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LEVELS IN QUALITY OF LIVING SPACE AMONG FEMALE-HEADED HOUSEHOLDS IN RURAL INDIA

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Abstract

Household is regarded as a fundamental social and economic unit of a society. Availability of assets and amenities in a household reflects quality of life of the people. Female-headed households generally have distinct socio-economic conditions. In this study an attempt has been made to analyze the levels in quality of living space among female-headed households in rural India. The study is based on district-wise census data on 15 selected indicators for the year 2011. The study reveals relatively better quality of living space among female-headed households in the north-western part, while low quality of living space has been witnessed mainly in central India. The worst situation has been found in the eastern parts in the form of small scattered patches. The study also highlights that more than nine-tenths of the female-headed households have their own house and four-fifths households have been enjoying the facility of kitchen inside the house. While, computer/laptop with internet has been available to less than one per cent of the female-headed households.

Keywords: Female-headed households, Building materials, Drinking water, Sanitation facilities, Amenities, Quality of living space.

Introduction

Household is a social unit of people living in the same residence. Family, household structure and headship has been changing very fast under the impact of structural changes due to the development of the Indian society (Vardhan, 1999). Under the unavoidable circumstances like husband's death, desertion, spinsterhood, divorce/abandonment, and out-migration of the man; women usually become the head of the household. Such households are commonly termed as 'female-headed households'. Even after becoming the head of the household, women are still suffering from various problems like economic, social, emotional and physical insecurity. They have to play the role of both men and women and

have to face many problems like financial deprivation, companionship, problems in job, and day to day transactions etc. Problems faced by female-headed households include malnutrition, the social stigma attached to themselves and their children; problems of raising their sons, many of whom drop out of school and become socially isolated (Farash, 2016). However, in spite of various problems, the female-headed households as a whole have witnessed improvement in their socio-economic conditions. The occupational structure has undergone transformation with improvement in their levels of educational attainment (Vardhan, 1995).

In some significant cases, women are heading the households even when adult male

in the household is present, she is not in work force and the economic responsibility is borne by some other members. Further, a woman shows better decision-making power when they are staying with a female-head as compared to the male-head household (Unisa and Datta, 2004). Female-headed households are generally marked with distinct socio-economic conditions.

Availability of assets and amenities in the households reflects the socio-economic status of people. Household quality of living refers to three broad aspects pertaining to housing condition, amenities and modern assets. Based on composite index calculated for the year 2011, Das and Mistri (2013) have noted that the southern states like Goa, Tamil Nadu, Kerala and Maharashtra rank very high, while Rajasthan, Uttar Pradesh, Madhya Pradesh and whole eastern and north-eastern states occupy lower positions in the ladder of household quality of living. Eastern India particularly demonstrates very poor quality of living. The 'quality of living space' is a multidimensional and holistic concept which includes economic, social, demographic, and cultural dimensions of human life. Various domains of life such as housing, health and social relations are taken into consideration in order to monitor the quality of life (Glatzer and Michael, 1987).

The quality of living space has a direct impact on people's health, economic productivity and well-being. Achieving a good quality of life is a very basic pursuit that goes beyond class, gender or place of living. With rising incomes and literacy levels, there are increasing aspirations for a better life, while the struggles of daily living are prevalent in the form of inadequate housing, lack of toilets and other basic amenities (Dave, 2018). The

working conditions and earning of female-headed households are part of a modern phenomenon. They have to do extra work in addition to the usual household responsibilities. Due to their low educational attainment, the majority of female-heads of households are involved in self-employment, while few are employed in the government sector (Dar and Singh, 2018). The quality of household living in India refers to five main dimensions related to housing condition, basic amenities like health, sanitation and cleanliness, electrification, fuel consumption, banking, information and communication and modern assets. The households in southern part of India have very high quality of living, while northern, eastern and north-eastern parts of India have very low quality of living (Kumar et al., 2022). In the north-eastern region of India, the quality of living space among rural households is found to be better. While, in the peripheral parts of the region, quality of living space is low to very low (Chamar and Dhanak, 2023). Geographers and other scholars have carried out many detailed studies on conditions and quality of household amenities at district, state and national levels from time to time (Bhagat and Sharma, 2001; Snyder et al., 2006; Khalid and Akhtar, 2011; Muleta and Deressa, 2014; Solhi et. al, 2016; Krishan, 2017; Chamar and Bairagi, 2019; Chamar and Sharma, 2020; Shameerdas, 2022). These studies are addressed to the status of living among households in general. Therefore, the present study has been attempted to analyze the 'levels in quality of living space among female-headed households in rural India.

Objectives of the Study

- Major objectives of the study are:
- to study the levels in quality of living

space among female-headed households and

- to highlight the spatial variations in the quality of living space among female-headed households in rural India.

Study Area

India extends from 8° 4' to 37° 6' north latitudes and 68° 7' to 97° 25' east longitudes, covering an area of 32,87,263 km². India is a federal union comprising of 28 states and 7 union territories. There have been 640 districts in India in 2011 (Fig. 1). The rural population is found in 631 districts. There are 1,74,54,226 female-headed households accounting for 10.35 per cent of the total households in rural India. Out of the total female-headed population in the country, 64 per cent live in rural areas and 36 per cent in urban areas. The average literacy rate among female-headed households is 64 per cent in rural India. Among female-headed households' average size of household is 4 persons per household, while sex ratio is 1551 females per 1000 males in rural India.

Database and Methodology

The district-wise census data for the year 2011 on various aspects of housing conditions of female-headed households in rural India have been used for the present study. To study the quality of living space, 15 indicators such as, burnt brick wall (x_1), concrete roof (x_2), cement floor (x_3), four and above rooms (x_4), owned houses (x_5), permanent census houses (x_6), treated tap water (x_7), latrine facility within the house (x_8), closed drainage outlet connection (x_9), LPG/PNG as cooking fuel (x_{10}), kitchen inside the house (x_{11}), television (x_{12}), mobile (x_{13}), computer/laptop with internet (x_{14}), and

car/jeep/van (x_{15}) have been taken up in this study. To find out the levels of quality of living space, 'z score' in respect to each of the indicator in a district has been calculated as under:

$$Z \text{ Score} = \frac{x - x_1}{\sigma}$$

where x is percentage value of the indicator in a district, x_1 is mean value of the indicator and σ is standard deviation. The 'z scores' of all the selected 15 indicators have been added to obtain the 'composite z scores'. On the basis of 'composite z scores', levels of quality of living space at district level have been identified. The values of 'composite z scores' so obtained have been classified into six categories. Finally, maps and tables have been prepared to interpret and analyze the results.

Results and Discussion

Distribution of Rural Female-headed Households

Out of the total rural households in India, the highest per cent of rural female-headed households has been recorded by Goa, Kerala and Meghalaya states, where female-headed households have been more than 20 per cent (Table 1). Apart from these, there are states like Himachal Pradesh, Uttarakhand, Karnataka, Tamil Nadu, Andhra Pradesh, Punjab, Tripura, Mizoram, Manipur, Nagaland, Sikkim, Assam, Chhattisgarh and Odisha, where female-headed households have been more than the national average of 10.35 per cent. On the other hand, the lowest proportion of rural female-headed households has been observed in the state of Rajasthan (6.48 per cent) followed by Jammu and Kashmir (7.22 per cent) and Madhya Pradesh (7.24 per cent). Among the union territories, the percentage of rural female-headed households has been highest in Lakshadweep (27.08 per cent) and

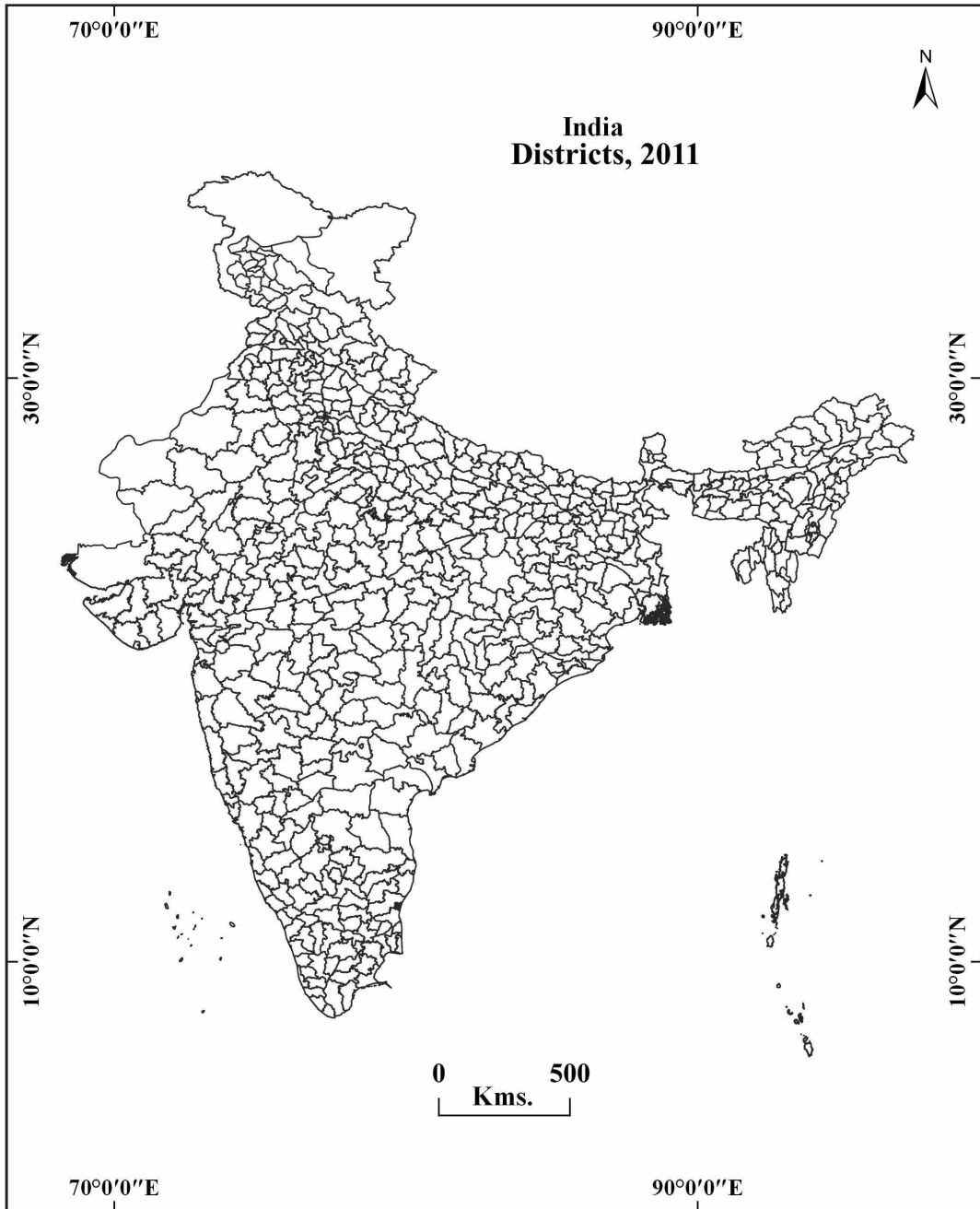


Fig. 1

Table 1
Rural India: Percentage of Female-headed Households, 2011

States	Total Rural FHHs (per cent)	States	Total Rural FHHs (per cent)
Goa	22.08	West Bengal	09.72
Kerala	21.76	Haryana	09.06
Meghalaya	20.52	Gujarat	08.63
Himachal Pradesh	18.70	Jharkhand	08.30
Uttarakhand	18.46	Uttar Pradesh	07.71
Karnataka	15.89	Bihar	07.25
Tamil Nadu	15.34	Madhya Pradesh	07.24
Andhra Pradesh	13.89	Jammu & Kashmir	07.22
Punjab	12.55	Rajasthan	06.48
Tripura	11.95	Union Territories	
Mizoram	11.61	Lakshadweep	27.08
Manipur	11.59	Daman & Diu	18.45
Nagaland	11.48	Puducherry	17.23
Sikkim	11.35	Andaman & Nicobar Islands	12.26
Assam	11.15	NCT of Delhi	10.05
Chhattisgarh	10.86	Dadra & Nagar Haveli	05.83
Odisha	10.46	Chandigarh	04.80
Arunachal Pradesh	10.09	-	-
Maharashtra	09.98	National Average	10.35

Source: Compiled by Authors. FFHs: Female-headed households.

lowest in Chandigarh (4.80 per cent (Table 1).

Availability of Household Amenities

The study highlights that nearly 36 per cent of female-headed households have walls made of burnt bricks, 27 per cent households have floor made of cement, while 18 per cent households have used concrete as material of roof (Table 2). The study also reveals that more than 93 per cent of female-headed households have their own house to live in. Nearly half of the households have permanent houses and about 11 per cent have the facility of four and above rooms in the house. It has been recorded that more than one-fifth of the female-headed households have treated tap water for drinking, and one-third of the households have toilet facility within premises. Nearly six per cent

households have closed drainage outlet connection. Similarly, more than four-fifth of the total female-headed households have kitchen inside the house, while only 12 per cent households have been using LPG/PNG as fuel for cooking. It has also been found that 31.55 per cent households have the facility of television and 38 per cent households have been using mobile facility. However, about two per cent female-headed households have a car/jeep/van and less than one per cent households have the facility of computer/laptop with internet (Table 2).

Amenities-wise Position of Districts

Based on z score value, a list of the districts from different states recording highest and lowest positions in availability of various

Table 2
Rural India: Percentage of Female-headed Households having Availability of Selected Amenities, 2011

Households Amenities	Quality of Amenities	Households (per cent)
Material of Wall	Burnt Brick	35.93
Material of Roof	Concrete	17.67
Material of Floor	Cement	27.03
Number of Dwelling Rooms	Four and Above	10.50
Ownership Status	Own House	93.22
Source of Drinking Water	Tap water (Treated)	21.57
Status of Census House	Permanent	49.94
Sanitation Facility	Within the Premises	32.25
Waste Water (Outlet Connection)	Closed Drainage	05.97
Fuel Used for Cooking	LPG/PNG	12.05
Kitchen Facility	Inside House	82.27
Computer/Laptop Facility	With Internet	00.66
Telecommunication Facility	Television	31.55
Communication Facility	Mobile	37.81
Transport Facility	Car/Jeep	01.58

Source: Compiled by Authors.

household amenities among female-headed households has been presented in Table 3. It has been found that Samba, Ganderbal, and Srinagar districts of Jammu and Kashmir witnessed highest z scores in amenities like concrete roof, ownership of house, and mobile facility. The study further reveals that Mandi, Shimla, and Kinnaur districts of Himachal Pradesh have recorded highest position in the availability of treated tap water, closed drainage outlet connection, and availability of car/jeep/van. Similarly, Kapurthala district of Punjab has secured the highest position in two household amenities like the facility of using LPG/PNG as fuel for cooking and availability of television. There are districts like Jind (Haryana), Udupi (Karnataka), Bilaspur (Chhattisgarh), Almora (Uttarakhand), Bishnupur (Manipur), Saiha (Mizoram), and South Goa (Goa) which have respectively recorded the highest position only in one amenity such as burnt brick wall, cement floor, four and above

number of dwelling rooms, permanent census houses, toilet facility within premises, kitchen inside the house, and computer/laptop with internet.

On the other hand, Dibang Valley district of Arunachal Pradesh has recorded the lowest z score in two household amenities like burnt brick wall and computer/laptop with internet. Anjaw district of the same state has also witnessed lowest z score in two amenities such as concrete roof and closed drainage outlet connection. Similarly, Singrauli district of Madhya Pradesh has registered lowest position in availability of television and toilet facilities within premises. Kiphire district of Nagaland has also recorded lowest z score in household facilities like LPG/PNG as fuel used for cooking and availability of a car/jeep/van. Likewise, Jashpur and Bijapur districts of Chhattisgarh have recorded the lowest z score in the amenities of treated tap water and mobile facility. There are other districts like Kurnool

Table 3
Rural India: Districts Recording Highest and Lowest Positions in availability of Amenities of Female-headed Households, 2011

Households Amenities	Quality of Amenities	Z Score Values			
		Districts	Maximum	Districts	Minimum
Material of Wall	Burnt Brick	Jind	2.24	Dibang Valley	-1.38
Material of Roof	Concrete	Samba	4.08	Anjaw	-1.12
Material of Floor	Cement	Udupi	2.52	Kurnool	-1.23
Number of Dwelling Rooms	Four & Above	Bilaspur	4.47	Dhalai	-1.00
Ownership Status	Own House	Ganderbal	1.00	Tinsukia	-4.77
Status of Census House	Permanent	Almora	1.91	Tuensang	-1.96
Source of Drinking Water	Treated Tap Water	Mandi	3.43	Jashpur	-1.03
Sanitation (Latrine) Facility	Within the Premises	Bishnupur	5.96	Singrauli	-1.06
Waste Water (Outlet)	Closed Drainage	Shimla	4.59	Anjaw	-0.78
Fuel Used for Cooking	LPG/PNG	Kapurthala	3.49	Kiphire	-0.80
Kitchen Facility	Inside House	Saiha	1.34	Kishanganj	-4.16
Communication Facility	Mobile	Srinagar	2.44	Bijapur	-2.04
Telecommunication Facility	Television	Kapurthala	2.44	Singrauli	-1.25
Transport Facility	Car/Jeep/Van	Kinnaur	5.46	Kiphire	-0.53
Computer/Laptop Facility	With Internet	South Goa	3.57	Dibang Valley	-0.44

Source: Compiled by Authors.

(Andhra Pradesh), Dhalai (Tripura), Tinsukia (Assam), Tuensang (Nagaland), and Kishanganj (Bihar) which have recorded lowest position only in one amenity such as cement floor, four and above number of dwelling rooms, ownership of house, permanent census house and kitchen inside the house, respectively. Thus, among the female-headed household Bishnupur district of Manipur holds the top position in toilet facility within premises (5.96), while Tinsukia district of Assam witnessed lowest position in ownership of house (-4.77) in rural India (Table 3).

Levels in Quality of Living Space

Areas of Very High Level in Quality of Living Space

The districts recorded composite z scores more than 10.0 have been included in this category of areas recording very high level in quality of living space in female-headed households. This category has been repre-

sented by 90 districts, comprising 14 per cent of the total rural districts (Table 4). The study reveals that more than 75 per cent of the total districts falling in this category belong to only five states like Himachal Pradesh, Punjab, Uttarakhand, Haryana and Kerala forming a large patch in north western and a linear belt along the western coastal areas of India (Fig. 2).

Among the districts falling in this category, highest composite z scores have been recorded by Solan district of Himachal Pradesh (26.08) followed by Kapurthala district of Punjab (25.65); South Goa district of Goa (25.06) and Dehradun district of Uttarakhand, (24.88) etc. On the other hand, in this category the lowest composite z scores have been recorded by Hisar district of Haryana (10.08), followed by Udupi district of Karnataka (10.08); Uttarkashi (10.20), Garhwal (10.36) and Pithoragarh (10.53) districts of Uttarakhand etc.

It is interesting to note that all the

Table 4
Rural India: Female-headed Households according to Quality of Living Space, 2011

Quality of Living Space	Composite Z Scores	Number of Districts	District (per cent)
Very High	More than 10.00	090	14.26
High	5.01 to 10.00	046	07.29
Moderately High	0.01 to 5.00	138	21.87
Moderate	-0.01 to -5.00	158	25.04
Low	-5.01 to -10.00	169	26.78
Very Low	Less than -10.00	030	04.75

Source: Compiled by Authors.

districts of Punjab and Goa states fall in this category. Leaving aside Lahul & Spiti district of Himachal Pradesh and Idukki district of Kerala all other districts of these states also fall in this category of areas having very high level in quality of living space among the female-headed households. On the other hand, only one district Jhunjhunu of Rajasthan, Gautam Buddha Nagar district of Uttar Pradesh; Udupi district of Karnataka; and Kanyakumari district of Tamil Nadu fall in this category.

Among the union territories, it has been observed that all the rural districts of NCT of Delhi fall in this category, suggesting that the quality in living space is very high among rural female-headed households in the national capital of India, which is followed by Chandigarh (35.89), Diu (12.71), and Daman (11.76).

Areas of High Level in Quality of Living Space

The districts recording composite z scores varying between 5.01 and 10.0 have been included in this category. The high level in quality of living space has been observed in 46 districts, accounting for about seven per cent of total districts (Table 4). These districts belong to 11 states, and nearly two-third of the districts are from the states of Jammu and Kashmir,

Uttarakhand, Uttar Pradesh, Karnataka and Tamil Nadu, which are mostly located in north-western and extreme south-western parts of India. The remaining districts of this category are found in the form of scattered small patches in various parts of the study area (Fig. 2).

The Dakshina Kannada district of Karnataka with composite z scores of 9.90 tops the list among the districts included in this category. It is followed by Bangalore district of Karnataka (9.87); Kathua district of Jammu and Kashmir (9.36); Mahesana district of Gujarat (9.27); The Nilgiris district of Tamil Nadu (9.17); Ghaziabad district of Uttar Pradesh (9.11) and Pulwama district of Jammu and Kashmir (9.05) etc. While, the lowest composite z scores in this category of districts have been recorded by Kachchh district of Gujarat (5.06) followed by Tiruppur district of Tamil Nadu (5.09); Bangalore rural district of Karnataka (5.15); Gorakhpur (5.16) and Muzaffarnagar (5.16) districts of Uttar Pradesh etc. However, only one district known as East Sikkim District of Sikkim state; Bishnupur district of Manipur; and Idukki district of Kerala also fall in this category. Among the union territories, the highest composite z scores have been recorded by South Andaman district of Andaman & Nicobar Islands (8.53) followed by Lakshadweep (6.95); Puducherry

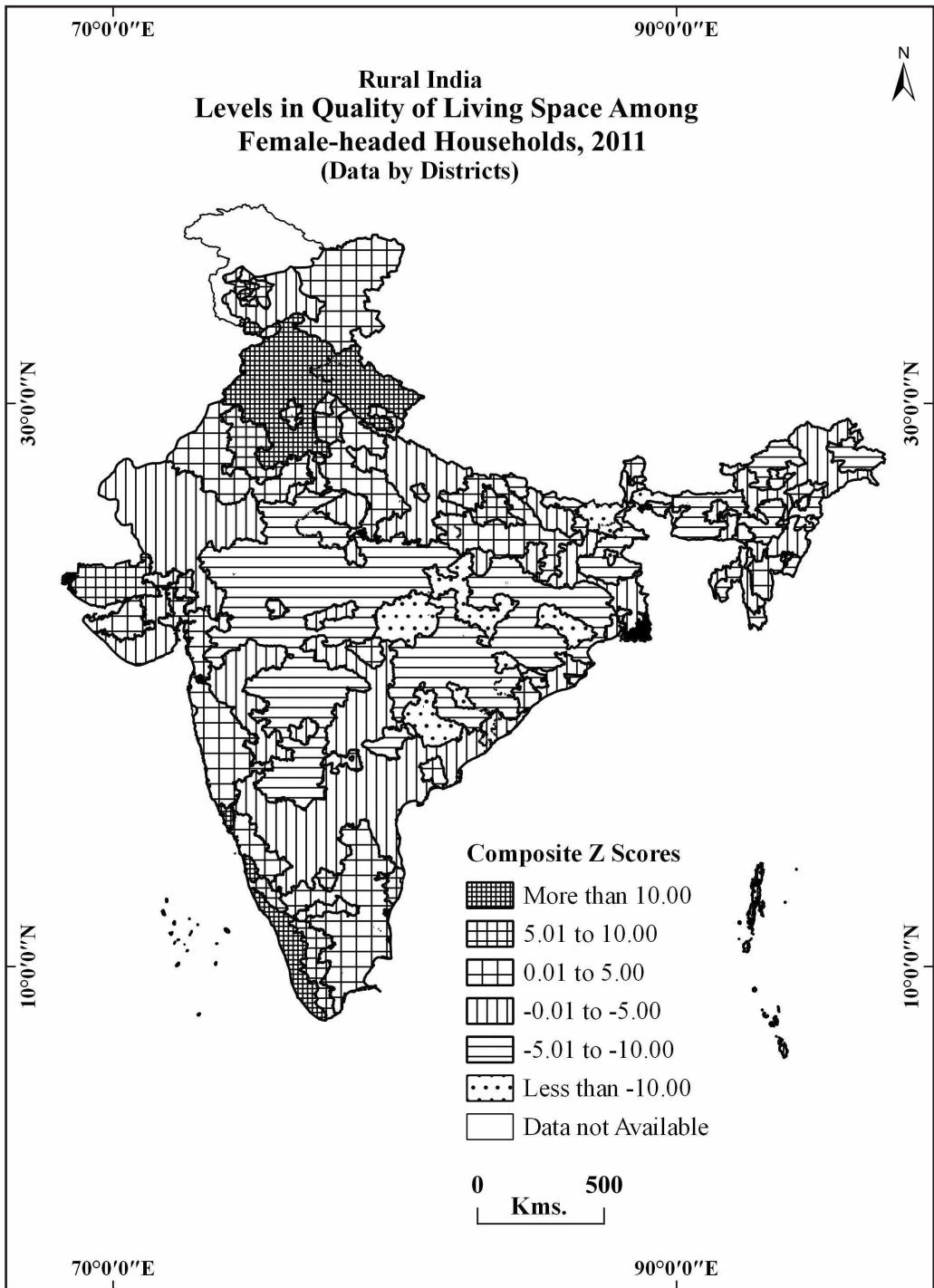


Fig. 2

(6.72) and Karaikal (6.59) districts of Puducherry.

Areas of Moderately High Level in Quality of Living Space

The districts recording composite z scores between 0.01 and 5.0 have been included in this category. The moderately high quality of living space among female-headed households has been found in 138 districts, comprising about 22 per cent of total districts of the country (Table 4). More than three-fourth of the districts falling in this category are from the seven states like Rajasthan, Uttar Pradesh, Bihar, Gujarat, Maharashtra, Karnataka and Tamil Nadu, forming two continuous belts in north-western to eastern part and a very large linear stretch along the extreme south-eastern coast to south-western parts of India. The remaining districts of this category are found in the form of scattered small patches in various parts of India (Fig. 2). The highest composite z scores among these districts have been recorded by Thoothukkudi district of Tamil Nadu (4.75), followed by Raigarh district of Maharashtra (4.66); Mathura (4.65), Varanasi (4.57), Bulandshahr (4.51) and Chandauli (4.49) districts of Uttar Pradesh etc. While, the lowest composite z scores have been registered by Champhai district of Mizoram; (0.02) followed by Churachandpur district of Manipur; (0.03) and Y.S.R. district of Andhra Pradesh (0.03) etc.

It has been found that only one district known as Lahul & Spiti district of Himachal Pradesh; Dimapur district of Nagaland; Jaintia Hills district of Meghalaya; Haora district of West Bengal and Indore district of Madhya Pradesh fall in this category. Among the union territories, only Nicobar Islands falls in this category of moderately high quality of living

space among female-headed households in rural India.

Areas of Moderate Level in Quality of Living Space

The districts that have recorded composite z scores ranging between minus 0.01 and minus 5.00 fall in this category. The moderate level in quality of living space among female-headed households has been found in 158 districts, accounting for one-fourth of total districts in rural India (Table 4). About 65 per cent of the districts falling in this category belong to eight major states of India like Maharashtra, Gujarat, Rajasthan, Uttar Pradesh, Bihar, Assam, Andhra Pradesh and Karnataka. Beside these states, Jammu & Kashmir, Arunachal Pradesh, West Bengal, and Madhya Pradesh are other important states representing this category. Most of the districts falling in this category are located in western, eastern, north-eastern and southern parts of the country (Fig. 2).

Kanshiram Nagar district of Uttar Pradesh with composite z scores of minus 0.03 tops among the districts included in this category. This district is followed by Hugli district of West Bengal (-0.06), Pali district of Rajasthan (-0.13), Sultanpur district of Uttar Pradesh (-0.15) and Chikkaballapura district of Karnataka (-0.22) etc. While, the lowest composite z scores of this category, have been witnessed by Dibang Valley district of Arunachal Pradesh (-4.93); and Chatra district of Jharkhand (-4.93). These districts are followed by Gadag district of Karnataka (-4.91); Tinsukia (-4.86) and Nagaon (-4.84) districts of Assam etc. It has been noticed that only one district, Mewat of Haryana; West Sikkim district of Sikkim state; West Tripura district of Tripura; and Dharmapuri district of

Tamil Nadu also fall in this category. With respect to the union territories, only North and Middle Andaman districts fall in this category.

Areas of Low Level in Quality of Living Space

The districts that have recorded composite z scores falling between minus 5.01 and minus 10.0 have been included in this category. This category has been represented by 169 districts, accounting for about 27 per cent of the total districts in rural India (Table 4). The study reveals that more than 75 per cent of the total districts falling in this category belong to only eight states such as Rajasthan, Madhya Pradesh, Maharashtra, Jharkhand, West Bengal, Odisha, Chhattisgarh, and Assam, forming a very large patch covering central, eastern and north-eastern parts of India (Fig. 2).

Among these districts, Raichur district of Karnataka, with composite z scores of minus 5.07 tops the list. This district is followed by Tikamgarh district of Madhya Pradesh (-5.10); Tapi (-5.14) and Narmada (-5.17) districts of Gujarat and Ranchi district of Jharkhand (-5.22) etc. On the other hand, the lowest composite z scores among this category have been recorded by Darang district of Assam (-10.00); and followed by Tuensang district of Nagaland (-9.99) and Surguja district of Chhattisgarh (-9.91) etc. Only one district Chandel of Manipur and Warangal district of Andhra Pradesh also fall in this category of rural female-headed households having low quality of living space. Among the union territories only Dadra & Nagar Haveli rural district falls in this category.

Areas of Very Low Level in Quality of Living Space

This category includes the districts

registering composite z scores less than minus 10.0. The very low level in quality of living space among female-headed households has been found in 30 districts accounting for about five per cent of total districts (Table 4). Out of 30 districts, more than 83 per cent districts are located in the states of Bihar, Odisha, Chhattisgarh and Madhya Pradesh. Only one district Kiphire of Nagaland; Dhubri district of Assam; Jalpaiguri district of West Bengal; and two districts namely Pukar and Pashchimi Singhbhum of Jharkhand fall in this category. Dindori district of Madhya Pradesh, tops in the list of this category with composite Z scores of (-10.04) followed by Jalpaiguri of West Bengal (-10.05); Singrauli (-10.08), Mandla (-10.17), and Shahdol (-10.19) of Madhya Pradesh etc. On the other hand, the lowest z score has been recorded by Purnia district of Bihar (-14.12), followed by Dhubri district of Assam (-13.57); Kishanganj (-13.56) and Araria (-13.30) districts of Bihar and Kiphire district of Nagaland (-12.44) etc. It is pertinent to mention that not a single district of union territory has been found in this category.

Conclusions

It is concluded that areas falling under various levels in quality of living space among female-headed households are marked by striking variations in rural India. Generally, these households have distinct socio-economic conditions and availability of assets and amenities in a household which reflect the quality of life. The very high level in quality of living space among female-headed households has been found in 14 per cent of the total districts, located in north-western part and a linear belt along the coastal areas of India. These districts are from the socio-economically developed states and union territories

where the people have awakening about such household facilitates and affordability to avail them. About seven per cent of the total districts, located in north-western and extreme south-western parts of India have witnessed high level of quality of living space among the female-headed households. The moderate level in quality of living space has been found in one-fourth of total districts in rural India and most of the districts are located in western, eastern, north-eastern and southern parts of the country. The areas of low quality of living space are represented by about 27 per cent of the total districts of rural India. More than three-fourth of the total districts falling in this category belong to only eight states such as Rajasthan, Madhya Pradesh, Maharashtra, Jharkhand, West Bengal, Odisha, Chhattisgarh, and Assam. The very low level in quality of living space among female-headed households has been found in five per cent of total districts, mostly located in the states of Bihar, Odisha, Chhattisgarh and Madhya Pradesh. On the whole, 21 per cent districts have registered high quality, 47 per cent districts witnessed moderate quality and 32 per cent districts recorded low quality in living space among female-headed households in rural India. Hence, there is a need for targeted interventions and policy measures in the areas recording low and very low level in quality in living space among the female-headed households in rural India for more equitable and sustainable environment for these households.

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