ORIGINAL ARTICLE

Medical students' preferences for working in rural areas after graduation: results of a cross-sectional study

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ABSTRACT

Background: Pakistan faces an inequitable distribution of health workforce between urban and rural health facilities posing problems for the health system and threatening the delivery of quality health care services to the poor population. Various interventions have been suggested and practiced by the government to increase uptake and retention of doctors in rural health facilities.

Aim: To determine the preferences of fourth and final year medical students at Lahore Medical & Dental College to work in rural areas after graduation and identify associated factors.

Study design: This cross-sectional study was conducted at Lahore Medical & Dental College, Lahore fromJanuary to April 2017.

Methodology: Medical students of fourth and final year MBBS were invited to participate in the study after obtaining voluntary informed consent from the respondents. A pre-tested structured questionnaire was used to collect information from 235 students. A 5-point Likert Scale was used to collect data regarding motivating and de-motivating factors influencing students' preference for working in rural areas after graduation. Data was analyzed using SPSS 16.0. Chi-square test was conducted to identify factors associated with medical students intention to work in rural areas

Results: Respondents comprised of 4th year 49% (116) and final year 119(51%) MBBS students**.** A total of 235 respondents of which 71(30%) showed the intention to work in a rural area and almost the same number of respondents 76(32%) were seen to be unwilling to work in rural area after graduation.Most 88 (38%) were unsure of their decision about working in rural areas after graduation. The popular motivating factor influencing students' intention to work in rural areas was opportunity to help poor people 93% (64/69). Limited opportunity for professional development87% (65/75) discouraged students to work in rural area after graduation.

Conclusion: Majority of students were unsure regarding uptake of job in rural areas after graduation. The opportunity to help poor people was identified as the factor influencing students who were willing to work in rural areas after graduation, whereas limited opportunity for professional development was the factor, which discouraged students to work in rural areas after graduation. A mechanism should be formulated to address the professional development of doctors working in rural areas.

Keywords: Rural practice, medical students, influencing factors

INTRODUCTION

Health is a fundamental right of every human being, which should be of appropriate quality, affordable, acceptable and timely available to all according to WHO constitution.[1] Health of a nations population is of paramount importance as it supports productivity in important sectors, which include agriculture, employment, education, environment, energy and economy. For a healthy nation health systems need strengthening, which would ensure universal health coverage (UHC) as is envisaged by the Sustainable Development Goals (SDG's) to be achieved by 2030.[2] Health systems achieve their goals through their six building blocks; health workforce being one important block[3]. Middle and low income countries face a dearth of trained health workforce due to their migration to high income countries for better job prospects.[3 4] According to World Health Report 2006 by WHO, Pakistan is amongst the 57 countries with critical deficiency of health workforce.[5] Pakistan also faces an inequitable distribution of health workforce between urban and rural health facilities posing problems for the health system and threatening the delivery of health care services to the approximately 30% people who are living in absolute poverty[6]. The absence of health professionals at these public sector rural health facilities i.e., rural health centres (RHC's) and basic health units (BHU's), compounded by non-functioning health facilities, negative attitude of health care providers and non-availability of essential medicines forces the poor rural population to either seek medical care from private sector or travel long distances on poorly constructed roads to tertiary care health facilities; forcing them further into poverty and ill-health and hence increasing their vulnerability[7].

In Pakistan, there are 8 doctors per 10,000 population out of which only 3.6% are working in rural areas where majority of the population resides. The reasons for this unequal distribution of health workforce among rural and urban areas are manifold. Urban areas offer better opportunities for private practice, career development and economic growth. Also, these doctors are not trained to work at a rural health facility nor are they provided the requisite services and facilities to work there, hampering their uptake of rural placements after graduation [8,9].

Various interventions have been suggested and practiced by governments to increase uptake and retention of doctors in rural health facilities including compulsory services and incentives[10]. The Government of Punjab Specialized Healthcare & Medical Education Departments' residency programmes induction criteria specifies extra marks to doctors having served at a RHC or a BHU in calculation of their merit for induction in the residency programme year 2016, encouraging uptake of rural placements by doctors and hence addressing health issues of remote rural population[11]. The WHO has suggested various strategies for this purpose which includes: encouraging students with rural background to take admission in medical colleges, incorporating rural health topics in undergraduate and postgraduate curriculum, constructing medical colleges outside big cities and posting undergraduate medical students to rural health facilities[12].

Very few studies have looked at medical students future intention of working at a rural health facility although many have studied factors influencing medical doctors uptake of rural placements. It is of paramount importance to study the factors, which medical students perceive instrumental in influencing their future job location. This would help design appropriate curriculum for medical schools and address the requirementsof medical workforce at various phases of professional development.[13]This study was carried out to determine the preferences of fourth and final year medical students atLahore Medical & Dental Collegeto work in rural areas after graduation and identify associated factors.

METHODOLOGY

This cross-sectional study was undertaken among fourth and final year MBBS students at Lahore Medical & Dental College, Lahore (LM&DC) from January to April 2017. All students of fourth and final year consenting to participate in the study were included. Data was collected from 235 students of both years using a pre-tested structured questionnaire. Data was collected on socio-demographicsof students, theirperceived intention to work in rural area after graduation and motivating and de-motivating factors influencing students' perceived intention to work in rural area after graduation. A 5-point Likert Scale was used to collect data regarding factors influencing students' preference for working in rural areas after graduation, where 1 was "very unimportant" and 5 was "very important". For the purposes of analysis, the rating scale was grouped into important (very important and important) or unimportant (very unimportant and unimportant). The questionnaire was piloted on 10 students from third year MBBS. Required changes were made and final version of the questionnaire was then adopted for data collection. The survey was conducted in the classroom setting, after permission from their respective teachers. The study was explained to the students and their queries were answered. Confidentiality of data was ensured.All questionnaires were anonymous, such that no personally identifiable information was collected.Few respondents did not answer the questions measured on Likert Scale pertaining to perceived motivating and de-motivating factors that influence students' intention to work at a rural health facility on graduation. Hence they were not analyzed due to missing values.

RESULTS

A total of 235 students from Lahore Medical & Dental College, Lahore participated in this study. Respondents comprised of 4th year 49% (116) and final year 51% (119) MBBS students**.** Majority respondents were females 63% (148) currently residing at home with parents 131 (56%) as is depicted in table 1 below.

A total of 235 respondents of which 71 (30%) showed the intention to work in rural areas,76(32%) were unwilling and 88 (38%) respondents were unsure of their decision about working in rural areas after graduation.

The motivating factors influencing students' preference for working in rural areas after graduation were analysed on a 5 point Likert Scale. The various motivating factors influencing students' intention to work in rural areas included in the questionnaire were opportunity to help poor people, less workload in rural areas, lack of strict supervision etc. As is evident in table 2, the important factors influencing students intention to work in rural areas were opportunity to help poor people, which was identified by 93% (64/69) students followed by an opportunity to deal with community health problems 88% (61/69) and social responsibility 88% (61/69).

Table 1: Socio-demographic profile of fourth & final year MBBS students at LMDC, Lahore (n=235)

Characteristic	n	%age

Year of study	4th year	116	49
	Final year	119	51
Gender	Male	87	37
	Female	148	63
Marital status	Single	223	95
	Married	12	5
Area of birth	Urban	209	89
	Rural	26	11
Current residence	Home with parents	131	56
	College hostel	87	37
	Other hostels	5	2
	Guardian/relatives home	8	3
	Others	4	2
Fathers' educational status	Illiterate	2	1
	Matriculation	12	5
	Intermediate	22	9
	Bachelors	66	28
	Masters and above	133	57
Mothers' educational status	Illiterate	11	5
	Matriculation	27	11
	Intermediate	35	15
	Bachelors	90	38
	Masters and above	72	31
Mothers' occupation	House wife	167	71
	Doctor	17	7
	Teachers	20	9
	Government employee	12	5
	Pharmacist	2	1
	Other	17	7
Fathers' occupation	Agriculturist	3	1%
	Army officer	1	1%
	Banker	5	2%
	Businessmen	73	31%
	Doctor	45	19%
	Engineer	14	6%
	Government employee	13	6%
	Industrialist	2	1%
	Judge	2	1%
	Lawyer	8	3%
	Teacher	7	3%
	Others	62	26%

The various de-motivating factors influencing students' intention of working in rural areas included in the questionnaire were lack of proper training to work in rural areas, limited opportunity for professional development, lack of medical supplies in rural health facilities etc. As is evident in table 3, the important de-motivating factors influencing students intention of working in rural areas after graduation were limited opportunity for professional development, which was identified by 87% (65/75) students, which was followed by limited research opportunities 86%(64/74) and poor living conditions in rural areas i.e., residence, transport, food etc 80% (59/74)

Fig. 1: Respondents' perceived intention to work at a rural health facility after graduation

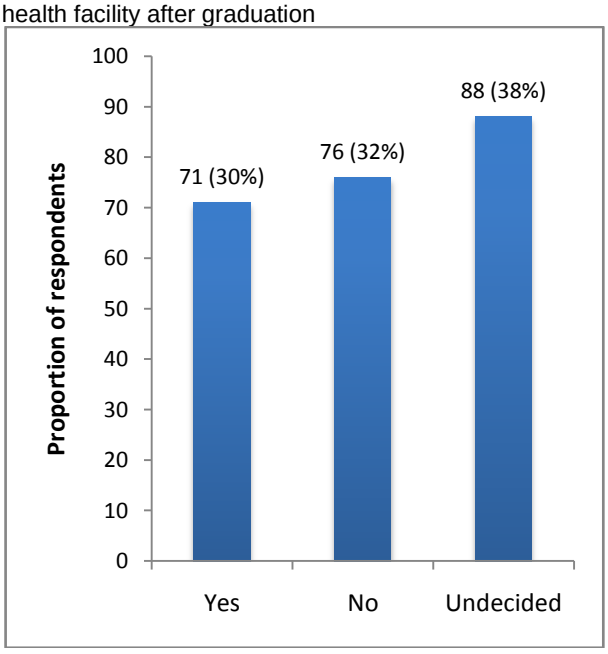

Table 2: Perceived motivating factors influencing students' intention to work at a rural health facility after graduation

Factors	Very Unimportant	Un important	Neither Unimportant nor Important	Important	Very Important
	1	2	3	4	5
Opportunity to help poor people (n= 69)	2 (3%)	2(3%)	1 (1%)	23 (33%)	41 (60%)
Greater possibility for private practice (n=69)	1 (1.4%)	7 (10%)	18 (26%)	32 (46%)	11 (16%)
Less workload in rural areas (n= 69)	2(3%)	24 (35%)	24 (35%)	13 (19%)	6 (9%)
Will help in assessment of rural diseases and problems (n= 69)	2 (3%)	4 (6%)	6 (9%)	37 (54%)	20 (29%)
Family residence is located in rural area (n= 68)	9 (13%)	19(28%)	11(16%)	18(26%)	11(16%)
Help in completion of compulsory periphery service (n= 69)	1(1%)	6(9%)	23(33%)	29(42%)	10(14%)
Greater respect from rural population (n=69)	3(4%)	2(3%)	17(25%)	34(49%)	13(19%)
Exposure to wide spectrum of patients and diseases (n=69)	3(4%)	5(7%)	11(16%)	30(43%)	20(29%)
Lack of strict supervision (n= 69)	6(9%)	11(16%)	27(39%)	21(30%)	4(6%)
Adequate time to study in rural health facilities (n=67)	1(1%)	10(15%)	24(36%)	23(34%)	9(13%)
Help improve merit for applying in government sector for post graduate training (central induction policy) (n=69)	5(7%)	7(10%)	15(22%)	26(38%)	16(23%)
Provide an opportunity to deal with community health problems (n=69)	2(3%)	0(0%)	6(9%)	40(58%)	21(30%)
Social responsibility (n=69)	1(1%)	2(3%)	5(7%)	30(43%)	31(45%)

Table 3: Perceived de-motivating factors influencing students' intention to work at a rural health facility after graduation

Factors	Very Unimportant	Unimportant	Neither Unimportant nor Important	Important	Very Important
	1	2	3	4	5
Lack of proper training to work in rural areas(n= 74)	6(8%)	4(5%)	8(11%)	23(31%)	34(45%)
Limited opportunity for professional development(n= 75)	1(1%)	6(8%)	3(4%)	24(32%)	41(55%)
Lack of medical supplies in rural health facilities (n= 75)	3(4%)	4(5%)	8(11%)	22(29%)	38(50%)
Non availability of guidance from a senior (n= 75)	2(3%)	2(3%)	13(17%)	27(36%)	31(41%)
The living conditions are poor in rural areas i.e., residence, transport, food etc (n= 74)	3(4%)	3(4%)	9(12%)	33(45%)	26(35%)
Delay in my post-graduation (n= 75)	2(3%)	6(8%)	15(20%)	27(36%)	25(33%)
Decrease earning (n= 75)	9(12%)	4(5%)	10(13%)	32(43%)	20(27%)
Lack of prestige (n= 74)	12(16%)	8(11%)	15(20%)	21(28%)	18(24%)
Difficult if spouse is working in an urban area(n= 75)	7(9%)	6(8%)	11(15%)	23(31%)	28(37%)
Lack of good schooling facilities for children(n= 75)	5(7%)	4(5%)	8(11%)	20(27%)	38(51%)
No previous exposure to rural life would make it difficult (n= 74)	3(4%)	11(15%)	14(19%)	20(27%)	26(35%)
Lack of access to amenities (shopping, sports, recreation etc) (n= 75)					
Low salary package (n= 75)	5(7%)	9(12%)	12(16%)	23(31%)	26(35%)
Non-availability of technology (n= 75)	4(5%)	6(8%)	7(9%)	22(30%)	36(48%)
Limited research opportunities (n= 74)	3(4%)	1(1%)	7(9%)	30(40%)	34(46%)

The place of birth of student, current residential status of student and mothers' education were significantly associated with medical students intention of working in rural areas after graduation as shown below.

Table 4: Factors associated with medical students' intention to work in rural areas after graduation

Factors		Yes (n=71)	No(n=76)	Undecided(n=88)	P value
Year of study	4th year	39(33.6%)	38(32.8%)	39(33.6%)	0.409
	Final year	32(27%)	38(32%)	49(41%)	
Gender	Male	22(25.3%)	36(41.45%)	29(33.3%)	0.073
	Female	49(33%)	40(27%)	59(40%)	
Marital status	Single	67(30%)	71(32%)	85(38%)	0.636
	Married	4(33%)	5(42%)	3(25%)	
Place of birth	Urban	62(30%)	74(35%)	73(35%)	0.012*
	Rural	9(34%)	2(8%)	15(57%)	
Residential status (Permanent)	Urban	64(30%)	72(34%)	76(36%)	0.198
	Rural	7(30.4%)	4(17.4%)	12(52.2%)	
Residential status (Current)	Home with parents	34(26%)	52(40%)	45(34%)	0.015*
	LMDC hostel	31(36%)	20(23%)	36(41%)	
	Other hostel	3(60%)	0(0%)	2(40%)	
	Relative/guardian home	3(38%)	4(50%)	1(12%)	
	Other	0(0%)	0(0%)	4(100%)	
Father's education	Illiterate	1(50%)	0(0%)	1(50%)	0.351
	Matriculation	5(41.7%)	2(16.7%)	5(41.7%)	
	Intermediate	11(50%)	5(23%)	6(27%)	
	Bachelors	21(32%)	23(35%)	22(33%)	
	Masters & above	33(25%)	46(35%)	54(40%)	
Mother's education	Illiterate	4(36.4%)	3(27.3%)	4(36.4%)	0.033*
	Matriculation	16(59%)	3(11%)	8(30%)	
	Intermediate	11(31.4%)	12(34.3%)	12(34.3%)	
	Bachelors	25(28%)	28(31%)	37(41%)	
	Masters & above	15(21%)	30(41%)	27(38%)	
Perception of rural health services in Pakistan	Satisfactory	5(56%)	2(22%)	2(22%)	0.239
	Unsatisfactory	66(29%)	74(33%)	86(38%)	

*Significant at a p-value of < 0.05

DISCUSSION

Uneven distribution of doctors between rural and urban areas is an issuefaced by middle and low-income countries. In Pakistan where approximately60% population resides in rural areas; this unbalanced distribution is leading to compromised medical services affectingour morbidity and mortality indicators. This studydetermined the perceptions of fourth and final year medical studentsregarding taking up jobs in rural areas after graduation. Majority (38%) were unsure about their future uptake of jobs in rural areas, 32% were unwilling to work in rural areas and 30%showed the intention to work in rural areas after their graduation from LMDC. Another study undertaken among medical students in Pakistan reported only 16.4% showed interest to work in a rural area after graduation.[14]More than half (52%) of the students at Alexandria University, Egypt showed their willingness to work in rural areas.[8]A large proportion (72%) of undergraduate medical students in Nepal were ready to work in rural areas after graduation.[15]Whereas, only 13.6% of medical students of six medical schools in southeast Nigeria were willing to work in rural areas after graduation[16].

Students in our study identified an opportunity to help poor, social responsibility and a chance to deal with community health problems as motivating factors perceived to influence them to work in rural areas. A survey carried out by 3rd year MBBS students in Government Medical College of Chhattisgarh in 2014 concluded that 89.7% students rated current rural health services to be unsatisfactory. Majority was willing to work in rural areas for less than one year. Their reason for taking up rural placement was additional marks allocated to them in postgraduate entrance exams rather than providing improved health services to the poor or gain knowledge about rural people and their diseases. More than 80% respondents identified lack of infrastructural facilities, as the greatest perceived disadvantage[17].

The major factors, which demotivatestudentsto work in rural areas after graduation wereidentified as limited opportunity for professional development, limited research opportunities and poor living conditions in rural areas i.e., residence, transport, food etc. The study in Nepal also reported issues with professional development, low salary and difficulty in communicating with rural population as factors, which lead to doctors' reluctance in working in rural areas.[15]Other factors which discourage medical students to work in rural areas are lack of essential equipment and non-availability of resources like electricity, safe water and communication system[18].

Most of the students opinioned that better salaries and payment incentives will attract more doctors to rural areas. Several studies have pointed to salaries and allowances as key factors that influence health workers' decisions to stay in or leave a rural workplace[18-20].Majority of medical students suggested providing post-graduation opportunities at rural health facilities as a means for attracting doctors to rural areas. A study carried out in Pakistan showed that the quality of facilities, career development, lack of incentives, quality of life, lack of connectivity between rural and urban health facilities, transportation services and governance issues were the main factors identified by young doctors to influence work at a rural health facility[21].Many studieshave considered how to encourage doctors to seek employment in remote rural areas. Students' familiarity with rural areas through rural placements during undergraduate training has been seen to be associated with a greater likelihood of rural job acceptance after graduation[22].

The place of birth of student, current residential status of student and mothers' education were significantly associated with medical students intention of working in rural areas after graduation.Ossai et al identified family residence in urban area, satisfaction with rural community postings, intention to specialize in community medicine and work experience before admission in a medical college as factors associated with willingness of students to work in rural areas after graduation[16]. Assefa et al reported gender, place of birth and a desire to work in rural areas as predictors of students' intention to work in rural area after graduation[13].A study among Australian medical students showed that having a rural upbringing and sense of rural background plays a significant role in medical students' future intention to serve in rural areas.[23]However, a study in Ghana found out that rural origin did not influence students' willingness to practice in rural areas after controlling for intrinsic/extrinsic motivation and demographic characteristics[24].Our study didn't find a statistically significant association between gender or marital status and students' perceived intention of working in rural areas. This is contrary to the study conducted in Argentina,which reported female medical students showed more interest in serving in rural and underprivileged areas.[25]Umer et al have reported that unmarried doctors of Pakistan are more likely to opt for rural posting as compared to married doctors[26].

The present study has a few limitations. The students' views regarding uptake of work in rural areas may change after graduation. Hence the prospective follow up of these students should be carried out to see their actual placements after graduation. The results of this study cannot be

generalized to other students in different medical colleges.

CONCLUSION

Majority of students were unsure regarding uptake of job in rural areas after graduation. The opportunity to help poor people was identified as the factor influencing students who were willing to work in rural areas after graduation, whereas limited opportunity for professional development was the factor, which discouraged students to work in rural areas after graduation. The place of birth of student, current residential status of student and mothers' education were significantly associated with medical students intention of working in rural areas after graduation.A mechanism should be formulated to address the professional development of doctors willing to work in rural areas. Also, further studies should be conducted among other private as well as public medical colleges to determine the willingness of medical students to work in rural areas after graduation.

REFERENCES

1. WHO. Health and human rights. Available at: http://www.who.int/mediacentre/factsheets/fs323/en/ Accessed on: 24th July 2017
2. World health statistics 2017. Monitoring health for the SDGs sustainable development goals. World health Organization
3. World Health Organization. The world health report 2006: working together for health. Geneva: 2006. Available from: http://www.who.int/whr/2006.
4. Puertas, E. Benjamín, Arósquipa, Carlos, & Gutiérrez, Daniela. Factors that influence a career choice in primary care among medical students from high-, middle-, and low-income countries: a systematic review. RevistaPanamericana de SaludPública 2013; 34(5): 351-358.
5. Mir AM, Shaikh MS, Rashida G, Mankani N. To serve or to leave: a question faced by public sector healthcare providers in Pakistan. Health Research Policy and Systems201513(Suppl 1):S58
6. Mukhtar F, Aziz A, Khawaja SR, Amjad A, Haider A. Where are our medical graduates?; Result of a cross-sectional study.Professional Med J 2015;22(2):153-8
7. Kurji Z, Premani ZS, Mithani Y. Analysis of the health care system of Pakistan: lessons learnt and way forward. J Ayub Med CollAbbottabad 2016;28(3): 601-4.
8. Mohamed AM. Willingness and professional motivations of medical students to work in rural areas: a study in Alexandria, Egypt. Healthcare in Low resource setting 2013:1(1):11-7.
9. Rana SA, Sarfraz M. Job Preferences of Doctors for Working in Rural Islamabad Capital Territory, Pakistan: a Discrete Choice Experiment. J HealthcCommun. 2016, 2:1.
10. Farooq U, Ghaffar A, Narru IA, Khan D, Irshad R. Doctors perception about staying in or leaving rural health facilities in District Abbottabad. J Ayub Med Col Abbottabad 2004;16(2): 64–9.
11. Government of Punjab Specialized Healthcare & Medical Education Department. Punjab Residency Program (PRP), 2016. http://health.punjab.gov.pk/system/files/PRP%202016.pdf
12. Kakkar AK, Dahiya N. Factors affecting choice of future specialty among medical students. North Am J Med Sci [serial online] 2014 [cited 2017 Jul 24];6:181-2.
13. Assefa T, Mariam DH, Mekonnen W, DerbewM.Medical students' career choices, preference for placement, and attitudes towards the role of medical instruction in Ethiopia. BMC Med edu 2017.17:96 DOI: 10.1186/s12909-017-0934-z
14. Attaur-Rasool S, Hasan S, Bhatti A. Early career intentions of newly inducted medical students in a private medical college in Pakistan. Gomal J Med Sci 2015; 13: 211-6.
15. Shankar PR, Thapa TP. Student perception about working in rural Nepal after graduation: a study among first- and second-year medical students. Human Res Health 2012;10:27.
16. Ossai EN, Anyanwagu UC, Azuogu BN, Uwakwe KA, Ekeke N, Ibiok NC. Perception about working in rural area after graduation and associated factors: a study among final year medical students in medical schools of Southeast Nigeria. British J Med Med Res 2015;8(2): 192-205.
17. Jain M, Gupta SA, Gupta AK, Roy P. Attitude of would-be medical graduates toward rural health services: An assessment from Government Medical Colleges in Chhattisgarh. J Family Med Prim Care 2016; 5(2): 440–3.
18. Henderson LN, Tulloch J. Incentives for retaining and motivating health workers in Pacific and Asian countries. Human Resources for Health 2008;6:18. https://doi.org/10.1186/1478-4491-6-18
19. Gruen R, Anwar R et al. Dual job holding practitioners in Bangladesh: an exploration. Social Science and Medicine 2002; 54(2):267-79.
20. Al-Qudah H. Impacts of New Recruited doctors refrain from Working in Rural Remote Areas at Jordan Southern Badia Region. Intern J Business Social Sci ;2(3):186-94
21. Zaidi SA. Why medical students will not practice in rural areas: evidence from a survey. Social Sci Med 1986;22(5):527-33
22. Kapanda GE, Muiruri C, Kulanga AT, Tarimo CN, Lisasi E, Mimano L et al. Enhancing future acceptance of rural placement in Tanzania through peripheral hospital rotations for medical students. BMC Medical Education 2016;16:51
23. Somers GT,Strasser R,Jolly B. What does it take? The influence of rural upbringing and sense of rural background on medical students' intention to work in a rural environment. Rural Remote Health 2007; 7(2):706.
24. Agyei-Baffour, Kotha SR, Johnson JC, Gyakobo M, Asabir K, Kwansah J et al. Willingness to work in rural areas and the role of intrinsic versus extrinsic professional motivations - a survey of medical students in Ghana. BMC Med Educ 2011; 11:56.
25. Borracci RA, Arribalzaga EB, Couto JL, Dvorkin M, Guerrero RAA, Fernandez C et al. Factors affecting willingness to practice medicine in underserved areas: a survey of Argentine medical students. Rural RemoteHealth 2015; 15(4):3485
26. Farooq U, Ghaffar A, Narru IA, Khan D, Irshad R. Doctors perception about staying in or leaving rural health facilities in district Abbottabad. J Ayub Med Coll 2011; 16(2):64-9.