

AN EFFECTIVENESS SCAN OF THE PUBLIC HEALTH INSURANCE PROGRAM OF KHYBER PAKHTUNKHWA

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Abstract. *This study target Health Insurance Program by government of KP, its budget allocation and utilization, level of awareness, and patient demographic profiles. The study also covers disease coverage and the minimum and maximum cost of the diseases. The study's population is the three major Medical Teaching Institutions (MTIs) of Peshawar. Sample of the study comprises 9,000 patients selected using purposive sampling approach from 2018 to 2020. The findings show that a lower average budget utilization ratio accounts for a lower level of public awareness. The study found that males dominate females by 55% in availing the Sehat Sahulat facility. The cardiac issue is the most common disease treated by the program. These findings are expected to assist policymakers in developing strategies for utilizing the program's resources. MTIs and insurance firms' managers may emphasize diseases cured and higher budget utilization ratios. Furthermore, policymakers may address less-covered areas and patient characteristics through awareness seminars to ensure the program's effectiveness. Finally, the study adds to the current literature by including imperial evidence from Khyber Pakhtunkhwa; Pakistan in the program. Future studies may address comparative analysis of the said program with the other insurance coverage programs.*

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Introduction

Insurance is a tool to mitigate various risks associated with individuals or business firms (Ngaage et al., 2020). Unlike the traditional ways of covering the business by protecting against unforeseen adverse situations through insurance, specialized insurance policies are offered to cover a particular a particular loss.

Access to healthcare facilities is one of the most important priorities of the humans. Human welfare programs are critical areas of the modern organization's strategic moves. Besides the private sector, healthcare facilities are the primary responsibility of the welfare state. Health insurance is one of the comprehensive schemes by the different governments and organizations to attract and retain their supporters and employees. It is a crucial sector of government spending and is used to evaluate the government's performance.

The International Labor Organization defines health insurance as "*the reduction or elimination of the uncertain risk of loss for the individual or household by combining a larger number of similarly exposed individuals or households included in a common fund that makes good the loss caused to any one member.*" (Boniol et al., 2019).

Health insurance is a rapidly developing social security tool for the rural poor, who face severe threats to their ability to earn an income from chronic health issues brought on by the prevalence of diseases and lack of access to an affordable healthcare system. The health and well-being of a population depend on having access to high-quality medical services, whether they are preventative or curative (Organization, 2018).

In line with the advanced countries, to provide better healthcare facilities to the general public, the Government of Khyber Pakhtunkhwa initiated the universal healthcare insurance scheme under the Sehat Sahulat Program (SSP) in 2017. A considerable amount is allocated for the said program in the annual budget. More than 72 million Khyber Pakhtunkhwa residents receive free in-patient healthcare treatments under this scheme (Hasan, Mustafa, Kow, & Merchant, 2022). The program's beneficiaries are selected with the help of the NADRA database of the Government of Pakistan. An annual limit of 1 million is allocated to each family to get health care facilities without any payment from their pocket. In 2022-23, Rs. 23 Billion were allocated to support the program (KP, 2022). Through a chain of private and public hospitals in the province, services are offered to the beneficiaries. The program covers all diseases requiring tertiary care and secondary care, including diabetes, hepatitis B and C, all types of cancer, heart & and vascular diseases, and kidney diseases requiring dialysis and kidney transplant (Sehatsahoolatprogram, 2022).

However, the intended results could not be achieved as the people still relied on substandard healthcare facilities offered locally. The primary cause of such behaviour could be a need for more awareness and education regarding the SSP and the associated benefits or facilities being offered. Besides several years of operations, the program's utilization rate and descriptive analysis have yet to be explored.

Similarly, various studies attempted to assess the cost and utilization of health insurance schemes offered by the government or private sectors across multiple

counties. They reported mixed results due to diversity in age, gender, nature of diseases, and the number of hospital visits, etc. (Allen, Gordon, Lee, Bhanja, & Sommers, 2021; Miller & Wherry, 2017). Similarly, the differences in cost and utilization were traced to various countries' income levels and nature (Simon et al., 2023). The study attempted to fill the gap and to describe the allocated budget, utilization of the budget, the major diseases treated through the said program, the demographic profile of the patients being covered, and their level of awareness and understanding of the program facilities. The primary goal of the study is to describe the SSP in general and to examine the allocation of budget, the utilization of budget, codal-formalities, analyses and categorization of the services & coverage of diseases under this program.

The results of the study revealed that the budget utilization ratio of the program could have been higher, i.e., 4.6% accounted for a lower level of public awareness regarding the requirements and coverage of the program. Furthermore, convenience was preferred by the patients as indicated that 18% of the total sample was from District Khyber, followed by peshawar 14% and Charsadda at 11.9%. The patient ratio from other districts could have been higher. Furthermore, the proportion of males was higher, i.e., 55%. Cardiac disease was at the top ranked and among the cured disease under the said program. The achieved results are expected to contribute as an essential input to the government, insurance company managers and health professionals to devise policies and fill the gap/shortcomings in the SSP.

2. Literature Review

The history of health insurance is traced back to the world's developed nations. For instance, France offered family and health insurance, followed by Germany and Austria, further specialized insurance like care insurance, etc. (Pidlypna, Makara, & Shevchuk, 2022). The studies conducted to explore health insurance are given in the following lines.

2.1. Health insurance adaptation

As discussed earlier, insurance is a tool to mitigate various risks associated with individuals or business firms (Ngaage et al., 2020). Besides the business risks, multiple countries attempted to opt for health insurance for their masses. Several studies have assessed the adaptability and differences between public and private health insurance. For example, the state healthcare plan and four private insurance companies were compared. The selected sample was based on the proportional score with 05% over and below the poverty level threshold for the area, which included 8182 customers. Due to higher pricing compared to the public insurance scheme, it was determined that the cost of private insurance was 83% greater.

Furthermore, the personal insurance services included more office visits than emergency visits. The study revealed contradictory evidence on the quality of care in both cases, where the total costs of private insurance paid by the patients were ten times greater than those incurred by the general public (Allen et al., 2021). The Organization for Economic Cooperation and Development and the World Health Organization jointly supported the assessment of health insurance schemes in low-income countries. The results revealed that all individuals and communities in low-income countries should indeed adopt health insurance schemes to improve health efficiency and achieve satisfactory results in health service delivery in low and middle-income countries to develop a system for health service improved performance (Onwujekwe, Hanson, & Uzochukwu, 2012).

2.2. Health insurance awareness and utilization

Literature is evident of the lesser degree of awareness and resultant utilization that varies across diverse geographic and demographic profiles. To determine the level of understanding and assess the utilization various authors endured. For instance, a survey was conducted to determine the effects of health insurance in Asia and Africa. Community health insurance program income-based payment and need-based utilization were examined. A boost in financial protection and usage among covered groups was reported. The significance of health insurance as a credible alternative healthcare financing mechanism capable of minimizing the negative impacts of user fees and a possible method of achieving universal health coverage was observed (Spaan et al., 2012).

Similarly, another research attempted to describe health insurance schemes in East Africa. Descriptive statistics were used to evaluate awareness, usage, and satisfaction information. One thousand four hundred ninety-eight people from the 18 Eastern Visayas towns were willing to participate in the survey, and filling out the questionnaire showed that most respondents were aware of different health insurance schemes. The data also suggested that vaccination programs and Family Planning (71.39%) had the highest awareness rate among health insurance providers. In contrast, ultrasound services have the lowest degree of knowledge (Mpembeni, Kakoko, Aasen, & Helland, 2019).

Similarly, another study was conducted to determine the level of medical service utilization in China, covering three different health insurance schemes. The results indicated that the utilization rate is different in all three scenarios. Furthermore, the difference in hospitalization rate was reported in other income groups (Chen, Li, & Liu, 2018). Similarly, India reports about the awareness, access, and health insurance utilization by the urban poor in Delhi, India. This study took 2998 households from 85 urban clusters spread across Delhi. In the results only 19% knew about health insurance; 18% had health insurance (Employees State Insurance Scheme – ESIS – 8%; Central Government Health Scheme – CGHS – 14%; Rashtriya Swasthya Bima Yojana (RSBY) – 94% of the eligible households)

In case of health needs, 95% of CGHS, 71% ESIS beneficiaries, and 95% of RSBY beneficiaries utilized the schemes for episodic and chronic illnesses. For hospitalization needs, 54% of RSBY, 86% of ESIS, 100% CGHS utilized respective services (Kusuma, Pal, & Babu, 2018). Additionally, in Ghana, a study attempted to assess the impact of universal health coverage on the spending behaviour of the masses. Due to insurance facilities, a decline in medical expenditures was observed. Furthermore, the households were protected from cutting off the other spending on food, etc., to cover medical expenses. As a result, they felt protected against medical shocks and were given the highest social values, resulting in a decline in remittances (Garcia-Mandicó, Reichert, & Strupat, 2021).

Like in the rest of the world, a study investigated the determinants of healthcare service utilization and out-of-pocket expenses in public & private facilities in Pakistan. It was reported that 82% of private facilities contributed, with a higher visit ratio of 85%. In all regions, the male-dominated the utilization of health care facilities through insurance. Private facilities were preferred in rural areas and less in the Khyber Pakhtunkhwa region. It was also reported that the cost of private facilities was higher than public sector facilities (Khalid, Raza, Hotchkiss, & Soelaeman, 2021).

2.3. Insurance and Demographic Profiles

Like in other fields, demographics are vital to the health insurance program's success or failure. Various authors determined the role of demographics in the utilization of insurance. Cutler, Skinner, Stern, and Wennberg (2019) reported that differences in physician beliefs and practice styles were significant causes of regional variation in the United States. Similarly, Finkelstein, Gentzkow, and Williams (2016) reported that "demand" factors explained around 50% of the regional variance in Medicare usage while "supply" factors explained the remaining 50%. The "demand" share in the Netherlands is around 70%, which is lower than in Germany but higher than in the United States (Moura, Salm, Douven, & Remmerswaal, 2019).

Additionally, by utilizing administrative claim-level data from a consortium of German social health insurance, for the years 2006 to 2012, about 6.3 million patients who were 18 or older were observed. Patient characteristics may largely account for geographical differences in the utilization of ambulatory care in Germany. This study makes three key contributions to the body of literature. First, the authors looked at the sources of regional variation in healthcare usage in Germany. They discovered that, when compared to other nations, Germany's proportion of regional variation that can be attributed to "demand" and "supply" aspects, respectively, is substantially different (Salm & Wübker, 2020).

Considering the importance and role of social and economic indicators, the World Health Organization attempted to investigate the relationship between the service coverage index—the relationship between health insurance coverage level and socio-economic factors through performance analysis. A strong correlation was reported between GDP and health expenditures with Service Coverage Index (SCI). The Philippines showed the highest GDP to SCI at (1.84) with the highest health expenditures at 1.04 SCI. South Korea was the most diminutive scorer in the performance. The significant influences of universal health coverage were GDP, unemployment, poverty, health expenses, and the population of the country (Takura & Miura, 2022).

In light of the above literature, the degree of awareness and level of utilization regarding health insurance schemes and associated facilities varies across geographic areas. Furthermore, the literature revealed that the demographic profiles of the patients being cured under various health insurance schemes differed. Therefore, the study attempts to fill the gap by investigating the degree of awareness utilization and examining the demographic profile of the patients cured under the Sehat Sahulat Program through descriptive analysis.

3. Methodology

The present study aims to describe the utilization and medical services of the SSP. The study focused on the Peshawar district of Khyber-Pakhtunkhwa. The study's targeted population consists of the patients who availed the health care facilities in hospitals offering SSP in Khyber Pakhtunkhwa, Pakistan.

Peshawar, the provincial capital, has the most diversity in the province. Furthermore, patients from almost all districts of the province are referred to Peshawar for treatment. So, to represent the whole province, the sample district of Peshawar is taken. The purposive sampling technique is adopted to select the MTIs as the sample. The entire population is divided into three strata. The total sample of the study consisted of 9000 (3000/year) patients who visited three major MTIs in Peshawar.

Data was collected from the administration of the health care facility. Further details were collected from the medical files and financial records available with the hospital administration. The data regarding the allocated budget, utilization, categorization of utilized budget to various groups and diseases, and actual expenditures was collected from hospital records.

4. Analysis and Discussion

4.1. Demographic analysis

The data relevant to the patients who benefited from the SSP was obtained from the three significant MTIs of the Peshawar district. The demographic variables of gender and location data were obtained during the treatment by the concerned

hospitals. Mean, percentage and frequency were used to describe the demographic profiles of the sample.

Table 1 *Gender of the Patients*

Variable		Frequency	Percent
Gender	Male	4880	54.2
	Female	4120	45.8
	Total	9000	100.0

The results show that of patients treated under the SSP, as reflected in Table 1, almost more than half (54.2%, 4880 N) are male and (45.8%, 4120 N) females availed of the services. The female ratio is less because of insufficient documentation and the need for more awareness. The majority of married females in our society do not have CNIC or have yet to transfer themselves to their husband's family, as per Nadra's record, due to which they can not avail of the facility of SSP.

Table 2 *MTI' Sampling*

Variable		Frequency	Per cent
MTI	HMC	3000	33.3
	KTH	3000	33.3
	LRH	3000	33.3
	Total	9000	100.0

As discussed in the methodology section, the study sample consists of 1000 patient records per year out of the available records. The above table reveals similar results by reporting 33.335 from each of the three MTIs in the study.

Table 3 *MTI' Yearly Sampling*

Variable		Frequency	Per cent
Year	2018-19	3000	33.3
	2019-20	2980	33.1
	2020-21	3020	33.6
	Total	9000	100.0

The program was started in 2017; the financial year closed on 30th June of each year on the basis of available data, and we have taken yearly data for comparison of patient flow with the previous year. Besides, results reveal that the same number of patient data was taken from each year, i.e., 3000 patients per year.

Table 4 District-wise Analysis

Variable	Frequency	Percent
Abbottabad	100	1.1
Bajur	110	1.2
Bannu	100	1.1
Banuu	90	1.0
Battagram	130	1.4
Charsadda	1070	11.9
Chikdara	60	0.7
Chitral	290	3.2
Dera Ismail Khan	120	1.3
Dir Lower	150	1.7
Hangu	150	1.7
Haripur	100	1.1
Karak	110	1.2
Khyber	1630	18.1
Kohat	370	4.1
Lakki Marwat	780	8.7
Malaknad	60	0.7
Mansehra	180	2.0
Mardan	390	4.3
Mohammand	120	1.3
North Waziristan	110	1.2
Noweshera	480	5.3
Nowshera	130	1.4
Orakzai	30	0.3
Para Chinar	100	1.1
Peshawar	1300	14.4
Shangla	100	1.1
South Waziristan	40	0.4
Swabi	200	2.2
Swat	370	4.1
Total	9000	100.0

Being the capital of the province, the representation of three Medical Teaching Institutions of Peshawar, the majority of patients are referred from other districts for the non-availability of the facility or other emergency treatment. The patients referred to tertiary care hospitals in this study are based on the sampling from the last three years of patient visits from throughout the province and have taken 9000 patients' data as a sample from three MTIs of Peshawar. The majority of the patients visited from District Khyber (18.1%, 1630 N), Peshawar (14.4%) and Charsadda (11.9%), and the rest attended other districts of Khyber Pakhtunkhwa.

The patient ratio of adjacent districts is more significant than in other districts of the province because the majority of emergency cases are referred to Peshawar from adjacent districts. Hence, the patients' flow from the nearest districts is higher than that of other districts.

Table 5 *Diseases-wise Analysis*

Variable		Frequency	Per cent
Diseases	Cardiology	4960	55.1
	Dental	90	1.0
	Dermatology	40	0.4
	Endocrinology	300	3.3
	ENT	220	2.4
	Gastro	510	5.7
	General Surgery	650	7.2
	Gynaecology	780	8.7
	Medical	1220	13.6
	Neurosurgery	50	0.6
	Oncology	70	0.8
	Orthopedics	70	0.8
	Peads/Nursery	40	0.4
Total	9000	100.0	

Based on the study, the sampling from the last three years of patients' visits from throughout the province has taken 9000 patients' data as a sample from three MTIs of Peshawar. The majority of the cardiology patients are treated because cardiological diseases are deadlier and need emergency treatment rather than general medicine patients also entertained under the SSP majority of diseases are covered under this program. Still, cardiology (55.1%), General Medicine (13.6%), General Surgery (07.2%), and other diseases are treated under the program in MTIs of Peshawar.

As for the study's findings, cardiology patients are higher than other diseases because cardiology-related cases are very costly compared to medical issues, so most patients availed facility of cardiology treatment.

Table 6 *Budget Utilization Summary* (in Pak Rupees)

Variable	Obs	Minimum	Maximum	Mean
Allocated Budget	9,000	1,000,000	1,000,000	1,000,000
Utilized Budget	9,000	2,500	350,000	46,811
Valid N (listwise)	9,000			

The total budget per family allocated is 1 million. This study took a sample of 9000 patients who availed of this facility from 2018 to 2021. The results in Table

4.4 above show that the minimum amount charged to patients is Rs. 2500, and the maximum is Rs 350,000. Furthermore, the results reveal that the average utilization per patient is Rs. 46811/- representing 4.6% of the allocated budget to the patients specified. The utilization record shows that the various diseases were cured through the range from cardiac disease at most to general surgery, gynecology, and others, as reported above.

Year-wise Descriptive Analysis

Table 7 Year-wise Diseases Analysis

Variable		2018-19		2019-20		2020-21	
		Patients	%	Patients	%	Patients	%
Diseases	Cardiology	1630	54.3	1680	56.4	1660	55
	Dental	20	0.7	30	1	40	1.3
	Dermatology						
	Endocrinology	140	4.7	70	2.3	110	3.6
	ENT	90	3	30	1	100	3.3
	Gastro	200	6.7	200	6.7	120	4
	General Surgery	150	5	270	9.1	230	7.6
	Gynaecology	200	6.7	240	8.1	340	11.3
	Medical	450	15	380	12.8	390	12.9
	Neurosurgery	50	1.7				
	Oncology	40	1.3	30	1		
	Orthopedics	20	0.7	40	1.3	10	0.3
	Peads/Nursery	10	0.3	10	0.3	20	0.7
	Total	3000	100	2980	100	3020	100

Based on the study descriptive study, the results in Table 7 illustrates the trend of the patients regarding the benefits from the SSP after analyzing the different diseases from 2018-19 to 2020-21. The results show that in the 1st year 54.3% of patients were entertained, 56.4 % in the 2nd year and 55 % in the 3rd year in the cardiology department. Besides this, in gynecology for 1st year, 6.7 % got admitted, 8.1 % in the 2nd and 11.3% in the 3rd year; in general surgery, 05% in 1st and 9.1% in 2nd and 7.6% availed the facility in 3rd year. The ratio of admissions fluctuated due to non-awareness and the pandemic.

Table 8 Year-wise Gender-based Analysis

Variable		2018-19		2019-20		2020-21	
		Patients	%	Patients	%	Patients	%
Gender	Male	1630	54.3	1610	54.0	1640	54.3
	Female	1370	45.7	1370	46.0	1380	45.7
	Total	3000	100	2980	100.0	3020	100.0

The study was conducted, and a gender-based descriptive analysis of the results is in Table 8. it was stated that in 2018-19, 54.3% of male and 45.7% were female

patients; in 2019-20, 54.0 % were male and 46.0% Female; and in the last year, 2021-22, male patients, 54.3% and 45.7% female patients were covered under the health insurance scheme named as SSP the trend of male patients are raised than female patients due to awareness and availability of coddle formalities.

Table 9 Yearly Budget Utilization Analysis

Variable	2018-19				2019-20				2020-21			
	N	Min	Max	Mean	N	Min	Max	Mean	N	Min	Max	Mean
Utilized Budget	3000	2500	295000	43328	2980	2500	300000	44998	3020	2500	350000	52059
Valid N (listwise)	3000				2980				3020			

The government allotted Rs. one million per family to avail free treatment in the hospital for patients and their family members who are permanent residents of Khyber Pakhtunkhwa. The study was conducted and analyzed. The results in Table 4.7 show that a maximum of Rs. 295,000 and a minimum of Rs.2500 were utilized on 300 patients during the financial year 2018-19, in 2019-20, a maximum of Rs. 300,000, and in the financial Year 2020-21, maximum Rs. 350,000 and minimum Rs.2500 were utilized on 300 beneficiaries from different districts availed the facilities of health insurance in three MTIs of Peshawar.

5. Conclusion

The study aimed to describe the SSP of the government of Khyber Pakhtunkhwa. The program was designed to provide good healthcare facilities to the permanent residents of Khyber Pakhtunkhwa. The study aimed to evaluate the budget allocation and utilization of the said program. Furthermore, the degree of awareness and the demographic profile of the patients was described. Descriptive analysis techniques of mean, frequency, maxima, and minima were used. The results of the study found that the budget utilization ratio of the program could have been higher, i.e., 4.6% accounted for a lower level of public awareness regarding the requirements and coverage of the program.

Furthermore, convenience was preferred by the patients as indicated that 18% of the total sample was from District Khyber, followed by peshawar14% and Charsadda at 11.9%. The patient ratio from other districts could have been higher. Furthermore, the percentage of males was higher, i.e. 55%, than females. Cardiac disease was at the top ranked and cured through the said program.

The present study focused on the patients of the Peshawar district only, while the MTIs are operating in the other parts of the province under the umbrella of SSP. Future studies may take other regions with enlarged sample sizes to investigate the utilization and coverage of the facility. Furthermore, a comparative study may be

conducted to compare the coverage and awareness level of SSP with other insurance schemes.

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