Major Activities of the Centre - January to June, 2024

Seminars/workshops/training/meetings attended by staff

Mr. C. N. Noolvi and Mr. M. S. Kampli attended the capacity building initiative for PRC Staff, a three days physical training programme from 22-24 January, 2024 on 'NSS & Unit level data Analysis' organized by National Statistical System Training Academy (NSSTA), at Greater Noida, U.P.

Dr. Shriprasad H., Associate Professor presented a research paper entitled 'Autonomy for women in Karnataka: Evidences from National Family Health Survey (NFHS-5)', in a National conference on Viksit Bharat@2047 Problems and Prospects organised by SDM First Grade College Ujire, Karnataka on 03-02-2024.

Prof. Jyoti S. Hallad, Director presented a paper on "Religion Demography in South India" as a Key Person in a Panel Discussion at South Regional Conference of Indian Association for the Study of Population at Annamalai University, Tamil Nadu during 16-17 February, 2024.

Dr. Shriprasad H., attended Two day National workshop on "HMIS and RCH Portal" during 22-23 February 2024 at Vigyan Bhawan, New Delhi, organized by MoHFW, GoI New Delhi.

Prof. Jyoti S. Hallad, Director attended PRC Scientific and Advisory Committee meeting as a member and Dr. Shriprasad H., Associate Professor and Mr. B.I. Pundappanavar, Research Investigator presented AWP proposals held at PRC, ISEC, Bangalore during 14-15 May, 2024.

Publications:

Shriprasad H (2024) "Mobile and Internet Users among Women in Karnataka Does E-Governance Accessible to Women: Some insights from National Family Health Survey Data (NFHS-5 data)", Edited volume 'Dimensions of E-governance in India: A rural perspective' edited by Neelkanta NT et.al., "Current Publications Agra' ISBN: 978-81-970106-0-6.

Golandaj J A. Kampli M S. Kumar M. and Hallad J S. (2024). "Complications and implications of Caesarean delivery: Facts and perceptions", Clinical Epidemiology and Global Health, Vol. 29, No. 101770, https://doi.org/10.1016/j.cegh.2024.101770.

Other activities

A talk on 'ways to join Indian Navy and its health standards' was organized on 20.04.2024 to JSS Commerce College students under IER DVHChair and Jayant Subhaiah, Lieutenant Commander, Karwar Naval base was a Resource person.

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Medical Attention and Hospitalization before Death among Tribes in India: Evidence from the 71st and 75thRounds of the National Sample Survey (2014-2018)

Shatrughan Prasad

Abstract

Objective: *The main objective of this study is to explore the status of medical attention and hospitalization prior to death within the tribal communities during 2014 to 2018.*

Method and Data Sources: *The data obtained from Schedule 25.0, which draws upon nationally representative data on social consumption on health (SCH) from the 71st round (2014) and 75th round (2018) of the National Sample Survey (NSS). Descriptive statistics and logistic regression were used to examine the medical attention and hospitalization before death among tribes in India for the period of 2014 to 2018.*

Result: *In India, the number of cases with medical attention and hospitalization before death were recorded 87.7 percent (2109) and 76.3 percent (1830) respectively during 2014, while in 2018, the corresponding figures were 83.6 percent (2121) for medical attention and 73.3 percent (1859) for hospitalization. The analysis of medical attainment and hospitalization before death among Indian tribes reveals notable patterns and changes. Medical attainment rates for tribes and non-tribes showed a slight decrease between two periods. Although, medical attainment were 82 percent in 2014 and it is decreased by 79 percent during 2018among tribes. Simultaneously, medical attainment among non tribes was 89 percent in 2014 and it is decreased and remains 84 percent in 2018. However, hospitalization rates also declined for tribal communities between 2014 (68%) to 2018 (64%). Data on medical attention and hospitalization before death, highlighting demographic characteristics, with a decrease in medical attention in 2018. There was a higher proportion of deaths in tribal households among younger age groups in 2014, but a shift occurred in 2018 with higher proportions among the 0-4 and 5-14 age groups. Interestingly,*

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our finding revealed that male and female both are showing negative change in receiving medical attention among tribes before death from 2014 to 2018. The research findings also indicate that tribal groups, particularly among the elderly population, have significantly lower rates of hospitalization compared to the non-STs/SCs group in India. The reasons for this lower rate of hospitalization are “Patient Died before Taking to Hospital” and “Ailment was not Considered Serious Enough”.

Conclusion: Overall, there was a decrease in medical treatment and hospitalization rates among tribes from 2014 to 2018. The decrease in hospitalization rates it may reflect changes in healthcare practices, improvements in disease management, and a shift towards more accessible and cost-effective healthcare options.

Introduction

The term "medical attention" prior to death refers to a specific level of medical treatment or care administered by a doctor or physician. This includes inpatient care or active treatment for chronic, obstetrical, surgical, medical, rehabilitative, or mental illnesses that require ongoing monitoring, diagnosis, and daily therapy or medication before the individual's demise (Law Insider, 2022).

India is the second-largest tribal populated country in the world where more than100 million tribes are living across the country, spread in different geographical terrain and over all the region of the country (Census 2011). Tribal populations constitute one of the most socio-economically marginalized segments of society. Their vulnerability and disadvantaged circumstances expose them to numerous challenges, with health being a prominent concern. The precarious state of their health further exacerbates their vulnerability and socio-economic deprivation (Negi & Singh, 2019) therefore they deserve special attention due to their geographical and infrastructural challenges. Consequently, the National Health Policy of 2017 places a specific emphasis on enhancing the health status and ensuring quality healthcare services for tribal communities, rural populations, marginalized groups, and other vulnerable segments. Recognizing that addressing the needs of these vulnerable populations is vital, the policy aims to align with India's commitment, as well as that of other countries,

towards achieving the UN Sustainable Development Goals. This commitment underscores the importance of prioritizing the healthcare requirements of these marginalized communities (NITI Ayog, 2018).

In India, significant increase in hospitalization rates, with urban areas and wealthier groups benefiting more from healthcare advancements. However, rural populations and poorer segments face persistent access and financial challenges, exacerbating health inequities over the two decades (Pandey A, et al, 2017). The most recent global study provided compelling evidence of inferior health and social outcomes among indigenous/tribal populations when compared to other demographic groups (Anderson et al., 2016). The elderly population in India faces significant challenges in terms of poor health. They experience lower levels of self-perceived health, limited mobility, and reduced rates of hospitalization. Particularly among scheduled tribes and scheduled castes, the rate of hospitalization is significantly lower for the elderly population compared to the non-STs/SCs group in India (Prusty et al., 2011; Prasad, 2014). The prevalence of ill health was found to be higher in rural areas compared to urban areas, although this trend did not extend to hospitalization rates. Surprisingly, rural tribal populations reported higher levels of illness and sought hospital treatment more frequently than their urban counterparts. Regarding hospitalization, the survey revealed that 2.4 percent of the total population of India had been hospitalized within the 365 days prior to the survey, with the corresponding figure for STs (Scheduled Tribes) standing at 1.5 percent in India (Prasad, 2014). The national average highlighted significant inter-state differences in annual hospitalization rates, which ranged from 1 to 10 percent. Kerala had the highest probability of hospital admission followed by Tamil Nadu and Maharashtra. In contrast, Bihar, Uttar Pradesh, and the North-east each had the lowest rates. Except for Kerala, all states had higher hospitalization rates in urban areas than in rural areas(Ghosh, 2014).The rising pattern of high morbidity in Kerala highlights the need for consistent medical attention and treatment. However, in rural areas, the highest number of hospitalized cases due to infectious diseases was reported among under 15 years children (Paul, et. al. 2020; Kastor and Mohanty, 2018). Although, factors such as the physical accessibility of healthcare services and the ability to seek medical attention can give rise to artificial disparities in morbidity and hospitalization rates among various subgroups

within the population. Additionally, the monthly per capita consumer expenditure of households and bias in financing for hospitalization highlight significant disparities in the context of hospitalization in India (Dilip, 2002; Kumar et. al., 2020). A significant proportion of deaths occur without medical assistance, primarily due to the high cost and limited accessibility of healthcare services in rural and hilly regions (ToI; Oct 21, 2015).In 2019, approximately 48.5 percent of deaths in India occurred among individuals who had received medical attention before their demise, whether in government hospitals or private hospitals (SRS Report, 2019). Government have launched may health schemes to improve health status, increasing the treatment care and to provide quality based healthcare services in India. Although, the government had launched The National Rural Health Mission (NRHM), launched in 2005, aims to improve healthcare delivery in rural India by enhancing access, equity, and quality of services. It focuses on strengthening infrastructure, increasing human resources, and promoting community participation to reduce health disparities and improve outcomes, particularly for marginalized populations. However, Preliminary evidence from existing studies on the NRHM indicates significant variation in the program's performance across states. Moreover, states that were lagging in the pre-NRHM period showed little to no notable improvement (Gill, 2009). The government also was launched the Rashtriya Swasthya Bima Yojana (RSBY) in 2008, a health insurance scheme aimed at providing financial protection to families below the poverty line and access to a network of public and private hospitals. But, a study showed that tribal-dominated areas had low enrollment rates, indicating the scheme's lack of social inclusivity. (Rahi, Mukherji and Sen, 2012).Quality of care and availability of Healthcare centres at nearby living places are also an essential determinants for medical attention during the ill (Levesque et al., 2006).Urban areas, which comprise only 28% of India's population, have access to 66% of the country's total hospital beds, while the remaining 72% of the population in rural areas has access to just 34% of the beds (IMS, 2013).

This paper specifically examines the status of medical attention and hospitalization, as well as the reasons behind the lack of medical care and hospitalization before death in India, with a particular emphasis on tribal communities.

Method and Data Sources

The data obtained from Schedule 25.0, which draws upon nationally representative data on social consumption on health (SCH) from the 71st round (2014) and 75th round (2018) of the National Sample Survey (NSS). These rounds of the NSS were conducted by the National Sample Survey Organization (NSSO), under the purview of the Government of India. In 2014, a comprehensive survey covered a total of 65,932 households and 338,870 individuals (MoSPI, 2014). Similarly, in 2018, the survey encompassed 113,823 households, with 64,552 in rural areas and 49,271 in urban areas. The survey further included a total of 555,115 individuals, with 325,883 residing in rural regions and 229,232 in urban areas, covering all states and Union territories (UTs). However, this is the first time when data on transgender is providing in this latest 75th round survey (MoSPI, 2018).

The data provide information on various morbidities, treatment-seeking behavior, expenditure, death, medical attention and hospitalization before death. Hospitalization defined as an overnight stay in the hospital anytime.

This study exclusively focused on cases that involved medical attention and hospitalization prior to death among tribal populations in India. The analysis consist on 2398 (Rural=1334 & Urban=1064) death in 2014 and 2537 (Rural=1449 & Urban=1088) death in 2018.However, the information included the age and sex of the dead in a household members, medical attention, hospitalization and reason for not hospitalization before death. Descriptive statistics and logistic regression were used to examine the medical attention and hospitalization before death among tribes in India for the period of 2018. All the analysis is done by using STATA-14 statistical software packages.

Analytical Framework

The study's outcome variable pertains to a dichotomous characteristic, specifically focusing on former household members who have passed away within the last 365 days before the survey. For analytical purpose, social grouped into four broader categories- Scheduled caste (SC), Scheduled Tribe (ST), Other Backward Classes (OBC) and *others* as mentioned by households at the time of survey. Further, these four social group again categorized into two broader categories such as tribes and non-tribes but this study

concentrate on tribal population only. Tribes are considered to Schedule tribe (ST). Furthermore, age of dead person categorized into five age groups such as 0-14, 15-29, 30-44, 45-59 and 60& above. Sex of the dead person categorized as male and female within the demographic characteristics. Within the socio-economic characteristics- place of residence (rural/urban), members educational status (no education/primary/secondary/higher secondary/ graduate & above), household religion (Hindu/Muslim/Christian/Other) is considered. Economic status is one of the important indicators and for this we have included monthly per capita expenditure (MPCE) quintile and main income source for households. Using the monthly per capita expenditure, we have categorized into five equal quintiles as has used widely in health studies across the globe. Household main occupation is considered as main income source and it categorized into self-employed in agriculture, self-employed in non-agriculture, wage/salaried worker, casual labour in agriculture, casual labour in non-agriculture and else used other type of occupation can't be fitted into the mentioned categories

Result

Reporting of Death among Tribes in India, 2014-18

Figure 1.1 provides age death distribution for two successive period 2014 and 2018. Further figure 1.2 and 1.3 also provides death scenario by sex and place of residence respectively. The trend of death was higher in 2014 while it was declined in 2018. However, the death rate was recorded less among below 5 years children in2014 (15%), while it is increased in 2018 (18%). Furthermore, age 5 to 44 years, the reporting of death was higher in 2014 and then it is declined after 44 years during 2018 as shown figure 1.1. Another side figure 1.2 reveals that female (12%) death rate was higher than male (11%) during 2014. Reporting of death among male was decreased in 2018 but it is remains same among female even 2018 as shown in figure 1.2. If look death scenario at place of residence level then result showing that not much differences during 2014 to 2018 in rural area, while it is varying in urban area between 2014 to 2018 as figure 1.3 is showing.

Figure 1.1: Age wise death Distribution

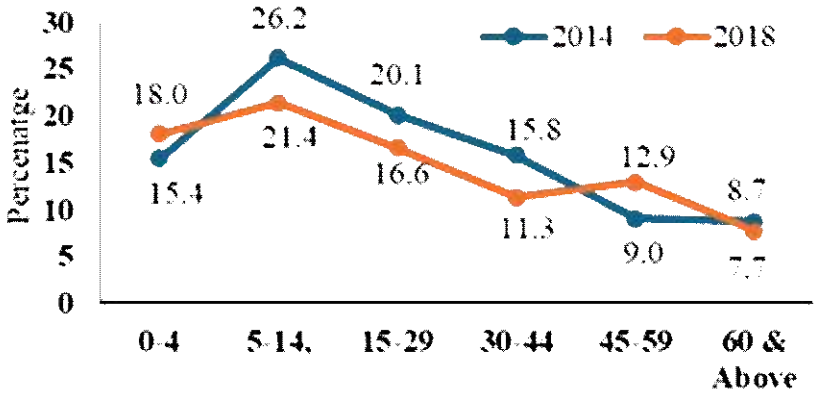


Figure 1.2: Sex wise death Distribution

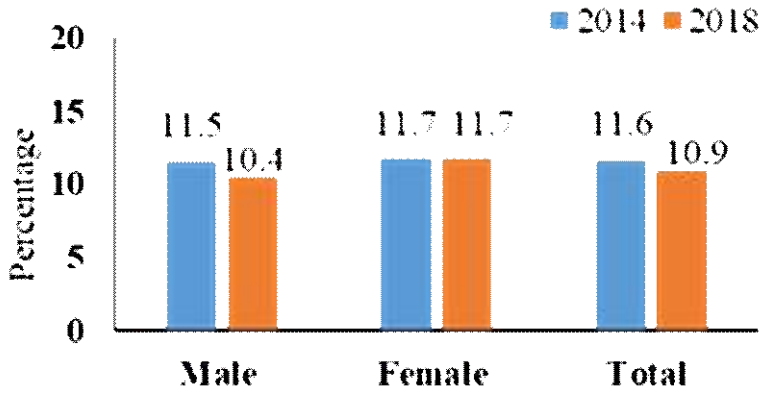
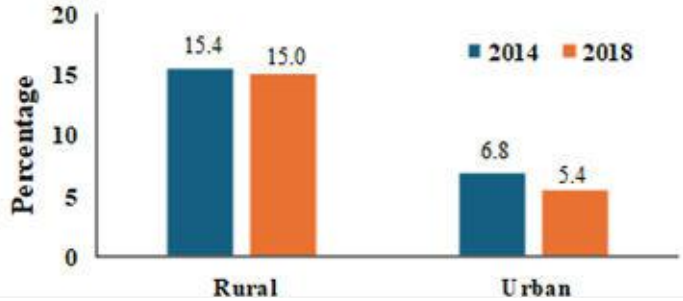


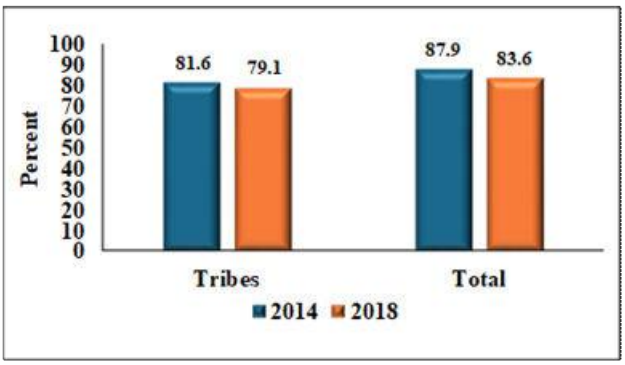
Figure 1.3: Place of Residence wise death Distribution



Medical Attention and Hospitalization among Tribes in India

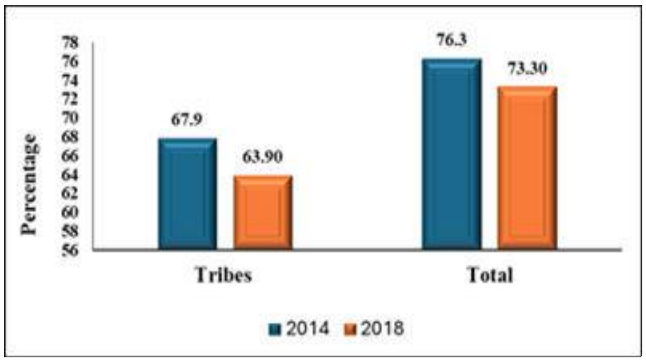
Figure 2 displaying data on medical attainment and hospitalization before death for two distinct periods: 2014 and 2018. In 2014, the medical attainment rate for tribes was around 82 percent, whereas it was declined and remain only 79 percent in 2018. Although, medical attainment was declined by around 3 percent among tribes during 2014 to 2018 years as shown in figure 2.

Figure 2: Medical Attention before Death among Tribes in India, 2014-18



Furthermore, figure 3 presents information on hospitalization of deceased persons among tribal peoples in India during 2014 and 2018. The figure illustrates a decrease in the hospitalization rate from 2014 to 2018 among tribal population in India. The reporting of hospitalization among tribes was 68 percent in 2014, which declined by approximately 4 percent in 2018, resulting in a remaining rate of 64 percent for that year.

Figure 3: Hospitalized before Death among Tribes in India, 2014-18



Medical attention among Tribal Population in India

Table 1 presents data on medical attention and hospitalization before death, along with demographic characteristics such as age, sex, and place of residence, for two consecutive periods: 2014 and 2018.As table is showing that age group of 15 to 44 years had given more attention toward medical for treatment before death, exceeding 90 percent in 2014 than the 2018 among tribes in India as shown in table 1. Likewise it is observed that the urban tribes were more active to provide medical facility to the diseased persons in the family as urban always have better healthcare infrastructure. However, in tribal communities, there was almost an equal observation had come among male and females in 2014. Nonetheless, there was a decrease in the reporting of medical attention before death among tribes for males and females in 2018.

Overall, approximately 82 percent of tribes received medical attention before death in 2014, while there was a decrease in these numbers by 2018, with around 79 percent of tribes availing medical attention before death.

Table1: Medical Attention before Death among Tribes in India-2014-18 (%)

HHs Characteristics	Years	
	2014	2018
Age Groups		
0-4	78.4	73.5
5-14	81.3	75.0
15-29	91.4	75.0
30-44	93.5	84.4
45-59	86.0	77.9
60 & Above	72.0	81.8
Place of Residence		
Rural	80.5	75.7
Urban	84.7	91.5
Sex		
Male	81.4	77.6
Female	81.9	81.3

Source: Author's own calculation, 71st& 75th round NSS

Religion and wealth status of tribal also played a crucial role for availing medical attention before death. Among the Hindu tribes, medical attainment before death was higher in 2014 (87%) while it is decreased during 2018 and remain 85.5 percent only. Another side the surprisingly, medical attainment was jumped 62 percent in 2014 to 90 percent 2018 among Muslim tribes which is a huge improvement in medical attention before death which lead to decreasing death. In wealth quintile, demand of medical attention among poorest has been increased during 2014 to 2018 while it is decreased amongst richest during the same period as shown in table 2.

Table2: Medical Attention by religion and wealth quintile before Death among Tribes in India-2014-18 (%)

HHs Characteristics	Years	
	2014	**2018**
Religion		
Hindu	87.0	84.5
Muslim	62.5	90.0
Cristian	67.9	73.2
Other	76.2	57.1
Wealth Quintiles		
Poorest	77.6	78.4
Poor	87.2	76.2
Middle	87.5	78.3
Rich	81.0	90.6
Richest	83.3	73.9
Total	**81.6**	**79.1**

Source: Author's own calculation, 71st& 75th round NSS

Hospitalization among Tribal Population in India

Table 3 presents data on hospitalization before death categorized by age, sex, and place of residence. The hospitalization rates were notably higher among the age group of 15 to 44 (>85%) years in tribal households during 2014.In 2018, there was a notable decline in hospitalization rates among both tribal and non-tribal groups compared to 2014. But is

noticed that the hospitalization was increased among older population age 60 and above, increased from 52 percent 2014 to 58 percent in 2018. The trend of higher hospitalization rates was recorded in urban areas persisted in both periods for tribes. Further more, in 2014, hospitalization were more recorded among tribal female (72%) compared to tribal males (65%), while there was a decline in hospitalization rates among both males and females, regardless of tribal affiliation, in 2018 across India. Overall, the hospitalization rate before death was declined from 76 percent to 73 percent during 2014 to 2018 in India.

Table 3: By age, Place of Residence and Sex of hospitalization before death among Tribes in India, 2014-18 (%)

HHs Characteristics	Years	
	2014	2018
Age Groups		
0-4	62.2	58.8
5-14	62.5	58.3
15-29	85.7	65.6
30-44	87.0	84.4
45-59	76.7	66.2
60 & Above	52.0	57.6
Place of Residence		
Rural	65.4	61.9
Urban	75.0	71.2
Sex		
Male	65.1	61.8
Female	72.4	67.0

Source: Author's own calculation, 71st& 75th round NSS

Moreover, among the religion, Hindu and Muslim tribes, hospitalization before death was increased from 75 percent to 76 percent among Hindu in 2014 and from 50 percent to 70 percent among Muslim in 2018, while it was decreased among Christian by around 24 percent during 2014 to 2018. In wealth quintile group, hospitalization decrease among all the wealth quintile group during the 2014 to 2018 but is higher declined was noted among richest groups during 2014 (78%) to 2018 (61%) as shown in table 4.

Table 4: Hospitalization by Religion, Types of Household and Wealth Quintile among Tribes in India, 2014-18

HHs Characteristics	Years	
	2014	2018
Religion		
Hindu	75.0	76.2
Muslim	50.0	70.0
Cristian	51.8	47.9
Other	52.4	28.6
Wealth Quintiles		
Poorest	65.0	64.2
Poor	66.0	59.5
Middle	70.8	63.0
Rich	76.2	71.9
Richest	77.8	60.9

Source: Author's own calculation, 71st& 75th round NSS

Reasons for not Hospitalization among Tribal Communities

Table 5 presents the reasons for not hospitalization before death in tribal households. In 2018, the most frequently reported reasons among tribal households were "Patient Died before Taking to Hospital" (47%) and "Ailment was not Considered Serious Enough" (16%). These two reasons were also commonly reported by rest others groups during the same period.

Table 5: Reason for Not-hospitalization before Death among tribes in India-2018

Reason for Not Hospitalized before Death	Percent
Hospital Care was not Considered Satisfactory	2.7
Admission to Hospital was not done as Doctor/Medical Attendant was not Available	0.0
Ailment was not Considered Serious Enough	16.1
Financial Constraints	6.3
Due to Transportation Problem	1.8
Patient did not Want to be Hospitalized	8.0
Patient Died Before Taking to Hospital	47.3
Other	17.9
Total	**100**

Source: Author's own calculation, 71st& 75th round NSS

Furthermore, Table 6 presents the odds ratios for hospitalization before death among the tribal population in India during 2018. Among the age groups, aged 30–44 years and 45–59 years have the highest odds of hospitalization, nearly four times and three times, respectively, compared to their respective reference group. These results are highly statistically significant ($p<0.001$). Regarding place of residence, in urban areas have slightly higher odds of hospitalization compared to those in rural areas (Ref.), but this result is only marginally significant. Similarly, women have higher odds of hospitalization compared to men with an odds ratio of 1.27, indicating a 27% increase relative to the reference category (male). On the other hand, Christians have significantly lower odds of hospitalization (57% less) compared to Hindus, a result that is highly significant ($p<0.00$). Additionally, engaged in casual labor in non-agriculture and families from richest who deceased were more likely to experience hospitalization before death, as shown in Table 6.

Table 6: Odd ratio for Hospitalization before Death among Tribe in India-2018

Characteristics	Odds Ratio	P>z	95% Conf. Interval	
Age at Death: 0-4 (Ref.)			LL	UL
5-14	2.80	0.003**	1.42	5.51
15-29	1.97	0.002**	1.29	3.03
30-44	3.95	0.000***	2.57	6.06
45-59	3.12	0.000***	2.18	4.49
60 & Above	2.07	0.000***	1.50	2.85
Place of residence: Rural (Ref.)				
Urban	1.22	0.064*	0.99	1.51
Sex: Male (Ref.)				
Female	1.27	0.012*	1.05	1.54
Religion: Hindu (Ref.)				
Muslim	0.87	0.297	0.66	1.14
Cristian	0.43	0.000***	0.29	0.63
Other	0.65	0.018*	0.45	0.93
Types of Household: Self-employed in agriculture (Ref.)				
Self-employed in non-agriculture	1.02	0.895	0.80	1.28
Regular wage/salary earning	1.03	0.859	0.76	1.38
Casual labour in agriculture	1.07	0.712	0.75	1.54
Casual labour in non-agriculture	1.41	0.065*	0.98	2.03

Other	1.35	0.098*	0.95	1.93
Wealth Quintiles: 1st (Ref.)				
Poor	0.85	0.224	0.65	1.10
Middle	0.96	0.790	0.73	1.27
Rich	0.95	0.756	0.71	1.28
Richest	1.02	0.877	0.75	1.40
Constant	1.10	0.603	0.78	1.55

Notes: Significant levels ***p-value<0.01; **p-value<0.05; *p-value<0.1

Discussion and Conclusion

In 2014, the number of cases with medical attention and hospitalization before death were recorded 87.7 percent (2109) and 76.3 percent (1830) respectively, while in 2018, the corresponding figures were 83.6 percent (2121) for medical attention and 73.3 percent (1859) for hospitalization in India.

The analysis of medical attainment and hospitalization before death among Indian tribes reveals notable patterns and changes. Medical attainment rates for tribes and non-tribes showed a slight decrease between two periods. Although, medical attainment were 82 percent in 2014 and it is decreased by 79 percent during 2018 among tribes. Simultaneously, medical attainment among non tribes was 89 percent in 2014 and it is decreased and remains 84 percent in 2018. However, hospitalization rates also declined for tribal communities between 2014 (68%) to 2018 (64%). Data on medical attention and hospitalization before death, highlighting demographic characteristics, with a decrease in medical attention in 2018. There was a higher proportion of deaths in tribal households among younger age groups in 2014, but a shift occurred in 2018 with higher proportions among the 0-4 and 5-14 age groups. Interestingly, our finding revealed that male and female both are showing negative change in receiving medical attention among tribes before death from 2014 to 2018 while similar result also found in other studies (Akhtar and Siakiya, 2022). It is also showing negative changes in rural tribes for receiving medical attention in the both successive periods. Our study also found that the rich tribal a considerably greater tendency to receive medical attention than poorest and poorest in 2018. This finding aligns with earlier research studies, further reinforcing its validity (Ghosh & Sen Gupta, 2016; Gupta & Sankar, 2004). Consequently, it becomes evident that the segment comprising the poorest households experiences the greatest

disparity when it comes to accessing medical care. According to our findings, there is a significant likelihood that deceased belonging to the non-tribes receive medical attention prior to their demise, in contrast to individuals from the tribes and this kind of result also reflecting in some of the previous studies (Akhtar & Saikia, 2022; Ghosh & Sen Gupta, 2016; Gupta & Sankar, 2004). The reasons for not hospitalization before death in tribal households are "Patient Died before Taking to Hospital" (47%) and "Ailment was not Considered Serious Enough" (16%). These two reasons were also commonly reported by non-tribal households during the same period, with percentages of 43 percent and 10 percent respectively.

Overall, there was a decrease in medical treatment and hospitalization rates among tribes from 2014 to 2018. The decrease in hospitalization rates it may reflect changes in healthcare practices, improvements in disease management, and a shift towards more accessible and cost-effective healthcare options. The reasons for not hospitalizing in tribal households, including patients dying before reaching the hospital and a perceived lack of severity in ailments. These findings highlight the need for continued focus on improving healthcare access and addressing the specific healthcare needs of Indian tribes, especially inaccessible area like rural, hilly and remote area.

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Perspectives on Ageing and Well-being among Schedule Tribes in Karnataka: A Qualitative Study

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Abstract

Population ageing is a global phenomenon significantly impacting health and well-being. In India, the elderly population is projected to rise from 103 million in 2011 to 319 million by 2050, with considerable regional variations. This study explores perceptions of ageing and well-being among older adults in the Scheduled Tribes (ST) community of Karnataka, addressing the multidimensional nature of healthy ageing, which encompasses physical, mental, social, and financial dimensions. The study employed thematic analysis of in-depth interviews with 16 older adults (8 men and 8 women, aged 60-85). Using purposive sampling, participants were selected based on diverse demographic factors. Individual interviews focused on participants' perceptions of ageing and well-being, lasting approximately 60 minutes and recorded for analysis. The findings revealed two main themes reflecting participants' perspectives on ageing and well-being. First, the perception of ageing emphasized the importance of good physical and mental health, financial stability, and social support. Participants viewed good physical health as synonymous with the absence of chronic diseases and the ability to live independently, while mental health was linked to the absence of distress and the enjoyment of life. Second, well-being was described as being closely tied to financial security, with participants stressing the importance of adequate resources and financial independence. Emotional and instrumental support from family and community was also deemed crucial for maintaining health and coping with the challenges of ageing. This study underscores the complexity of ageing and well-being among older adults in the ST community, highlighting that well-being encompasses not just health but also

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financial and social dimensions. The findings align with existing literature on healthy ageing, emphasizing the role of social support and financial stability. Furthermore, the study contributes to a nuanced understanding of how cultural contexts shape perceptions of ageing, suggesting that policies promoting healthy ageing should consider these diverse dimensions. Well-being among older adults is multidimensional, intertwining physical, mental, emotional, spiritual, economic, and social factors. The significance of financial stability in defining well-being highlights the need for targeted public policies to support healthy ageing, especially within the ST community in Karnataka. By fostering an environment conducive to healthy ageing, stakeholders can enhance the quality of life for older adults, promoting engagement and active participation in the ageing process.

Keywords: Older Adults, Physical Health, Financial, Social, Emotional and Instrumental Support

Introduction

Population ageing is a worldwide phenomenon and the key feature of population in the 21st century. Between 2000 and 2050, the proportion of the world's population aged 60 years and older will double, from about 11-22 percent. The absolute number of people aged 60 and older is projected to increase from 900 million in 2015 to 1.4 billion by 2030, to 2.1 billion by 2050, and to 3.2 billion in 2100(World Health Assembly, 2016). According to census 2011, people aged 60 and above accounted for 8.6 %of the total Indian population, numbering 103 million elderly persons. The share of the elderly population is projected to further rise to 19.5%(319 million) by 2050 (UN Population Division, 2019).While increasing trends in population ageing are observed in all Indian states, the pace and extent are not uniform. State-wise ageing indicators show significant regional variations. The demographically advanced state Karnataka (9.5%), is home to greater proportions of older population than the national average. Compared to other countries, the rate of ageing in the Indian population shows that the ageing process of the Indian population began with a delay compared to developed countries. The resulting demographic shift presents numerous challenges to health and well-being. For instance, age-related diseases such as cardiovascular conditions, diabetes, and cancer have become major contributors to morbidity and mortality

in India, with prevalence rates anticipated to rise considerably in the coming decades (Patel et al., 2011). Additionally, rates of depressive and anxiety disorders are expected to increase. From 1990 to 2013, the burden of these mental health conditions grew significantly within the general population in India, a trend likely to persist as the population continues to age (Charlson et al., 2016). As per the 2011 Census of India, individuals identified as belonging to Scheduled Tribes (STs) constituted approximately 8.6%of India's overall population, highlighting the significant size and distinct social positioning of this group within the country. In the state of Karnataka, the representation of Scheduled Tribes was slightly lower, comprising about 6.95%of the state's total population. This proportion reflects Karnataka's specific demographic composition and underscores the presence of diverse tribal communities, each with unique cultural, social, and economic contributions to the state's overall fabric.

Ageing and well-being are a multidimensional concept that includes social, mental, and physical dimensions. Physical function, social support, and behaviors including smoking, alcohol, and diet can all contribute to achieving a healthy elderly population (Park & Park, 2018).

The need to take measures with focus on new evidence-based policies and strategies for healthy ageing is one of the priorities being discussed in drafting the WHO's thirteenth work program for the years 2019-2023 to prepare for the "2020-2030 Healthy Ageing Decade". This requires time and effort, and thanks to the strong international support of "Healthy Ageing" it was addressed in the WHO program with the statement of "Ensuring healthy ageing is an emergency challenge for all states" and the main goal of public health is "not only a long life but healthy life"(Cucinotta, 2018).

Healthy ageing promotion provides more opportunities for older people in the community to play an important role in society and enjoy independence and a good life. It is never too late to change risky behaviors for health promotion. Understanding how aged people understand health, as well as their feelings on the ageing process and what they need to do to stay healthy, can help plan public policies to promote lifestyle in aged people and the elderly (Wang et al., 2015). Healthy ageing is not only influenced by physiological,

psychological and environmental factors but also by culture. Because culture influences people's thoughts, beliefs, decisions, activities, and behaviors, the way people perceive the concept of healthy ageing and its components vary from culture to culture (Thanakwang et al., 2012).

Most studies in the past about the concept of healthy ageing focused on the standpoint of the elderly. Furthermore, ageing perspectives are increasingly associated with actual experiences in adulthood (Levy, 2009). How we deal with the ageing phenomenon of the population is influenced by the way we look on ageing(Elham et al., 2016). Given the rapid increase of the ageing population in India and the cultural and religious context of the country, knowing the views and opinions of aged people as the future elderly about healthy ageing can really help promote healthy ageing. Keeping above, the present paper discusses the ageing and well-being from the perspective of aged people among ST population in Karnataka.

Methodology

Study design

The study employed thematic analysis of in-depth interviews, utilizing targeted probes to gain deeper insights into participants' perspectives on ageing and well-being. This approach enabled the exploration of nuanced views and experiences, allowing for a comprehensive understanding of how older adults perceive their ageing process and overall quality of life.

Selection of the Participants

The qualitative data was collected through purposive sampling. The in-depth interview was conducted at their houses and workplaces of aged belonging to ST community in Karnataka. Selection was done only to the people who were able and willing to express their views and feelings about ageing and well-being. In order to maintain the diversity in selection, aged people with different conditions were selected based on age, sex, level of education, occupation, marital status, place of residence, socio-economic and cultural status. Also, the single and married men and women, working people, homemakers and the retired were included in the study. Sampling was performed until saturation of the concept of ageing and well-being in aged was achieved.

The present study conducted in-depth interviews with 12 participants, comprising 8 women and 8 men, aged between 60 to 85 years. Approximately 75% of the participants were married, while 2% were widowed, 10% were divorced, and 10%were single. Around 21% of the participants were illiterate, with 31% having primary or secondary education, 28% having completed high school and 20% holding higher education degrees. Most participants (74%) were not working, 12% were retired, and the remaining were homemakers.

Data Collection

To gather information, interviews were conducted individually and face-to-face at participants' homes or workplaces. The primary research question focused on understanding participants' "perceptions of ageing and well-being." Follow-up questions were asked throughout each interview to clarify and deepen responses. Each interview lasted approximately 60 minutes, was audio recorded, and subsequently transcribed verbatim manually for analysis.

Analysis

Thematic analysis was employed to analyze the qualitative data. The data was organized through coding, which involved categorizing responses and identifying overarching themes. Each line of the transcribed data was carefully read, and responses were coded based on participants' answers to each question. Codes were then grouped into broader categories, with related subcategories woven together to enhance the understanding of each main category. Ultimately, the analysis resulted in two primary categories that captured participants' perspectives on ageing and well-being among older adults. Throughout the analysis, codes, categories, and themes were continuously compared and refined.

Results

The findings of this study were categorized into two overarching themes: the perceptions of older adults regarding ageing and well-being.

Perception of Ageing among Older Adults

Elderly participants shared diverse views on ageing and well-being, resulting in four main themes: the importance of good physical and mental health, financial well-being, and social support. These themes are interconnected and collectively represent older adults' perspectives on ageing and well-being.

Good Physical Health: Physical health emerged as the most frequently discussed dimension, as it is often easier to assess than other health aspects. Participants in this study noted that good physical health, the absence of chronic illnesses, and functional independence are fundamental indicators of healthy ageing.

Absence of Chronic Disease: Ageing often exposes individuals to increased risks of chronic diseases. Many participants considered the absence of such diseases crucial to their well-being. One participant stated: "Being healthy means getting old and not having a disease, for example, not having hypertension, being overweight, or suffering from diabetes or serious conditions like cancer. I look around, and most people have various diseases..." (66-year-old woman).

Self-Sufficiency in Daily Living: As individual's age, functional impairments can lead to greater reliance on others for daily activities. Participants emphasized that maintaining independence and managing personal affairs is vital for healthy ageing. One elderly woman articulated this sentiment:" A healthy elderly person is one who can take care of themselves without needing others' help; who can handle their own things and stay healthy. It's hard to grow old and have to rely on your children..." (62-year-old woman).

Good Mental Health: Mental health is equally important as physical health and significantly impacts the well-being of individuals and society. From the perspective of older adults, good mental health encompasses two main aspects: the absence of mental distress and the enjoyment of life. From the viewpoint of older adults, the absence of psychological issues such as depression, anxiety, and stress is a hallmark of healthy ageing, as these issues can endanger health. One participant expressed:" A healthy elderly person is one who has a healthy spirit and is not depressed. Depression brings illness. When there is no anxiety or stress, elderly people are healthier and well-being" (68-year-old woman).A healthy elderly person is someone who enjoys life and experiences happiness. Many older individuals do not

feel satisfied with their lives or ageing in general. One participant reflected:" A healthy old man is someone who, although aged, is happy inside and not sad, still able to chat, laugh, and have fun. Ageing is an opportunity to enjoy life" (86-year-old man).

Financial Well-Being: Financial insecurity is a significant concern for older adults. Participants in this study indicated that sufficient financial resources and wealth are vital indicators of health and well-being in old age. They perceived financial stability as a prerequisite for overall well-being, highlighting two key subcategories: having adequate financial resources and achieving financial independence. Elderly individuals with sufficient savings and capital are less likely to experience financial difficulties and can access better healthcare. One participant noted: "For elderly people to be healthy and well, they need money, capital, and savings. If you have money, everyone is around you. When you have money, you enjoy mental peace and a healthy body" (73-years-old man). Participants believed that those who maintain financial independence through work lead healthier lives in old age. One participant shared: "An elderly person who makes a living, has an income, and is not financially dependent on anyone is certainly healthier and has good spirits. I see some old men walking in the park aimlessly..." (60-years-old woman).

Social, Emotional and Instrumental Support and Networks: Social support is crucial for maintaining the health of older adults, as those with higher levels of social support tend to report better health outcomes. In this study, social support was articulated as both emotional support from family and instrumental support from the community. Ageing can be challenging, particularly during periods of illness. Family support can significantly alleviate many of these challenges by providing a nurturing home environment. One elderly man remarked:

"You know it's well to be old when you're healthy not just physically, but because of family support. Having a warm and affectionate family is the most important factor" (65-years-old man). Older adults also need practical support from those around them. Participants indicated that isolation during difficult times can adversely affect their health. One participant stated:

"Health means not being alone during hardships in life when you get old; there should always be someone to help or visit you every now and then..." (75-years-old woman).

Discussion

This paper aims to explore how older adults perceive ageing and well-being. According to the participants, well-being encompasses physical health, mental health, financial stability, social support, and spirituality. This understanding reflects a broader view of well-being that includes more than just health. Participants described healthy ageing as comprising physical, mental, social, financial, and spiritual dimensions.

Supporting this perspective, Tavares et al. (2017) found that older adults defined healthy ageing across biological, psychological, social, and spiritual dimensions, including social support and independence. Notably, financial security was emphasized by participants in this study from the Scheduled Tribes (ST) community, highlighting the role of financial resources in well-being. This emphasis may reflect recent economic challenges in India, which have affected various societal segments, especially the elderly.

An absence of chronic illness emerged as another critical aspect of well-being. Thanakwang et al. (2012) reported that older Thai adults also view the absence of serious chronic illness as integral to healthy ageing. Similarly, functional independence—encompassing the ability to perform daily activities—was deemed essential by participants in this study, echoing findings from previous research (Zanjari et al., 2016; Chong et al., 2006; Bowling, 2006). Maintaining functional independence, which reflects physical health and well-being, is often attainable through a healthy lifestyle, even as one ages.

Mental health was also valued, with participants associating healthy ageing with a positive outlook, freedom from depression, and an ability to enjoy life. Thanakwang et al. (2012) found that having an optimistic mental and emotional outlook is key to experiencing high-quality ageing. Social support was another significant theme. For older adults, social support entails emotional and instrumental aid, particularly from family. Studies by Waites and Onolemhemhen (2014) and Stephens et al. (2015) highlight that strong family relationships are essential to healthy ageing. Family support can mitigate daily challenges and promote physical and mental well-being by boosting happiness, self-esteem, and self-confidence (Tavares et al., 2017). In China, Chong et al. (2006) found that support from

family and friends were positively perceived among the elderly and in Karnataka, the family remains the primary support for older adults. Strengthening this familial support is essential within the context of Indian culture, where the family plays a central role in nurturing and supporting the elderly.

Spirituality was another dimension of well-being for the participants, with religious beliefs viewed as a psychological resource for coping with life's challenges. This perspective is consistent with other studies that highlight spirituality as a source of strength (Tavares et al., 2017).

Overall, this study examines healthy ageing within the context of an Eastern and Islamic society in a developing country, offering a distinct perspective compared to Western contexts. Participants' definitions of healthy ageing are informed by their experiences and cultural environment. It is noteworthy that participants were generally healthy, without serious disabilities or an illness, which limits the generalizability of these findings to all older adults in India.

Conclusion

The present study reveals that well-being is a multidimensional concept, encompassing physical, mental, emotional, spiritual, economic, and social elements. In this population, economic status plays a significant role in defining well-being, with financial stability seen as essential to overall health. Spirituality, another core dimension, is shaped by religious beliefs and practices, emphasizing the cultural influence on perceptions of ageing.

The concept of well-being discussed here reflects participants' subjective views on ageing and their aspirations for a fulfilling later life. Health care providers can help by fostering a positive, future-oriented view of ageing, which can dispel negative stereotypes and increase individuals' engagement with the ageing process, encouraging them to plan for the future. By actively preparing across physical, mental, social, spiritual, and financial domains, older adults can improve their experience of ageing and overall well-being. Given the importance of the financial aspect among this population, public-sector support becomes crucial in creating an environment conducive to healthy ageing. This includes not only

personal preparation by older adults but also structural support from the community and government, helping ensure a more positive and sustainable experience of ageing for this ST population.

Implications

- Integrated health and social services should address physical, mental, emotional, spiritual, economic, and social aspects to support aging populations.
- Governments and organizations must prioritize pensions, livelihood opportunities, and financial aid to alleviate economic vulnerabilities among the elderly, especially in Scheduled Tribe (ST) communities.
- Programs should integrate cultural and spiritual dimensions, respecting beliefs and practices to improve their acceptance and effectiveness.
- Promoting positive narratives around aging can encourage active engagement and planning for a fulfilling later life.
- Support older adults in planning for physical, mental, social, spiritual, and financial well-being through awareness campaigns and skill-building initiatives.
- Invest in social safety nets, healthcare, and community support systems to enhance quality of life for aging ST populations.
- Build community-level structures, such as elder care groups and intergenerational programs, to foster inclusion and mutual assistance.
- Healthcare providers should adopt culturally appropriate practices, integrating traditional knowledge and spiritual beliefs to improve care and satisfaction.

By addressing these points, stakeholders can ensure an inclusive, supportive, and sustainable aging experience for ST populations.

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Inter-Regional Disparity in Human Development in Karnataka: A Comparative Analysis

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Abstract

The concept of Human development was developed in the late 1980s and it was put forth by pioneering economists Amartya Sen and Mahbub-ul-Haq. Human Development is all about "process of enlarging people's choices. The study trying to examine the trends and patterns in Human Development Index in Karnataka; and to analyze the magnitude of regional disparity in Human Development Index in Karnataka. The study is based on secondary data on Human Development Index values for 1991 and 2022. Human development has increased significantly in both India and Karnataka. Karnataka's HDI is above national average. the Dakshin Kannada was secured highest in HDI. Whereas, the lowest HDI was found in Raichur. The regional disparity in Karnataka State reduced significantly during both the time periods. The regional disparity represented by co-efficient of variation (CV) in HDI between the South and North Karnataka has increased from 1991 to 2022. Whereas, the regional disparity between Kittur Karnataka and Kalyana Karnataka has significantly decreased at faster rate during the two time periods. None of the districts found in High HDI categories in both the time periods. Whereas, in Medium HDI category was found 21 districts were also seen in Medium HDI category in 1981. The strength of the districts has significantly increased from 21 in 1981 to 27 districts in 2022 in Medium HDI category. The districts in Low HDI category were 06 districts in 1981 but there were no districts found in 2022. The study has used simple statistical tools to analyses the data like percentage, average, standard deviation and co-efficient of variation (CV).

Keywords: Human Development, Regional disparity, Co-efficient of Variation (CV), Magnitude

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Introduction

The concept of Human development was developed in the late 1980s and it was put forth by pioneering economists Amartya Sen and Mahbub-ul-Haq. Human Development is all about "process of enlarging people's choices. It brought a paradigm shift in the development discourse by emphasizing on the importance of quality of human life. This approach places people in the center of development and considers people as the real wealth of a nation. Regional disparities in human development are a new dimension of regional disparities and became very popular since UNDP introduced the first human development report in 1990. The disparities in human development are mainly focused on the level of human development index and its indices including life expectancy at birth, educational attainment and decent standard of living. Since the publication of First Global Human Development Report in 1990, various countries of the World including India have published the Regional Human Development Reports which contain HDI that is believed to express the level of development in a better way than per capita income. In this regard Madhya Pradesh was the first state India, which has published region-wise

Human Development Report in 1995, Karnataka was the second State, which has brought out its first Human Development Report in 1999. There have been some independent studies which carried out works on inter district disparities in human development using latest UNDP methodology. The Government of Karnataka again published the second Human Development Report - 2005 in 2006. In this report HDI has been computed for all the 27 districts in the state using the UNDP, HDR 1999methodology. This shows the regional disparities in HDI of various districts in the state and enables an understanding of the nature and changing magnitude of variations among districts. In addition to this, Government of Karnataka initiated the preparation of District Human Development Reports for all districts in Karnataka.

Review of Literatures

There are important theories related to Human Development, Mahbub ul Haq (1997) in his work on "Reflection on Human Development" examines that human development is more than GNP growth, more than income and wealth and more than producing commodities

and accumulating capital. Amartya Sen (1999) in his work, presents that the human capabilities implies greater freedom of choice.

Some of important works focused on different issues related Human Development. The study by Kumar (1993) human development improved much faster than growth of income in all the states. Vyasulu and Vani (2001) reveals that the intra-state disparities in human development across districts of Karnataka, glaring disparities in human development were found between the districts in Karnataka Bangalore and Kodagu enjoyed high human development on one hand, on the other Raichur has worst performance in terms of human development in the state. In a study by Chelliah and Shanmugam (2001) there are considerable inequalities in income and disparities in the levels of human development among the districts in Tamil Nadu and also income disparity was higher than disparity in human development. A study by Dholakia (2003) presents the disparity has been also declined in social human development of all major states during same periods. A study by Roy (2012**)** identifies a declining gap in terms of various human development indices such as literacy rate, general enrolment ratio and life expectancy at birth across states and shows that gaps also declined between the rural and urban segments within states. Hari (2013) inter-regional inequality in economic growth and human development, the influence of public expenditure on attainment of human development is higher than that of economic growth.

Objectives of the Study

The following objectives are as follows:

1. To examine the trends and patterns in Human Development in Karnataka; and
2. To analyze the magnitude of regional disparity in Human Development in Karnataka.

Research Methodology

The study is based on secondary data which has collected from various sources. Data pertaining to human development index values for 1991 and 2022has collected from Human Development Report, 2022 and Karnataka Human Development Report, 2005 (GoK). The HDI in Karnataka classified as a High HDI districts, Medium HDI districts and Low HDI districts by using two time periods. The methodology and variables considered in the

National Human Development Report (NHDR) differ from those of United Nations Development Programme (UNDP).

HDI Value for the period of 1991 has collected from National Human Development Report (NHDR) which was prepared for the first time in 2001 by Planning Commission, Government of India. According this report, the indicators comprising life expectancy at age 1 and Infant Mortality Rate (IMR) are used to measure longevity, literacy rate 7 + and intensity of formal education are used to estimate educational attainment and per capita real consumption expenditure adjusted for inequality; worker population ratio in case of GEI. HDI Value for the period of 2022 has collected from United Nations Development Programme (UNDP) Report, in this report the indicators comprising life expectancy at birth is used to measure longevity, adult literacy rate combined with enrolment ratio used to estimate educational attainment and per capita real GDP at PPP$ used to study educational attainment. The following formula is used to estimate HDI under UNDP methodology. The HDI is the geometric mean of the three-dimensional indices.

$$HDI = (I_{Health} \times I_{Education} \times I_{Income})^{1/3}$$

The study has construction of HDI by taking averages for South Karnataka, North Karnataka, Kittur Karnataka and Kalyana Karnataka region. The study has covered only the 27 districts in 2022 because three districts such as Chikkaballapur, Ramnagara and Yadgir districts have not separated in the year 1991. The study has used simple statistical tools to analyse the data like percentage, average, standard deviation and co-efficient of variation (CV)

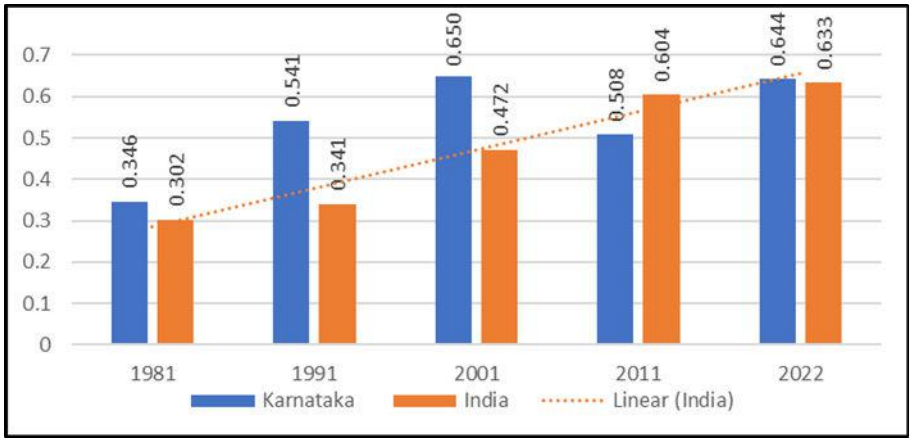
Result and Discussion

Trends and Patterns in HDI in Karnataka and India

Data presented in figure 1 indicates that the Human Development Index in Karnataka and India from 1981 to 2022. Human development has increased significantly in both India and Karnataka. Karnataka's HDI is above national average. India's HDI has increased with 0.331 points as compared to Karnataka 's HDI during 1981 and 2022. HDI in Karnataka has increased significantly from 0.346 in 1981 to 0.644 in 2022. Similarly, Karnataka's HDI has

increased consistently from 1981 to 2001 than declined in 2011 and started increasing again. Whereas, in India, the HDI has increased from 0.302 in 1981 to 0.633 in 2022, the increase was consistent during the periods.

Figure 1: Trends in HDI in Karnataka and India

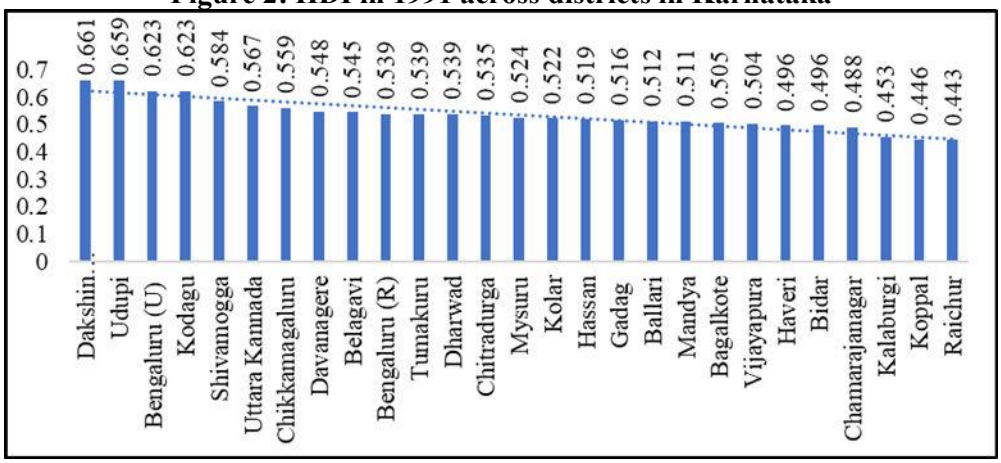


Sources: various reports.

HDI and Rank across districts in Karnataka

Figure 2 presents the HDI in 1991 across districts in Karnataka. Human development estimated according to NHDR methodology, the Dakshin Kannada was performed highest with 0.661 followed by Udupi with 0.659 and Bengaluru Urban estimated at 0.623. whereas, the lowest HDI in was found in Raichur estimated at 0.443 of HDI.

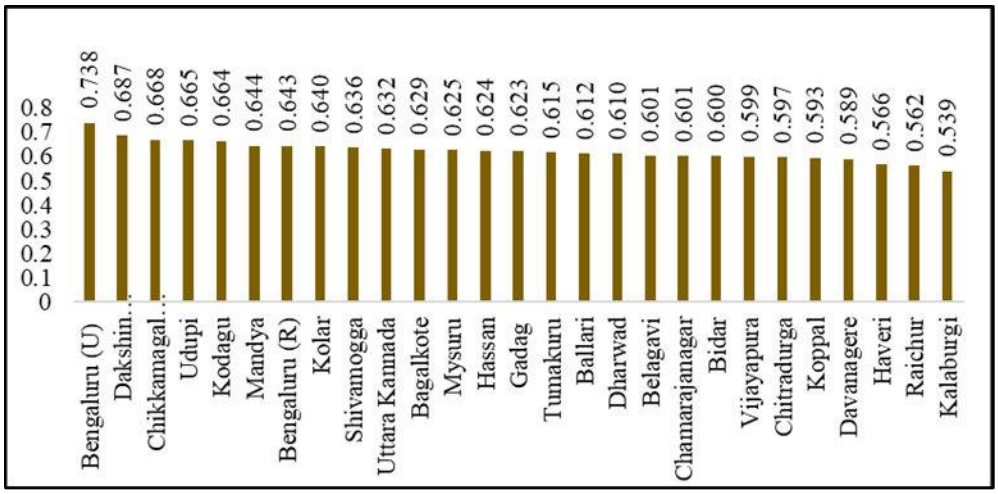
Figure 2: HDI in 1991 across districts in Karnataka



Sources: National Human Development Report (NHDR), 2001

Figure 3 presents the HDI in 2022 across districts in Karnataka. Human development estimated according to UNDP methodology, the Bengaluru Urban was performed highest with 0.738 followed by Dakshin Kannada (DK) with 0.687 and Chikkamagaluru estimated at 0.668. whereas, the lowest HDI in was found in Kalaburgi estimated at 0.539 of HDI. Similarly, the Kalyana Karnataka districts such as Kalaburgi, Raichur, Koppal, Bidar, Ballari districts were performed very low in human development in both the time periods in Karnataka.

Figure 3: HDI and Rank in 2022 across districts in Karnataka

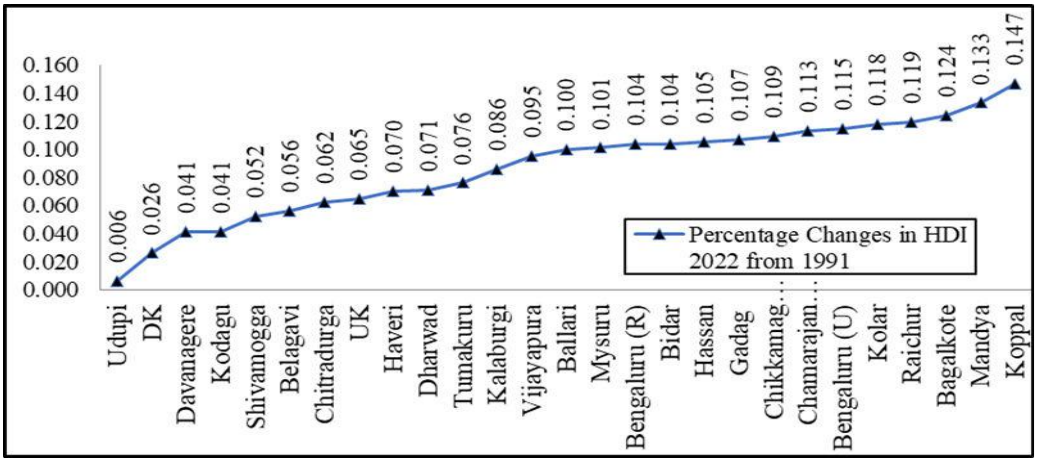


Sources: Human Development Report 2022, Gok

Percentage Change in HDI 2022 from 1991

Figure 4 indicates percentage of change in HDI value. Human development index has increased from 1991 to 2022 significantly. Percentage change in HDI during the two time periods, the highest percentage change was found in Koppal district with 0.147 percent point. Whereas, the lowest HDI percentage change in 1981 have been performing better in 2022 which indicate that the government has taken health and education.

Figure 4: Percentage Change in HDI 2022 from 1991



Sources: National Human Development Report (NHDR), 2001 and Human Development Report 2022, Gok

Regional Disparity in HDI in Karnataka

Table 1 indicates that the regional disparity in human development in broad regions in Karnataka. The regional disparity in HDI between the South and North Karnataka has increased from CV of 4.8 percent in 1991 to CV of 5.5 percent in 2022. Whereas, the regional disparity between Kittur Karnataka and Kalyana Karnataka has significantly decreased at faster rate from CV 20.5 percent in 1991 to 4.1 percent in 2022.

Table 1: Regional Disparity in Human Development Index across regions

Regions	**1991**	**2001**	**2022**
South Karnataka	0.496	0.578	0.642
North Karnataka	0.463	0.559	0.594
Mean	0.48	0.57	0.62
STDV	0.02	0.01	0.03
CV(%)	**4.8**	**2.4**	**5.5**
Kittur Karnataka	0.525	0.623	0.609
Kalyana Karnataka	0.392	0.485	0.574
Mean	0.46	0.55	0.59
STDV	0.09	0.10	0.02
CV(%)	**20.5**	**17.6**	**4.1**
Karnataka	**0.541**	**0.650**	**0.644**

Sources: National Human Development Report (NHDR), 2001 and Human Development Report 2022, Gok.

Magnitude of Regional Disparity in HDI

Extent of Regional Disparity in HDI across broad Divide

Date presented in Table 2 indicate the magnitude of regional disparity in HDI in broad divide in Karnataka. Regional disparity in South Karnataka districts has been significantly reduced from CV of 9.8 percent in 1991 to 6.0 percent in 2022. Whereas, the regional disparity in HDI in North Karnataka has decreased from CV of 7.8 percent in 1991 to 4.8 percent in 2022. Similarly, Karnataka state regional disparity reduced significantly from CV of 10.6 percent in 1991 to 6.6 percent in 2022.

Table 2: Extent of Regional Disparity in HDI across broad Divide

Division	HDI 1991	HDI 2001	HDI 2022
South Karnataka Districts			
Mean	0.56	0.66	0.64
STDV	0.05	0.05	0.04
CV (%)	9.8	7.3	6.0
North Karnataka Districts			
Mean	0.50	0.61	0.60
STDV	0.04	0.03	0.03
CV (%)	7.8	5.6	4.8
Karnataka State			
Mean	0.54	0.63	0.62
STDV	0.06	0.05	0.04
CV (%)	10.6	7.6	6.6

Sources: National Human Development Report (NHDR), 2001 and Human Development Report 2022, Gok.

Performance of HDI in 1991 and 2022 in Karnataka

Table 3 represents the performance of Karnataka's HDI during two time periods. Karnataka's HDI classified into three categories High HDI varied value from 0.800 and above, Medium HDI varied from 0.500 to 0.799 and Low HDI varies below 500. HDI value in High HDI category has not found in both the time periods. The performance in Medium HDI category was found positive as for as data's are concerned.

There are no districts found in High HDI categories in both the time periods 1991 and 2022. The 21 districts were in Medium HDI category in 1981 significantly increased to 27 districts in 2022. The districts in Low HDI category were 06 districts in 1981 but there were no districts found in 2022.

Table 3: Performance of HDI in 1991 and 2022 in Karnataka.

Districts	HDI Value	1991	2022
High HDI	HDI 0.800 and above	0	0
Medium HDI	HDI 0.500 - 0.799	Dakshin Kannada (0.661), Udupi (0.659), Bengaluru Urban (0.623), Kodagu (0.623), Shivamogga (0.584), Uttara Kannada (0.567), Chikkamagaluru (0.559), Davanagere (0.548), Belagavi (0.545), Bengaluru ®(0.539), Tumakuru (0.539), Dharwad (0.539), Chitradurga (0.535), Mysuru (0.524) , Kolar (0.522), Hassan (0.519), Gadag (0.516) , Ballari (0.512), Mandya (0.511), Bagalkote (0.505), Vijayapura (0.504) == **21 districts**	Bengaluru (U) (0.738),Dakshin Kannada (0.687), Chikkamagaluru (0.668), Udupi (0.665), Kodagu (0.664), Mandya (0.644), Bengaluru ® (0.643), Kolar (0.640), Shivamogga (0.636), Uttara Kannada (0.632), Bagalkote (0.629), Mysuru (0.625), Hassan (0.624), Gadag (0.623), Tumakuru (0.615), Ballari (0.612), Dharwad (0.610), Belagavi (0.601), Chamarajanagar (0.601), Bidar (0.600), Vijayapura (0.599), Chitradurga (0.597), Koppal (0.593), Davanagere (0.589), Haveri (0.566), Raichur (0.562), Kalaburgi (0.539) == **27 districts**
Low HDI	HDI below 0.500	Haveri (0.496), Bidar (0.496), Chamarajanagar (0.488), Kalaburgi (0.453), Koppal (0.446), Raichur (0.443) == **06 districts**	0

Sources: National Human Development Report (NHDR), 2001 and
Human Development Report 2022, Gok

Conclusion

The study concludes the human development has increased significantly in both India and Karnataka. Karnataka's HDI is above national average. the Dakshin Kannada was

enjoyed highest in HDI. Whereas, the lowest in HDI in was found in Raichur. The Bengaluru Urban was performed highest in HDI but it was lowest in Kalaburgi. Similarly, the Kalyana Karnataka districts such as Kalaburgi, Raichur, Koppal, Bidar, Ballari districts were performed very low in human development in both the time periods in Karnataka. The highest percentage change in HDI was found in Koppal district with 0.147 percent point. Whereas, the lowest HDI percentage change in 1981 have been performing better in 2022 which indicate that the government has taken health and education.

The regional disparity represented by co-efficient of variation (CV) in HDI between the South and North Karnataka has increased from 1991 to 2022. Whereas, the regional disparity between Kittur Karnataka and Kalyana Karnataka has significantly decreased at faster rate from 1991 to 2022.Regional disparity represented by co-efficient of variation (CV) in South Karnataka districts has been significantly reduced 1991 to 2022. Whereas, the regional disparity in HDI in North Karnataka districts has decreased during same periods. Similarly, the regional disparity in Karnataka State reduced significantly during both the time periods. The performances of districts in HDI in two time periods, there were no districts found in High HDI categories in both the time periods. Whereas, in Medium HDI category was found positive that the 21 districts were seen in Medium HDI category in 1981, significantly increased to 27 districts in 2022. The districts in Low HDI category were 06 districts in 1981 but there were no districts found in 2022.

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Communication Development to the Development of Non-communicable Diseases in India

Shaukath Azim

Abstract

India has already been declared as the capital of lifestyle diseases. In the past, India suffered from communicable diseases like TB, cholera, and diarrhea. Though these diseases are still found in the country, it has been possible to reduce the number of cases. At present, India is undergoing an epidemiological transition characterized by a shift from communicable diseases to non-communicable diseases (NCDs). In modern times private and corporate expect perfection in their work culture. They extract maximum service from young boys and girls without adequate rest. They are overburdened with targets. There is a huge burden on youngsters to complete tasks within stipulated time frames. Most private companies set targets to be completed within specific hours. While they receive handsome salaries for their dedicated work culture, in the process of fulfilling these targets, youngsters often fail to maintain regular routines, such as timely sleep, food, and exercise. They skip breakfast or lunch for their commitments. In this state of affairs, most young men and women, especially those working in the IT industry, are losing valuable health status and easily fall prey to lifestyle diseases.

Key words: NCDs, Burden of Diseases, Network Society

Introduction

India is undoubtedly growing rapidly in its communication technology, transitioning from a hardware-focused to a software-centric society. While the concept of a "weightless society" is increasing, people's physical weight is also increasing due to obesity, especially among the youth. In a "liquid society" (Bauman, 2012), people perform almost all their routine activities through networks and the internet. Recently, online shopping and services like Swiggy have discouraged people from leaving their homes and offices. The growth of

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the network society (Castells,2011), has both helped and hindered people by enabling them to watch movies at home via platforms like Netflix and Amazon Prime. These OTT platforms have further contributed to the rise of an inactive society. Excess of Screen time use through computers and smartphones further pushed people to stagnate their physical movements. This inactiveness led to the growth of life style diseases in recent times. Life style diseases also known as non-communicable diseases (NCDs) result from a combination of genetic, physiological, environmental, and behavioral factors (WHO, 2023). According to the World Health Organization (2023), the main types of NCDs are cardiovascular diseases (such as heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma), and diabetes. NCDs disproportionately affect people in low- and middle-income countries, where more than three-quarters of global NCD deaths (31.4 million) occur.

Methodology

Sources of data of the Study

Every research is combination of methodology and methods of the study. Methodology is a guiding principle for the research, where as methods are the techniques adopted in the study. Methodology gives us the overall framework or strategy which is guiding the research. It explains *why* a particular approach or set of methods is chosen and the rationale behind it. Methodology may be qualitative or quantitative or mixed. But Methods are the specific tools and procedures used to collect and analyze data. These are the practical steps a researcher has to undertake during the research. In this background the present study is based on secondary data only. This paper primarily uses India Fit report and World Health Report, as they provide latest data on the health status in India.

Causes of Life Style Diseases

It is disheartening that the rapid growth of cities, metros, and metropolitan life has led to the uneven development of city shopping malls, chat centers, and snack centers. These venues attract young people with their bright lights and appealing interiors. EMI schemes provided by leading private companies have helped customers who don't have enough money in their pockets. Credit card facilities have further eased consumerism. These companies offer

loans with minimal documentation, and their services are so quick that anyone can buy gadgets without sufficient financial balance. People are now frequently going out with friends and family almost every day, whether on weekdays or holidays. Almost every household today owns a vehicle, either two-wheelers or four-wheelers. Consequently, people do not get a chance to walk; they drive to shopping malls, consume high-calorie and sugar-coated items, and return home without any physical activity. As a result, the percentage of the obese population is increasing rapidly, putting themselves at various health risks.

In this regard, the WHO (2023) revealed that people are affected by two types of risks: modifiable behavioral risks and metabolic risks. Modifiable behaviors, such as tobacco use, physical inactivity, unhealthy diet, and harmful alcohol use, increase the risk of NCDs. For example, tobacco accounts for over 8 million deaths every year (including from the effects of exposure to second-hand smoke); 1.8 million annual deaths are attributed to excess salt/sodium intake; more than half of the 3 million annual deaths attributable to alcohol use are from NCDs, including cancer; and 830,000 deaths annually can be attributed to insufficient physical activity. Metabolic risk factors contribute to four key metabolic changes that increase the risk of NCDs: raised blood pressure, overweight/obesity, hyperglycemia (high blood glucose levels), and hyperlipidemia (high levels of fat in the blood). According to the World Health Statistics Report (2024), globally, NCDs accounted for 59.5% of all deaths in 2000, rising to 73.9% in 2019, while the share of communicable diseases dropped from 32.2% in 2000 to 18.2% in 2019. Further, in 2000, five of the 10 leading causes of death were communicable diseases and four were NCDs. In 2019, seven of the 10 leading causes of death were NCDs and the remaining three were communicable diseases. This data clearly reveals the growing magnitude of lifestyle diseases in India.

A Profile of Life Style Diseases in India

India has already been declared the capital of lifestyle diseases. In the past, India suffered from communicable diseases like TB, cholera, and diarrhea. Though these diseases are still found in the country, it has been possible to reduce the number of cases. At present,

India is undergoing an epidemiological transition characterized by a shift from communicable diseases to non-communicable diseases (NCDs).

Table 1 Common Life style Diseases among Indians in 2021 by age group

	Life style diseases			
Age	Diabetes	Cholesterol	Blood Pressure	Thyroid
Seniors (60 years and above)	43.4%	29.5%	57%	12.7%
Older Adults (45-49)	25%	23.5%	35.1%	9.6%
Adults (30-44 years old)	9.3%	13.9%	13.6%	7.2
Young Adults 20-29 years old)	3.3%	5.7%	5.6%	0.5%
Teens (Less than 19 years old)	6.7%	7.4%	7.4%	5.1%

Source: https://www.statista.com/statistics/1320246/india-people-feeling-more-stressed-by-age/ dated 09-07-2024.

It has become one of the leading causes of morbidity and mortality in the country. Due to the rapid growth of technology, especially electronic technology, the demographic dividend categories of the population are succumbing to lifestyle diseases. These diseases have already spread to most of the major cities in India and, unfortunately, their numbers are also increasing in rural areas. In this regard, the information provided in Table 1 makes it clear that almost half of the senior citizens are reeling under lifestyle diseases. It is also alarming that adults and young adults in India are currently facing this problem. 13.6% of adults between the ages of 30 and 44 have high blood pressure, and about 6% of young adults have this issue. This percentage is increasing every year. It is also alarming that teenagers in India are succumbing to lifestyle diseases. Data reveal that 6.7% of them have diabetes, 7.4% have high cholesterol, and significant percentages also suffer from high blood pressure (74%) and thyroid issues (5.1%).

Burden of Expectations and Burden of diseases:

In modern times private and corporate expect perfection in their work culture. They extract maximum service from young boys and girls without adequate rest. They are overburdened with targets. There is a huge burden on youngsters to complete tasks within stipulated time frames. Most private companies set targets to be completed within specific hours. While they receive handsome salaries for their dedicated work culture, in the process

of fulfilling these targets, youngsters often fail to maintain regular routines, such as timely sleep, food, and exercise. They skip breakfast or lunch for their commitments. In this state of affairs, most young men and women, especially those working in the IT industry, are losing valuable health status and easily fall prey to lifestyle diseases. Further day night shift works further complicated their free time as well as routine health. They are affected by life style diseases. In this context the latest data provided by the India Fit Report (2023) reveals alarming information regarding the increase in the percentage of people affected by lifestyle diseases. For instance, 29% of the people in Ahmedabad are facing hypertension, followed by Kolkata (28%), Chandigarh (25%), and Lucknow (25%). In terms of numbers, the people affected by high blood pressure alone number in the millions in each city. They are overburdened not only with corporate work but also with lifestyle diseases. Except for the city of Surat, all other cities are affected by lifestyle diseases (see Table 2).

Table 2 Lifestyle Illness By cities in 2023

	Life style illnesses			
Cities	Diabetes	Blood Pressure	Cholesterol	Thyroid
Ahmadabad	13%	29%	18%	7%
Bengaluru	12%	17%	18%	12%
Bhopal	18%	22%	21%	12%
Bhubaneshwar	15%	21%	20%	13%
Chandigarh	10%	25%	23%	12%
Chennai	16%	15%	20%	09%
Delhi	16%	23%	22%	12%
Hyderabad	15%	15%	18%	11%
Indore	17%	20%	17%	08%
Jaipur	14%	19%	14%	06%
Kolkata	16%	28%	21%	13%
Lucknow	20%	25%	20%	14%
Mumbai	17%	21%	20%	09%
Patna	19%	23%	19%	12%
Pune	12%	17%	16%	08%
Surat	11%	16%	15%	06%

Source: GOQi"India Fit Report 2024: "Thriving at Any Age: The Blueprint for Healthy Longevity

Alcohol Consumption Among Indians in 2021 by Age

Alcohol consumption is increasing every year in India. Some state governments have permitted the extension of late-night parties in hotels. Today, almost all pubs and nightclubs serve items as per the customer's choice. Due to peer pressure, stress, work pressure, and easy access, youngsters are particularly becoming alcoholics. According to the results of a large-scale survey conducted across India in 2021, the majority of older adults between 45 and 59 years old consumed alcohol in the country (Minhas, 2023). Teenagers made up an alarming 8.3 percent, despite the minimum drinking age varying across different states. According to the National Family Health Survey V, alcohol consumption among both men and women is higher in rural India than in urban areas. Overall, 1% of women aged 15 and over drink alcohol, compared to 19% of men in the same age group. Among all states, Arunachal Pradesh has the highest proportion of both men (53%) and women (24%) who drink alcohol.

Level of Stress in India

One of the recent lifestyle diseases affecting particularly young adults in India is stress and strain. It may be called one of the youngest lifestyle diseases. Workload pressure, target achievement, job issues, and family issues are some of the problems faced by today's generation. As a result, young adults are more stressed, leading to anxiety and depression. It has become a silent killer. The data shown in Table 3 clearly illustrates the level of stress among Indians. About one-fourth of Indians are suffering from stress. Shockingly, the level of stress is higher among women (35%) than men (23%) in 2023.

Table 3 Level of Stress over the years in India

	Percentage Increase	Gender	
Year		Male	Female
2021	22%	19%	27%
2022	24%	20%	25%
2023	26%	23%	35%

Source: GOQi" India Fit Report 2024

Lack of Physical Exercise

Everyone is now aware of how essential physical exercise is for everyone. To improve the overall health of an individual, any type of physical activity is necessary. It enhances overall body functions, helps in reducing and controlling stress, and improves sleep. Despite knowing its importance, some people avoid exercise due to work pressure and work culture. This is clearly evident from the information provided in Table 4. It is disheartening to note that almost 30 percent of Indians never do any kind of exercise. Young adults (33%) have the highest number of people who do not engage in any physical activity. Teens seem to be more active than young adults, with 19% of them engaging in physical activity 7 days a week compared to 11% of young adults (India Fit Report 2024). This section of the population will fall prey to most lifestyle diseases unless they become serious about their physical fitness.

Table 4 Regularity of Physical Exercise

Regularity	Percentage
Never	29
Less than 3 days a week	28
3-6 days a week	30
7 days	14

Source: GOQi"India Fit Report 2024

Level of Water Consumption

Water is an essential component for all living beings and is crucial for the effective functioning of the human body. Though India also suffers from waterborne diseases, the availability of water in quality and quantity is a matter of great concern. Access to pure water is essential for the active function of the human body as well as for survival. However, there is significant variation in daily water consumption. A normal person is expected to drink 2 to 4 liters of pure water every day. Data provided in Table 5 show that about two-thirds of young adults consume less than 1 to 2 liters of water daily. Either due to negligence or a lack of time, youngsters do not show an inclination towards proper water consumption. This directly affects their overall active life.

Table 5 Water Intake by Age

Consumption of Water	Teens	Young	Adult	Older Adult	Senior
Less than 1 L	8%	5%	3%	2%	2%
1-2 L	36%	31%	30%	27%	26%
2-4 L	43%	51%	54%	60%	67%
More than 4	13%	13%	13%	11%	5%

Source: GOQi"India Fit Report 2024

Overconsumption of Sugar

The consumption of sugar has increased in modern times. On every occasion, different types of sweets attract people. It is now medically proven that excessive consumption of sugar leads to many health complications. It directly affects the digestive system. The data provided in Table 6 proves the alarming rate of sugar consumption across all age categories in India. It is surprising that 12% of young people and 10% of adults eat sugary items more than five times daily. More than half of India's population eats sugar 2 to 5 times every day.

Table 6 Consumption of Sugar by Age

Age	Sugar Serving		
	0-1 serving	2-5 servings	More than 5 servings
Teen	37%	46%	16%
Young	42%	46%	12%
Adult	47%	42%	10%
Older Adult	57%	36%	07%
Senior	70%	25%	5%

Source: GOQi"India Fit Report 2024

From Family Life to Sedentary Life

Until recently, Indians were living under the shadow of their parents and siblings. Elders in the family monitored the growth and development of the younger members. There was fear, respect, and control exerted by the elders. Most family members depended on

cooked food at home. With the growth of urbanization and liberalization, young members started moving out of their original families to cities. They adopted westernized lifestyle habits. This led to changes in their food consumption without any physical activity. The timing of food consumption changed due to late-night work or shift work for corporate companies. Desk jobs and increased screen time became prevalent. Poor sleeping habits and day-night shift jobs disturbed the normal course of life.

This is evident from the information given in Table 7, which shows that about 15% of the young population aged 20 to 29 is sleeping less than six hours per day. It is also observed that corporate or MNCs have pick-and-drop policies for their employees to save time. Many of these employees are seen sleeping in the pick-up and drop-off vehicles during their transportation. Sleep is essential for an active physical life. In fact, an active physical life heavily depends on adequate sleep.

Table 7 Sleep Duration by Age

Age	Less than 6 hours	6-8 Hours	More than 8 hours
Teen	19%	66%	15%
Young	15%	77%	8%
Adult	20%	75%	5%
Older Adult	19%	78%	3%
Senior	20%	76%	4%

Source: GOQi"India Fit Report 2024

Table 8 Sleep Duration by Gender

Gender	Less than 6 Hours	6-8 Hours	More than 8 Hours
Men	18%	77%	5%
Women	21%	72%	7%

Source: GOQi"India Fit Report 2024

Conclusion

From the foregoing analysis we can reiterate that the rise of lifestyle diseases is posing a considerable challenge to not only to individual health but also to public health. This challenge is increasing day by day particularly in metros and city centers. The shift from traditional, family-oriented living to a more sedentary, westernized lifestyle has brought

about drastic changes in dietary habits, physical activity levels, and sleep patterns. As evidenced by the alarming statistics, such as the high sugar consumption and inadequate sleep among young adults and women, these lifestyle changes are contributing to a growing epidemic of health issues.

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Revisiting Rehabilitation of Manual Scavenger: Socioeconomic Gains and Unresolved Challenges

Rajan Ram[1] Reshmi R.S[2]

Abstract

Manual scavenging is an inhumane occupation and the worst surviving symbol of slavery, which has been prohibited by law in India. However, a large population is directly or indirectly engaged in this occupation. A few studies and government committees have studied the socioeconomic condition of manual scavengers over time and found that they are one of the most disadvantaged, underprivileged and marginalised groups in Indian society. To improve the overall socioeconomic status of manual scavengers and their dependents and to rehabilitate them into alternative occupations. The Government of India established the National Safai Karamchari Finance Development Cooperation (NSKFDC) in 1997, intending to the all-round socio-economic upliftment of the sanitation workers (Safai Karamcharis), manual scavengers and their dependents throughout India through various loans and non-loan-based schemes, including one-time cash assistance (OTCA), skill training programmes, subsidies loans and scholarships. This study examines the issue of manual scavenger rehabilitation by assessing the real-world impact of existing rehabilitation schemes, with particular attention to socioeconomic progress. The present study uses primary data; a total of 229 respondents were interviewed with a structured interview schedule. Descriptive statistics were used to analyse the quantitative data. The study assessed household characteristics and demographics before and after a rehabilitation program. Post-rehabilitation, 66% of households resided in pucca houses, a significant increase from 42%. Electricity access rose from 14% to 95%, while the availability of separate kitchens improved marginally from 10% to 14%. Although 90% of households gained toilet facilities, 86% remained uneducated, and 85% were unemployed, practically all women left manual scavenging, and men were predominantly engaged in daily wage work. Significant socioeconomic challenges persist despite progress in housing and utilities, particularly in education and employment. The study reveals that while there have been improvements in socioeconomic conditions, these advancements have not reached a satisfactory level over time. The present article critically examines the shortcomings of the rehabilitation program in addressing these issues.

Keywords: Manual Scavenging, Manual Scavengers, Sanitation, Rehabilitation, Socioeconomic Transformation

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Introduction

Over the last few years, India has made incredible progress in the field of sanitation and hygiene. However, the plight of millions of sanitation workers remains largely overlooked. Among the sanitation workers, manual scavengers are one of the most vulnerable communities (Tandon & Basu, 2016; Bhattacharjee, 2014; Pathak, 1991;), and the majority of them belong to the Scheduled Castes (SCs), particularly specific sub-castes of the SC category (Bhattacharjee, 2014; Rashtriya Garima Abhiyan, 2011; Pathak,1991). They belong to the lowermost rung in society and are even looked down upon by the higher sub-caste of the SCs, those who themselves are subjected to untouchability by the upper castes (Pathak,1991; Rashtriya Garima Abhiyan, 2011). Manual scavenging is not only a caste-based occupation but also a gender-based occupation (D'Souza and Anil, 2023; Singh, 2014; Singh and Ziyauddin, 2009; Phatak, 1991). Two major acts in India prohibit the practice of manual scavenging: The Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993, and The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013. The later Act provides a detailed definition of manual scavenger, "A person engaged or employed, at the commencement of this Act or at any time thereafter, by an individual or local authority or an agency or a contractor, for manually cleaning, carrying, disposing of, or otherwise handling in any manner, human excreta in an insanitary latrine or in an open drain or pit into which the human excreta from insanitary latrines is disposed of, or on a railway track or in such other spaces or premises, as the Central Government or a State Government may notify before the excreta fully decompose in such manner as may be prescribed and the expression "manual scavenging" shall be construed accordingly". Despite the prohibition of manual scavenging, it is still prevalent in many parts of India, which is a violation of the Indian constitution and many other international treaties, including the human rights violation and genocides convention etc (Sankar and Swaroop, 2021)

From time to time, several efforts have been made by the government to improve the working and economic conditions of manual scavengers. In 1980-81, the centrally sponsored *'Liberation of Scavengers'* scheme was launched to liberate scavengers, convert dry latrines into low-cost pour-flush latrines, and provide an alternative job to unemployed scavengers. In 1992, this scheme was bifurcated into two schemes: first, the Integrated Low-Cost Sanitation Scheme (ILCS) for conversion of dry latrines into waterborne flush latrines, and second, The National Scheme for Liberation and Rehabilitation of Scavengers and their Dependents (NSLRS) to provide alternative employment to the

liberated scavengers and their dependents. Self-Employment Scheme for Rehabilitation of Manual Scavengers (SRMS), a successor scheme to NSLRS, was introduced in January 2007 with the same objectives as NSLRM but in a time-bound manner. The scheme was revised in November 2013 after the MS Act (2013). SRMS provides cash assistance, capital and interest subsidies for enterprises, skill training, and loans for identified manual scavengers. It offers the following benefits for rehabilitating identified manual scavengers: One-time cash assistance of Rs. 40,000/-. Loans for undertaking self-employment projects up to Rs. 15.00 lakhs on concessional rates of interest. Credit-linked back-end capital subsidy up to Rs. 3,25,000/-. Skill Development Training for up to two years with a monthly stipend of Rs.3000/-. The National Safai Karamcharis Finance & Development Corporation (NSKFDC), functioning as an apex body under the Ministry of Social Justice, is dedicated to the socio-economic upliftment of Safai Karamcharis, Ragpickers, Scavengers, and their dependents across the country. In this regard, the SRMS also falls under the purview of NSKFDC, which contributes to these efforts.

The primary efforts were concentrated on improving scavengers' working and living conditions. Later, the concentration shifted towards rehabilitation manual scavengers in dignified occupations. The rehabilitation of scavengers is closely associated with socioeconomic factors, particularly caste-based occupation allocation. A few studies and government committees have studied the socioeconomic condition of manual scavengers over time and found them the most disadvantaged, underprivileged and marginalised group in Indian society, and they work in extremely inhuman and hazardous conditions (Noronha et al., 2018; Parameshwara, 2013; Dak, 2006; Government of India, 1991). The manual scavenger communities have a long history of educational deprivation (Pathak,1991).

Economically, the Balmikis (a sub-caste mainly involved in scavenging) are poor, and very few own any land. They served other communities based on generational contracts known as a *Jajmani* system against payments in cash and in-kind of different natures as sweepers and scavengers (Singh, 1992). Apart from regular low wages for the service, perks or gifts were offered to scavengers on occasions like childbirth, thread-ceremony, marriage and festivals (Dak, 2007).

Empirical studies reveal the limited success of government-led rehabilitation programs. The lack of proper implementation, failure to comprehensively identify manual scavengers, and insufficient alternative employment opportunities continue to undermine these reforms (Sai &

Kirubagaran, 2018). In Delhi, for example, only a few manual scavengers have accessed training or financial support, and many have been forced to return to scavenging or related work like sanitation (Singla, 2011). The 2013 Act's provisions for rehabilitation have not resulted in significant socioeconomic transformation for manual scavengers, indicating that the problem is not just a "social disability" but also rooted in political and economic structures (Mosse, 2020).

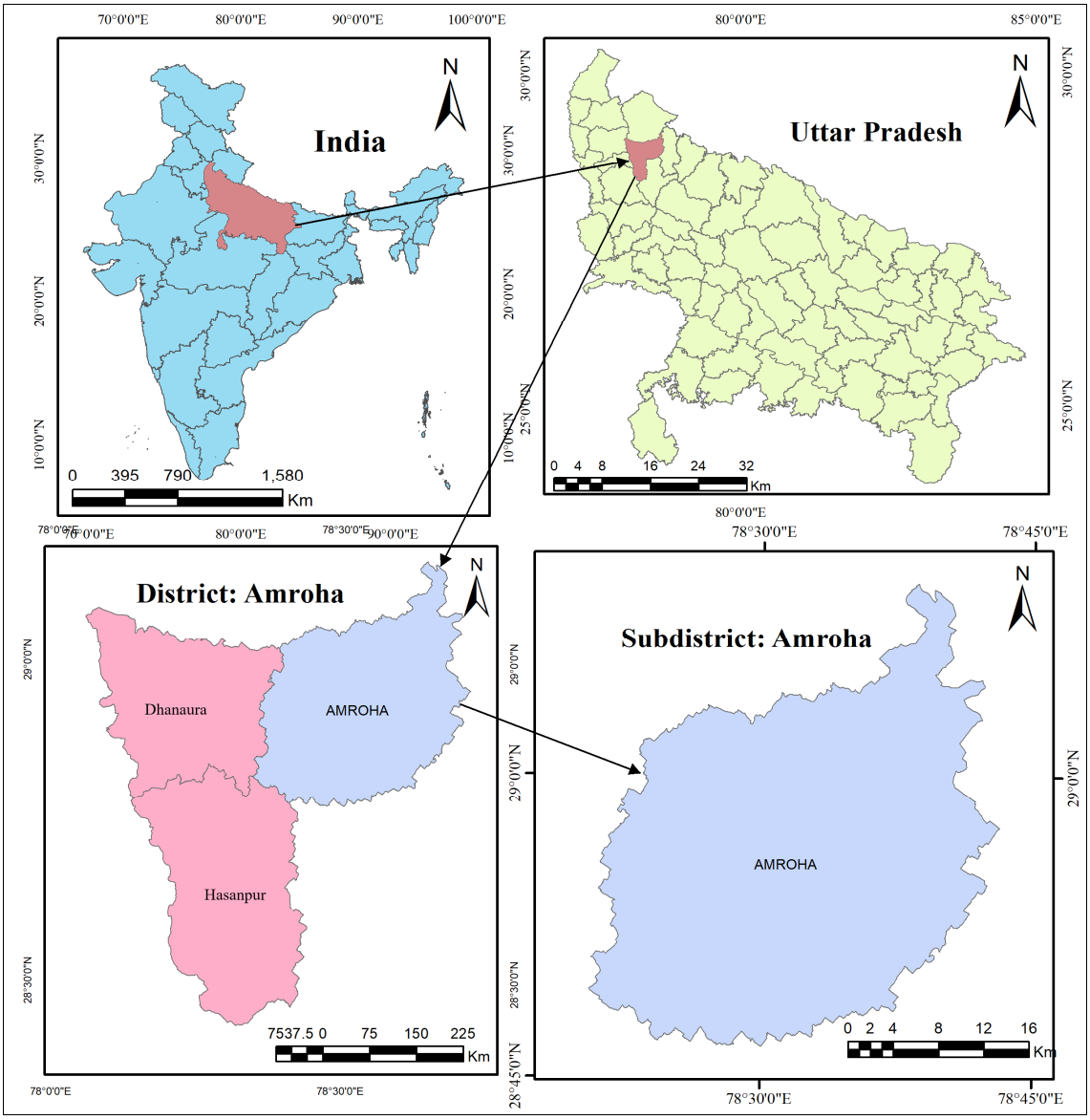
All the committees set up by the government and several other studies regarding manual scavenging have recommended that improvement in socioeconomic and working conditions and their rehabilitation into dignified occupations should be priorities (Noronha et al., 2018). Considering these recommendations, the government's efforts on this issue can be categorised into technical and social solutions, as reflected in the two acts passed by the government of India in 1993 and 2013. The existing literature indicates that research on manual scavenging is limited but gradually increasing. Most studies focus on urban settings and examine currently employed male manual scavengers. However, this approach overlooks a crucial reality: most individuals engaged in manual scavenging originate from rural areas. The issue of manual scavenging has not been explored through the lenses of rehabilitation, gender, and rural contexts and has been discussed less in academia. This study addresses an existing research gap by examining the rehabilitation of manual scavengers, focusing on the real-world impact of current rehabilitation schemes and their effectiveness in promoting socioeconomic progress.

Methodology

Profile of the study area

According to the census of India 2011, Uttar Pradesh has the highest number of unsanitary and dry latrines, indirectly indicating a high prevalence of manual scavenging (Census of India, 2011). A survey cum identification camp of manual scavengers has found that Uttar Pradesh (43%) has the highest prevalence of manual scavengers out of all states surveyed (Manual Scavenger Survey, 2018). In this survey, 47 out of 75 districts of Uttar Pradesh were covered, and it was found that the western part of Uttar Pradesh had a high prevalence of manual scavenging. Among them, Amroha district, previously known as Jyotiba Phule Nagar, has one of the highest prevalence of current and rehabilitated female manual scavengers in all selected districts of Uttar Pradesh. While manual scavenging is prevalent in urban areas, most manual scavengers reside in rural areas. Consequently, this study focuses on rural areas of Amroha district to capture the experiences of this predominantly rural population.

Study Area Map



Sampling design and sample

The study is exploratory in nature, and for sampling, a list of one-time cash assistance (OTCA) beneficiaries under the SRMS scheme provided by the National Safai Karamcharis Finance and Development Corporation (NSFDC) was used. In Amroha Tehsil, there is a total of 104 villages that have at least one rehabilitated female manual scavenger. The number of beneficiaries ranges from

1 to 45 beneficiaries in some villages. Therefore, it has been decided to select villages with sufficient beneficiaries for the study. Thus, the list of villages was arranged in descending order, and one-fourth of the villages were selected. A total of 23 villages have been selected, and it has been decided that all the beneficiaries in these villages be interviewed. Ultimately, 229 rehabilitated female manual scavengers have been interviewed for quantitative data. Eighty respondents either migrated permanently or were unavailable.

This study was based on rehabilitated female manual scavengers under the SRMS scheme. This scheme has three segments: one-time case assistance (OTCA), loan and skill training. Hence, the sample has been selected from each section. According to the MS Survey (2018), the total number of rehabilitated (beneficiaries of OTCA) manual scavengers in the Amroha district is 1155. The number of rehabilitated manual scavengers is tehsil-wise 744 in Amroha, 230 in Hasanpur and 181 in Dhanaura. Among the tehsils, Amroha tehsil has the highest number of rehabilitated female manual scavengers, and there are 744 rehabilitated manual scavengers. Hence, the sample has been selected from the list of 744 manual scavengers who belong to the rural area of Amroha tehsil. A list of OTCA beneficiaries under the SRMS scheme provided by the National Safai Karamcharis Finance and Development Corporation (NSFDC) has been used for sample selection. A total of 229 rehabilitated female manual scavengers have been selected and interviewed.

Data source

The present study utilized primary data, collected through a structured interview schedule between August and September 2021. The data encompassed various dimensions, including the socioeconomic and demographic characteristics of households, respondents, and household members, all of which were analyzed for this study.

Methods

Quantitative data entry was done with the help of the Kobo Toolbox (computer-assisted data collection and entry software), and data cleaning and analysis were done using statistical software Stata 15.1. Descriptive and binary analysis were utilised to analyse the quantitative data.

Ethical clearance

Prior to data collection, ethical clearance was obtained from the Student Research Ethics Committee of the Institute. The study's purpose was clearly explained to the respondents, and they were assured of the strict confidentiality of the information collected. Written or verbal informed consent for participation and publication was obtained from each participant.

Results

The results reveal substantial changes in household characteristics, living conditions, and socioeconomic status following rehabilitation efforts. Key outcomes of the program include improvements in housing quality, infrastructure, and access to socioeconomic resources, which contribute to enhanced living standards among the target population.

Table 1 provides a comprehensive overview of household characteristics before and after rehabilitation, revealing notable improvements in housing quality, access to amenities, and sanitation facilities among the surveyed population. Before rehabilitation, about 42 percent of respondents lived in pucca houses, and 40 percent lived in kutcha houses and *semi-pucca* houses. Whereas, after rehabilitation, 66 percent of respondents live in a *pucca* house, 21 percent in a semi-pucca house, and 12 percent in a *kutcha* house. Around 60 per cent of respondents had one room before rehabilitation, 30 percent had two rooms, and the remaining 10 percent had three or more than three rooms. On the other hand, after rehabilitation, half of the respondents still have one room, followed by 32 percent, 10 percent, and 7 percent having two rooms, three rooms and more than three rooms, respectively.

Before rehabilitation, most households prepare their food outdoors or in the same room where they live; only 10 per cent have a separate kitchen. Moreover, after the rehabilitation, there was little change; about 14 per cent of respondents had a separate kitchen; otherwise, the situation was more or less the same. Around 86 per cent of respondents did not have electricity, but now, 95 per cent of the respondents have electricity, and the remaining only 4 per cent did not have any electricity sources. Before, most households used kerosene and other things for lighting, but almost 95 per cent of households use electricity for the same.

About 96 of the present households were drinking water from a hand pump; the remaining 4 per cent used a bore well, public tab, and other drinking water sources before the rehabilitation. However, after rehabilitation, more than half of the households used a hand pump for drinking water, around 20 per cent used public tap, 14 per cent used a bore well, and nine per cent used other sources. Earlier, no one was doing anything to clean drinking water, but now around 6 per cent of drinking water was being cleaned and mainly used water purifiers or purified water bottles. Surprisingly, more than three-fourths (77 %) of respondents do not have a toilet facility before rehabilitation, but 90 % have one after rehabilitation. Almost 97 per cent have a ration card, and most of the ration card holders are below the poverty line. Only eight per cent of the households have any agricultural land.

Table 1 Household Characteristics of Rehabilitated Female Manual Scavengers, 2021

Characteristics	Before		After	
	Percent	Number	Percent	Number
Type of House				
Kutcha	40.2	92	12.2	28
Pucca	42.4	97	66.4	152
Semi Pucca	17.5	40	21.4	49
Number of Rooms				
One	59.4	136	50.2	115
Two	30.1	69	32.3	74
Three	6.1	14	10.0	23
Four and above	4.4	10	7.4	17
Kitchen location				
In the house	42.4	97	43.7	100
Outdoors	47.6	109	42.4	97
Separate kitchen	10.0	23	14.0	32
Electricity				
Yes	14.0	32	95.6	219
No	86.0	197	4.4	10
Source of lighting				
Electricity	14.0	32	95.6	219
Kerosene and others	86.0	197	4.4	10
Sources of drinking water				
Hand pump	96.5	220	55.3	126
Bore well	0.9	2	13.6	31
Public tap	0.9	2	21.9	50
Other	1.6	4	9.2	21
Anything to make water clean				
Yes	-	-	6.1	215
No	100	229	93.9	14
Toilet facility				
Yes	23.1	53	90.4	207
No	76.9	176	9.6	22
Own any agricultural land				
Yes	7.9	18	7.9	18
No	92.1	211	92.1	211
Have Ration Card				
Yes	97.8	224	96.5	221
No	2.2	5	3.5	8
BPL Ration Card				
Yes	96.7	216	96.8	213
No	3.14	7	3.2	7
Total	**100**	**229**	**100**	**229**

Figure 1 presents the household structure and family size (member of the households); about 60 present households were in joint families in which three or more generations were living together, and 40 per cent were in nuclear families living with two or less than two generations. Around 55 per

cent of the households have five or more than five households, and around 13 per cent of households have ten or more than ten family members. The average family size was 6.3 persons (see Table 3), which was similar to the district average (6.3) and higher than the nation (4.5), and state average (5.2) (NFHS-5).

Figure 1 Household structure and size

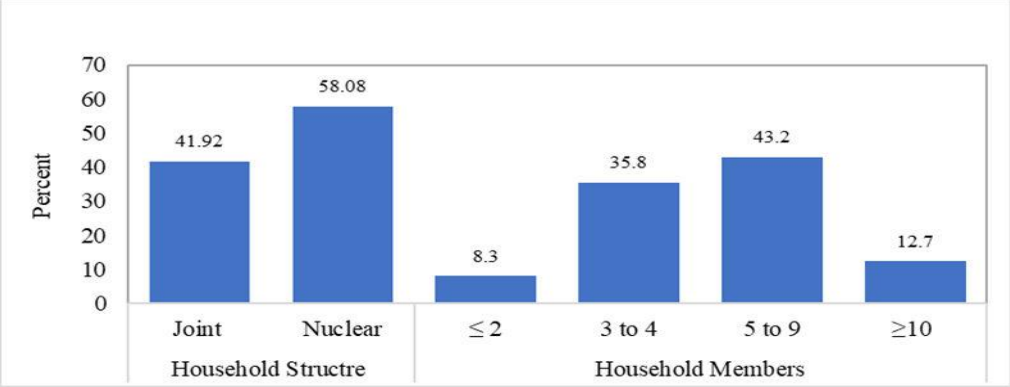


Table 2 Population distribution by age and gender

Age Group	Gender		Total	
	Male (%)	Female (%)	Total (%)	N
0-5	9.35	10.13	9.74	140
6-10	10.59	10.55	10.57	152
11-15	13.48	11.11	12.31	177
16-20	15.68	13.92	14.81	213
20-25	10.59	10.97	10.78	155
26-30	9.77	9.14	9.46	136
31-35	6.74	7.59	7.16	103
36-40	8.8	7.45	8.14	117
40-45	3.85	4.5	4.17	60
46-50	3.85	3.52	3.69	53
50-55	2.34	2.67	2.5	36
55-60	2.06	2.67	2.36	34
60+	2.9	5.6	4.31	62
Total	**100**	**100**	**100**	**1438**

Table 2 presents population distribution by age group and sex. The majority of household members were in the age group 16-20 years (15 % of male and female residents), followed by the age group 11-15 years (13 % female and 12 % male), 20-25 age group (11 % each male and female) and were low in the age group 55-60 years for female and male 50-55 age group. It further indicates that the target population is young, and the majority concentrated in the age group 11-30; the noticeable

thing was that in the older population, women were near about twice than men. This indirectly indicates the low life expectancy of men in the target population.

Table 3 Demographic and socioeconomic characteristics of household members, Amroha, Uttar Pradesh, 2021

Background Characteristics	Percentage	Number
Literacy status*		
Literate	73.7	926
Non-literate	26.3	331
Educational attainment		
No education	27.0	339
Primary	22.8	287
Middle	21.3	268
Secondly	14.6	183
Higher secondary	9.5	120
Graduation	4.8	60
Marital status		
Never married	42.8	503
Currently married	51.2	602
Widowed/Widower	6.0	71
Female age at marriage (Years)		
Below 18 years	52.7	188
18 years and above	47.3	167
Male age at marriage (Years)		
Below 21	57.3	181
21and above	42.7	135
Working status		
Not working	67.4	847
Working	32.6	410
Type of work		
Daily wage	83.2	341
Government job as sanitation worker	2.9	11
Contractual sanitation worker	5.9	24
Other government job	3.7	15
Other occupation	4.6	19
Sex ratio	**978**	
Sex ratio (0-6 Years)	**989**	
The average size of HH	**6.3**	
Mean Year of Schooling	**7.9**	
Mean age in years	**25.4**	
Median age in years	**22**	
Total	**100**	**1438**

Table 3 presents the demographic and socioeconomic status of the study population. The mean age of the surveyed population is 25.4 years, and the median age is 24 years, with a sex ratio of 978 females per male and a child sex ratio (0-6 years) of 989 girls per 1000 boys. About 73 per cent of household members were literate, and 26 per cent were non-literate. Further, looking at the years of education, which vary from no formal education to higher education with a maximum of 19 years of schooling, the average year of schooling was 8 years. It was found that 27 per cent of people had no formal education, followed by 23 per cent, 21 per cent and 15 per cent had primary, middle and secondary education, respectively.

Most of the target population studied at the secondary level, only 10 per cent of the study population had higher secondary, and only five per cent studied at the graduate level. About half of the population were currently married, 43 per cent were never married, and a considerable proportion, 6 per cent, were widowed or widowed. Among the currently married and widowed or widowed population, more than half of the population have married before the legal age; about 53 per cent of females were married before age 18, and around 57 per cent of males before age 21. Among the target group, only 33 per cent was currently working, and the majority of the working population was engaged in daily wage occupation (83%), followed by contractual sanitation work (6%), other occupations (4.6 %), and remaining were in other government services including government sanitation workers.

Table 4 presents the demographic and socioeconomic characteristics of the respondents. The majority of the respondents were aged 30 and above, and nearly one-third were in the age group 30-44 years. The mean age of the respondent was 46.3 years, and the median age was 45 years. 60 per cent of respondents were wives in relation to the head of the household, one-third of respondents were head of the household, and the rest were mothers and other relatives. According to the education status of the female respondents, about 73 per cent of the respondents were non-literate, and only 27 per cent were literate. In the classification of education, about 73 per cent of females had no education, and 18 per cent had primary education. The remaining 10 per cent of women had middle, secondary, higher secondary, and Graduation levels of education. All the respondents were ever married, and nearly 74 per cent of women are currently married, and 26 per cent of women are widowed. While looking at the age of marriage, about 65.5 per cent of respondents were married before attending the legal age. Most of the respondents, 85 per cent, were not working; only 15 per cent were working in that majorly were engaged in daily wage work.

Table 4 Socioeconomic and demographic background of the respondent, Amroha, Uttar Pradesh, 2021

Background Characteristics		Percentage	Number
Age Distribution (years)[1]			
15-29		10.5	24
30-44		37.7	86
45-60		28.1	64
60 and above		23.7	54
Literacy status*			
Non-literate		73.4	168
Literate		26.6	61
Educational Attainment			
No education		73.4	168
Primary		17.9	41
Middle		3.9	9
Secondly		2.9	5
Higher Secondary		0.9	2
Graduation		1.8	4
Relation with head of the household			
Head of the household		33.6	77
Wife		59.0	135
Mother		4.4	10
Others		3.1	7
Marital Status[1]			
Currently Married		74.1	169
Widowed		25.9	59
Age at marriage for female			
Before age 18		65.5	150
Age 18 and above		34.5	34
Working Status			
Not working		84.7	194
Working		15.3	35
Type of Work[2]			
Daily wage		48.6	17
Government job as sanitation worker		34.3	12
Contractual sanitation worker		5.7	2
Other occupation		11.4	2
Mean year of schooling	**6.5**		
Mean age	**46.3**		
Median age	**45.0**		
Total		**100**	**1437**

Note: *[1]In respondent no one was age less than 15 years, no respondent was never married*
[2]No respondent were in other government service

Table 5 presents the distribution of consumer durable goods before and after rehabilitation among the surveyed households. In every consumer goods, there has been seen increment after the rehabilitation. Before rehabilitation, only around 18 per cent of the respondents had an electricity facility, which increased to 70 per cent after rehabilitation. Before rehabilitation, 40 per cent of the respondents' households had mobile/ phone facilities; after rehabilitation, around 88 per cent had mobile facilities. According to the personal transport facility, one-third of respondents' households had a bicycle before the rehabilitation, and around ten per cent had a motorcycle/ scooter. However, after the rehabilitation, around third-forth respondents had a bicycle, and two-fourths had a motorcycle or scooter.

Table 5 Distribution of consumer durable goods by households

	Before		After	
Consumer durables	**Percentage**	**Number**	**Percentage**	**Number**
Electricity	17.6	41	71.6	164
Mattress	100	100	100.0	100
Pressure cooker	7.0	16	50.2	115
Chair	22.9	52	65.6	149
Table	14.0	32	38.7	89
Radio/Transistor	5.2	12	5.7	13
Colour Television	14.4	33	59.0	135
Sewing Machine	3.9	9	24.5	56
Mobile	39.9	91	88.2	202
Internet	3.5	8	62.7	143
Computer	1.8	4	4.5	10
Refrigerator	1.3	3	17.0	39
Air conditioner/cooler	0.4	1	2.6	6
Washing machine	1.3	3	15.0	34
Watch/clock	3.1	7	34.5	79
Bicycle	34.5	79	60.5	138
Motorcycle/Scooter	9.6	22	45.0	103
Animal-Drawn Cart	3.9	9	8.3	19
Car	0.4	1	2.2	5
Water Pump	3.1	7	26.2	60
Total (N)				**229**

Note: *Any household does not have a landline and thresher, so we have excluded them in the present table*

Similarly, 23 per cent of respondents had a chair before rehabilitation, and 14 per cent had a table and television; after rehabilitation, more than 50 per cent had a chair, table and television. Before the rehabilitation, less than 10 per cent of respondents had a pressure cooker, sewing machine, Internet, refrigerator, washing machine, watch, or water pump. Still, it increased after the

rehabilitation in the respondent household. The table indicates overtime improvement; however, the target population was still deprived of access to essential consumer goods and facilities.

Discussion and conclusion

The study aimed to analyse the changes in socioeconomic status among rehabilitated manual scavenger households over time and with the impact of rehabilitation schemes. The household characteristics section has demonstrated that surveyed household conditions and facilities after rehabilitation have improved over time. However, they still had deplorable household facilities except for electricity, toilet facilities and ration cards. Nearly 65 per cent of respondents lived in pucca houses but in very crowded spaces; around half of the population lived in single rooms. Almost all households were below the poverty level, and about 90 per cent had no agricultural land. The results of a study conducted in 1992 were different from the present result (Singh, 1992).

The surveyed population were young, with mean and median ages of 25.4 and 22 years, respectively. Nearly three-fourths of the population were literate, with eight years was mean of schooling. Most respondents were older adults with mean and median ages of 46.3 and 45 years, respectively. Around three-fourths of them are illiterate, only one-fourth have education, and the majority have only up to primary level education, with the mean year of schooling 6.5 years. Around one-third of respondents were heads of the household, all were ever married, and surprisingly, 26% were widowed. This indicates low life expectancy among males, and females were about twice that of their male counterparts. More than 65 per cent of respondents were married before the legal age. Around 85 per cent of the respondents were not working. Half of the working respondents were engaged in daily wage work. As mentioned earlier, household facilities have been improved over time; the same was applied to consumer and durable goods.

All the households have some extended access to essential goods, but very few have luxurious goods. As per the observation during the fieldwork, most surveyed households were in unsafe environments and locations where villagers threw garbage. Rehabilitated female manual scavengers have left the scavenging, and now all are working as housewives and looking for alternative jobs. Although the government made various anti-manual scavenging efforts after independence, the existence of many manual scavengers reveals that those efforts were not in the right direction. There is still manual scavenging work done by women due to a lack of other work opportunities; in this direction, the government needs to focus on improving the condition of the people involved in manual scavenging.

Strengths and limitations

The study is based on primary data with a limited sample size. Therefore, findings cannot be generalised at the national or state level. Despite the limited sample size, the study provides impactful evidence related to rehabilitation programmes and their impact on the socioeconomic condition of rehabilitated female manual scavengers and households in rural settings. The major limitation of this study is recall bias because it is retrospective.

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Institute of Economic Research (IER) is one of the institutions of Janata Shikshana Samiti (JSS) was established in 1957. Population Research Centre, fully funded by the Ministry of Health and Family Welfare (MoHFW), Government of India was attached to IER during 1961. The primary aim of the centre is to undertake the research activities on Health and Demography.

Sri. Vishwaprasanna Theertha Swamiji, Pejavar Matt, Udupi is the President of JSS. The visionary Padma Vibhushana Dr. D. Veerendra Heggade, Dharmadhikari of Shri Kshetra Dharmasthala is the Chairman. The activities of the Samiti are being led by Dr. Ajith Prasad, Secretary.

Padma Vibushana Dr. D. Veerendra Heggade, is a well known visionary of our times. Ever since he assumed the responsibility as a Head of Shri Manjunatha Swamy Temple Dharmasthala, (South India's renowned religious landmark located in Karnataka) he is successfully implementing multi disciplinary programs for social and economic well being of the society. He is the President of SDM Education Society and SDM Medical Trust that runs several institutions. His Self-employment training Institute made millions of youths as self-reliant. By various rural development programmes, he has organized thousands of Self-Help Groups in Karnataka and Kerala to empower rural women, to create health awareness and to enable health insurance for millions of poor. Dr. Heggade is the recipient of several National and International awards for his contributions in the field of education, health and rural development.

To support his novel health programmes, Dr. N Vajrakumar former Secretary of JSS intended to install an Endowment Chair in the name of Dr. D. Veerendra Heggade for facilitating the programmes on Health and Demography in the JSS IER,Vidyagiri, Dharwad. This plan was announced during 75th Birthday of Dr. N. Vajrakumar.

Vision of the Chair:

To facilitate research work on Health and Demography

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The ***IER Journal of Health and Demography*** is a Bi-annual, mono language (English) journal published by DVH chair for studies on Health and Demography, JSS Institute of Economic Research (IER), Dharwad, Karnataka. **This is a peer refereed journal which publishes the quality research work on Health, Demography and the related issues.** The journal publishes with ISSN 2454-9207.

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