Socio-Economic Determinants of Household Access to Health Services in Selected Districts of Punjab

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ABSTRACT

Background: Sound health is basic right of every individual and access to health care is necessary. The right to use health services (HS) is a multifarious idea. In Pakistan provision of basic health facilities of health are inadequate. Current study was aimed at highlighting the primary reasons behind it.
Methods: This study used cross sectional data from Pakistan Social and Living Standard Measurement (PSLM) to determine the social and economic determinants of health care services in selected districts of province Punjab. Logistic regression technique is used to measure the impact of selected variables on health access.
Results: Results of the study showed that the health access services in the district of Faisalabad are greater as compared to the Rawalpindi and Layyah districts. Moreover, people were using private health facilities as compared to government health facilities.
Conclusion: The study indicated that the education level, household (HH) head gender, work status, region and place of residence, and economic situation, affect the health access services in selected regions. Measures should be taken to reduce the monopoly of private health sector by providing better government health facilities.

Key words: Health access, Logistic regression, PSLM, household, work status

INTRODUCTION

Health is basic right of all, therefore access to health care is necessary. Access is a complicated and active thought that resists modest meaning and clarification. The right to use HS is a multifarious idea [1]. Pakistan is a developing country, and stressed in various fields in which the health structure has suffered a lot, resulting in a 122 rank out of 190 countries [2].The health services in Pakistan are not fully satisfied with various issues. Government of Pakistan is spending less percentage of its GDP on health for last one decade against the World Health Organization (WHO) benchmark. It is spending 0.5 to 0.8 per cent of its GDP on health for the last 10 years, while WHO benchmark of health expenditure is at least 6 per cent of the GDP [3].

But services are obtainable and there is a sufficient supply of health services, at that time. The amount to which a people gains access furthermore depends on economic, secretarial and social or civilizing barriers that boundary the utilization of health care services [4]. The health and socioeconomic determinants have been shown to be positively related in humanoid residents on every region crossways in the world, in current time's period.

In Pakistan, the most important feature of HS is ignored. In its 70-year past, Pakistan's successive governments national and military have not completed basic health facilities [5]. The outcome of this lack of concern is inexcusable health indicators. The socio economic determinants of HS are typically liable for health discriminations [6]. The Health equity and social determinants are recognized as a precarious factor of the post-2015 supportable development global agenda, and of the impulsion towards enlightened achievement of universal health coverage (UHC). The lack of interest of Pakistan's government to health is reflected in the fact that Pakistan spends a mere 1 percent of its gross domestic product on health care services [7]. In year 2018 Pakistan has reduced its health budget further. Pakistan's citizens have lot of private hospitals for basic benefit through out of pocket expenditure [8].

Health care sector in Pakistan consists of both private and public sector. The private sector assists nearly 70% of the population, is primarily a fee for services and covers the range of health care facility from trained allopathic physicians to reliance healers operating in the informal private sector. Non-government sectors do not work within a regulatory framework and very little information is available regarding the extent of human, physical, and financial resources involved. According to [9] less than 30 percent of the population has the access to the facilities of the public health center (PHC) and on average every person visits a private health center facility less than once a year. Main reasons behind it are; lack of health care professionals and specially women, high rates of absenteeism, poor quality of services and inconvenient location of PHC units [10].

Punjab contains 36 districts and it has highest population and second largest province of Pakistan with respect of area. Although health access services in Punjab are provided by both public and private sector, the government is considered the key provider of precautionary care throughout the province and the major provider of beneficial services in most of the rural areas [11]. The population is rising day by day in the Pakistan. Punjab is the most populous province of Pakistan, but it does not fulfill the proper health facilities required by people. Due to poor access to basic health facilities, we choose the area of Punjab for determining the HH health access services and check the effects of socio economic determinants on health access services. Punjab has contributed a lot in the development of Pakistan and its contribution in GDP is around about more than half of total. But unfortunately, total expenditure on health care services are just 1 percent of its annual GDP. The severity of these challenges, motivated to conduct the present study. HH access to health services and effects of socio economic determinants for these access services were analyzed.

Materials and Method

This study used cross sectional data from latest Pakistan Social and Living Standard Measurement (PSLM) released by Federal bureau of Statistics, Government of Pakistan [12] i.e. for 2014-2015 to determine the social and economic determinants of health care services in selected districts of Punjab, Rawalpindi, Faisalabad and Layyah. Household data of respondents was used. Three districts were selected for the sake of analysis. This data provides social and economic indicators in the alternate years at provincial and district levels. It provides a set of representative, population-based estimates of social indicators. Here, Rawalpindi is situated in upper Punjab, Faisalabad is in central Punjab and Layyah is situated at lower Punjab. The data was categorized by different types of variables related to HH health access services. Total sample size was 2000 and atleast 653 HHs were taken from each district. The PSLM data set was taken for the sake of study as it is one of the best sources of districts wise data to determine the households' access to HS [13].

Measuring variable

The variables (determinants) of HH health access services examined in the paper were HH health access (disease status of HH members), wealth index, and work status, source of drinking water, HH head gender, education level, economic situation, and place of residence. Dependent variable was Health access (number of times respondent used the services in last two weeks) and it was used as a proxy to health access services. Education level, gender, age, income of HH head, family size, marital status, region, kind of health provides were taken as independent variables. In the analysis value equal to 1 was assigned if the HH has health access and this value was 2 if the HH has not health access services. Gender of the HH head was characterized by 0 if head is male and 1 if the HH head gender are female [4]. In case of source of drinking water; value 1 was given to piped water, 2 was for hand pump, 3 for river and 4 for other sources of water. Economic situation of HH were categorized by 1 for much worse, 2 for worse, 3 for better than before and 4 for don't know. These variable were also taken by [4] in his study.

As in the log linear model, we assumed that some sets of X variables were useful for predicting the Y value,

we are claiming that this set predict probability that Y=1. And this function is called the Logistic Regression Model. Because of binary dependent variable, OLS cannot be applied. If the OLS is applied then that model would be the Linear Probability Model (LPM). It is why Binary Logistic Model was applied in the study as were applied by [15].

This function guarantees the probability ranging from 0 to1 as the regression equation value predicts that values are from the negative infinity to positive infinity. This model is also called log-odd. The similar variables were used by [16] for determining the socio economic determinants of HS through following equation. The general form of the logistic regression equation can be written as,

$$\text{Log (ATHS)} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_4 X_4 + \beta_6 X_6 + \mu \quad (1)$$

Where,
ATHS = Access of households to HS
β_0 = Intercept term
X_1 = Gender (Male or Female)
X_2 = Marital status
X_3= Education level
X_4= Occupancy level
X_5= Residential status
X_6 = Drinking water sources

Suppose there are p independent variables and the conditional probability of the outcome occur is denoted by

$$\Pi(x) = P(Y=1|x) \quad (2)$$

So the logistic model is

$$\Pi(x) = e^{g(x)} / (1+e^{g(x)}) \quad (3)$$

Results and Discussion

Table 1 shows the population characteristics of Punjab. Whole and district-specific information for population, house hold and area are given.

The results of the Table 2 shows that there exists a positive and significant relationship between gender (Female) and health access services at 1 % level of significance. With regard to HH residential status, it has negative and significant impact on health access services at 5 % level of significance. HH education level is positively and significantly affecting HS at 1 % level of significance. In case of marital status, it has positive and insignificant impact on household HS. Nature of work would have positive impact on household HS and it was significant. In case of currently working HH, it was contributing negatively insignificantly impact on HS. In case of economic situation of the household is negatively and insignificantly impact on HS. It provides the information about HH how many people were better off and how many worse off in the societies. The same results were shown by the [11].

The results of Table 3 shows that there is positive and statistically significant association between gender (female) and health access services. HH residential status has negative and significant impact on health access services, similar results were estimated by [17]. Age is positively and significantly affecting HS. Education level is positively and significantly affecting HS. In case of marital status, it was positively and insignificantly impacting household HS. The HH work nature is positively and insignificantly impact on household HS. In case of currently working HH, it was negatively and insignificantly impacting HS. In case of water sources of the households, it was negatively and significantly impacting HS. Economic situation of the HH was negatively and insignificantly impacting HS [18].

It is evident from Table 4 that there exists a negative and statistically significant relationship between gender (female) and health access services at 1 % level of significance. HH residential status has positive and insignificant impact on health access services with in the study area. In case of age, it has positive and statistically significant impact on HS. Education level would have positively and significantly affecting HS at 5 % level of significance. Similar results were measured by the [19] in their study.

The work nature could positively impact household HS this result was significant at 5 % level. In case of currently working HH, it was positively and significantly

TABLE 1. Population characteristics of Punjab (whole and district-specific)

VARIABLES	PUNJAB	FAISALABAD	RAWALPINDI	LAYYAH
Population (000)	73,621	5,430	3,364	1,121
Male Population (000)	38,094	2,827	1,722	579
Female Population (000)	3.6E+07	2,603	1,641	542
Rural Population (000)	50,602	3,111	1,576	977
Urban Population (000)	23,019	2,318	1,788	144
Average Household (No.)	7.0	7.2	6.5	7.4
Area (Sq. Km)	205,345	5,856	5,285	6,291

Source: www.pbs.gov.pk

TABLE 2. Results of the logistic model for Faisalabad district

Variables	β	S.E	Wald	Df	P-Values	Exp(β)
Constant	1.522	0.632	5.791	1	0.01**	4.581
Gender (Female)	0.596	0.163	13.305	1	0.00***	0.551
Residential status	-0.465	0.241	3.707	1	0.04**	0.628
Age	0.011	0.005	5.209	1	0.02**	1.011
Marital status	0.079	0.077	1.073	1	0.300	1.082
Education level	0.072	0.048	2.264	1	0.00***	0.931
Work nature	0.045	0.025	3.345	1	0.04**	1.046
Currently working	-0.047	0.100	0.219	1	0.640	0.954
Water sources	-0.086	0.088	0.936	1	0.333	0.918
Economic situation	-0.023	0.101	0.052	1	0.819	0.977

**** Significant at 1%, ** Significant at 5%*

TABLE 3. Results of the logistic model for Rawalpindi district

Variables	β	S.E	Wald	df	P-Values	Exp(β)
Constant	1.558	.754	4.268	1	0.03**	4.751
Gender (Female)	-0.161	.212	0.578	1	0.00***	.851
Residential status	-0.094	.491	0.037	1	0.84	.910
Age	0.013	.007	3.686	1	0.04**	1.013
Marital status	0.023	.270	0.007	1	0.93	1.023
Education level	0.047	.018	7.090	1	0.00***	1.048
Work nature	0.008	.030	0.068	1	0.79	1.008
Currently working	-0.116	.077	2.250	1	0.13	.890
Water sources	-0.093	.041	5.296	1	0.00***	.911
Economic situation	-.011	.124	0.007	1	0.932	.990

TABLE 4. Results of the logistic model for Layyah district

Variables	β	S.E	Wald	Df	P-Values	Exp(β)
Constant	1.384	0.792	3.054	1	0.08*	3.993
Gender (Female)	-0.467	0.173	7.333	1	0.00***	0.627
Residential status	0.039	0.719	0.003	1	0.95	1.040
Age	0.030	0.008	14.294	1	0.00***	1.031
Marital status	-0.392	0.245	2.565	1	0.10	0.676
Education level	0.023	0.022	1.090	1	0.04**	1.023
Work nature	0.024	0.033	10.179	4	0.03**	1.024
Currently working	0.338	0.161	4.394	1	0.03**	1.402
Water sources	-0.141	0.111	1.624	1	0.20	0.868
Economic situation	0.021	0.130	0.027	1	0.87	1.021

impacting HS. Source of water showed negative and insignificant impact on HS. Economic situation of the HHs was positively and insignificantly impacting HS. Similar findings were observed by [9].

CONCLUSIONS

Results of the study showed that health access services in Faisalabad are better as compared to the other two

selected districts i.e. Rawalpindi and Layyah. The study indicated that the education level, HH head gender (female), work status, region and place of residence, economic situation affect health access services. In the light of above results, it can be suggested that measures should be taken to reduce economic burden of people due to private health access services by providing better government health facilities. Government should provide better health access services.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of interest

The authors declare that there is no conflict of interests.

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