

## Assessment of attitude and perception of medical students towards rural health services in hilly region of Uttarakhand

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### Abstract

**Introduction:** There is acute shortage of efficient health care providers especially doctors in rural areas of our country. As per Census 2011 approximately 70% of Indian population resides in rural areas and hence possess a major challenge for the government as well policy makers to ensure availability of doctors in peripheral health post situated in rural and hard to reach areas of country.

**Objective:** To explore the Attitude and Perception of medical students towards rural health services in hilly region of Uttarakhand.

**Material and Methods:** A descriptive cross-sectional study was conducted among 282 MBBS students of 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> Semesters of Government Medical College of Uttarakhand. A predesigned, pretested, self-administered questionnaire was administered to the participants for data collection. Data was entered and analysed with SPSS software.

**Result:** Among 282 MBBS Students, 64% showed interest to work in rural area. 68% females showed willingness to work in rural area compared to 57.6% of males and 78.9% study Participants belonging to rural areas showed interest to join rural health services compared to 57.8% belonging to urban area. Reasons identified for non-willingness to work in rural areas were less salary (73%), limited infrastructures in health facilities (92.6%), Delay in Post-Graduation (85.8%), limited scope of professional growth (85.1%), lack of educational opportunities for children and family amenities (84.4%), lack of recreational facilities in rural area (71.6%) and remote location areas (77.7%) and less opportunity to interact with colleagues of medical field (69.1%).

**Conclusion:** Medical student's attitude and perception to work in rural health services need much improvement towards positive side by intervention and implementation by joint collaborative efforts of Medical Education Department, Health department and State Government.

**Keywords:** Rural health services, Medical students, Perception.

### Introduction

There is acute shortage of doctors in health care facilities in rural India. As per Census 2011, approximately 70% of population is residing in rural areas of India,<sup>1</sup> so efficient and timely health care facilities and health care providers (Doctors) availability for rural areas is utmost importance for the country progress. Recent reports documented that the country has a doctor population ratio of 1:1800 compared to the World Health Organization norm of 1:1000.<sup>2</sup> The distribution of doctors showed significant preference towards urban side. 40,000 allopathic doctors are produced every year in India,<sup>3</sup> but only a minimal number shows preference to practice in rural areas. There is deficiency of doctors in 18% of primary health centres (PHCs) and 54% of community health centres in the country,<sup>4</sup> which reflects that there is acute shortage of qualified medical doctors who are willing to serve in rural India. Globally the scenario is same in many countries like Malaysia, Nepal, Uganda and other developing countries.<sup>5,6</sup>

Doctors prefer to work in urban areas due to higher incomes, better living conditions and better educational opportunities for their children's and not willing to work in rural area due to poor living standards for the family, lack of financial progress, less opportunities for skill up gradation, and less professional development.<sup>7</sup>

To cater to this deficit in the health system, Medical Council of India with health ministry is planning a separate medical graduate course to the students belonging to rural background to cater the needs of rural population.<sup>8</sup> Compulsory rural clinical placement for medical students

has also been suggested as one strategy to sensitize future health professionals with the rural workplace.<sup>2</sup> This Study was planned to identify the attitudes and perception of medical students towards rural health services and innovating strategies to increase the quality and quantity of doctors available to the deprived rural population of the nation.

### Objective

1. To explore the perception among medical students about their willingness to work in Rural Health Services of Uttarakhand.
2. To find out the factors responsible for Non- Willingness to work in rural Health service of Uttarakhand
3. To Document the various interventions by which perception and preferences towards Rural Health services can be improved.

### Materials and Methods

A descriptive cross-sectional study carried among 282 MBBS students studying in 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> semesters of Government Medical College, Uttarakhand. Participants were enrolled by convenient sampling method. Data collection was carried out for a period of 3 months (Oct-Dec 2018). Medical Students were explained the purpose of study, and written informed consent was obtained from each participant before the questionnaire was administered. The confidentiality of all participants was maintained and each participant was assigned unique ID. Data tool used was predesigned, pretested, self-administered questionnaire.

Data was entered and analysed with SPSS software version 22. Means ( $\pm$ SD) was computed for continuous variables and percentages for categorical variables. Chi square, Student t test were used to look for significant association. Individual componentwise analyses were done using tables with percentages. The study was approved by the Institutional Ethics Committee.

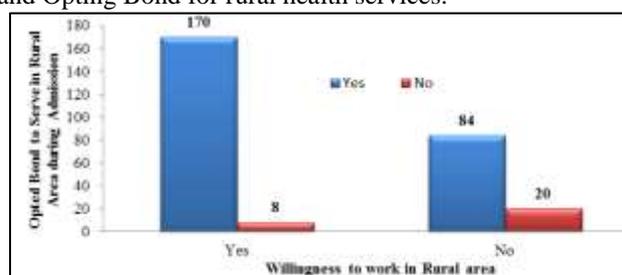
## Results

Table 1 shows majority of Students (164/282) were in the age group of 20-22 years and out of them 64.0% showed interest to work in rural area. Among Participants, 68% Females showed willingness to work in rural area compared to 57.6% of Males. 69.3% first Semester Medical Students were inclined towards service in rural area as compared to Third (62.5%) and Fifth Semester Students (55.9%). About four-fifth of study Participants belonging to rural areas showed interest to join rural Health services compared to three-fifth belonging to Urban Area. There was significant difference in willingness and place of residence among medical students (p Value - 0.002). Place of schooling also has a significant impact on student's interest towards rural health services as those who has taken Schooling from rural area (77.8%) were more inclined and willing to serve as compared to those who have taken schooling from urban areas (60.3%). About two-third of medical students who have opted for rural health service bond during admission were willing to work in rural areas as compared to 28.6% of those who have not opted for it and there was significant

difference in the opinion among participants (p Value - <0.05).

Father occupation, education, place of work and total family income do not have any significant association towards willingness of medical students to work in rural area. Mother Education proved to be a significant factor in decision making and willingness of students towards rural health service (p value - 0.00008) although mother occupation did not contributed as majority of them were housewife (75.2%) [Table 2].

**Graph 1:** Comparative representation of willing to Work and Opting Bond for rural health services.



Out of 254 (90.1%) Students who opted for Bond (Compulsory rural Health service for minimum Three years after MBBS Completion) only 170 (66.9%) were willing to serve in rural area as shown in graph 1.

**Table 1:** Association of Factors with willingness to serve in rural health services

S. No	Variables	Categories	Values (n=282) N (%)	Willingness to work in Rural Area (n=282)		Chi-Square (p Value)
				Yes N (%)	No N (%)	
1	Age	17-19 Years	108 (38.3)	65 (60.0)	43 (40.0)	1.681 (0.431)
		20-22 Years	164 (58.2)	105 (64.0)	59 (36.0)	
		$\geq$ 23 Years	10 (3.5)	08 (80.0)	02 (20.0)	
2	Gender	Male	132 (46.8)	76 (57.6)	56 (42.4)	3.728 (0.083)
		Female	150 (53.2)	102 (68.0)	48 (32.0)	
3	Semester	First	124 (4.4)	86 (69.3)	38 (30.7)	4.37 (0.112)
		Third	56 (19.9)	35 (62.5)	21 (37.5)	
		Fifth	102 (36.1)	57 (55.9)	45 (44.1)	
4	Residence	Rural	71 (25.2)	56 (78.9)	15 (21.1)	10.115 (0.002)
		Urban	211 (74.8)	122 (57.8)	89 (42.2)	
5	School	Rural	45 (16.0)	35 (77.8)	10 (22.2)	4.94 (0.02)
		Urban	237 (84.0)	143 (60.3)	94 (39.7)	
6	Admission Quota	State	276 (97.9)	175 (63.4)	101(36.6)	0.453 (0.673)
		All India	06 (2.1)	03 (50.0)	03 (50.0)	
7	Decision to join Medical profession	Self	240 (85.1)	154 (64.2)	86 (35.8)	0.758 (0.383)
		Parents	42 (14.9)	24 (57.1)	18 (42.9)	
8	Opted Bond to Serve in Rural Area during Admission	Yes	254 (90.1)	170 (66.9)	84 (33.1)	15.94 (<0.001)
		No	28 (9.9)	08 (28.6)	20 (71.4)	

**Table 2:** Association of Factors with willingness to serve in rural health services

S. No	Variables	Categories	Values (n=282) N(%)	Willingness to work in Rural Area (n=282)		Chi-Square (p Value)
				Yes n(%)	No N(%)	
1	Father Education	≤ Middle school	12 (4.2)	09 (75.0)	3(25)	3.886 (0.4216)
		High school	11 (3.9)	09 (81.8)	2(18.2)	
		Intermediate	42 (14.9)	29 (69.1)	13(30.9)	
		Graduate	120 (42.6)	71 (59.2)	49(40.8)	
		Post Graduate	97 (34.4)	60 (61.9)	37(38.1)	
2	Mother Education	≤ Middle school	31 (11.0)	26 (83.9)	5(16.1)	<b>23.94</b> <b>(0.00008)</b>
		High school	23 (8.2)	19 (82.6)	4(17.4)	
		Intermediate	51 (18.1)	37 (72.5)	14(27.5)	
		Graduate	90 (31.9)	57 (63.3)	33(36.7)	
		Post Graduate	87 (30.8)	39 (44.8)	48(55.2)	
3	Father Occupation	Unemployed	07 (2.5)	04 (57.1)	3(42.9)	Yates Corrected Chi Square- 6.128 (0.524)
		Elementary Worker	01 (0.3)	01 (100.0)	00 (0.0)	
		Craftsman	06 (2.1)	04 (66.7)	2(33.3)	
		Skilled Agriculture	33 (11.7)	26 (78.8)	7(21.2)	
		Skilled work/Shopkeeper	49 (17.4)	35 (71.4)	14(28.6)	
		Clerk/Technicians	127 (45.0)	73 (57.5)	54(42.5)	
		Businessman	49 (17.5)	28 (57.1)	21(42.9)	
		Professional	10 (3.5)	07 (70.0)	3(30)	
4	Mother Occupation	Housewife	212 (75.2)	139 (65.6)	73(34.4)	Yates Corrected Chi Square- 5.406 (0.368)
		Skilled Agriculture	01 (0.3)	01(100.0)	0(0)	
		Skilled work/Shopkeeper	04 (1.4)	03 (75.0)	01 (25.0)	
		Clerk /Technicians	22 (7.8)	14 (63.6)	08 (36.4)	
		Businessman	38 (13.5)	17 (44.7)	21 (55.3)	
		Professional	05 (1.8)	04 (80.0)	01 (20.0)	
5	Parents Working Place	Urban	201 (71.3)	122 (60.7)	79 (39.3)	1.776 (0.220)
		Rural	81 (28.7)	56 (69.1)	25 (30.9)	
6	Total family Income monthly	≤10,000	17 (6.0)	11 (64.7)	06 (35.3)	3.44 (0.327)
		10000-50000	153 (54.3)	103 (67.3)	50 (32.7)	
		50000-1lac	80 (28.4)	44 (55.0)	36 (45.0)	
		More than 1 lac	32 (11.3)	20 (62.5)	12 (37.5)	

**Table 3:** Reasons for willingness to work in rural areas of Uttarakhand

S. No	Variables	Strongly agree N(%)	Agree N (%)	Neutral N (%)	Disagree N (%)	Strongly Disagree N (%)
1	I will do private practice and earn more money in rural area	08 (2.8)	21(7.4)	100(35.5)	109(38.7)	44(15.6)
2	To join government health facility and secure my job	60 (21.3)	133(47.2)	66(23.4)	18(6.4)	05(1.8)
3	Own residence in rural areas so will settle there.	08 (2.8)	22(7.8)	72(25.5)	125(44.3)	55(19.5)
4	To contribute for betterment of health system of state	126 (44.7)	130(46.1)	23(8.2)	01(0.4)	02(0.7)
5	I have opted for Compulsory government service/bond	90 (31.9)	130(46.1)	31(11.0)	15(5.3)	16(5.7)
6	It will Provides an opportunity for independent working	33 (11.7)	106(37.6)	87(30.9)	46(16.3)	10(3.5)
7	It will Provides an good exposure of general practice	51 (18.1)	111(39.4)	50(17.7)	54(19.1)	16(5.7)
8	It will helps to build confidence as a clinician	60 (21.3)	130(46.1)	58(20.6)	25(8.8)	09(3.2)

9	Working in rural area gives more job satisfaction	26 (9.2)	55(19.5)	94(33.3)	75(26.6)	32(11.3)
10	Working in rural area helps in earning more money	08 (2.8)	06(2.1)	62(22.0)	144(51.1)	62(22.0)
11	People in rural areas are more supportive	45 (16.0)	113(40.1)	92(32.6)	22(7.8)	10(3.5)

**Table 4:** Reasons for Non-willingness to work in rural areas of Uttarakhand

S. No	Variables	Strongly agree N(%)	Agree N(%)	Neutral N(%)	Disagree N(%)	Strongly Disagree N(%)
1	Limited infrastructures in health facilities	119 (42.2)	142 (50.4)	18(6.4)	02(0.7)	01(0.4)
2	Delay in PG	145 (51.4)	97 (34.4)	27(9.6)	10(3.5)	03(1.1)
3	Limited Professional growth	105 (37.2)	135 (47.9)	27(9.6)	13(4.6)	02(0.7)
4	own residence in urban area so will not go in rural area	45 (16.0)	74 (26.2)	89(31.6)	65(23.0)	09(3.2)
5	lack of educational opportunities of children and family amenities	118 (41.8)	120 (42.6)	30(10.6)	11(3.9)	03(1.1)
6	Less salary	60 (21.3)	86 (30.5)	97(34.4)	37(13.1)	02(0.7)
7	Provides lesser opportunities to upgrade knowledge and skills	106 (37.6)	125 (44.3)	30(10.6)	21(7.4)	00(0.0)
8	Difficulty in pursuing post-graduation after working in rural areas for a considerable time	120 (42.6)	105 (37.2)	32(11.3)	23(8.2)	02(0.7)
9	lack of recreational facilities	74 (26.2)	128 (45.4)	47(16.7)	31(11.0)	02(0.7)
10	Remote geographical location of health posts	97 (34.4)	122 (43.3)	49(17.4)	12(4.3)	02 0.7)
11	It is frustrating if unable to pursue post-graduation	121 (42.9)	103 (36.5)	38(13.5)	20(7.1)	00(0.0)
12	Connectivity with cities is not good	85 (30.1)	133 (47.2)	41(14.5)	20(7.1)	03(1.1)
13	Isolation from family and relatives	108 (38.3)	89 (31.6)	55(19.5)	29(10.3)	01(0.4)
14	Provides lesser opportunities for interaction with colleagues of medical field.	90 (31.9)	105 (37.2)	64(22.7)	19(16.7)	04(1.4)

**Table 5:** How can we improve Rural health services

S. No	Variables	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
1	Salary and incentives should be regular and 1.5 times of current salary	146(51.8)	107(37.9)	25(8.9)	02(0.7)	02(0.7)
2	Reservation in PG seat for services in rural area	141(50.0)	90(31.9)	27(9.6)	14(5.0)	10(3.5)
3	Improvement in Hospital infrastructure	204(72.3)	70(24.8)	06(2.1)	01(0.4)	01(0.4)
4	Improvement in Residential facilities	172(61.0)	96(34.0)	11(3.9)	02(0.7)	01(0.4)
5	Decreases duration of posting in Rural Health services to 2 years	182(64.5)	53(18.8)	33(11.7)	10(3.5)	04(1.4)
6	Must be compulsory after MBBS for every Indian Medical Graduate	113(40.1)	71(25.2)	47(16.7)	29(10.3)	22(7.8)
7	Must be compulsory after MBBS only for Indian Medical Graduate who are bonded.	38(13.5)	68(24.1)	58(20.6)	66(23.4)	52(18.4)

In Table 3, Reasons for willingness to work in rural areas of Uttarakhand among medical students were explored and it was found that job security linked with rural govt. health facility was the reason among 68.5% students, 90.5% want to contribute to better health of the state, 57.5% believed that it will provide good exposure for general practice, 67.4% believed it will build confidence as clinician and 56.1% believed people in rural area are more supportive.

Reasons for Non-willingness to work in rural areas of Uttarakhand by Medical students is shown in Table 4 and it

was found that 92.6% of them believed that Limited infrastructures in health facilities, 85.8% perceives that Rural services leads to Delay in Post-Graduation and 85.1% expressed there is limited scope of professional growth after entering rural health services. Medical Students (84.4%) expressed that lack of educational opportunities for children and family amenities hinders them to opt for rural health services. Less Salary being paid during rural health services was also considered an issue among medical students.

81.9% of medical students believes that Rural health services Provides lesser opportunities to upgrade knowledge and skills, 79.8% expressed that there is difficulty in pursuing post-graduation after working in rural areas for a considerable time, 71.6% also mentioned that there is lack of recreational facilities in rural area and 77.7% also pointed out that health post in rural area are located in remote areas and connectivity with cities is not good and they feel isolated from family. 69.1% of medical students are of the opinion that service in rural area gives less opportunity to interact with colleagues of medical field (table 4).

Table 5 shows the students perception related to methods by which Rural Health Services could be improved. It was found that 89.7% of the participants believed that salary should be increased to 1.5 times of current salary and regular salary should be dispensed. 81.9% expressed that there should be reservation in PG seats for those serving in rural area. 97.1% believed that Rural Hospital Infrastructure should be improved, 95% also expressed that residential facilities for doctors in hospital premises should be improved. 83.3% of the subjects think that duration of posting to rural health services should be reduced to 2 years and 65.3% medical students mentioned that rural health services should be made compulsory to all Indian medical graduates to improve rural health services in India.

## Discussion

Availability of adequate, trained health workforce, especially trained doctors for rural healthcare services is an utmost need for India. A study done by Rao et al<sup>9</sup> elicited that rural health services are severely constrained due to acute shortage of health workers particularly Doctors. In this study 63.1% Medical students were willing to serve which is more than the finding of similar study done by Saini NK<sup>10</sup> where 54.7% of the students were willing to serve in rural area for some time after graduation. Study done by Jain M showed that nearly 44% students were willing to serve in the rural area.<sup>11</sup>

In the present study, attitude of students were compared with their residential background in the present study and it was found that 78.9% students belonging to rural areas showed interest to join rural Health Services compared to 57.8% belonging to Urban Area. There was significant difference in willingness and place of residence among medical students (p Value-0.002). These findings are similar to findings by Saini NK<sup>10</sup> which showed that rural-background students were more likely to practice in rural areas.

Factors expressed by students which promotes them to work in Rural health service of Uttarakhand were job security (68.5%), willingness to contribute to better health of the state (90.5%), good exposure for general practice (57.5%), building confidence as clinician (67.4%). Similar finding were elicited by studies done by Saini NK<sup>10</sup>, Chudhary Y<sup>12</sup> and Ossai E<sup>13</sup>. In current study, 83.3% expressed that duration of posting to rural health services

should be reduced to 2 years which was also seen in Ugandan study.<sup>14</sup>

In our study, 65.3% medical students mentioned that rural health services should be made compulsory to all Indian medical graduates to improve rural health services in India which is similarly reported by Curran VR.<sup>15</sup>

Among study participants, reasons for non-willingness to work in rural areas of Uttarakhand were money earned in rural area is less compared to urban area (73.1%) and limited infrastructures in health facilities (92.6%), rural services leads to delay in Post-Graduation (85.8% ) and limited scope of professional growth after entering rural health services (85.1%), lack of educational opportunities for children and family amenities (84.4%), lesser opportunities to upgrade knowledge and skills (81.9%), difficulty in pursuing post-graduation after working in rural areas for a considerable time (79.8%), lack of recreational facilities in rural area (71.6%) and remote location areas (77.7%) and less opportunity to interact with colleagues of medical field (69.1%). Similar findings were supported by studies of Saini NK<sup>10</sup> in NCR India region, Jain M<sup>11</sup> in Chhattisgarh region and other similar studies conducted in various region of the world.<sup>16-18</sup>

In this study, students perception by which Rural Health Services could be improved were salary should be increased to 1.5 times compared to urban area and regular salary should be dispensed, reservation in PG seats for those serving in rural area, Rural Hospital Infrastructure, residential facilities for doctors in hospital premises. These finding were comparable to various studies which suggested that attractive financial incentives can address doctors shortages in rural areas.<sup>19,20</sup> up-gradation of facilities at rural health post like 24 hour ambulance services, better transport, better housing and sanitation, better food facilities, availability of basic medicines and diagnostic facilities, better infrastructure, and working conditions can improve the shortage of doctors in the Rural health facilities.<sup>10</sup>

## Conclusion

Medical students willingness and attitude towards working in Rural Health services is still lack positivity and perceived barriers still exists which are less salary, No Infrastructure in Health facilities, Lack of Facilities for the doctor's family, Delay in Post-Graduation, Decline in Clinical Skills during Rural Health Practices are well known factors known to policy makers. Some States have implemented policies to improve but still the deficit of doctors opting for rural health service is persisting. A careful analysis of the situation is required to find medium to long-term solutions for this problem. This would require to deeply introspecting at the pre-existing health policies and adapting them accordingly to retain the services of doctors in rural India.

## Limitations

The study data involves attitude and perception of medical students of only one state and therefore cannot be generalised. Another limitation being a cross-sectional

study, the future change of behaviour or behaviour persistence cannot be elicited now. Most of the medical students in the study had little exposure to rural areas, which limited their ability to perceive rural health services and its characteristics.

### Recommendation

Increase in Salary, Better infrastructure in health facilities, Reservation in PG seats, Increase emphasis on community-based medical education in all medical colleges. Extended clinical training in rural health facilities and long-term community engagement during MBBS teaching and establishment of Medical colleges in rural or remote areas are the interventions which can work in improving the current deficit of doctor in rural health posts as well as change in the attitude and perception of young medical graduate towards rural health services.

**Conflict of Interest:** None.

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