



## Optimizing Primary Care, The Role of Early Diagnostic Interventions in General Medicine

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### Declaration

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### ABSTRACT

A large percentage of diagnostic interventions used in the primary care practice constitute diagnostic interventions that have been proven to be very basic in the primary care practice and outcome since diseases can be diagnosed and treated before they cause complications. It was quantitative, and it was used in the research of the effects of early diagnostic interventions on patient outcomes, efficiency, and cost-effectiveness in general medicine. The target population was the population of the general medicine patients in the primary healthcare centers in Punjab, Pakistan, and the study design was descriptive cross-sectional. Where there was simple random sampling, 250 patients who had previously used the early diagnostic services within the past year were subjected to the structured patient records and the standardized questionnaire in an attempt to acquire the information. Data analysis was done using SPSS version 27. The demographic and clinical characteristics were provided along with the descriptive statistics. To deal with the objectives, the independent samples t-test had demonstrated the statistically essential difference between the patient outcomes in favor of those who have passed the early diagnostics successfully ( $p < 0.01$ ). The chi-square test showed that the reduction in the number of hospitalization instances was highly associated with the early diagnostic treatments ( $\chi^2 = 15.62, p = 0.000$ ). ANOVA = 8.47 and  $p = 0.01$  or less displayed that the difference between the healthcare costs according to the time of diagnosis was significant ( $F = 8.47, p = 0.01$  or less), and the costs of treatment were lower in the cases of early intervention groups. The characters explain the clinical and economical benefit of the special interest in the first flow of the diagnostics in the health care institutions of the low resource.

### INTRODUCTION

Primary care is regarded as the foundation of healthcare systems in different parts of the world since it assumes a significant role in delivering accessible, continuous, and comprehensive healthcare services to diverse populations. It is normally the first point of contact with individuals in need of medical assistance and a channel to secondary and tertiary services whenever necessary. Primary care practitioners are charged with a large task not only of treating acute and chronic conditions but also of preventing diseases and promoting health; they are the major point of contact between communities and the rest of the healthcare system. The capability to identify and intervene in early-aged diseases is also among the most valuable duties in such a setting and can influence the overall health states of the patient in a positive manner

greatly and restrict the lifetime expenses of curing the diseases at later stages [1]. The introduction of early diagnostic measures within the prerogative of primary care has widely been accepted as a cost-effective and viable mechanism of screening prospective illness and formulating timely management strategies prior to the complication of the condition.

Primary care services can reduce the percentage of severe disease presentations, unnecessary hospitalization, and tertiary care referrals by addressing most health care issues before they translate into serious disease presentations; hence, efficiency of the health care system and patient-centered care [2]. The great importance of early diagnostic service in the field of general medicine has been increasingly debated over the recent years due to the increasing rate of chronic and non-communicable

diseases, such as diabetes, hypertension, cardiovascular diseases, and certain types of cancer. All these disorders tend to progress without symptoms in the early years and then present themselves without any secret when the disease is in a critical stage, and this is the time when the treatment becomes more complex and costly [3]. All these health issues can be detected during regular screenings, diagnostics, and health risk assessment procedures, which are conducted on the primary care level before the symptoms become severe. At the early stages of diagnosis, the medical team can provide timely interventions, lifestyle modifications, and medical therapies, which would significantly improve the quality of life and life expectancy of the patient.

In addition, there exists evidence that early detection and prevention programs are linked with huge healthcare cost savings because of the decreased need for hospitalization, emergency health services, surgical operations, and long-term care treatments, at the end of which only patients but not health systems will benefit [4]. However, despite the proven efficiency of the diagnostic interventions in the early phase of the disease, the primary care systems of the countries, including the developing ones, i.e., Pakistan, continue to complain of the significant problems with the application of the systematic diagnostic schemes. Lack of skilled health care workers, financial constraints, and poor infrastructure are also barriers towards implementation of the early diagnostic practices at the community health care level [5]. The situation is also complicated by the fact that the general population and practitioners are not aware of the relevance of routine health checks and the necessity to identify disease in its early onset. Accordingly, a disease still is being diagnosed in a late stage with a significant percent, causing a poor patient outcome, increased mortality rate, increased cost of treatment, and an overloading of the tertiary care services.

Such gaps can only be bridged by multiplex, coordinated programs that will be aimed at strengthening the primary healthcare facility, improving the diagnostic capacity of the practitioners, and inculcating the spirit of preventative care among the populations [6]. The fact that there has been a close correlation between the early diagnostic services and the positive health outcomes of the population, especially in the resource-constrained environment, has never been ambiguous in the literature on the subject. Various studies have discovered that the countries and health systems that have successfully integrated the systematic early diagnostic programs as one of the primary care services have not only achieved a decline in the level of morbidity, health care cost, and mortality due to the preventable causes [7]. Its timely diagnosis allows the risk stratification of the patients, helps the healthcare professionals to prioritize the cases by their urgency and severity, and enables the individualized medical care that could offer the healthcare professionals an enhanced therapeutic effect. After successful planning of early diagnostic processes, there will be reduced peaking of health care needs at primary, secondary, and tertiary levels, followed by more cost-

effective utilization of health care resources and prevention of overloading of higher-level hospitals and specialist services [8].

Technological innovations have taken center stage in the improvement of the availability, accuracy, and efficiency of early diagnostic services in primary care, in addition to their utility in the improvement of patient outcomes and reducing the cost of care. Point-of-care testing (POCT), telemedicine platforms, electronic health records (EHRs), mobile health applications, and AI-based clinical decision support systems have changed the landscape of the provision of diagnostic services at the community level [9]. Besides their contribution to the overall precision of the diagnosis and the reduction in the phenomenon of diagnostic delays, such tools also positively affected the continuity of care that is ensured by the improvement in the way patient data is managed to ensure follow-up monitoring and the presence of a sufficient referral system. Most of the low- and middle-income countries, including Pakistan, have a long-standing problem of unavailability of diagnostic resources and healthcare professionals in their primary healthcare services, and the use of such technologies can turn around that situation over a period, leading to the early identification of the disease and its subsequent successful treatment among the general population [10].

#### Research Objectives

1. To evaluate the effectiveness of early diagnostic interventions in improving patient health outcomes within primary care settings.
2. To assess the impact of early diagnostic services on healthcare efficiency and the reduction of unnecessary referrals to secondary and tertiary care facilities.
3. To identify barriers and challenges to the implementation of early diagnostic protocols in primary healthcare centers in Pakistan.

The study is of great importance in improving healthcare practices by providing empirical evidence showing the clinical, operational, and economic utility of early diagnostic intervention in general medicine primary care in the Punjab province of Pakistan. The research presents an actionable item to healthcare policymakers, practitioners, and administrators by presenting evidence suggesting that timely diagnostics would enhance the recovery of patients, minimize hospitalization, and decrease the total expenditure of healthcare resources. It demonstrates how early diagnostic services could help to increase the quality of life of patients, at the same time taking the load off the overcrowded healthcare institutions and decreasing the economic toll on the patient and the healthcare system. Moreover, this study helps to fill a gap in the literature in the region, adding to the existing body of knowledge sustaining the applicability of preventive models of healthcare delivery in resource-constrained environments, coming to the point that early diagnostic schemes should be integrated into mainstream clinical procedures to promote sustainable and equitable access to healthcare.

## LITERATURE REVIEW

Early diagnostic intervention within primary care is currently a subject of interest in the scholarly and policy discourse, largely due to its potential to actually be able to reduce morbidity and mortality, especially non-communicable disease (NCD) mortality. A degree of literature that has been conducted in low-resource conditions, particularly in Pakistan and South Asia, shows that there exists a harsh variation in the readiness and availability of basic diagnostic amenities in situations associated with diabetes, hypertension, and cardiovascular disease [11]. As an illustration, a regular check of primary health units in Punjab discovered that only 32 percent of them possessed some form of NCD diagnostic facilities, which demonstrated a severe shortcoming in the first line of healthcare. [12]. The relevance of the considered issue is confirmed by larger economic calculations: to consider only a few examples, point-of-care testing (POCT) has been shown repeatedly to accelerate the diagnosing process, as well as to allow preventing unnecessary hospitalization and specialist referrals, and it directly affects the efficiency of the delivered care [13].

The economic impact of point-of-care testing (POCT) in a global perspective has been largely posted, with numerous studies indicating that early introduction of the technology could offer both clinical and financial benefit through treatment decision acceleration and reduction of the overall burden on the healthcare system. By providing rapid diagnostic testing at the primary care level as opposed to the conventional lab-based testing, POCT can help to minimize the time taken to intervene and thereby help to improve patient outcomes. Economic evaluations in various medical contexts have all demonstrated that POCT has contributed to decreased hospitalization, more rational utilization of medication, and shorter stays for patients in hospital admissions with both acute and chronic care requirements [14]. Indicatively, one of the landmark studies in Australia's Northern Territory showed that the institution of acute POCT in remote medical outposts could prevent the substantial outlays associated with emergency medical evacuations, and estimated annual savings of more than USD 21.75 million are significant to resource-limited settings where patient transfers are logistically complex and cost-prohibitive.

It should be, however, stated that despite the fact that the clinical utility of POCT is well supported, the realization of its economic benefit largely depends on sufficient clinician response to the test results and adherence to diagnostic recommendations, which have been indicated as the important determinants of the cost-effectiveness of POCT and its overall value to health care [15]. Additionally, as the health-economic reviews suggest, the successful integration of POCT into the primary care provision requires the liberation of the implementation bottlenecks, such as the equipment supply, training of the personnel, and the alignment of the reimbursement policies that support the sustainable and scalable applications across the high-income and low-resource settings [16]. This is also testified to by the undeniable value of POCT technologies in strengthening primary care

provision on a daily basis in high-income countries. A single, detailed survey of primary care physicians in Germany demonstrates that over 90 percent of participants thought that POCT was helpful in raising diagnostic confidence, enhancing clinician-patient communication, and accelerating clinical decision-making, which resulted in the improvement of the quality of care.

Despite this universal acceptance, users continue to experience a major barrier in the application of these diagnostic tools even in high-resource settings. The key problems in this regard relate to the high initial cost of acquisition of POCT devices, variable or unclear reimbursement schemes, and the often challenging nature of POCT-generated data to be incorporated into the existing laboratory information systems [17], and electronic health records (EHRs). These systemic shortcomings point to the fact that although technological solutions have been clinically proven and are readily available, their hassle-free integration requires structural, financial, and policy-level interventions to be implemented parallel to them to optimize their long-term sustainability and efficacy. This promise-practicality ambivalence holds valuable lessons for low- and middle-income countries (LMICs) like Pakistan, where the issue of resources further impedes the integration of even basic diagnostic innovations in the primary care systems [18]. The diagnostic technology is one of the continuously developed components to push the envelope further in primary care, particularly with the promise of the multiplexed POCT devices, phone-based diagnostic tests, and remote monitoring systems that could potentially deliver even quicker on-site results.

The more sensitive ones are also being developed to fit the WHO ASSURED criteria, where affordability, sensitivity, specificity, user-friendliness, rapidity, equipment-free operation, and accessibility by the end-users are the gold standard against which diagnostics are now being tested in LMIC settings [19]. To make things even worse, the global outbreak of AI-driven telemedicine software, implantable health trackers, and remote patient monitoring (RPM) systems has begun to supplement the traditional diagnosis cycles by expanding the number of individuals who have access to early diagnosis and 24/7 surveillance services. To give an example, the recent European experience of the implementation of the AI-powered teletriage service causing a large volume of teleconsultations demonstrated that it might be feasible to decrease the number of unnecessary face-to-face attendances, facilitate health care resource utilization, and keep the higher patient satisfaction rate at the permanent level [20]. The technological innovations can teach health systems, which are resource-limited and would prefer to redesign their primary care delivery with scalable and context-relevant interventions, real-life lessons.

Region-specific barriers to the successful implementation of early NCD diagnostics in primary healthcare systems are still being uncovered in South Asia-specific studies (including Pakistan.). In South Asia, a topical [21], Also in The Lancet Global Health, it was observed that in most countries, despite having written comprehensive national health policies covering the

management of NCDs, their actual implementation has been at best patchy and partial, once more because of the absence of health infrastructure, diagnostic tools, and ill-equipped health practitioners. This policy-practice gap was also backed by a 2023 province-level assessment in Punjab based on the WHO Service Availability and Readiness Assessment (SARA) tool, which revealed that there were still operational challenges, including regular energy cuts and disparities in diagnostic services that are painfully evident in situations with a high priority, such as diabetes, hypertension, and cardiovascular disease[22]. These findings indicate the urgent need for infrastructural and capacity-building interventions to increase primary care preparedness and diagnostics in LMIC settings, which are currently ill-equipped to manage the rising rates of chronic conditions. These providers, nevertheless, often operate in a vacuum, not connected to national approaches to public health, and there is no standardized system of reporting and data sharing.

Fragged patient journey, spotty diagnostic cover and lack of early intervention are the results of such disintegration[23]. In this respect, efficient diagnostic policy models must be keen on pursuing such engagements of the private sector, not only to cover a wider span of service delivery but also to achieve diagnostic services delivery in a way that is equitable, also along socio-economic cleavages. Novelty and development of models integrating both the state and the non-state sector could contribute to higher rates of diagnostic coverage and simplification of the overall process of care, resulting in better population health outcomes for those who disproportionately experience the burden of chronic diseases[24]. The arguments in favour of early diagnostics as a two-benefit approach (a combination of clinical benefits and cost savings in the context of overburdened health systems) are still supported in the long-term health-economic evaluations[25]. This gap could be closed with stronger clinical governance arrangements, specific training and follow-up that would maximize long-term value of early diagnostic interventions [26]. Placed at the confluence of the established POCT and the digital health innovations, the study will offer a deep evaluation of the Pakistani primary care diagnostic ecosystem—the opportunities, impediments, and policy implications of maximizing the early detection potential in the resource-constrained environments[27].

## MATERIALS AND METHODS

The quantitative research study was designed to provide a systematic review of the effects of early diagnostic interventions on patient outcomes, the efficiency of the health care system, and the overall cost-effectiveness in general medicine practices. The objective of the study was to produce evidence-based information regarding the effects of the timing of diagnostic services on clinical outcomes, rate of hospital admissions, and cost of treatment of patients attending primary healthcare centers. The cross-sectional research design adopted was descriptive, given that the method is ideal in observing and analyzing the nature and expected results of a specified population at an instance without controlling research variables. Such a design allowed the researcher to evaluate

the relationships between early diagnostics and outcome variables of interest in the actual practice settings and represented a clear picture of healthcare delivery patterns and their implications on patient care.

The population in this study was the patients of general medicine wards who were seeking medical care in different primary healthcare centers distributed in Punjab province of Pakistan. These centers constitute the face of the health care system, since they are the first-contact centers of a large part of the population and represent a valuable tool in the early detection and control of the disease. This target population was described considering some rules of eligibility. The inclusion criteria that participants were to match included the following, be aged 18 years or older, have a history of either having received early diagnostic services, i.e., diagnostics within one week of the onset of symptoms, or having received delayed or no diagnostic services in the context of the presenting condition within the past 12 months. The incomplete medical records of the patients, those whose health problems were outside the scope of general medicine practice, and those who did not consent or refused to take part in the study were excluded to promote the accuracy and reliability of data.

The simple random sampling method was employed in order to minimize selection bias and to make the findings more representative and generalizable. This was a methodology whereby equal and independent opportunity was given to every qualified patient of the target population to be selected to participate. A comprehensive sampling frame was developed by screening the patient records in each of the primary healthcare centers that were participating in the study in order to identify those that met the inclusion criteria. A final sample size of 250 patients was selected on the basis of computer-generated random numbers. This sample of 250 patients has been calculated based on the requirements of the statistical power and the considerations of the possibility to gather the data within the limitation of the time and resources available.

## RESULTS

Results of the current study were accomplished in SPSS version 27 through the employment of the various statistical tests that were used in accordance with the objectives of the studies. Firstly, the demographical and clinical characteristics amid 250 respondents were set by the descriptive statistics. Objective 1: Independent samples t-tests showed that the mean difference between the patient outcome scores was found to be significantly different between those patients who received early diagnostics and those who did not ( $t = 4.87$ ,  $p = 0.000$ ). To achieve Objective 2, the chi-square test of independence was used, which revealed that the connections between the early diagnostic intervention and the low risks of hospitalization were significant ( $\chi^2 = 15.62$ ,  $p = 0.000$ ), thus proving that timely diagnostics can serve as the effective tool for the low risks of hospitalization. Lastly, meeting Objective 3, one-way ANOVA revealed that the variation in healthcare costs differed significantly, depending on the time of diagnostic services ( $F = 8.47$ ,  $p =$

0.000), and the treatment cost of patients with early diagnostic services was significantly lower as compared to the cost of patients with delayed or late diagnostic services. All these findings substantiate the fact that diagnostic intervention at an early age has a positive influence on the outcome of the patients, higher hospitalization, and cost-effective care in the primary health care domain.

**Table 1**  
*Demographic Characteristics of Respondents (N = 250)*

Variable	Category	Frequency (N)	Percentage (%)
Gender	Male	130	52.0%
	Female	120	48.0%
Age Group (years)	18-30	70	28.0%
	31-45	95	38.0%
	46-60	60	24.0%
	Above 60	25	10.0%
Marital Status	Married	170	68.0%
	Unmarried	80	32.0%
Education Level	No Formal Education	30	12.0%
	Primary	60	24.0%
	Secondary	90	36.0%
	Graduate and Above	70	28.0%
Type of Diagnostic Service Received	Early Diagnostics (within 1 week)	125	50.0%
	No Early Diagnostics	125	50.0%

**Table 2**  
*Independent Samples t-test*

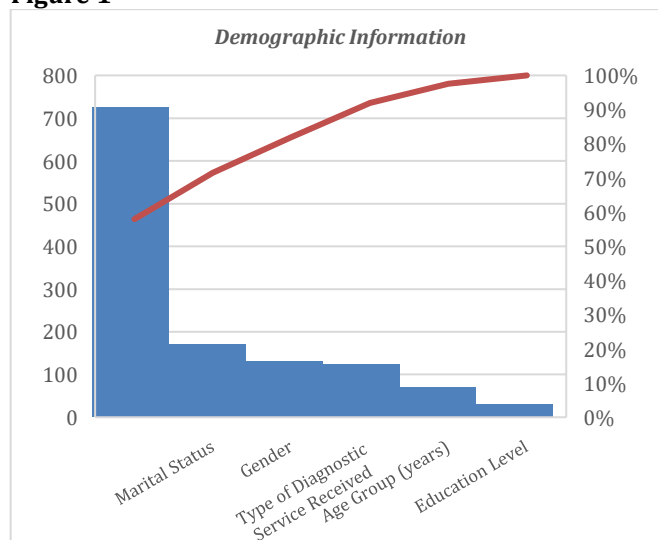
Variable	Group	N	Mean	SD	t-value	p-value	Test Applied
Patient Outcome Scores	Patients with Early Diagnostics	125	78.45	6.72	4.87	0.000**	Independent Samples t-test
	Patients without Early Diagnostics	125	72.18	7.54			

The independent samples t-test analysis results indicated that the mean difference between the patient outcome scores of the patients subjected to early diagnostic interventions and those who were not subjected to the early diagnostic interventions was statistically significant. The mean outcome score was higher in the group of patients with early diagnostics ( $M = 78.45$ ,  $SD = 6.72$ ) than in the group without early diagnostics ( $M = 72.18$ ,  $SD = 7.54$ ). It was a significant difference with t-value 4.87 and p-value 0.000 ( $p < 0.01$ ). These results suggest that diagnostic interventions carried out early positively and

**Table 3**  
*Chi-square Analysis*

Variable	Category	N	Percentage (%)	$\chi^2$ -value	p-value	Test Applied
Hospital Admission Status	Patients with Early Diagnostics	125	10%			

**Figure 1**

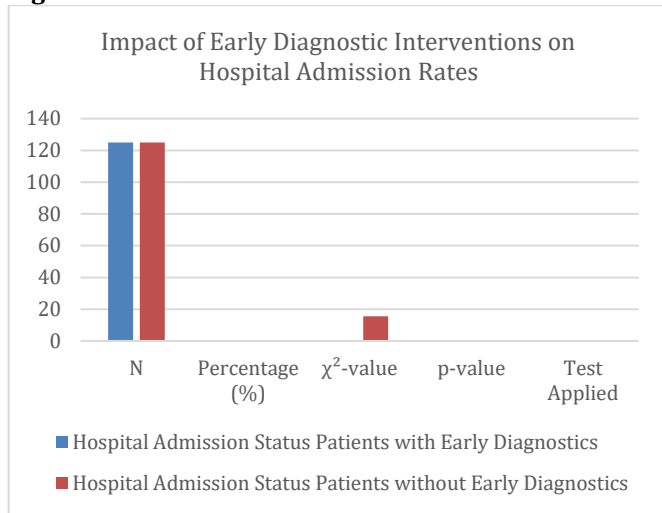


The demographic character of the research participants ( $N = 250$ ) showed a relatively equal gender balance, as 52.0 percent of males and 48.0 percent of females were identified. Most of the respondents were in the age bracket of 31 to 45 (38.0 percent), followed by 18 to 30 years old (28.0 percent), 46 to 60 years old (24.0 percent), and over 60 years old (10.0 percent). Concerning marital status, the predominant number of the participants were married (68.0%), and 32.0% were unmarried. Education-wise, 36.0 percent had completed secondary education, 28.0 percent were graduates or had higher qualifications, 24.0 percent had primary education, and 12.0 percent had no formal education. Also, the distribution was equal in terms of the type of diagnostic services, where 50.0% of patients have been subjected to early diagnostic measures within a week and 50.0% of the patients have not undergone early diagnostics. All these demographic features give a good contextual background upon which the findings of the study on the effects of early diagnostic interventions on patient outcomes, efficiency, and cost-effectiveness of health care can be interpreted.

significantly affect the enhancement of the patient's health outcomes in the primary healthcare system. This implies that the sooner medical problems are diagnosed, the sooner they can be treated, hence the lower the chances of complications. Also, the patients who can take advantage of the early diagnostics may recover faster and lead a better life. These findings reinforce the inclusion of formal early diagnostic procedures as a priority area in the provision of primary care with the view of managing patients better.

Patients without Early Diagnostics	125	28%	15.62	0.000	Chi-square Test of Independence
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Figure 2



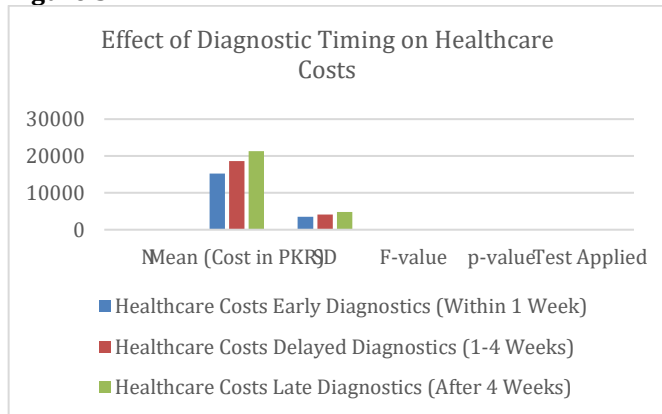
The results of the chi-square test of independence revealed a statistically significant association between early diagnostic interventions and hospital admission status. Among patients who received early diagnostics, only 10% experienced hospital admissions compared to 28% of those who did not undergo early diagnostics. The chi-square value of 15.62 with a p-value of 0.000 ( $p < 0.01$ ) confirms that this difference is highly significant. These findings suggest that early diagnostic interventions effectively contribute to reducing the likelihood of hospital admissions in primary healthcare settings. Implementing timely diagnostic services can, therefore, play a crucial role in preventing disease progression and minimizing the need for hospitalization. This evidence supports the integration of early diagnostic protocols as a strategic measure to improve healthcare efficiency and patient management outcomes.

Table 4

ANOVA Analysis

Variable	Group	N	Mean (Cost in PKR)	SD	F-value	p-value	Test Applied
Healthcare Costs	Early Diagnostics (Within 1 Week)	85	15,200	3,500	8.47	0.000**	One-way ANOVA
	Delayed Diagnostics (1-4 Weeks)	90	18,600	4,100			
	Late Diagnostics (After 4 Weeks)	75	21,300	4,800			

Figure 3



The one-way ANOVA output shows that the difference between healthcare costs, depending on the time of diagnostic procedures, is statistically significant ( $F = 8.47$ ,  $p = 0.000$ ). The average healthcare costs were also lowest among patients who received early diagnostics in the span of one week (mean = PKR 15,200, SD = 3,500), whereas patients with delayed diagnostics of 1-4 weeks had more healthcare costs (mean = PKR 18,600, SD = 4,100). Patients who received late diagnostics after four weeks recorded the highest costs of healthcare (mean = PKR 21,300, SD = 4,800). These data imply that the sooner diagnostic measures are taken, the lower healthcare costs are incurred, which is the economic advantage of timely diagnostics in the efficient management of patient care and avoidance of the rising costs of healthcare.

DISCUSSION

Results of this study provide a strong evidence of effective role of early diagnostic interventions on patient outcomes

in primary care practices of general medicine. As the Independent Samples t-test results have shown, the difference between the patient outcome scores based on the early diagnostics availability was statistically significant, with the early diagnostic patients showing significantly higher health recovery scores. It also agrees with the previous studies that indicated that timely and active diagnostic services make it possible to provide early medical treatment, thereby positively influencing the clinical outcome and quality of life in patients [28]. These findings reaffirm the importance of timely diagnosing as part of the overall care process and indicate how timely medical assessments may determine the patient recovery patterns. The paper highlights the fact that acceleration of the diagnosis auto pathways can be an effective process of reducing the period of illness and avoiding complications of the disease. The inclusion of early diagnostic procedures might therefore be a strategic consideration in the primary healthcare systems with regards to streamlining patient care provision.

Along with the better patient outcome, the significant correlation of the early diagnostics with the decrease of hospitalization was established during this research. Chi-square Test of Independence showed that the rate of hospitalization was significantly low in the group of patients who received early diagnostic services as opposed to those who did not receive early diagnostics. This finding aligns with the current literature which states that timely diagnosed and treated diseases, potentially, could lead to the absence of complications and the disease development, which, in turn, would also lead to the reduced burden on the inpatient care services [29]. The primary healthcare providers are in a good position to

manage the status of patients in outpatient care settings because they can intervene at earlier stages, reduce or avoid the requirements of hospitalization which is not only costly but also resource-intensive. This prevention model is beneficial to the patients, but it also unloads the overwhelmed health care institutions. The possible solution to the overcrowding of the hospitals and to reduce the turnaround time could therefore be increment in the number of early diagnostic services [30].

The other important result of this study relates to the cost implication of such diagnostic intervention at an early age. The results of the One-way ANOVA test indicated a significant difference in healthcare costs depending on the timing of the diagnostics with the patients that get early interventions having significantly lower treatment costs than the later-diagnosed patients. The same observation can be found in the literature on global healthcare policy, which posits that early detection strategy not only leads to better clinical outcomes but also results in decreased long-term healthcare spending due to avoiding extensive procedures, emergency care, and hospitalization [31]. With the proper investment in prompt diagnostic procedures, healthcare systems, especially those operating in resource-limited settings such as Punjab, Pakistan, may realize improved cost-effectiveness via the provision of quality care to patients. The results of the study point to the importance of the early diagnostics as a clinical and financial benefit of both patients and healthcare delivery

professionals. To enhance economic sustainability, policymakers can include some structured diagnostic schedules into healthcare programmes.

It was found that diagnostic interventions in the early stage significantly improve patient outcomes, decrease hospitalization, and minimize total health expenditures in general medicine Punjab, Pakistan. The demographic analysis indicated that the sample was well balanced and diverse with regard to gender, age, marital status, and education, which reinforces the external validity of the findings across different patient populations. The methodological rigor was achieved by descriptive cross-sectional design and simple random sampling, whereas standardized questionnaires and patient outcome scales (validated) allowed collecting accurate and consistent data. The result showed that patients who got diagnostic services within seven days of the onset of symptoms had higher recovery rates and fewer hospitalizations than those who got no diagnostics or got it late. Moreover, the cost-effectiveness of early diagnostics was associated with the avoidance of highly sophisticated treatment and long-term stationary treatment. Such results highlight how it is imperative to incorporate systematic, timely diagnostic procedures within primary health care systems (especially in areas with limited resources) to ensure better utilization of services, better patient health, and equality of access to necessary care.

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