

Journal of Studies in Dynamics and Change (JSDC); Vol-11, Issue-4, ISSN: 2348-7038 International Peer Reviewed Quarterly Journal www.jsdconline.com

# Status of Household Level Indicators of Standard of Living in Odisha: A Study of Angul, Nayagarh and Rayagada Districts based on NFHS Data

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### ABSTRACT

Access to basic amenities such as safe drinking water, toilet facility, electricity, cooking fuel, mobile phone, bank account, health scheme and treatment, own house and pucca house are not only an important measure of socio-economic status of the household, but also fundamental to the health status of the people. So, there are 3 districts, namely, Angul, Nayagarh and Rayagada districts of Odisha taken for analysis of household variables like drinking water, toilet facility, electricity, cooking fuel, mobile phone, bank account, health scheme and treatment, own house and pucca house. The objective of this study to highlight the status and standard of living in households as obtained by by NFHS 4 and 5 survey rounds, and to make a comparison between rural and urban areas of the above mentioned 3 districts and all districts of Odisha. The present study is based on secondary data. The study concludes that in 5 years there have been improvements in all household indicators both in rural and urban areas of the districts of Odisha. Urban development is more than rural development.

**Keywords**: Social indicators development, Mobile networking, Banking sector, Rural and urban growth

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## I. INTRODUCTION

Access to basic amenities such as safe drinking water, toilet facility, electricity, cooking fuel, mobile phone, bank account, health scheme and treatment, own house and pucca house are not only an important measure of socio-economic status of the household, but also a fundamental element to the health of the people. Inadequate and poor quality of drinking water not only resulted in more sickness and deaths, but also augments health costs, low worker productivity and school enrolment. Definitions of improved drinking water sources and sanitation facilities are different within and among countries and regions; Joint Monitoring Program (JMP)3 has defined a set of categories for them. An improved source of drinking water includes, in addition to water piped (into the dwelling, yard or plot), water available from a public tap or standpipe, a tube well or borehole, a protected dug well, a protected spring, and rainwater. An improved sanitation facility includes flush to piped sewer system, septic tank, pit latrine, pit latrine with slab and



#### **Suggested Citation:**

Das, R. (2024). Status of Household Level Indicators of Standard of Living in Odisha: A Study of Angul, Nayagarh and Rayagada Districts based on NFHS Data, *Journal of Studies in Dynamics and Change (JSDC)*, *11*(4), 35-47. DOI: www. https://doi.org/10.5281/zenodo.15234981

Published on: 01 October 2024

composting toilet (WHO Report, 2010). The major limitation of the method is the assumption of households getting enough water for their consumption needs from such sources.

Reliable basic infrastructure, particularly electricity, is a critical enabling factor in improving health systems and consequently achieving the health sustainable development goals (SDGs). The use of biomass fuel is associated with the deterioration of human health and women are more likely to develop health conditions due to their exposure to indoor air pollution during cooking. Indoor air pollution (IAP) is one of the world's major environmental problems. It is mainly caused by the use of solid fuels for cooking which includes biomass (e.g., wood, crop residues, animal dung, and charcoal) and coal. World Health Organization (WHO) estimates that about 3 billion people use open fire or traditional stoves that are fueled by kerosene and solid fuels, globally. People from low socio-economic background are forced to use solid fuels as these are available easily in rural areas at a lower cost. In India, approximately 64% of the households use solid fuels. There is a contrast between the rural and urban areas with 81% of the rural households using solid fuels as compared to only 26% of their urban counterparts. Mobile phones are becoming ubiquitous and, increasingly, an important tool in global health programs. Mobile phones have the potential to connect clients with heath care providers, provide new avenues of delivering information, optimize data collection, and facilitate health care worker training and communication. Mobile phones are a tool for economic growth, and empowering women improves the overall wellbeing of families from an economic perspective. Empowering more women with mobile phones has the potential to accelerate social and economic development and the same has been extrapolated to health as well. Through the bank account household can get easy asses to financial schemes of Government Initiative for health.

Tuberculosis (TB) remains one of the major public health challenges in India.<sup>1</sup> According to WHO estimates, in 2017, an estimated 2.7 million people developed TB disease in India and over 400 000 people died.<sup>2</sup> By WHO estimates, India accounts for 27% of the global estimated 10 million cases and 25% of the estimated 1.6 million deaths. The Global Burden of Disease analysis estimated the number of incident cases to be 3 million for the year 2016, with in excess of 450,000 deaths. Health insurance gives benefit to people during major health issues. Household members go for public health care for the free and better treatment. Pucca house also gives household members to live better health and hygiene environment.

In this study 3 districts of Odisha namely, Angul, Nayagarh and Rayagada have been taken for analysis of the household variables like drinking water, toilet facility, electricity, cooking fuel, mobile phone, bank account, health scheme and treatment, own house and pucca house. The present study tries to draw an analysis on how bank account, mobile telephone, electricity, etc. are important at household levels for better health and living standard. The study also tries to find what changes happened in household situations between NFHS 4 and 5.





### **II. REVIEW OF LITERATURE**

SenGupta (2014): This article finds higher wealth improves personal well-being irrespective of gender dimension in India and large family size does not have negative influence on the well-being of men in India, whereas women are harmfully affected by it. This section discusses about Gender, Age, Member of household, Family size, Religion, Caste, Area, Rural & Urban male & female.

Sharma, Kumar, Mohanty & Mozumdar (2022): Objective of this article is to understand variation in contraceptive use between states Punjab & Manipur, despite having similar level of educational attainment and empowerment among the married women and finding is Poor coverage of family planning programs – low outreach of FLWs, low level of facility readiness, as well as sociocultural norms discouraging contraceptive use-might be responsible for lower contraceptive use in Manipur than Punjab.

Baranwal, Baranwal & Roy (2014): This article finds the occurrence of childhood anemia was higher in the North Eastern and Eastern regions compared to all other regions of India, Unclean fuel use, poor toilet facilities, staying in non-concrete house, exposure to smoking were important variables determining the prevalence of anemia, Smoking, when it was controlled with only socio economic factors, showed lesser impact on anemia, but when it got adjusted with socio-economic, child, and media variables together it showed an important impact as it increased the risk of anemia. Suggestions are there should be a holistic approach toward anemia control inculcating healthier household environmental conditions and improved socioeconomic factor. Naaz & Akram, 2017, This article finds Most of Indian states are performing very poorly in providing adequate diet to even the breastfeeding or nonbreastfeeding children age 6-23 months and states like Gujarat and Rajasthan are worst performers, Haryana is having the highest percentage of anemic children age 6-59 months (71.7 percent), The number of obese adults increased from 100 million in 1975 to 671 million in 2016. And this suggests there is an urgent need to formulate well-equipped nutrition policy and programs which could enable the availability and accessibility of scientific, balanced and affordable nutrition-rich food for all.

Bora & Saikia (2018): This article based on the objective is to provide an update on district-level disparities in the neonatal mortality rate (NMR) and the U5MR (underfive mortality rate) with special reference to Sustainable Development Goal 3 (SDG3) on preventable deaths among new-born and children under five with the variables NMR female and male, U5MR female and male. This suggests that to achieve the SDG3 target on preventable deaths by 2030, the majority of Indian districts clearly need to make a giant leap to reduce their NMR and U5MR.

Sharmaa, Singhb & Srivastavaa (2022): Objective of the article is to analyze the extent of socio-economic inequalities and spatial heterogeneity in anemia among children. This suggests that Profound and significant spatial heterogeneity in the prevalence of anemia among children in India, Greater investment in addressing micronutrient deficiencies among children and child feeding practices, by adopting differential approaches especially in the regions with higher prevalence of anemia.

Rah, Cronin, Badgaiyan, Aguayo, Coates & Ahmed (2014): This article finds Household access to improved water supply or piped water was not in itself





associated with stunting., the caregiver's self-reported practices of washing hands with soap before meals or after defecation were inversely associated with child stunting, Inverse association between reported personal hygiene practices and stunting was stronger among households with access to toilet facility or piped water. Ghosh, Pal (2022): This article discussed about the objective which is to understand the change in health status among women aged 15-49 years in different districts of West Bengal by comparing different health parameters (BMI, obesity, anemia, high blood sugar and high blood pressure) between two rounds of NFHS. And suggests Health and nutrition-based programme and their effectiveness among women should be evaluated properly and have to take action regarding this, The initiative should be taken to aware women of their nutrition and health and health care facilities, More focus needs to be given to public health care facilities which are important for economically deprived sections, Proper region-specific action plans and implementation of programs related to health, and effective social behavioral change communication may improve the overall health status of women that lead to a healthy population.

Kumar and Paswan (2020): This article based on objective to examine changes in socioeconomic inequality in nutritional status (stunting and underweight among children in Empowered Action Group (EAG) states.

Kishor & Gupta (2004): This article based on objective to find average woman in India is disempowered absolutely as well as relative to men, and there has been little change in her empowerment over time. This suggests for all states to improve their performance, even those doing relatively well.

Rashada, Shoukry, Fathy & Sharaf (2016): This article is based on objective To investigate the relationship between the Intimate Partner Violence (IPV) and contextual income inequality in India with variables Education level, husband's employment status, living in rural areas of both men and women, Religion, Region, Caste, Household structure.

Tiwari, Nayak (2013): This article based on the objectives which are to assess the inter-regional disparity in coverage of drinking water and sanitation services in Uttar Pradesh, to identify the determinants of sanitation and subsequent policy implications for the State. This suggests the highest priority to female literacy and schooling should be given in the development programs for improving the conditions, drinking water and sanitation facility of Uttar Pradesh can be improved by enhancing the share of WSS expenditure in social sector and total expenditure, by increasing political and social priority to sanitation and water supply, by formulating the water tariff rates, etc.

Jadhav & Tawde (2022): This article based on objectives which are to asses women empowerment based on Well-being, occupation, money, education and knowledge (W. O. M. E. N). parameters in state of Maharashtra by NFHS-4 data, to asses women empowerment based on W. O. M. E. N. parameters in India by NFHS-4 data and to compare Maharashtra state assessment to national (India) assessment of women empowerment by NFHS-4 data.





Golder (2017): This article finds Slapping is the most common form of spousal physical violence, Education is strongly and negatively associated with all types of violence, Prevalence of violence is least for women who take decisions about the use of their earnings jointly with their husbands, Neglect of the house or children is the second most commonly agreed justification for wife beating for both women and men.

Kumar & Sahu (2022): This article discussed on findings which are Probability of dying children was decreasing as age of children increasing, The probability of dying children is higher in EAG states as compare to Non EAG states of India, In EAG states high mortality due to poor socioeconomic status, demographic stages, low female autonomy, likewise the poor health system performance and lower utilization of maternal and child health services Higher risk of under-five mortality among males as compared to females in EAG states of India, A positive association of education with child survival. The children of educated mothers have a greater chance of survival, in part because educated women seek out higher quality services and have a greater ability to use healthcare inputs.

### **III. DATA AND METHODS**

The present study is based on secondary data. The data has been collected from the fourth and fifth rounds of National Family Health Survey (NFHS-4, NFHS-5) for India, conducted in 2014-15, 2019-21 respectively. The NFHS, a nationally representative household survey, provides data on a wide range of population and health indicators. NFHS 4 and 5, a two-stage sampling design was adopted in the rural and urban areas of each district of India to provide district level estimates. The 3 districts, Angul, Nayagarh and Rayagada were randomly selected from 30 districts of Odisha. This is a comparative study of the 3 districts, between rural and urban areas during NFHS 4 and 5, along with all districts of Odisha taken together (i.e. state average). Descriptive Statistics with charts and graphs are used to analyze the changes between NFHS 4 and NFHS 5. The variables used in the analysis are sources of drinking water, time taken to get water, type of toilet facility, electricity, type of cooking fuel, mobile telephone facility, bank account, wealth index, usual resident, own the house, health insurance, health treatment, below the poverty level, house type.

## **IV. ANALYSIS**

Figure-1 shows that in case of sources of drinking water of households, urban in Rayagada is higher than others and the urban in Nayagarh is lowest in growth between 2016 and 2020. In Rayagada 32.32% growth but all over Odisha it is less which is 16.15%. And also, it shows that there is more growth in rural than urban except nayagarh district. Figure-2 shows that in terms of time taken to get water by the households, growth percentage is more in rural areas that in urban areas in 3 districts and all Odisha. It means may be government scheme implementation is more in rural areas than urban. The highest growth is in rural area of Rayagada district and the less growth is in urban area of Nayagarh district. These are illustrated through Figures 1 and 2.









# Figure-1: Growth Rate in Sources of Drinking Water

#### Source: NFHS 4 and 5



# Figure-2 Growth Rate in Time Taken to Get Water on Premises

■Urban ■Rural ■Total

#### Source: NFHS 4 and 5

The improvement in toilet facilities of households has also been better than the state average in case of all the three districts in both rural and urban areas. This can be observed in Figure-3.







## Figure-3: Growth Rate in Toilet Facility

## Source: NFHS 4 and 5

Table-1 shows the electricity facility in households in urban and rural areas in the 3 districts and all Odisha in 2016 and 2020. In urban areas the use of electricity is more than in rural areas in all districts of Odisha. The state average in urban areas is 94% and in rural is 84%. In 2020 there is increase in electricity facility in both rural and urban areas of all districts.

Table-1: Proportion of Households with Electricity Facility

	Angul		Nayagarh		Rayagada		All Districts	
	2016	2020	2016	2020	2016	2020	2016	2020
Urban	91.30%	97.40%	96.40%	98.40%	96.00%	99.20%	94.60%	98.60%
Rural	86.80%	95.80%	93.00%	97.70%	76.70%	94.60%	84.00%	95.70%
Total	87.50%	96.10%	93.30%	97.70%	79.80%	95.20%	86.00%	96.10%
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Source: NFHS 4 and 5

Table-2 shows the type of cooking fuel in households in urban and rural areas in 3 districts and all Odisha in 2016 and 2020. From the table it can be understood that in urban areas uses of LPG, natural gas percentage is more than rural. At present rural people also use Kerosene, Coal, lignite, Charcoal, Wood.





	Angul		Nayagarh		Rayagada		All Districts	
	2016	2020	2016	2020	2016	2020	2016	2020
Urban	34.20%	54.90%	57.10%	66.70%	69.10%	86.60%	50.90%	71.60%
Rural	14.70%	17.80%	17.10%	40.50%	7.30%	19.80%	9.10%	23.50%
Total	17.80%	24.00%	20.80%	42.30%	17.30%	28.90%	17.10%	30.20%
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Table-2:	Proportion	of	Households	Using	Modern	Туре	of	Cooking	Fuel
(LPG/Nat	ural Gas)								

Source: NFHS 4 and 5

Table-3 shows the mobile telephone facility use in urban and rural areas in 3 districts and all Odisha in 2016 and 2020. We find that the use of mobile phone among urban residents is more than rural residents. There is large increase in number of bank account holders between 2016 and 2020 (Table-4). This achievement was perhaps accomplished because of the government's key initiatives such as the Pradhan Mantri Jan Dhan Yojana (PMJDY), which is one of the biggest financial inclusion initiatives in the world, and the Stand-Up India Scheme.

<b>Table-3: Proportion</b>	of Households v	with Member/s	Possessing	Mobile	Phone
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	Angul		Nayagarh		Rayagada		All Districts	
	2016	2020	2016	2020	2016	2020	2016	2020
Urban	90.60%	94.10%	95.20%	96.80%	93.30%	96.60%	92.90%	95.00%
Rural	79.30%	87.40%	82.50%	91.10%	58.50%	70.30%	76.80%	86.00%
Total	81.10%	88.50%	83.70%	91.50%	64.10%	73.90%	79.90%	87.20%
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Source: NFHS 4 and 5

## Table-4: Proportion of Households with Member/s with Bank Accounts

	Angul		Nayagarh		Rayagada		All Districts	
	2016	2020	2016	2020	2016	2020	2016	2020
Urban	89.90%	98.00%	90.50%	100.00%	87.90%	96.60%	91.90%	96.20%
Rural	91.00%	97.60%	81.30%	98.30%	81.30%	97.50%	87.50%	97.30%
Total	90.80%	97.70%	82.30%	98.40%	82.30%	97.40%	88.30%	97.10%

Source: NFHS 4 and 5

Looking at the wealth index of households, in Nayagarh district the percentage of poor people increased 11.5% from 2016 to 2020 which is more than all districts of Odisha. As compared with all districts of Odisha, rich percentage in Nayagarh rural area increased more. The rate of change in wealth index of households is elaborated in Table-5.





	Rich	Poor	Rich	Poor	Rich	Poor	
	Urba	in	Rı	ıral	Total		
Angul	-1.80%	2.40%	-3.20%	6.80%	-2.80%	5.80%	
Nayagarh	-9.90%	11.50%	2.10%	1.70%	0.20%	3.20%	
Rayagada	10.50%	-10.70%	-0.20%	-1.70%	-0.20%	-1.30%	
All Districts	1.90%	-0.10%	1.40%	-1.10%	-0.90%	1.40%	

Table-5: Growth Rate in Wealth Ind
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Source: NFHS 4 and 5

The highest growth percentage of households with any usual member not affected by TB is in Angul urban area. Lowest growth or negative growth percentage is in Rayagada urban area which means the number of TB patients has increased. As compared with all districts, urban growth percentage in Angul districts is at a good position, but in rural growth Rayagada district is ahead i.e. 0.91% (Figure-4). The health insurance coverage does not reflect very encouraging figures (Table-6). There has been increase in health insurance coverage in both urban and rural areas in Angul. But the other two districts have faced a decrease in general, except for a slight increase in urban areas of Rayagada. The state average has more or less remained constant with slight increase in urban areas and slight decrease in rural areas. In 2018 the Biju Swasthya Kalyan Yojana (BSKY) was rolled out. The increase in Angul may be on account of better implementation of the scheme there as compared to the other two districts, as Angul is more developed as compared to them.



Figure-4: Growth Rate in Households with Member/s Not Suffering from TB

# Source: NFHS 4 and 5



	Angul		Nayagarh		Rayagada		All Districts	
	2016	2020	2016	2020	2016	2020	2016	2020
Urban	46.30%	50.30%	44.00%	31.70%	21.50%	21.80%	27.50%	29.10%
Rural	62.20%	65.10%	54.10%	50.70%	60.40%	49.40%	54.10%	51.60%
Total	53.10%	54.10%	53.10%	49.40%	54.10%	45.70%	49.00%	48.40%
Source	NEHS 4 a	nd 5						

Table-6:	Proportion	of	Households	with	Member/s	Covered	under	Health
Insuranc	e							

Source: NFHS 4 and 5

The highest growth in availing public healthcare facility is at urban area of Rayagada district but the highest fall is also in rural area of Rayagada. These may be because Rayagada is a tribal area and people also believe in superstition and there is lack of awareness about health treatment. However, the fall in availing public healthcare facility in Angul district may be on account of increase in other private healthcare facilities as it is a more developed district. This may be the case considering all districts together.





## Source: NFHS 4 and 5

When it comes to house ownership (Figure-5), we see the growth percentage is high in Nayagarh district of Odisha. And there is negative growth in Rayagada district both in rural and urban areas. It may be cause of heavy growing population. So, the house ownership percentage in general reflects lower values over the districts. Table-7 shows the percentage of households having pucca or semi pucca house in





Angul, Nayagarh and Rayagada districts of Odisha in rural and urban areas in 2016 and 2020. From the table we find that in both rural and urban areas of all districts of Odisha, the proportion of pucca houses increased except urban area of Nayagarh district. Urban areas in Rayagada have achieved 100% pucca houses in 2020. Overall in the state the BPL card holders seem to have increased. While it could mean that the economic conditions have deteriorated or more poor people have been able to avail the BPL card, comparing it with Table-5 indicates perhaps there has been deterioration in economic condition.



Figure-6: Growth Rate in House Ownership by Member/s of Household

🗏 Urban 📕 Rural 🗏 Total

# Source: NFHS 4 and 5

	Angul		Nayagarh		Rayagada	L	All Districts		
	2016	2020	2016	2020	2016	2020	2016	2020	
Urban	85.10%	91.50%	96.30%	93.70%	95.10%	100.00%	95.30%	96.60%	
Rural	68.80%	79.80%	75.60%	86.20%	77.90%	95.30%	76.70%	87.30%	
Total	71.40%	81.80%	77.50%	86.80%	80.30%	95.90%	80.30%	88.70%	
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Source: NFHS 4 and 5







#### Figure-7: Growth Rate in BPL Households

#### Source: NFHS 4 and 5

#### **V. CONCLUSION**

From the above analysis it is found that, in 5 years there are growth in all household indicators both in rural and urban area of districts of Odisha. Urban development is more than rural development. Due to the government initiatives in banking sector, a large percentage of the population has bank account. In the development of telecommunication system, there is increase in the use of mobile telephone in rural area. In rural areas, there is improved electricity facility, which is required in children's study, rural hospital, banks, water supply, agriculture etc. Through the government health insurance, rural households are getting aware to avail health insurance, and also, they take the benefits of the insurance card in major disease treatment in hospitals. Public hospital demand is more in rural area than urban area.

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