RESEARCH ARTICLE

OUTLINE OF POPULATION AND HOUSEHOLD CHARACTERISTICS IN UTTARAKHAND: ESTIMATES FROM NFHS.

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ARTICLE INFO	ABSTRACT
	Background: The demographic profile of a state helps in analyzing trends in order to plan programmes to benefit its people. In present study, demographic profile of Uttarakhand and its division is studied. **Material and Methods:** In this study,z-test for proportions is used for comparison of estimates of population and basic household characteristics between Kumaun and Garhwal division of Uttarakhand. **Result**: Between the two divisions, Garhwal has improved population and demographic profile. The socio economic determinants were highest in Dehradun while lowest in Tehri-Garhwal district. Kumaun, on the other hand has poor socio economic standing where Almora and Pithoragarh has deplorable states. **Conclusion:** Uttarakhand has achieved a lot in terms of health care is such small frame of time, but still various socio economic determinants in many hilly and rural districts of the state are far from being satisfactory. Improved socio-economic profile of a state is indicative of its improved health; hence, measures should be taken to improve identified areas.

INTRODUCTION

The burden of diseases has been a major hitch in Indian sub-continent. Several initiatives by government focus mitigating causes for diseases. To achieve the target it is essential to critically evaluate and compare data on health status and its determinants. The analysis of socio-economic determinants of a household is an important parameter to analyze health status of a particular area. In global context, a detailed study in the households is said to be a gold-standard measure of the current socio-economic position. A variety of socio-economic determinants dictates the utilization of health care services by the population. Understanding the demography of an area not only provides information about healthcare seeking behavior of its people but also discrepancy amongst its own people (Hargreaves *et al.*, 2007; Oladipo, 2014; Sadana, 2000). The assessments of household utilities, education, occupation and level of community development all have an impact on health outcomes. People in higher socio economic strata are considered do better on most of measures of health status including mortality, morbidity and malnutrition.

These studies on demographic profile can provide crucial information, to aid government and policy-makers to improve and implement various programmes (Meintjes, 2001). Since the inception of Uttarakhand as a separate state, it has emphasized on improving the health care utilization and care seeking behavior of its people to improve health. Thus, it is vital to prioritize the plan of action in identified areas to improve overall health status of the state. This study was conducted with an aim to identify household profiles in the two divisions of Uttarakhand: Kumaun and Garhwal.

Objective

- To mine database for population and household profiles and compare it between two regions of Uttarakhand: Garhwal and Kumaun.
- To compare population &household profiles in inter districts of Garhwal region.
- To compare population &household profiles in inter districts of Kumaun region.

MATERIALS AND METHODS

For studies data mining was done using secondary database provided by International Institute for Population Sciences

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Table 1. Comparison of population and household profiles between Kumaun-Garhwal, Kumaun-Uttarakhand & Garhwal-Uttarakhand

Indicators	Kumaon (K)	garhwal (G)	Uttarakhand (U)	K vs. G [p –value]	K vs. U [p –value]	G vs. U [p –value]
Population (female) age 6 years and above who ever attended school (%)	72.28	71.60	72.70	0.764	0.84148	0.58232
Population below age 15 years (%)	29.43	28.71	28.90	0.72786	0.80258	0.92034
Sex ratio of the total population (females per 1,000 males)	1095.33	1083.7	1015.00	0.85716	0.22246	0.29372
Sex ratio at birth for children born in the last five years (females per 1,000 males)	902.67	866.43	888.00	0.004	0.79486	0.70394
Children under age 5 years whose birth was registered (%)	77.73	78.90	76.70	0.516	0.59612	0.238
Households with electricity (%)	96.27	97.26	97.50	0.258	0.12114	0.67448
Households with an improved drinking water source (%)	88.97	88.41	92.90	0.674	0.00236	0.00054
Households using improved sanitation facility (%)	63.97	63.29	64.50	0.741	0.8181	0.57548
Households using clean fuel for cooking (%)	38.70	42.44	51.00	0.091	0	0.00012
Households using iodized salt (%)	93.68	93.54	95.30	0.857	0.11642	0.08012
Households with any usual member covered by a health scheme or health insurance (%)	18.38	24.56	19.50	0.0009	0.5287	0.00694
Women who are literate (%)	77.18	79.39	76.50	0.234	0.71138	0.11876
Men who are literate (%)	91.60	94.13	90.70	0.030	0.4777	0.0041
Women with 10 or more years of schooling (%)	41.52	44.00	44.60	0.258	0.16152	0.78716
Women age 20-24 years married before age 18 years (%)	18.28	21.50	13.80	0.073	0.00614	0
Women age 15-19 years who were already mothers or pregnant at the time of the survey (%)	3.87	2.43	2.90	0.055	0	0.01732

Table 2. Comparison of distribution of population and household profiles in Kumaun region with its district

Population and Household Profile	Kumaun	Almora	Bageshwar	Champawat	Nainital	Pithoragarh	Udham Singh Nagar
Population (female) age 6 years and above who ever attended school (%)	72.28	69.7 (0.200)	73.3 (0.617)	70.5 (0.373)	80.1 (0.000)	71.8 (0.802)	68.3 (0.05)
Population below age 15 years (%)	29.43	28.8 (0.764)	29.5 (0.960)	31.2 (0.378)	28.8 (0.764)	27.2 (0.275)	31.1 (0.40)
Sex ratio of the total population (females per 1,000 males)	1095.33	1259 (0.022)	1144 (0.477)	1154 (0.395)	1005 (0.170)	1069 (0.696)	941 (0.02)
Sex ratio at birth for children born in the last five years (females per 1,000 males)	902.67	986 (0.170)	879 (0.682)	991 (0.147)	854 (0.395)	758 (0.008)	948 (0.45)
Children under age 5 years whose birth was registered (%)	77.73	75.8 (0.312)	69.5 (0.000)	83.7 (0.000)	78.2 (0.787)	88.4 (0.000)	70.8 (0.00)
Households with electricity (%)	96.27	96.4 (0.904)	97.5 (0.121)	91.7 (0.000)	98.6 (0.001)	97.3 (0.204)	96.1 (0.81)
Households with an improved drinking water source (%)	88.97	83.9 (0.0008)	83 (0.000)	89.5 (0.719)	95.9 (0.000)	83.9 (0.00)	97.6 (0)
Households using improved sanitation facility (%)	63.97	65 (0.638)	67.4 (0.109)	59.5 (0.038)	73 (0)	62.7 (0.548)	56.2 (0.00)
Households using clean fuel for cooking (%)	38.70	26.6 (0.00)	23 (0.00)	30.4 (0.00)	62.8 (0.00)	36.8 (0.378)	52.6 (0.00)
Households using iodized salt (%)	93.68	85.9 (0.00)	94.8 (0.289)	95.4 (0.094)	95.1 (0.174)	94.6 (0.389)	96.3 (0.01)
Households with any usual member covered by a health scheme or health insurance (%)	18.38	16.1 (0.173)	34.2 (0.000)	15.4 (0.073	13.4 (0.002)	20.9 (0.158)	10.3 (0.00)
Women who are literate (%)	77.18	79.7 (0.173)	79.5 (0.211)	74 (0.094)	84.9 (0.00)	79 (0.332)	66 (0.00)
Men who are literate (%)	91.60	98.4 (0.00)	94 (0.037)	87.5 (0.003)	94.2 (0.024)	92.5 (0.459)	83 (0.00)
Women with 10 or more years of schooling (%)	41.52	41.1 (0.857)	42.8 (0.555)	38.3 (0.144)	52.2 (0.00)	38.7 (0.201)	36 (0.01)
Women age 20-24 years married before age 18 years (%)	18.28	9.7 (0.00)	20.1 (0.307)	19.5 (0.490)	15.1 (0.054)	26.6 (0.000)	18.7 (0.81)
Women age 15-19 years who were already mothers or pregnant at the time of the survey (%)	3.87	0.8 (0.00)	4.1 (0.818)	4.2 (0.134)	2.5 (0.075)	6.8 (0.004)	4.8 (0.32)

(IIPS) on National Family Health Surveys 4 conducted in 2015-2016 (International Institute for Population Sciences and ICF, 2015). NFHS-4 fieldwork for Uttarakhand was from 30 January 2015 to 19 July 2015 by Institute of Health Management Research (IIHMR University) and gathered information from 15,171 households. Along with this data was assessed from the fact sheets for each district of Uttarakhand (Annual Health Survey, 2010-11).

Statistical Analysis: The Z test for two-population proportion has been applied for different study indicators. P-value is calculated, if $p > 0.05$, H_0 is accepted, and if $p < 0.05$, then H_0 is rejected at 5 % of level of significance.

RESULTS

The distribution of population and household profiles in Uttarakhand region is presented in Table 1, it is observed that there is a significant difference in the distribution of household profiles in the two divisions of the state. Significant differences are observed in terms of sex ratio at birth for children born in last five years (p-value 0.004), household with unusual member covered by health scheme/insurance (p-value 0.0009) and literacy amongst men (p-value 0.030). Garhwal has better status of household profiles in comparison to Kumaun district. The population and household profile of Kumaun and its district are presented in Table 2.

Table 3. Comparison of distribution of population and household profiles in Garhwal region with its district

Population and Household Profile	Garhwal	Pauri-Garhwal	Rudraprayag	Uttarkashi	Tehri-Garhwal	Chamoli	Dehradun	Haridwar
Population (female) age 6 years and above who ever attended school (%)	71.60	75.6 (0.04)	70.8 (0.68)	65.8 (0.005)	65.8 (0)	74.3 (0.17)	79.9 (0.00)	69 (0.20)
Population below age 15 years (%)	28.71	27.3 (0.48)	28.9 (0.92)	29.7 (0.62)	29.3 (0.76)	29.8 (0.58)	24.1 (0.02)	31.9 (0.11)
Sex ratio of the total population (females per 1,000 males)	1083.7	1210 (0.07)	1169 (0.21)	1031 (0.42)	1161 (0.26)	1150 (0.33)	936 (0.02)	929 (0.01)
Sex ratio at birth for children born in the last five years (females per 1,000 males)	866.43	705 (0.002)	879 (0.81)	825 (0.46)	953 (0.13)	950 (0.15)	832 (0.54)	921 (0.34)
Children under age 5 years whose birth was registered (%)	78.90	79.1 (0.91)	78.6 (0.87)	67.9 (0.00)	79.7 (0.65)	89.7 (0.00)	87.4 (0.00)	69.9 (0.00)
Households with electricity (%)	97.26	98.1 (0.18)	98.8 (0.01)	93.1 (0.00)	98.1 (0.18)	95.5 (0.00)	99.4 (0.00)	97.8 (0.38)
Households with an improved drinking-water source1 (%)	88.41	88.1 (0.83)	86.5 (0.2)	75.1 (0.00)	77.4 (0.00)	93.2 (0.00)	99.5 (0.00)	99.1 (0.00)
Households using improved sanitation facility2 (%)	63.29	66.2 (0.17)	67.6 (0.04)	48.5 (0.00)	65.8 (0.24)	62.4 (0.67)	75.6 (0.00)	56.9 (0.00)
Households using clean fuel for cooking (%)	42.44	35.4 (0.001)	32.5 (0.00)	28.2 (0.00)	35.1 (0.00)	34.8 (0.00)	84.9 (0.00)	46.2 (0.08)
Households using iodized salt (%)	93.54	95.9 (0.01)	87 (0.00)	93.4 (0.92)	97.3 (0.00)	85.6 (0.00)	99.1 (0.00)	96.5 (0)
Households with any usual member covered by a health scheme or health insurance (%)	24.56	15.9 (0.00)	29.9 (0.006)	32.3 (0.00)	37.4 (0.00)	18.8 (0.00)	31.2 (0.00)	6.4 (0.00)
Women who are literate (%)	79.39	87.2 (0.00)	83.3 (0.025)	71.2 (0.00)	77.1 (0.21)	85.8 (0.00)	84.6 (0.00)	66.5 (0.00)
Men who are literate (%)	94.13	96 (0.05)	98 (0.00)	92.6 (0.17)	91.9 (0.05)	95.9 (0.06)	99.1 (0)	85.4 (0)
Women with 10 or more years of schooling (%)	44.00	51.8 (0.00)	52.1 (0.000)	40.2 (0.085)	53.8 (0.00)	49.8 (0.009)	31.2 (0.00)	29.1 (0.00)
Women age 20-24 years married before age 18 years (%)	21.50	6.2 (0.00)	10.3 (0.00)	11.6 (0.00)	10 (0.000)	12.3 (0.00)	84.6 (0.00)	15.5 (0.00)
Women age 15-19 years who were already mothers or pregnant at the time of the survey (%)	2.43	3.9 (0.05)	2.1 (0.65)	5.4 (0.00)	0 (0.00)	1.3 (0.06)	1.7 (0.27)	2.6 (0.77)

Udham Singh Nagar has majority of improved socio-economic determinants that is followed by Nainital, Bageshwar, Champawat, Almora and Pithoragarh respectively. The population and household profile of Garhwal and its district are presented in Table 3; Dehradun has most improved socio-economic determinants that is succeed by Haridwar, Chamoli, Pauri-Garhwal, Rudraprayag and Tehri-Garhwal.

DISCUSSION

Studies indicate that socio-economic determinants are key indicators of household prosperity. Garhwal has more improved household and population profile in comparison to Kumaun (Galobardes *et al*., 2006). Dehradun district consists of Uttarakhand's capital city making it a central location of the state thus the entire district has more development. High rate of literacy and better facilities have been associated with improved population and household profile (Census of India, 2011; Mittal *et al*., 2008). Tehri- Garhwal and Uttarkashi both have impaired household and population profile. Lack of education and awareness, inaccessibility and limitation of resources are the key factors for poor socio-economic determinants. Poor rates of literacy amongst people have been related to poor utilization of facilities provided by the state. Since people lack awareness, they have little knowledge about the benefits of sanitation that ultimately leads to breakouts of many life-consuming diseases. It is also observed that presence difficult terrains constraints proper supply of various household amenities like electricity and water (Sharma *et al*., 2013; FAO Statistical Year Book, 2012; Mamgain,).

Similarly, in Kumaun division better demographic profile was found in both Udham Singh Nagar and Nainital. Udham Singh Nagar is an industrial district that provides employment to many people not only from Uttarakhand but from adjoining states too. It is a key location in Kumaun area along with Nainital district that is known for tourism. Moreover, it has already been established that location of place has its effect on socio-economic determinants and population and household profiles (Galobardes *et al*., 2006). Pithoragarh and Almora are part of the hilly districts of Kumaun division; in spite of high literacy rates, they still have low health status. Inaccessibility to the primary health care facilities, absenteeism of the health staff and harsh environment presents unfavourable circumstances for the people in the area (Quarterly monitoring report Uttarakhand (April-June, 2013). NHSRC.).

Conclusion

Household and population profile of a particular area holds a pivotal role in determining its socio-economic status. Several indicators such as sanitation, rate of literacy etc are essential in determining the health status of the state. A state with healthy population not only represents success of government interventions but awareness amongst its people.

REFERENCES

Annual Health Survey, 2010–11. Fact sheet—Uttarakhand. O/o the Registrar General & Census Commissioner, Ministry of Home Affairs, Government of India, New Delhi.

Census of India 2011. Provisional Population Totals, Rural and Urban distribution of Uttarakhand series 6, Uttarakhand, India: Directorate of census operations, pages:59; 2011.

FAO Statistical Year Book. World Food and Agriculture. Food and Agriculture Organization Of The United Nations. Rome 2012.

Galobardes, B., Shaw, M., Lawlor, D. A., & Lynch, J. W. 2006. Indicators of socioeconomic position (part 1). *Journal of Epidemiology and Community Health*, 60(1), 7–12.

Hargreaves, J. R., Morison, L. A., Gear, J. S., Kim, J. C., Makhubele, M. B., Porter, J. D., and Pronyk, P. M. 2007. Assessing household wealth in health studies in developing countries: a comparison of participatory wealth ranking and survey techniques from rural South Africa. *Emerging Themes in Epidemiology*, *4*, 4.

International Institute for Population Sciences and ICF. National Family Health Survey (NFHS-4), India, 2015-2016: Uttarakhand. Mumbai, India: IIPS and Rockville, Maryland, USA: ICF, pages:171; March2017.

Mamgain, R.P and Reddy D.N. Outmigration From Hill Region Of Uttarakhand: Magnitude, Challenges And Policy Options. Retrieved from http://www.nird.org.in/nird_docs/srsc/srscrr261016-3.pdf

Meintjes, C. J. 2001. *Guidelines to Regional Socio-economic Analysis*, Development Paper. No. 145. Halfway House, South Africa: Development Information Business Unit, Development Bank of Southern Africa.

Mittal, S., Tripathi, G. and Sethi, D. 2008. Development Strategy for the Hill Districts of Uttarakhand working paper No. 217. Indian Council For Research On International Economic Relations.

Oladipo, J. A. 2014. Utilization of health care services in rural and urban areas: a determinant factor in planning and managing health care delivery systems. *African Health Sciences*, *14*(2), 322–333.

Quarterly monitoring report Uttarakhand. (April-June, 2013). NHSRC.

Sadana R, Mathers C. D, Lopez A. D, Murray C. J. L, Iburg K. M. 2000. Comparative analyses of more than 50 household surveys on health status (abridged version) Global Programme on Evidence for Health Policy World Health Organization Geneva. Retrieved from http:// www. unece.org/fileadmin/DAM/stats/documents/2000/10/health/ wp.9.e.pdf .

Sharma, S., Saini, J. and Goutam, N. *Monitoring report of Tehri Garhwal district, Uttarakhand.* PRC, IEG, pages:37, September-October 2013.

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