



Case Study

Rural Road Connectivity and Access to Health Care Services in Poonch District of Jammu and Kashmir (J & K)

Avishake Raina^{*} , Sajad Ahmed¹ 

Department of Economics, University of Jammu, Jammu, India
Email: avishake2046@gmail.com

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Abstract: Road connectivity is an indispensable component of rural development. It is crucial for rural transformation and providing access to healthcare, education, and other socio-economic services. Around 72.62 percent of the population of Jammu and Kashmir (J & K) lives in villages. Road connectivity is the dominant source of transportation in the rural areas of J & K. Therefore, the availability and accessibility of health care services largely depend on rural road connectivity. The present paper aims to evaluate the impact of rural road connectivity on access to health care services in the district Poonch of Jammu and Kashmir. The paper is descriptive in nature and is based on primary data. A sample of 200 respondents from two blocks of district Poonch, namely, Buffliiaz and Surankote, have been taken for the study. The finding of the paper revealed that accessibility and availability of health care services are comparatively better in the Surankote block than Buffliiaz block. It is mainly due to the availability of better rural road connectivity in the Surankote block. Better rural roads in Surankote block led to better access to health facilities by reducing travel time to reach the health centres, availability of medical staff, types of equipment, and other basic infrastructure required in the health institutions compared to Buffliiaz block. It also leads to the availability of all major healthcare facilities for pregnant women in Surankote block. The paper highlights the need for continuous efforts by the government to develop better roads, which is a prerequisite for eliminating the regional imbalances in the development process.

Keywords: road connectivity, accessibility, infrastructure, health facilities, regional imbalances

JEL Code: C80, C83, I1, I10, I15, I18

1. Introduction

Rural infrastructure is one of the most important sources for enhancing people's livelihoods (Wu et al., 2019) and also helping in reducing poverty. Roads are the lifeline for rural India (Prabha et al., 2018). They ensure better and easier access to basic facilities of livelihood (Gebresilasse, 2018). A study conducted on the relationship between government spending and poverty in rural India found that an investment of one crore in roads takes 1,650 people out of poverty (Fan et al., 1999). In addition, enlarged road connectivity among the small towns and inaccessible rural areas enhances the employment opportunities and income of the rural population (Gebre & Gebremedhin, 2019). It also improves the health situation in rural communities by providing access to better education and health services in adjacent towns and

cities. It also boosted the number of visits by government officials, village workers, and auxiliary nurses, among other groups (Parida, 2014a). According to census (2011), 68.84 percent of Indian population resides in rural areas. Thus, rural road connectivity is critical for rural India's overall growth.

Health is one of the crucial objectives for developing an economy (Eggoh et al., 2015). It acts as both means and an end of development. A healthy population can contribute to productivity, economic growth, and the development of an economy in a much better way (Raghupati & Raghupati, 2020). Access to health care is an important concern for rural areas, especially in developing countries. It is most difficult for people living in remote areas to access better health services (Bourke et al., 2012). If we look at the health sector of India, they are still struggling to reach its zenith. Due to poor road connectivity, the rural population does not get regular check-ups and proper health facilities during emergencies. Most of the rural population still prefers home delivery instead of institutional delivery. These facts indicate the importance and the necessity of raising investment in rural infrastructure. Such investment would not only reduce losses but will also improve the health sector of the economy. The government of India and various state governments have prepared various schemes and programs to develop better roads in rural areas. One such initiative was "Pradhan Mantri Gram Sadak Yojana" (PMGSY), which was launched to boost rural road connectivity and promote balanced development of all the districts and states. This scheme was launched on the recommendations of the National Rural Roads Development Agency (NRRDA) to provide all-weather access to eligible unconnected habitations.

The Government of India launched PMGSY on 25th December 2000. The primary objective of PMGSY is to provide connectivity and all-weather road to the eligible unconnected habitation in the rural area. It provides a paved all-weather road to all "habitations" with a population of at least 500, according to the 2001 census. This population threshold was lower (i.e., 250) in the case of areas pre-defined by the government of India as tribal, mountainous, or hilly. The unit for PMGSY is habitation-based rather than a revenue village or a Panchayat.

Habitation refers to the cluster of people living in an area, the location of which does not change over time. It envisages single-road connectivity. The central government provided the funding for the scheme (Jessica & Dupas, 2010). Even though it was a country-wide initiative of the central government, the actual construction work was carried out by the states. The central government asked all the states to identify a core network of roads that is the minimal network required for all villages above the threshold for an area to have all-weather connectivity. The central government further required that construction should be placed in order within the core network according to a population-based rule. Villages with a population of 1,000 or more were to be connected first, followed by those with a population of 500-1,000, and ultimately followed by those with a population of 250-500, and in descending order of population within each category. Villages from lower population categories could start getting connected only once all the villages in the immediately larger category in their state had already received roads. Exceptions were allowed if a smaller (by population category) village lay on the straight path of a road that was being built for a larger village. Though not central to the program, upgrades of existing roads were allowed once all of the planned new construction was complete.

The increasing connection between remote rural and urban areas is essential to improve basic services by reducing the distance, traveling time and cost between the point of origin and desired destinations. Road connectivity improved the level of health facilities and reduced the travelling time in the available health centers in different villages. The doctors and nurses have become more punctual and regular, and their numbers in the health centers have also increased. With road connectivity, basic facilities such as drugs, contraceptives and immunization are also available in the local centers. The pattern of delivery of pregnant women also shifted from home to institutions. The primary cause behind the preference for home delivery is the lack of road connectivity in rural areas. The government provides improved health and hygiene facilities to women regarding menstrual hygiene. Essential awareness among women is increased after road connectivity, and free sanitary pads are also made available to them in the health centers. Overall, road connectivity in rural areas significantly impacts the health sector.

The geography of Jammu and Kashmir is mainly comprised of mountains and hilly slopes. Roads are the major source of connectivity in the region so far. They are essential for delivering the basic facilities to the people of the region. Several roads under PMGSY were constructed in the region to develop better connectivity and access to healthcare facilities. They are still some areas that lack proper road connectivity. Therefore, this generates the need to evaluate the linkage between rural road connectivity and access to health care services in Jammu and Kashmir. The present study highlights the linkages between rural road connectivity and access to health care services in the district

2. Review of Literature

Infrastructure is defined as organizational structure and physical amenities needed by society in general. It includes industries, buildings, roads, bridges, health services, and governance. The basic infrastructure is essential for rural development strategies (Calderon & Serve, 2008). It is closely related to other aspects such as agriculture, education, health, nutrition, electricity, and clean water, which are subsequently developed. The basic infrastructure is also associated with a good quality of life (Aziz, 2015). Road connectivity is considered the most important component of the basic infrastructure due to its flexibility and affordability within the community. Furthermore, a nation's socio-economic and cultural growth depends on its safe, speedy, efficient and economical road transport system (Masood et al., 2011). Kadir (2013) found that investments in the land transport infrastructure have a remarkable impact on the country's economic growth. It also shows that the development of basic infrastructures like road infrastructure is significant in boosting the lives of rural residents through providing amenities for community use.

Al-Mamun and Paul (2018) stated that roads are vital for the socio-economic development of rural areas. They provide access to amenities like education, health and marketing. Rural road connectivity improved economic growth by raising the production and productivity of agricultural produce (Ghosh, 2017). Further, Sieber and Allen (2016) found that rural roads are positively associated with agriculture, transport, health and education. It played an important role in generating employment opportunities in rural areas. In terms of health, it facilitates better accessibility and availability of health services in rural areas. It helps in raising the number of visits of females to health centers due to the availability of roads.

In order to strengthen the infrastructure and development of rural India, the government of India launched PMGSY in the year 2000, intending to provide all-weather connectivity in rural areas. PMGSY is an excellent step toward creating infrastructure in rural areas (Balamurugan, 2020), and it opens many opportunities for residents of the rural economy. Sampath and Murugan (2013) analyse that the new connectivity of roads among Assam, Bihar, Chhattisgarh, Jammu and Kashmir and Madhya Pradesh have recorded a progressive trend under PMGSY, and overall productive economic activities have increased. Bell and Dillen (2015) found that PMGSY played a vital role in the reduction of morbidity in the rural areas of Orissa. It helped reduce the number of sick person and expected diseases. PMGSY showed a positive association between falls in number of sick persons and increased visits of health staff in the rural area. The construction of roads leads to better socio-economic conditions for people.

The World Bank (2014) report on "Rural Road Development in India: an Assessment of Distribution of PMGSY Project Benefits in three States by Gender and Ascribed Social Groups" evaluated that rural roads increased agriculture production and employment opportunities, educational aspects and health in rural areas. Parida (2014b) found that after the construction of roads in rural areas of Orissa, the frequency of visits of government officials and grass root level functionaries, such as village-level workers and auxiliary nurses, has increased. It has both social and economic benefits for the residents of rural areas.

Rural populations face dual healthcare problems: one is a lack of infrastructure, and the other is access to healthcare centers. Access to health care is one of the most important components of the health infrastructure of a country (Donnell, 2008). Access to health care not simply means the availability of health care. It consists of many other components, such as the number and types of healthcare centers, infrastructure and human resources in the existing healthcare centers. Penchansky and Thomas (1981) defined access to health in two senses. In a narrow sense, it refers to geographic availability only. In a broader sense, it is identified in terms of four dimensions: availability, accessibility, affordability and acceptability (Penchansky & Thomas, 1981). Access to health care in terms of accessibility is defined as the ability and willingness of the population to fulfill the gap between home and the location of health centers. It is determined by geographical barriers, including distance, means of transportation, transportation cost, travel time and quality healthcare services in health centers.

Inequalities in accessing healthcare facilities have been rising across states of India, rural-urban, among different economic classes and castes (Baru et al., 2010). Asian Development Bank (2011) indicated that the healthcare system could be improvised by assimilating rural water supply, sanitation and hygiene. Developing health infrastructure and water supply can only deliver better health outcomes, especially among the poorer and disadvantaged groups. Basu et al.

(2012) also found that poorer states of India are worse off in creating better access to public health facilities. Poor health infrastructure directly impacts the health status of rural people.

The development of rural roads positively impacts health, education, agriculture, and employment. Majid (2013) observes that due to rural road construction, the awareness of health practices such as immunization and parental care has been found to increase and positively impact child health outcomes. With road connectivity, the availability of health facilities in villages has also increased. However, Iyengar and Dholakia (2012) have shown that the coverage of primary healthcare services, such as antenatal care, institutional deliveries and immunization, was deficient among the below-poverty line population. Thus, there is a need for both quantitative and qualitative efforts to improve the health of the poor in rural areas of different states, particularly among the vulnerable (poor) section of society.

Jaysawal (2015) found that the public health in the country is very dissatisfactory. Even though many schemes are run by the authorities, due to the lack of implementation, rural areas still lack health compared to urban areas. The physical health infrastructure in rural areas is also deficient compared to urban areas. Further, Taqi et al. (2017) found that India lacks both the availability and accessibility of healthcare infrastructure. Only seven states have a surplus in physical health infrastructure (sub-centers, primary health centers, and community). These states are J & K (now Union Territory), Himachal Pradesh, Uttarakhand, Rajasthan, Goa and Kerala. About 10 percent of the available PHCs in India are functioning without a single doctor. The states like Uttar Pradesh, West Bengal, Chhattisgarh and Madhya Pradesh have an impoverished population-to-doctor ratio (1:50,000). Bihar has the highest ratio of 1:140,000. Further, the data shows that 20 out of 29 states (including the state of Jammu and Kashmir) in India still have sub-centers without proper road connectivity. Eight percent of PHCs in India do not have proper road connectivity.

Bajpai et al. (2017) found that there is a shortage of specialists and trained medical staff in the rural areas of the state of Tamil Nadu. As a result, morbidity is high compared to other states of the country. On average, most children suffered 3-4 episodes of fever per year and one episode of eye and ear infection in a year. Malnutrition among children (under five years of age) is also a major public concern. One of the reasons behind these facts is the lack of rural road connectivity, which acts as a hurdle in delivering better health facilities.

From the review, many studies focused on the impact of rural roads on the socio-economic sectors of the rural economy. It has been founded that rural road connectivity positively impacts rural households and improves their education, health, agriculture production, income, and employment opportunities in rural areas. According to some studies, rural roads improve access to health institutions and make women aware of their health and hygiene. However, some of the studies stated that the health scenario in rural India is not satisfactory due to a lack of health infrastructure. In contrast, some studies concluded that there are increased disparities between rural-urban areas due to a lack of effective implementation of government welfare schemes. The health scenario in hilly and remote areas is even poorer compared to urban areas due to a lack of health infrastructure and access to healthcare services. Very few studies covered the country's hilly terrain, especially Jammu and Kashmir, highlighting the relationship between rural road connectivity and access to health care services. Thus, the present study evaluates how rural road connectivity impacts access to health care services in the district Poonch of Jammu and Kashmir.

3. Statement of the problem

Jammu and Kashmir is a mountainous region where most of the population lives in rural areas. According to the ministry of health and family welfare, the total number of health institutions in rural areas of Jammu and Kashmir in 2021 is 3,380. Of these, 2,426 are Sub Centers, 891 are Primary Health Care Centers (PHC), and 63 are community health centers (CHC) (Ministry of Health and Family Welfare, 2020-2021). Health has always been a significant issue for the habitant of rural areas in J & K. Road connectivity is essential for providing basic necessities of life to people. The Indian government adopted PMGSY to provide all-weather roads to the habitant of the rural area. Several roads under PMGSY were constructed in J & K, and the scheme is still working to fulfil its regional objective. Rural road connectivity plays an essential role in providing better accessibility and availability of health care services to the habitant of the region. Thus, there is a need to analyse how rural road construction is pivotal for the better health of a region. An attempt has been made to analyse the impact of rural road connectivity on access to health care services in the Poonch district of Jammu and Kashmir. It helps us understand how rural road connectivity plays an essential role in the region's socio-economic development, especially in the health sector.

4. Objectives of the study

- To analyse the impact of rural road connectivity on access to health care facilities in Poonch District of Jammu and Kashmir
- To examine health care facilities available to pregnant women after rural road connectivity in the Surankote block of district Poonch of Jammu and Kashmir.

5. Research methodology

5.1 Population of the study

The present study is descriptive in nature. It is based on primary data. It is conducted in the two blocks of the Poonch district. District Poonch is a part of the Jammu Division. It consists of 11 blocks and 6 Tehsils. As per Census 2011, the district's total population is 476,835, of which males and females are 251,899 and 224,936, respectively. The map of the Poonch district of Jammu and Kashmir is represented as Figure 1.

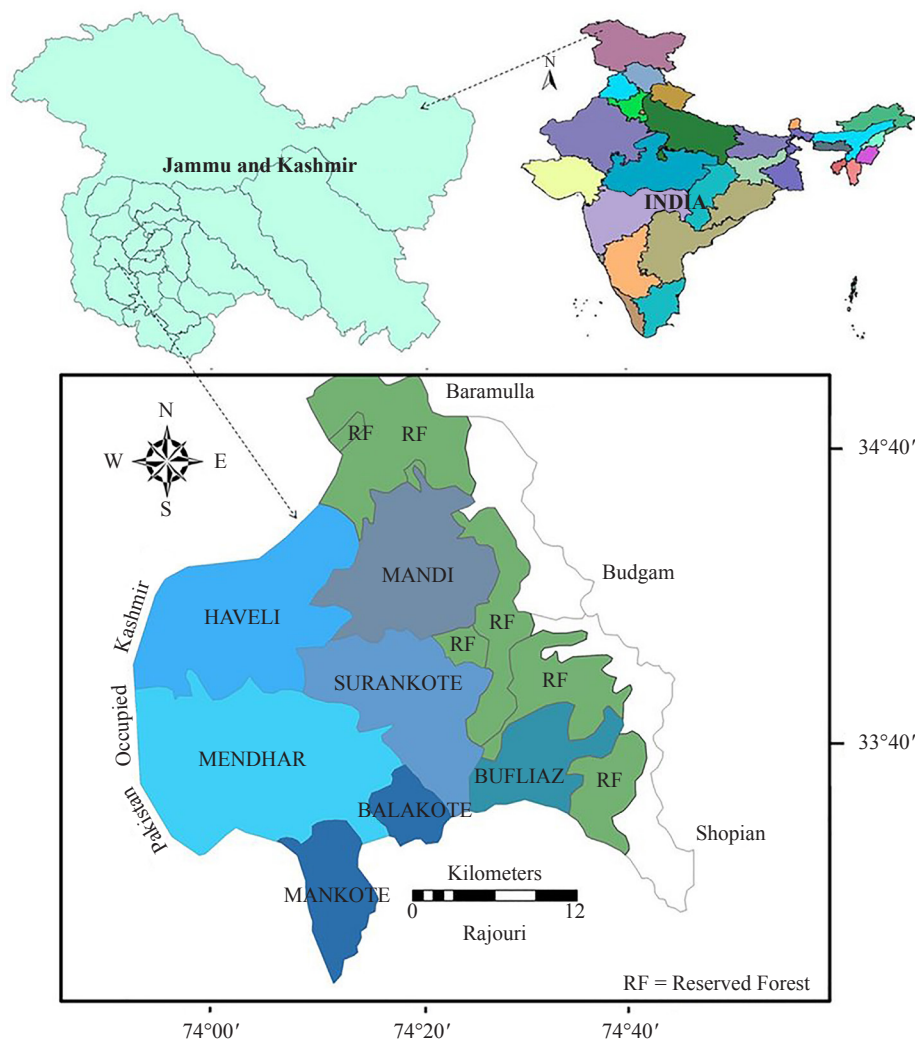


Figure 1. Map showing the location of Poonch district in J & K State and its administrative tehsils
Source: Mughal et al. (2017)

5.2 Sample design and size

The present study is based on primary data. For this purpose, primary data was collected through a well-structured schedule. A total number of 200 respondents were selected for the study, 100 from each block. Surankote block is well connected with roads, whereas some regions of Buffliaz are still not connected with roads. The data was collected in the year 2019 in the month of September.

5.3 Selection of the sample

Multistage sampling has been employed in the present study to select the study area and respondents. Multistage sampling is the probability sampling technique where the sampling is carried out in several stages such that the sample size gets reduced at each stage. In the first stage, out of 20 districts of UT Jammu and Kashmir, the Poonch district was selected randomly. In the second stage, out of 11 blocks, two blocks, Buffliaz and Surankote, have been selected. Finally, five Panchayats were selected from each block in the third stage. In the case of the Surankote block, five Panchayats selected were Upper Potha, Lower Potha, Sanai Lower, Lathoong and Marhote Lower. At the same time, five Panchayats selected from the Buffliaz block were Chandimarh Upper, Mastandhara, Sanglani, Dhara Mohra and Morrah. Panchayats of Surankote block is well connected with roads, while some Panchayats of Buffliaz block are not connected with roads. A total of 200 respondents were surveyed, 100 from each block and 20 from each Panchayat. The detail of the sample design is represented by the given Table 1.

Table 1. Sample design for sample district

District	Blocks	Villages
Poonch (200)	Surankote (100)	Upper Potha (20)
		Lower Potha (20)
		Sanai Lower (20)
		Lathoong (20)
		Marhote (20)
	Buffliaz (100)	Chandimarh upper (20)
		Mastandhara (20)
		Sanglani (20)
		Dhara Mohra (20)
		Morrah (20)

Source: Compiled by author

5.4 Data analysis and interpretation

After the field survey, analysis and interpretation of data are essential steps in the research process. The data collected was scrutinized, coded, edited, and tabulated so that it could be better interpreted to answer the study's objectives. Frequency and percentage have been used to get significant results from the present study.

6. Discussion and findings

6.1 Impact of rural roads connectivity on access to health care facilities in poonch district of Jammu and Kashmir

In order to find out the impact of rural road connectivity on access to healthcare facilities, specific questions were asked to the respondent of the study area. The responses of the respondent are mentioned in Table 2. The majority of the respondents have mentioned that health infrastructure in the region is strengthened due to rural road connectivity. The programs like PMGSY played an essential role in developing rural road infrastructure in the area.

Table 2. Represents rural road connectivity and the status of health care infrastructure available in the villages of district Poonch of Jammu and Kashmir

Status of health facilities available in villages of Surankote and Buffliaz block of Poonch District	Surankote Block		Buffliaz Block	
	Yes (%)	No (%)	Yes (%)	No (%)
Availability of Sub-Centre	89	11	62	38
Availability of Govt. doctors/Health workers	95	5	61	39
Increase in Staff at Sub-Centre	94	6	66	34
Improvement in working of ASHAs/Health workers	86	14	72	28
Whether there has been improvement in the delivery of services in relation to maternal and child health, family welfare, nutrition, immunization and control of communicable diseases program	90	10	71	29
Improvement of drugs and medical supplies due to rural roads	86	14	70	30
Availability of all-weather road connectivity to the nearest health care facilities	85	15	55	45
Availability of all-weather roads connectivity to the nearest government hospital	89	11	55	45
Whether travel time reduces to reach the nearest hospital due to rural roads	95	5	60	40
Has there been an increase in the frequency of visits of the Health workers/ANM due to rural roads?	85	15	62	38

Source: Field survey (2019)

The table represents the rural road connectivity and the status of health care infrastructure available in the villages of Surankote and Buffliaz block of district Poonch of Jammu and Kashmir. The table shows that 89 percent of respondents in Surankote block mentioned that Health Sub-centers are available in their villages and can access them through rural road connectivity. In contrast, only 62 percent of respondents have mentioned that the sub-centre is available to them. In the case of the availability of government doctors/Health workers, 95 percent of respondents from Surankote block have agreed that a government doctors are available to them, whereas only 61 percent of respondents from Buffliaz block agreed that doctors are available to them in health facilities. This means that doctor is available in Surankote block, whereas some people in Buffliaz block still lack the availability in their nearby government health institution.

Further, in case of an increase in staff at the sub-centre, the number is higher in the Surankote block than in the Buffliaz block. One of the reasons behind this is the lack of access to roads in the area. Around 86 percent of the respondents of Surankote block have mentioned that rural roads improved drugs and medical supplies. But the number is comparatively low in the Buffliaz block (70 percent). Further, 85 percent of respondents from Surankote block have mentioned that all-weather road connectivity to the nearest health care facilities is available to them. On the other hand,

the number is relatively low in the Buffliaz block, i.e. 55 percent. In the case of the availability of all-weather roads connectivity to the nearest government hospital, only 55 percent of respondents from Buffliaz block agreed with this fact, which is comparatively lower than Surankote block. Ninety-six percent of the respondents from the Surankote block agreed that travel time to the hospital had been reduced due to rural road connectivity. But in Buffliaz, only 60 percent of the respondents agree with this fact.

Furthermore, 85 percent of respondents from Surankote block have mentioned that rural road connectivity led to an increase in the frequency of visits of the Health workers/ANM. In contrast, only 62 percent of respondents of Buffliaz block agree with the increased frequency of visits of the Health workers/ANM due to rural roads. The table shows that the health facilities in the Surankote block are comparatively much better than Buffliaz block. One of the main reasons behind this is the construction of rural roads. Thus, there is a need to divert more attention to developing better rural road infrastructure to provide more access to health facilities. PMGSY is one of the most important initiatives of the government of India in this regard to developing all-weather road connectivity in rural India. It played an essential role in constructing all-weather rural road connectivity in the Poonch district, which further led to better access to healthcare facilities in the region.

Table 3. Representing rural road connectivity and improvement in health indicators in the Poonch district of Jammu and Kashmir

Rural Road Connectivity & Health Indicators	Surankote		Buffliaz	
	Yes (%)	No (%)	Yes (%)	No (%)
Whether there has been an improvement in the general awareness of health, sanitation and hygiene issues	95	5	70	30
Whether people preferred institutional mode of delivery	96	4	75	25
Availability of Ambulance	89	11	55	45
Whether there has been an improvement in the immunization of children from the village	95	5	75	25
Whether there has been a reduction in the communicable diseases in the village	91	7	80	20
Whether rural road connectivity improve access to healthcare facilities in the villages	92	8	78	22
Whether rural road connectivity improves the availability of health care facilities to the village people	92	8	78	22

Source: field survey (2019)

The Table 3 represents the rural road connectivity and improvement in health indicators in two blocks of the Poonch district. Health indicators such as general awareness of health and sanitation, institutional mode of delivery, availability of ambulance service, immunization of children, the spread of communicable diseases, access to healthcare services and availability of health services were taken to understand how rural road connectivity led to improvement in the delivery of better health systems in the region. The table shows that 95 percent of respondents in Surankote block have mentioned that an improvement in general awareness of health, sanitation and hygiene has been developed due to the development of rural roads, whereas only 70 percent of respondents in Buffliaz block agreed with the fact that rural road connectivity led to an improvement in general awareness of health, sanitation and hygiene issues. In the case of institutional delivery, more than 90 percent of respondents in the Surankote blocks preferred the institutional mode of delivery, whereas only 75 percent of respondents in Buffliaz preferred institutional delivery due to the lack of proper road connectivity. In case of availability of Ambulance services, again, 89 percent of respondents of Surankote block mentioned that ambulance service is available to them, whereas only 55 percent of respondents of Buffliaz block have mentioned that ambulance service is available to them. Furthermore, more than 90 percent of respondents have mentioned a reduction in communicable diseases due to rural road connectivity and better accessibility and availability

of health care facilities in Surankote block. Whereas the number is comparatively lower in case of the Buffliaz block. Thus from the table, it is clear that better rural road connectivity in Surankote block led to an improvement in health indicators that further indicates an improvement in accessibility and availability of health care facilities.

On the other hand, the Buffliaz block is competitively behind the Surankote block in case of certain health indicators. One of the reasons behind this is rural road connectivity, which is comparatively not as good as in the Surankote block. Therefore, there is a need to focus on developing rural roads that further lead to better accessibility and availability of health care services.

Thus in view of discussion mentioned in Tables 2 and 3, it can be concluded that better rural road connectivity in Surankote block of district Poonch has improved the health care facilities such as availability of doctors, nurses, other staff, drugs and medicine, ambulance services, reduction in travel time and so on. On the other hand, Buffliaz block still needs more efforts to develop better rural roads to deliver better health in the region. The Indian government has initiated PMGSY to develop all-weather rural road connectivity. It has played a vital role in providing better accessibility and availability of health services to the rural people of the Poonch district of Jammu and Kashmir. There is still a need to make more efforts to develop better roads in villages of the Poonch district, which further led to more connectivity in the region.

6.2 Rural road connectivity and Health care facilities available to pregnant women

In order to determine the relationship between rural road connectivity and the availability of health facilities to pregnant women in the Poonch district, respondents from the Surankote blocks were taken for the study. The Panchayats of the Surankote block were connected by roads.

Table 4. Represents rural road connectivity and health care facilities available to pregnant women in the Surankote block of district Poonch of Jammu and Kashmir

Responses regarding the availability of health care facilities for Pregnant women in Surankote block after Rural road connectivity	Yes	percent	No	percent
Regular Check-ups of Pregnant Women before delivery	96	96.0	4	4.0
Regular check-ups of women after delivery	88	88.0	12	12.0
Availability of Ambulance Service for Pregnant Women	70	70.0	30	30.0
Financial Assistance to Pregnant Women	100	100.0	0	0.0
Free Medicines for Women during Pregnancy	90	90.0	10	10.0
Free Medicines for Women during Pregnancy	90	90.0	10	10.0
Visits of Health Team in Health Centres	92	92.0	8	8.0

Source: field survey (2019)

The Table 4 represents the availability of various healthcare facilities for pregnant women in the Surankote block of district Poonch of Jammu and Kashmir. The rural villages of Surankote have well-structured road connectivity. The table shows that rural road connectivity leads to the availability of all primary healthcare facilities for pregnant women in the area. It includes the regular check of pregnant women, availability of ambulance services, provision of financial assistance, visit of the health care team and availability of medicine and drugs. Thus it is clear that rural road connectivity played a significant role in improving the healthcare infrastructure in the area. It leads to easy accessibility and availability of healthcare facilities to the people of the region.

Besides improved health care facilities, rural road connectivity also leads to better access to administrative services,

public distribution system, sanitation and hygiene, and availability of essential services in the area. These mentioned services implicitly or explicitly influence healthcare facilities. Therefore, they played a massive role in delivering better health in the region. Thus we can say that rural road infrastructure is essential for delivering better health and other indicators of human development in rural areas.

7. Conclusion

Road development has been considered a pre-condition for rural growth, development, and poverty alleviation. In contrast, accessibility and mobility create opportunity, vital in improving livelihood, healthcare, and productivity and reducing poverty. The present study mainly focused on analyzing the effect of road connectivity to access health care services in the district Poonch of Jammu and Kashmir. It also focused on availability of various health facilities for pregnant women in the Surankote block of district Poonch. Two blocks of Poonch District were taken for the study. One is Surankote, and the other is Buffliaz block. The Panchayats of the Surankote block were connected to roads, whereas some village areas of the Buffliaz block were not connected to roads. Concerning road connectivity and health centres are concerned, health centres were available in every Panchayat of Surankote block as well as these centres were functioning correctly compared to the Panchayats of Buffliaz block. Most of the respondents from both blocks have mentioned that health Sub centres are available in their villages, but the number is higher in the case of Surankote block compared to Buffliaz block.

One of the reasons behind this is better rural road connectivity in the Surankote block. Responses in case of doctor/health worker availability in the sub-centres are also higher in case of the Surankote block than the Buffliaz block. An improvement in the delivery of services in relation to maternal and child health, family welfare, nutrition, immunization and control of communicable diseases programs, reduction in travel time to reach the nearest hospital and increase in the frequency of visits of the Health workers/ANM is also seen to be at par level in Surankote block as compare to Buffliaz block in the region. Regarding the availability of all-weather road connectivity, it is far better in the Surankote block. The major reason behind this is the availability of better rural road connectivity in the Surankote block compared to the Buffliaz block. In order to strengthen the rural road infrastructure in district Poonch, PMGSY has played a considerable role in the development of road infrastructure.

On the other hand, health indicators such as awareness regarding health and sanitation, the preferred mode of delivery, availability of ambulance, immunization status of children, and accessibility and availability of health care services were also improved after rural road connectivity. The number is again higher in the Surankote block than in the Buffliaz block. Rural road connectivity in Surankote block also significantly improved the availability of health care infrastructure for pregnant women in the area.

8. Suggestions and policy implications

Road connectivity is one of the most vital for the growth and development of any region. The implementation of Schemes like PMGSY led to better all-weather road connectivity in the Poonch district. The people in the study area lived in far-flung areas where they were unaware of the different schemes. Therefore, it is imperative that they must have such information regarding schemes should be circulated through awareness camps in far-flung areas. There is a need to check the progress of work under PMGSY to develop better road infrastructure in the region. The maximum participation of local residents should be considered while drawing out the road map for future rural roads. The performance of the community health centres and their workers should be closely monitored, and necessary steps for their upliftment should be undertaken. Government should ensure compulsory practising for the health personnel in rural and remote areas. Besides, extra incentives should be provided for those willing to serve in those areas. The government should establish Committees at the Panchayats level to look into the implementation and performance of infrastructural schemes at the grassroots level.

Conflict of interest

The authors declare no competing financial interest.

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