girls hampers their education and self-development. The study points out the higher rate of time poverty among the women due to

their higher participation than males in E-SNA activities and large amount of time spending in such activities. Further the Time Use survey conducted under the present study reveals that the majority of time of a woman in a day goes in collection of wood, fodder, grass etc. from the forest. With regards to time use and heavy work burden and higher rate of time poverty, study highlights towards the need to primarily address the concerns of women belonging to female headed households, Antodaya and BPL households. Traditionally the mountain women have helped in sustaining the natural resources of these fragile regions. There symbiotic relationship with natural resources mainly the forests ranges from its governing, managing, protecting and generating livelihood through it through utilization of their indigenous knowledge and sustainable practices. This traditional relationship of women and forest has raised two concerns for policy makers *firstly*, it has reduced the women time in paid economic activities and *secondly*, it has led to severe impact on their health. The health impact (higher risk of mortality and morbidity (Rawat, 1995; Sidh, B, 2008) emerges mainly from two aspects *firstly*, the heavy burden due to the load they have carry for long distances (alleviated areas) on their shoulders/heads and *secondly*, the higher usage of wood for cooking purposes and exposure to smoke. The government dealt with both the issue through various policy interventions which



includes introduction of a popular scheme *Pradhan Mantri Ujjawal Yojana* to reduce women time contributed in collection of fuel wood and pollution from cooking. Both schemes have not resulted in effectively reducing fuel wood as a major source of cooking which has left the issues related to women as untreated. The alternate approach should be towards popularizing usage of biogas and other natural resources such as solar energy which create more interaction of locals with available natural resources along with strengthening the Van panchayat system which gives more right to mountain women over community forest areas. Further the policy makers have not been able to support women in bringing much needed supportive technological interventions to lighten up or making easier the heavy load carrying, by women which has been traditionally carried out by Mountain women which leaves a policy gap and needs to addressed with priority.

The government also recognized the importance of animal husbandry for economic empowerment of women which has the higher participation of women in mountain region. The state government program (*Mukhayamantri Ghasyari Kalyan yojana*) took an initiative towards not only reducing women time in collecting fodder but to also address the issue of decreasing quality fodder and difficulty in accessing such resources to maintain livestock, in which fodder is provided to mountain women. But this approach has not helped the women to travel long distances in search of fodder which is further supported from the NITI Aayog study, 2021, which reveals higher participation and time contribution by women in collecting fodder from forests. This policy is also towards disconnecting women from the natural resources available in the region (along with making them more dependent on market) which is not aligned with the traditional practices of women and hence not sustainable in approach. The alternate sustainable approach

should be to promote the females towards regenerating and utilising local fodder which is more cost effective and sustainable approach. The Uttarakhand state has about 7 percent of cultivable wasteland which presents a significant scope towards regenerating grassland and fodder trees (State horticulture mission, Govt of Uttarakhand) and fodder reserves in Himalayan region. The local women cooperatives should be mobilised towards development of such 'Commons'. Along with development of such fodder reserves it is also significant to develop community forests (energy plantation, fodder trees) in such lands to reduce the pressure on females which they have to face in travelling long distances to collect fodder and firewood on daily basis. The concept of 'fodder bank' could also be another sustainable approach which rather than disconnecting women from environment focuses on conserving the environment with larger recognition of women efforts. The study further recognises the gap and need for a new alternative viable policy model towards development of fodder and grassland in mountain regions which are more accessible to women hence reducing their time and heavy work load. For reducing the women time spending in carrying and fetching water from long distances, government should also support towards regenerating traditional water harvesting and conservation techniques to take care of water deficit in these hilly regions. Rainwater harvesting could be a best practice that should be popularized and implemented with active participation of women. The study thus recognizes the role and need of sustainable technological interventions, which are getting extinct, along with models of rural development to reduce the time spending of women mainly in outdoor E-SNA activities. Such interventions should be readily acceptable, economical and does not create a disconnect between women and environment.



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