

**PATIENT SATISFACTION WITH PUBLIC HEALTH  
SERVICES: A CASE OF RAWALPINDI DIVISION**

**By  
Muhammad Usman**



**NATIONAL UNIVERSITY OF MODERN LANGUAGES, ISLAMABAD**

**2025**

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CASE OF RAWALPINDI DIVISION**

By

**MUHAMMAD USMAN**

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR  
THE DEGREE OF

**MASTER OF PHILOSOPHY  
In Governance & Public Policy**

To

DEPARTMENT OF GOVERNANCE & PUBLIC POLICY  
FACULTY OF SOCIAL SCIENCES



NATIONAL UNIVERSITY OF MODERN LANGUAGES,  
ISLAMABAD  
2025

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**Thesis/Dissertation Title:** Patient Satisfaction with Public Health Services: A Case Study of Rawalpindi Division

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A candidate of Master of Philosophy at the National University of Modern Languages, Islamabad, do hereby declare that the thesis **Patient Satisfaction with Public Health Services: A Case Study of Rawalpindi Division** submitted by me in partial fulfilment of my MPhil Degree, is my original work, and has not been submitted or published earlier. I also solemnly declare that it shall not, in future, be submitted by me for obtaining any other degree from this or any other university or institution.

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## ABSTRACT

The provision of effective public healthcare services is central to the realization of Sustainable Development Goal 3: Good Health and Well-Being. In Pakistan, particularly in Punjab, the role of secondary healthcare facilities is critical in addressing the healthcare needs of the population. This study investigates the factors influencing patient satisfaction with public healthcare services in secondary hospitals of Rawalpindi Division, while also examining the moderating roles of healthcare providers' burnout and quality of life.

Employing a cross-sectional, quantitative, and correlational research design grounded in positivist epistemology and realist ontology, the study collected primary data from 3,194 patients and 255 healthcare providers across 18 secondary hospitals. Three validated instruments, namely, adapted Patient Satisfaction Survey, Maslach Burnout Inventory (MBI), and WHOQOL-BREF, were utilized to measure patient satisfaction, burnout, and quality of life respectively. Data was analysed using SPSS and AMOS through reliability testing, Confirmatory Factor Analysis (CFA), multiple regression, and moderation analysis using Hayes' PROCESS macro.

The findings of this study reveal that doctor services, nursing services, registration services, and waiting time significantly influence patient satisfaction. Doctor services emerged as the most influential predictor, whereas registration services and nursing services exhibited nuanced, sometimes negative, relationships. Although doctor and nursing services significantly affected satisfaction, neither burnout nor quality of life significantly moderated these relationships. Demographic factors such as gender, education, income, occupation, age, marital status, and district of treatment also exhibited meaningful variations in satisfaction levels.

The study emphasizes the necessity for healthcare administrators and policymakers to enhance service quality, address workforce burnout, and foster a supportive work environment to improve patient experiences. It offers actionable insights for policy reforms and emphasizes the need for further longitudinal and multi-regional studies to comprehensively understand patient satisfaction dynamics within Pakistan's public healthcare system.

## ACKNOWLEDGEMENT

All praise and thanks are due to Almighty Allah, who granted me the strength, resolve, and opportunity to pursue and complete this academic journey.

I express my deepest gratitude to my supervisor and mentor, Dr. Zain Rafique, whose scholarly guidance, critical insight, and steadfast encouragement have been instrumental throughout the course of this research. His mentorship went far beyond academic supervision and shaped the very direction of this work.

I am equally indebted to Dr. Shahid Habib, Head of the Department of Governance and Public Policy, whose thought-provoking instruction in democratic governance, participatory accountability, and social justice profoundly influenced the theoretical underpinnings of this study. His lectures left a lasting impression on my understanding of governance in the public interest.

I would also like to acknowledge Dr. Ather Rasheed, whose passion for the Sustainable Development Goals—and particularly for the universality and urgency of SDG 3—served as a powerful motivation to examine public health delivery through the lens of policy, equity, and citizen satisfaction.

I remain sincerely thankful to the entire teaching faculty of the Department of Governance and Public Policy for their academic rigour, thought leadership, and dedication to nurturing critical inquiry. I also extend my gratitude to the administrative staff of the department, whose consistent support, coordination, and professionalism made the academic process smooth and accessible throughout the programme.

My heartfelt thanks go to my family, whose unconditional support, patience, and love provided the emotional scaffolding without which this thesis would not have been possible. Their belief in me has been my greatest strength.

I extend sincere appreciation to my subordinate officers and staff at the Regional Directorate of Audit, Local Governments, Punjab (Rawalpindi Division), whose assistance and understanding allowed me to balance professional responsibilities with academic commitments.

I am grateful to the Chief Executive Officers of the District Health Authorities of Attock, Chakwal, Jhelum, and Rawalpindi, for their cooperation and facilitation during the fieldwork and data collection phase of this study.

Special thanks are due to the doctors and nurses of Punjab, particularly those serving in the hospitals selected for this research, whose candid responses and professional insights enriched the quality of the data and the relevance of this study.

Above all, I remain profoundly grateful to the patients of the public healthcare system, whose voices, experiences, and resilience lie at the very heart of this research. This study is, in essence, a tribute to them.

## DEDICATION

This thesis is dedicated to my father, Rana Muhammad Talib Khan, whose steadfast principles, quiet strength, and lifelong devotion to knowledge and integrity have shaped the person I am today. His sacrifices, wisdom, and enduring belief in me have been the guiding light throughout my life and academic journey.

To my wife, Dr. Natasha Ali, whose patience, encouragement, and unwavering support sustained me during the most demanding phases of this endeavour. Her grace and understanding have been a source of strength and comfort beyond words.

To my beautiful daughter, Hannah Usman, whose innocence, love, and presence bring joy to my life and inspire me to strive for a better future.

To my sons, Rana Mustafa Sultan, Rana Murtaza Sultan, and Rana Mujtaba Sultan whose energy, curiosity, and dreams remind me each day of the responsibility I bear and the legacy I must build.

To each of them, I owe more than mere gratitude, for their love is the foundation upon which this work stands.

## LIST OF ACRNOYMS

AGFI	Adjusted Goodness-of-Fit Index
AIC	Akaike Information Criterion
ANOVA	Analysis of Variance
BIC	Bayesian Information Criterion
BHU	Basic Health Unit
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CMDF	Chi-Square Minimum Discrepancy Function divided by Degrees of Freedom
CMIN	Chi-Square Minimum Value
CNIC	Computerized National Identity Card
DHQ	District Headquarters (Hospital)
DP	Depersonalization
EE	Emotional Exhaustion
GFI	Goodness-of-Fit Index
GIS	Geographical Information System
HAP	Hospital Administrative Procedures
IFI	Incremental Fit Index
MBI	Maslach Burnout Inventory
MLR	Multiple Linear Regression
OPD	Outpatient Department or Outdoor Patient Department
PA	Personal Accomplishment
PBS	Pakistan Bureau of Statistics
PCFI	Parsimony Comparative Fit Index
PGFI	Parsimony Goodness-of-Fit Index
P&SHD	Primary and Secondary Healthcare Department
PRATIO	Parsimony Ratio
PS	Patient Satisfaction
PSQ	Patient Satisfaction Questionnaire
QOL	Quality of Life
RFI	Relative Fit Index
RHC	Rural Health Centre
RMSEA	Root Mean Square Error of Approximation
RMR	Root Mean Square Residual
SDGs	Sustainable Development Goals
SH&MED	Specialized Healthcare and Medical Education Department
SPSS	Statistical Package for the Social Sciences
SR	Social Relationships
THQ	Tehsil Headquarters (Hospital)

TLI	Tucker-Lewis Index
UN	United Nations
WHO	World Health Organization
WHOQOL- BREF	World Health Organization Quality of Life – BREF Survey
WT	Waiting Time

## CHAPTER 1

### INTRODUCTION

“Good health and well-being” is the 3<sup>rd</sup> Sustainable Development Goal under the Agenda 2030 and is, thus, essential to achieve the sustainable development goals. Pakistan has also committed to implementation and achieving of SDGs by 2030. Provision of universal health care facilities to the citizens is a crucial step for Pakistan to meet the measurable targets and indicators towards good health and well-being of the general population as delineated in the Agenda 2030.

Punjab is the most populace province of Pakistan with a population of 127.689 million as per the latest Census 2023, having population density of 622 souls per square kilometres (in comparison to national population density of 303 persons per km<sup>2</sup>), average household size of 6.43, made up of male to female percentage of 50.4% and 49.6% respectively (PBS, 2023). The health care facilities in Punjab are provided by two administrative departments, namely Primary & Secondary Health care Department (P&SHD) and Specialized Health care and Medical Education Department (SH&MED), with the former responsible for management of the primary & secondary health care hospitals and the later responsible for tertiary health care hospitals in Punjab.

For successful provision of health care facilities to the people of Punjab, it is essential that the health care system considers the patient satisfaction with the health care facilities. Medical services provided by the public primary, secondary and tertiary hospitals in Punjab is a multifaceted phenomenon. In this proposed research, the scholar aims to investigate patient satisfaction with regard to public service delivery provided at secondary health care hospitals i.e. District Headquarters (DHQ) and Tehsil Headquarters (THQ) hospitals. The investigation is delimited to the Rawalpindi Division, which comprises of 04 Districts, namely, Attock, Chakwal, Jhelum, and Rawalpindi. The detail of secondary hospitals in these districts, which are to be studied under this study are as under:

Sr. No.	District	DHQ Hospitals	THQ Hospitals	Other Hospitals	Total
1.	Attock	1	4	0	5
2.	Chakwal	1	2	2	5
3.	Jhelum	1	2	0	3
4.	Rawalpindi	1	3	1	5
<b>Total:-</b>		<b>4</b>	<b>11</b>	<b>3</b>	<b>18</b>

*Table 1 – Selected Secondary hospitals of Rawalpindi Division*

The quality of health care services in these health care formations plays a vital role in addressing the health care needs of the local population. Patients, being the primary stakeholders in the public health care sector of Punjab, have a direct and significant relationship with public service delivery. Their perceived satisfaction with health care services not only reflects the effectiveness of public policy and governance but also has profound implications for the overall health care system. Therefore, understanding and addressing patient satisfaction is of paramount importance in order to make informed decisions and develop effective policies for public health care initiatives.

### **1.1 Context and Background of the Study**

The UN member states adopted Agenda 2030 or Agenda for Sustainable Development on September 25, 2015, and identified 17 primary goals essential to ensure sustainable development, called the Sustainable Development Goals (SDGs). SDG 3 of these goals is “Good Health and Well-Being” which envisions to “ensure healthy lives and promote well being for all at all ages” (UN, 2022). Pakistan, being a signatory of this agenda, has committed to achieving universal health provision by implementing the core goals, targets, and indicators.

This study is directly related to the SDGs, more specifically SDG 3, Target 3.8, and Indicator 3.8.1. Coverage of Essential Health Services. Unlike many countries of the world, Pakistan has not enshrined right to health as a fundamental right. Although, Articles 9 and 14 of the Constitution are linked with the right to health, however, there is a need to imbibe the right to health as a fundamental right for every citizen of the country within the constitution. In this regard, apart from the indirect constitutional provisions as well as Pakistan’s commitment to achieve the sustainable goals by 2030, Pakistan is also a signatory of the “International Covenant on Economic, Social and Cultural Rights 2008”. Article 12(1) of the 2008 Covenant provides (Saul, 2016), “the States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health”. Hence, despite not having health as a fundamental right, the state has committed internationally to provide to the citizens of Pakistan with the highest standards of health and well-being.

In Pakistan, from promulgation of the Constitution of Pakistan in 1973, health had remained a subject on the federal concurrent list and the Federal Ministry of Health was responsible for providing health services across the federation. In 2011, the 18th amendment to the constitution devolved this subject from the Federal government to the provincial

governments (WHO, 2017). The healthcare system of Pakistan is divided into public and private categories. The public sector healthcare system is further segregated into two fundamental divisions, namely, federal, and provincial healthcare systems. Figure 2 below provides a brief description of the healthcare system in Pakistan:

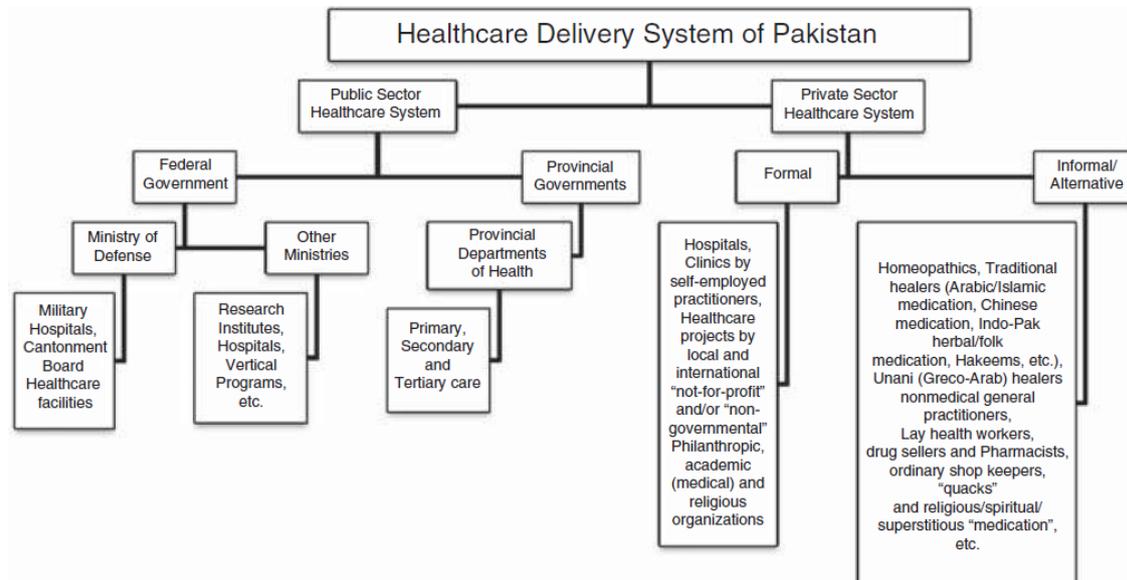


Figure 1 - Overview of healthcare delivery system in Pakistan (Javed et al., 2018: 5)

The Punjab Government Rules of Business 2011 entrust the health care service delivery in the province to two departments, which are Primary and Secondary Healthcare Department and the Specialized Healthcare and Medical Education Department. The Government of the Punjab issued a detailed “Health Sector Strategy in Punjab 2019-2028”, which provides a comprehensive guideline with regard to public health care service delivery system in the province. Similarly, the Punjab Healthcare Commission has issued “Minimum Service Delivery Standards for Primary and Secondary Health Care in Punjab”. These policy documents focus on the need “to assess the level of clients/patients’ satisfaction with [health care] services” and also encourages introduction of “exit interviews and mystery client surveys” to “assess the quality of care client/patient” (PHC, 2018: 108).

As evident from the statistics provided in Table 2 below, Rawalpindi Division – as per latest Census 2023 – has a population of 11.406 million and is ranked 7th out of 9 Divisions of the Punjab. The average household size and population growth rate of Rawalpindi Division are 6.09 and 2.21, respectively, both of which are not only lowest amongst all Divisions of Punjab but are even lower than the respective provincial average.

Division	Population (in million)	Average Household Size	Growth Rate	Rank by Population
Bahawalpur	13.400	6.50	2.66	5
Dera Ghazi Khan	12.892	6.59	2.66	6
Faisalabad	16.229	6.42	2.27	3
Gujranwala	18.779	6.77	2.58	2
Lahore	22.773	6.51	2.72	1
Multan	14.085	6.17	2.33	4
<b>Rawalpindi</b>	<b>11.406</b>	<b>6.09</b>	<b>2.21</b>	<b>7</b>
Sahiwal	8.533	6.36	2.46	9
Sargodha	9.591	6.21	2.72	8
<b>PUNJAB</b>	<b>127.689</b>	<b>6.43</b>	<b>2.53</b>	

Table 2 - Division-wise population, household size & growth rate in Punjab (PBS, 2023)

The Primary & Secondary Healthcare Department of the Government of the Punjab has established 512 primary healthcare facilities and 22 secondary healthcare hospitals in Rawalpindi Division. Of these 22 hospitals, 18 THQ and DHQ hospitals have been selected for inclusion in this study.

Division-wise statistics of the primary & secondary health care facilities in Punjab are:

Division	Dispensaries	BHU	RHCs	THQ Hospitals	DHQ Hospitals	Total
Bahawalpur	167	284	41	11	1	504
Dera Ghazi Khan	132	192	36	9	3	372
Faisalabad	238	333	37	13	3	624
Gujranwala	143	407	51	13	3	617
Lahore	181	247	31	14	3	476
Multan	104	285	35	9	5	438
<b>Rawalpindi</b>	<b>184</b>	<b>272</b>	<b>34</b>	<b>18</b>	<b>4</b>	<b>512</b>
Sahiwal	62	227	26	10	4	329
Sargodha	108	256	33	17	4	418
<b>Total</b>	<b>1,319</b>	<b>2,503</b>	<b>324</b>	<b>114</b>	<b>30</b>	<b>4,290</b>

Table 3 - Division-wise number of Primary & Secondary Hospitals in Punjab P&SHCD 2023)

Since the present research has been delimited to study the perceived patient satisfaction of OPD patients in secondary hospitals of Rawalpindi Division, therefore, the following hospitals have been selected to gather the data from. These hospitals are located in 04 districts of Rawalpindi Division, including 04 District Headquarters Hospitals, 11 Tehsil Headquarters Hospitals and 03 other secondary hospitals. The list of these hospitals is as under:

S.No.	Name of Hospital	Tehsil	District
1.	Isfandyar Bukhari District Hospital	Attock	Attock
2.	THQ Hospital, Fateh Jang	Fateh Jang	Attock
3.	THQ Hospital, Hazro	Hazro	Attock
4.	THQ Hospital, Jand	Jand	Attock
5.	THQ Hospital, Pindi Gheb	Pindi Gheb	Attock
6.	DHQ Hospital, Chakwal	Chakwal	Chakwal
7.	Govt. City Hospital, Talagang	Talagang	Chakwal
8.	THQ Hospital, Choa Saidan Shah	CS Shah	Chakwal
9.	THQ Hospital, Kallar Kahar	Kallar Kahar	Chakwal
10.	THQ Hospital, Talagang	Talagang	Chakwal
11.	DHQ Hospital, Jhelum	Jhelum	Jhelum

S.No.	Name of Hospital	Tehsil	District
12.	THQ Hospital, Pind Dadan Khan	P.D Khan	Jhelum
13.	THQ Hospital, Sohawa	Sohawa	Jhelum
14.	DHQ Hospital, Rawalpindi	Rawalpindi	Rawalpindi
15.	THQ Hospital, Gujar Khan	Gujar Khan	Rawalpindi
16.	THQ Hospital, Murree	Murree	Rawalpindi
17.	THQ Hospital, Taxila	Taxila	Rawalpindi
18.	Wah General Hospital, Wah Cantt	Wah	Rawalpindi

Table 4 - List of Selected THQ and DHQ Hospitals of Rawalpindi Division

The geographical spread of these health care facilities, based on GIS map, is shown in the figure below:

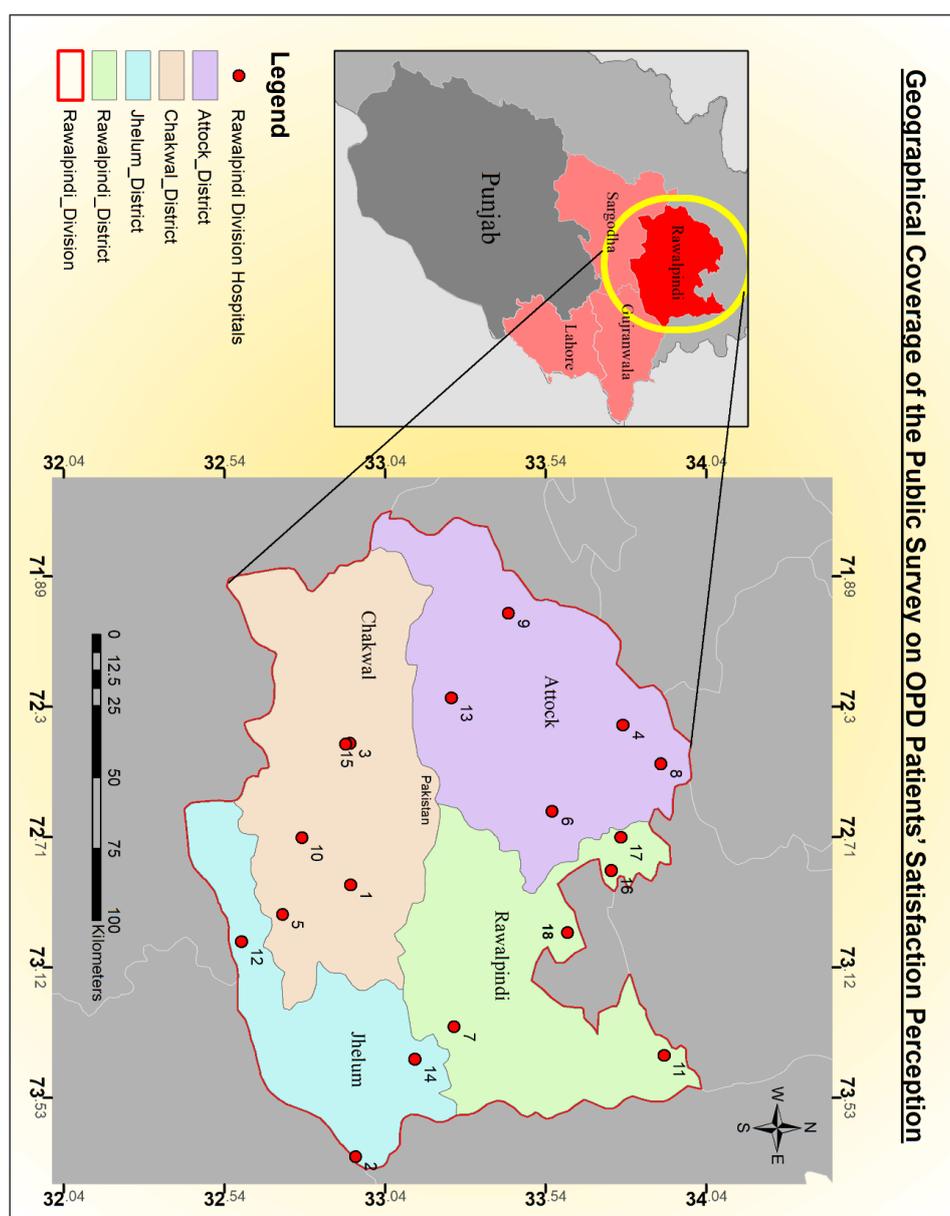


Figure 2 - GIS based map showing geographical spread of selected secondary hospitals

It is imperative to note that the area of research, wherein the studied 18 hospitals were located, was spread to a total area of 12,084 square kilometres (Figure 4). Therefore, it was

natural that language barrier could only be overcome by making use of locals to better explain the statements to the patients and to achieve accurate responses.

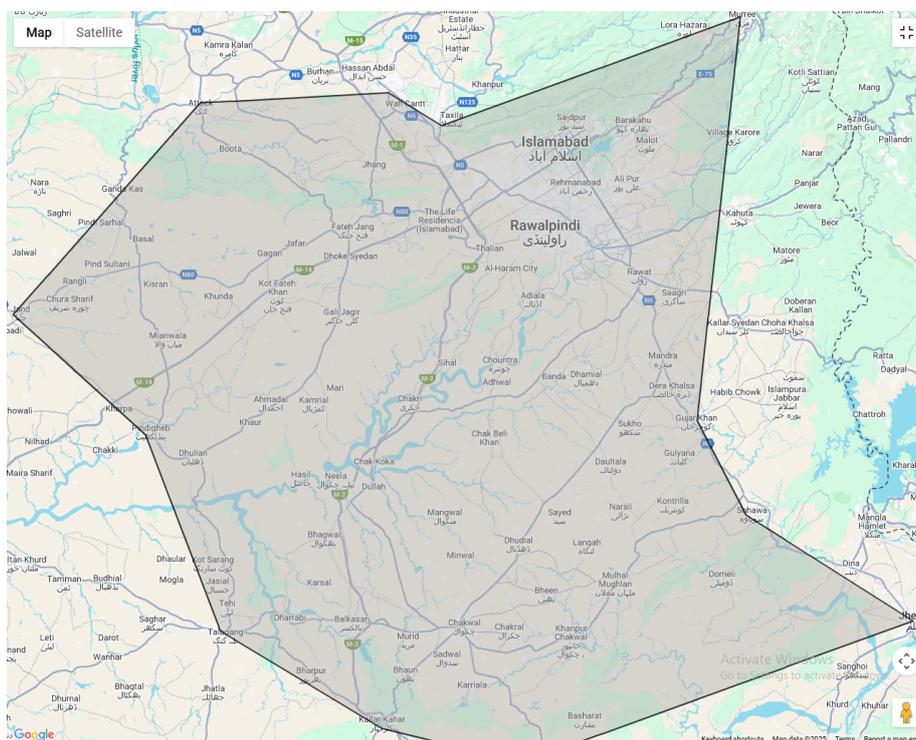


Figure 3 - Google map image of the area covered by the study

Based on the recommendations of the Punjab Healthcare Commission (PHC, 2018), the following positions of healthcare providers, which include doctors and nursing staff, have been made available in secondary hospitals of Rawalpindi Division. These sanctioned posts are important to be disclosed to ascertain the sampling details for collection of data:

Designation	Posts @ 14 THQ Hospitals	Posts @ 08 DHQ Hospitals	Total
Specialist/Consultant	140	80	220
Medical Officers	168	336	504
Dental Surgeons	-	8	8
Physiotherapists	-	4	4
Nursing Staff	210	344	554
<b>Total</b>	<b>518</b>	<b>772</b>	<b>1290</b>

Table 5 - Sanctioned posts of healthcare providers at secondary hospitals

## 1.2 Statement of the Problem:

Providing healthcare services is crucial for Pakistan to meet the Sustainable Development Goals set out in Agenda 2030, with the goal of promoting good health and wellbeing as one of the most important SDGs. In Punjab, the most populated province of Pakistan, public healthcare services are provided by two administrative departments i.e. the

Primary & Secondary Healthcare Department (P&SHD) and the Specialized Healthcare and Medical Education Department (SH&MED). While these departments manage healthcare across levels, including primary, secondary, and tertiary hospitals, ensuring patient satisfaction remains a significant but overlooked aspect of the healthcare system. Despite substantial investments and efforts to enhance healthcare infrastructure and service delivery in Punjab there is a lack of comprehensive understanding regarding patient satisfaction with healthcare services especially in secondary healthcare facilities like District Headquarters (DHQ) and Tehsil Headquarters (THQ) hospitals. The absence of evaluation and analysis of satisfaction hinders policymakers, administrators, and healthcare professionals from pinpointing areas for improvement, launching data-driven interventions and efficiently allocating resources. This study aims to fill in this research gap to the extent of Rawalpindi Division by taking into consideration multifaceted factors affecting patient satisfaction as well as the moderating role thereon of healthcare providers' burnout and quality of life.

### **1.3 Research Objectives:**

- i. Assess the level of patient satisfaction with public service delivery in secondary hospitals of Rawalpindi Division from a Public Policy & Governance perspective.
- ii. Examining the relationship between doctor, nursing, registration services, and waiting time with patient satisfaction in these hospitals, with a focus on moderation by physicians' and nursing staff burnout in the relationship between doctor and nursing services and patient satisfaction.
- iii. Provide recommendations for policymakers and hospital administrators to enhance public service delivery and improve patient satisfaction in secondary hospitals of Rawalpindi Division.

### **1.4 Research Questions:**

- i. What is the current level of patient satisfaction with public service delivery in secondary health care hospitals of Rawalpindi Division?
- ii. How do doctor services, nursing services, registration services, and waiting time impact patient satisfaction in these hospitals of Rawalpindi Division?
- iii. How do physicians' and nursing staff's burnout moderate the relationship between doctor and nursing services and patient satisfaction

- iv. What are the policy and governance implications for public service delivery and patient satisfaction in these hospitals within the health care sector of Rawalpindi Division?

## **1.5 Theoretical Framework & Hypothesis:**

The following section discusses the theoretical framework and hypothetical framework which serves as the basis for this study. The theoretical framework provides important studies related to factors that collectively influence the patient satisfaction levels. Further, the theoretical soundness of using the moderating variables i.e. Burnout in Healthcare Professionals and Quality of Life of the healthcare providers, is also discussed.

### **1.5.1 Doctor Services:**

The doctor services are related to the expectations and experiences of the patients while they visit a healthcare facility. For a patient, a doctor is like a saviour, who is responsible for the handling of the patient in an empathetic and helpful way. This aspect delves into how patients perceive the quality of service provided by the physicians in question. The interaction between physicians and patients entails substantial interaction, which notably impacts patient satisfaction levels (O'Connor et al., 1992). Such interactions typically necessitate clear communication guidance and understanding of patient issues. Likewise, Bitner (1992) observed a robust and acknowledged connection between doctors and patients, where physicians are a primary choice for meeting patients' needs, largely evaluated based on trust factors.

*H1: Doctor services have a significant impact on patient satisfaction in secondary hospitals of Rawalpindi Division.*

### **1.5.2 Physicians' Burnout as moderator between Doctor Services and Patient Satisfaction**

However, certain factors have been found to have moderating effect on the relationship between doctor services and patient satisfaction. Numerous investigations have explored the effects of burnout on patient satisfaction. An example is the study conducted by Anagnostopoulos et al. (2012), which meticulously examined the influence of physician burnout within primary healthcare contexts. This research revealed that patients under the care of physicians experiencing high levels of exhaustion and depersonalization tended to express lower satisfaction with consultation services. Conversely, patients treated by motivated physicians reported significantly higher satisfaction with healthcare provision.

Similar findings were documented by Hoff et al. (2017) in their examination of the interplay among satisfaction, burnout, and turnover among nursing staff and physician assistants.

*H1a: Healthcare Providers' Burnout significantly moderates the relationship between doctor services and patient satisfaction in secondary hospitals of Rawalpindi Division*

### **1.5.3 Physicians' 'Quality of Life' as moderator between Doctor Services and Patient Satisfaction**

Just like burnout, the overall quality of life also impacts the satisfaction levels of patients with the doctor services. Quality of life has a direct impact on the overall behaviour and demeanour of healthcare professionals, which subsequently impact the relationship between doctors and patients. Ibrahim et al. (2021) have found that the quality of life greatly influences not only the wellbeing of the healthcare professionals but also effects their general performance. Low performance leads to unsatisfied patients, hampering the healthcare services.

*H1b: Healthcare Providers' Quality of Life significantly moderates the relationship between doctor services and patient satisfaction in secondary hospitals of Rawalpindi Division*

### **1.5.4 Nursing Services**

Just like doctor services, the interaction of patients with nurses is also of paramount importance in redressal of the patients' issues and concerns. In fact, nursing staff tends to spend more time with the patients than the doctors and are directly responsible for the care and medical attendance towards the patients. Nursing services encompass patients' perceptions of the quality of care provided by nurses during their hospitalization. Nursing care is widely recognized as a crucial aspect of the healthcare system. Scholars have uncovered significant insights into the relationship between patient outcomes and nursing services. This body of literature emphasizes the strong correlation between nursing services and patient care (Needleman, 2003).

*H2: Nursing services have a significant impact on patient satisfaction in secondary hospitals of Rawalpindi Division.*

### **1.5.5 Nurses' Burnout as moderator between Doctor Services and Patient Satisfaction**

In addition to physicians, burnout among nurses also has a detrimental impact on patient satisfaction with the healthcare they receive. Vahey et al. (2004) discovered in their research that nurse burnout significantly affects patients' satisfaction with medical care. Furthermore, they identified several other factors, such as staffing levels, doctor-nurse relationships, and administrative support, which influence satisfaction with healthcare services. In a special issue addressing burnout as a significant healthcare concern, Yuguero and Hodkinson (2023) assert that burnout among healthcare professionals is a global issue that affects healthcare systems. The satisfaction of patients with the delivery of healthcare services heavily relies on motivated healthcare providers, including physicians and nursing staff.

*H2a: Healthcare Providers' Burnout significantly moderates the relationship between nursing services and patient satisfaction in secondary hospitals of Rawalpindi Division*

#### **1.5.6 Nurses' 'Quality of Life' as moderator between Doctor Services and Patient Satisfaction**

Kumar, Bhat & Riyali (2018) have concluded that in order to address the complexities within the healthcare delivery system and ensure both the quality of care provided and client satisfaction, it's crucial to understand the level of satisfaction among healthcare workers regarding their quality of life (QOL) and job, as well as the factors that influence their QOL. Their research uncovered that healthcare workers generally perceived their quality of life as average, with a moderate level of stress overall, and most demonstrated average coping abilities. The findings suggest that when healthcare workers especially nurses are not satisfied with their quality of life, they tend to ignore their clients i.e. patients and overlook their health needs thus compromising their professional duties.

*H2b: Healthcare Providers' Quality of Life significantly moderates the relationship between nursing services and patient satisfaction in secondary hospitals of Rawalpindi Division*

#### **1.5.7 Registration Services**

Hospital administrative procedures (HAP) encompass the processes of registration, admission, and discharge throughout a patient's hospitalization. Furthermore, Curry and Sinclair (2002) noted that enhancing access to healthcare services could reduce patient inconvenience during treatment. Administrative delays are regarded as significant factors affecting patients' experiences at various stages of their hospital stay. Diaz and Ruiz (2002)

highlighted that unreasonable service delays can incite frustration and negative reactions from patients. Similarly, Studer (2003) advocated for organizations to draw insights from patient satisfaction to enhance clinical services, evaluate staff performance, and innovate administrative procedures and services for continual improvement. H3: Registration services have a significant impact on patient satisfaction in secondary hospitals of Rawalpindi Division.

### 1.5.8 Waiting Time

The duration of patients' hospital stays for healthcare services is of utmost importance. Generally, administrative processes and medical interventions, such as admission and discharge procedures, as well as waiting times for consultations and clinic appointments, play a significant role in patient satisfaction regarding service quality (Xie & Or, 2017). When access to healthcare services is timely, clients experience less inconvenience (Curry & Sinclair, 2002). Avoidable delays in service provision negatively affect service evaluation processes, ultimately resulting in patient dissatisfaction and frustration (Duggirala & Rajendran, 2008). H4: Waiting time has a significant impact on patient satisfaction in secondary hospitals of Rawalpindi Division.

Based on the theoretical framework provided by numerous studies referred to above, the Figure 1 below illustrates the hypothesized relationships, guided by the research objectives of this study

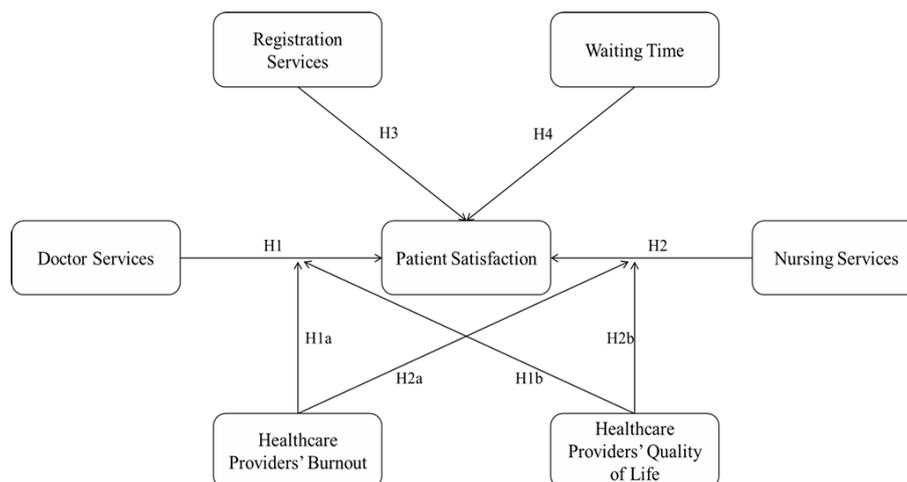


Figure 4 - Hypothesized Framework

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1. Introduction

In 2015, the nations around the world came together to show their commitment and zeal to have leave a prosperous and sustainable future for the generations to come. The initiative which we today call the Sustainable Development Goals saw the countries around the world come together under the United Nations General Assembly to identify 17 goals or SDGs. The SDGs were an improved vision of the Millenium Development Goals (MDGs). The SDG 3, Good Health & Wellbeing, is an important and fundamental goal which aims to ensure that people without observance of the economic limitations and divisions, are allowed to afford healthy lives and lifestyle. Pakistan being a signatory to the SDGs has also shown her commitment to implement the SDGs to achieve prosperous and bright future for the younger generations. Specially, with regard to improving healthcare systems within the country, Pakistan has worked hard to increase the service coverage of healthcare services and improving the healthcare outcomes for the patients.

Target 3.8 to the SDG3 is a vey important indicator which aims to achieve universal health coverage for all people irrespective of their age, gender, economic background, etc. For a government to ensure that all people are extended such sort of a universal healthcare system, accountability and transparency demands that the people to whom these services are afforded are taken on board to evaluate vis-à-vis the standards of the services so provided. Hence, the need to evaluate patient satisfaction in this context is paramount. This is not just an indication of the people's response and opinion of a government healthcare system but is also a very important healthcare outcome and governance benchmark. This links the overall patient experiences with the institutional response and governance initiatives to ensure public healthcare sector effectiveness.

As per the UN's latest Sustainable Development Report (UN, 2025), Pakistan's performance on SDG 3 remains mixed (2025, with moderate improvements in certain health indicators but persistent challenges in achieving universal health coverage and equitable service delivery. According to the Sustainable Development Report 2025, the country shows progress in areas such as maternal health, immunization, and adolescent fertility, yet continues

to lag behind in neonatal and child mortality, non-communicable disease control, and life expectancy. Key highlights of Pakistan’s SDG 3 performance include:

- a. The maternal mortality ratio stands at 155 deaths per 100,000 live births (2023), reflecting a stagnating but improved trend, with increased coverage of births attended by skilled health personnel (68% in 2020).
- b. Under-five mortality remains high at 58.5 deaths per 1,000 live births (2023), while the neonatal mortality rate is 37.6 per 1,000 live births (2023). These indicators highlight persistent deficiencies in maternal and neonatal care.
- c. Encouragingly, infant immunization coverage has improved, with 84% of surviving infants receiving the two WHO-recommended vaccines (2023), signalling progress in preventive care.
- d. The incidence of tuberculosis remains a challenge at 277 cases per 100,000 population (2023), underscoring the need for sustained control programs.
- e. The age-standardized death rate due to cardiovascular disease, cancer, diabetes, or chronic respiratory diseases is 25.5% (2021), indicating that Non-Communicable Diseases (NCDs) are an emerging burden alongside communicable diseases.
- f. The Universal Health Coverage (UHC) index of service coverage is 45.2 (2021), which remains low compared to regional peers and reflects limited access to essential health services for large sections of the population.
- g. At 67.6 years (2023), Pakistan’s life expectancy is significantly below the global average, reflecting broader systemic issues in healthcare quality, access, and governance.
- h. Pakistan’s self-reported well-being score is 4.8/10 (2024), pointing to dissatisfaction with health and social conditions despite pockets of service delivery progress.

These indicators underscore that while Pakistan has achieved incremental progress in maternal health, immunization, and skilled birth attendance, significant gaps remain in mortality reduction, equitable healthcare access, and service quality. The findings of this thesis—particularly regarding patient satisfaction with doctor services, nursing care, waiting time, and registration processes in secondary hospitals—are directly relevant to addressing these gaps. Improving patient-centered service delivery in public hospitals is essential for Pakistan to accelerate progress towards SDG 3 Target 3.8 (Universal Health Coverage) and to enhance overall well-being outcomes.

Although Pakistan has ratified the SDGs, specifically committing to ensure the provision of universal healthcare services to all of its citizens, the Constitution of the country does not explicitly identify the universal healthcare as a fundamental right. No article within the constitution categorically and unequivocally attributes healthcare as a fundamental right. However, there are certain articles of the constitution that indirectly relate to health and wellbeing e.g. Article 9 which ensures security of person and Article 14 which talks about ensuring the dignity of man. Further, Pakistan has also ratified the 'International Covenant on Economic, Social and Cultural Rights (2008)' and recognizes the need to afford each and every individual the right of the highest attainable standard of physical and mental health under Article 12(1) of the Covenant. However, despite all these measures there are specific and certain gaps which persist within the public healthcare system of Pakistan.

Prior to the 18<sup>th</sup> Constitutional Amendment of 2011, Health was a federal subject dealt with by the Federal Government through the Ministry of Health. Afterwards, the subject was provincialized and the responsibility of providing healthcare services to the people of the country was entrusted to the provinces. In provinces, healthcare systems are being looked after by the provincial departments. Punjab, being the most populous province of the country, has two dedicated departments namely, Primary & Secondary Healthcare Department (P&SHD) and Specialized Healthcare and Medical Education Department (SH&MED). The bifurcation of healthcare services in three tiers, dealt with by two departments, although logical, often results in operational and administrative bottlenecks. This is specifically the case with the Secondary healthcare institutions like the Tehsil Headquarters (THQ) Hospitals and District Headquarters (DHQ) Hospitals.

This is why this study specifically focuses on provision of secondary healthcare services in the Rawalpindi Division, consisting of 04 districts namely: Attock, Chakwal, Jhelum and Rawalpindi. The government of the Punjab has attempted to improve the infrastructure and overall healthcare service provision to the patients within the province, yet quantitative data and evidence to support as to whether these efforts have yielded any substantial and tangible results, remain amiss. This study by examining the quantitative assessments of the different facets of the healthcare services in 18 secondary healthcare hospitals in Rawalpindi Division attempts to inquire about the governance and service delivery framework of public hospitals within Punjab.

## **2.2. Patient Satisfaction**

As already mentioned, patient satisfaction is a fundamental milestone to gauge the effectiveness of healthcare services in public hospitals. This might be the only relevant and meaningful indicator of the performance of the healthcare services being provided to the people of the country. The first section of the literature review discusses in detail different aspects of this important dimension, which is central to this study. Patient satisfaction is important not only to assess the quality of healthcare services being provided to the citizens, but also is a very important policy issue and a determinant of service effectiveness. In the following sub-sections, different conceptual underpinnings related to the patient satisfaction are examined, specifically highlighting the global relevance, contextualisation and state within Pakistan.

### **2.2.1. Definition and Importance of Patient Satisfaction**

Patient satisfaction is a multifaceted dimension which primarily discusses about the perception of the patients (clients) about the healthcare services they receive within the public healthcare facilities. Ware et al. (1983) define patient satisfaction as the expectations of the patients with the healthcare services and the degree to which these are met. A lot many things affect the expectations of the patients. It is shaped by the competence of the healthcare providers including doctors, nurses, paramedics, and even the administrative staff of the hospitals, the way in which communication takes place between the healthcare providers and patients, as well as the overall journey of the patient from entering the hospital gates to exiting it. Cleary & McNeil (1988) state that satisfaction does not simply reflects the quality of care but also affects the behaviour of the patients as well as ultimate outcome of the medical assistance.

Therefore, for policymakers and healthcare managers, patient satisfaction can be very valuable indicator of their services. Bleich et al. (2009) have identified that if patients are satisfied with the healthcare services being afforded in a public healthcare facility, they are more likely to follow the medicine regimens, return to hospitals for follow up check ups, and also recommend that particular healthcare facility or service to others. As such, satisfied patients, like satisfied clients, can become advocates for the healthcare system further improving the healthcare services. Bleich et al. (2009) recognize that whether the setting is that of a high-income country or a resource-constrained nation, patient satisfaction is identified and acknowledged a key indicator of healthcare systems' effectiveness.

Thus, patient satisfaction is not merely an indication of how the healthcare system is performing but is also an important feedback mechanism through which the response of the patients can be taken about different aspects of the care being provided to them.

### **2.2.2. Global Perspective on Patient Satisfaction**

WHO (2000) identifies patient satisfaction as the backbone of healthcare quality monitoring. It has been found to be highly relevant in achieving the health-related targets including the SDG 3. In appreciation of this, several countries have institutionalized measures to assess the levels of perceived patient satisfaction through different standardized tools like the Patient Satisfaction Questionnaire (PSQ) and ServQual (Service Quality) instruments both of which measure service quality across domains like responsiveness, reliability and empathy (Andaleeb, 2001). These standardized instruments have proven to be very effective in getting information about patient satisfaction and subsequently ensuring service delivery improvements.

High-income or developed countries have linked the patient satisfaction results with the funding mechanism of healthcare facilities. In US for example, as per Doyle et al. (2013), hospital budgets are tied with value-based care models and high patient satisfaction across different domains of care. Also, in Europe, data pertaining to patient satisfaction proves to be the basis on which financial resources are distributed and allocated to the hospitals. These examples highlight the importance developed countries attached to the public satisfaction as a quality metric and important governance tool.

Doyle et al. (2013) notes that in contrast the developing countries cannot tie their resources allocation and budget disbursement mechanisms with the patient satisfaction primarily because there are many distinct challenges and hurdles that impede their attempts to measure and gauge the patient satisfaction objectively and reliably. However, countries are now attempting to develop standardize tools and instruments, having indigenous solutions to measure the patient satisfaction.

Studies have shown that patient satisfaction in different low- or middle-income countries have been linked to availability of medicine, presence of healthcare providers, interpersonal treatment, and healthcare providers competence (Bleich et al, 2009; Andaleeb, 2001). Hence, it is perceived that public satisfaction should be gauged keeping in view the localised best practices to make it more meaningful.

### **2.2.3. Patient Satisfaction in the Context of Pakistan**

Hussain et al. (2019) have found that in Pakistan, patient satisfaction is a very important component of the public healthcare system. However, this aspect is particularly under-researched. It is particularly important in the context of Pakistan because in the country there are bifurcated health systems i.e. Public and Private healthcare systems. The provision of services in the bifurcated healthcare environment show a stark difference, where services provided in private healthcare facilities are perceived to be satisfactory and of high quality, yet at a very high price. Whereas, the healthcare services provided to citizens at the public hospitals are very low in quality and happen to be unsatisfactory being without cost or free. The number of patients attending the bifurcated healthcare facilities also impacts the quality of healthcare services provided to them. Public hospitals are always overcrowded, whereas private hospitals are not so. Limited staff, long queues, longer wait times, different administrative steps including registration services, overburdened and indifferent healthcare providers including doctors, nurses and paramedics, all diminish the levels of patient satisfaction (Hussain et al., 2019)

Hussain et al. (2019) in their study have identified the important determinants of patient satisfaction within the public healthcare system of Pakistan. They have considered Doctor Services, Nursing Services, Registration Services, and Waiting Time to be major variables affecting the overall perceived patient satisfaction. In their study they have concluded that satisfaction levels were negatively associated with ineffective communication and excessive delays in provision of healthcare services.

Javed et al. (2018), while using the grey decision analysis, also highlight the comparative advantage of private hospitals where the responsiveness levels are high and the waiting times are low because these institutions are not overcrowded. The shorter wait times improve the patient satisfaction levels.

Notwithstanding the results of the abovementioned studies, these were focused primarily on urban or tertiary care hospitals. Primary and secondary healthcare hospitals like THQ hospitals DHQ hospitals are ignored, and thus this aspect remains relatively unexplored. Shaikh & Hatcher (2005) and Khan & Hussain (2008) identify the need to address the structural barriers that impact the satisfaction of patients in rural

areas. Such structural barriers are important to be identified with regard to policy and governance interventions.

Moreover, as already discussed, the need of the hour is to develop indigenised instruments and tools to measure the patient satisfaction of citizens in public healthcare settings. PSQ or ServQual are important, effective and reliable tools, yet they tend to overlook socio-cultural aspects of the area. These include gender-based discrepancies, religious sensitivities etc (Khan & Hussain, 2008). Hence, there is a dire need to develop localized assessment tools to better understand the patient expectations, experiences and satisfaction perception.

### **2.3. Theoretical Frameworks and Models of Patient Satisfaction**

As we have seen, patient satisfaction is a multifaceted, complex dimension which can only be measured through a nuanced and structured instrument. The meaningful exploration of patient satisfaction requires theoretical analysis of indigenised factors that may collectively influence the overall patients' perceived satisfaction. This section of the literature review discusses such commonly used instruments and models that are highly valid and reliable. We will start by looking at the ServQual model, followed by the Patient Satisfaction Questionnaire (PSQ), the Maslach Burnout Inventory and the WHOQOL Survey. This study has employed adapted PSQ, Maslach Burnout Inventory and the WHOQOL Survey for data collection to measure the patient satisfaction on the basis of different dimensions. MBI and WHOQOL are used to assess the moderating role of burnout and quality of life amongst healthcare providers on their relationship with the patient satisfaction.

#### **2.3.1. SERVQUAL Model**

Parasuraman, Zeithaml, & Berry (1988) introduced the ServQual (Service Quality) model, which even today remains one of the most influential frameworks for evaluating the quality of services provided to clients. This particular model is especially favoured in the corporate world and is not necessarily limited to the healthcare sector. The five variables or dimensions or domains of the ServQual model are Reliability, Assurance, Tangibles, Empathy, and Responsiveness, often referred to as the acronym RATER, which not only cover the physical aspects but also delve deep into the interpersonal characteristics, making it particularly useful for meaningfully analysing the experiences of the patients in healthcare facilities.

Numerous studies have used the ServQual model to assess the performance of service quality leading to effective service delivery improvement. In one of such studies, Babakus & Mangold (1992) have shown that this model is very much applicable in the hospital settings. Their study has concluded that for patients visiting public or private hospitals, reliability and empathy are the most influential dimensions that shape the overall patient experience and satisfaction level. Similarly, Andaleeb (2001) has used the ServQual model to assess the patient satisfaction levels in Bangladesh, emphasising that patients prioritise assurance and responsiveness as key indicators of healthcare service delivery. These cross-cultural studies validate the use of ServQual model as an effective and valid instrument to gauge the patient satisfaction.

Similarly, Javed et al. (2018) have also used the ServQual framework to bring about the contrast between public and private healthcare sectors. Their study has shown that private healthcare facilities are persistently performing better than the public hospitals owing to their better demonstration of empathy and responsiveness. Also, the patients being treated in the private hospitals report shorter waiting times, clear communication, and more personalized attention from their caregivers. All these aspects positively and significantly affect the patient satisfaction levels. This shows that ServQual can effectively be used to implement targeted policy reforms to improve the overall public healthcare service delivery.

ServQual model is not only used for comparative studies but has been identified as a useful tool in gauging the effectiveness of specific interventions. One such study was carried out by Curry & Sinclair (2002) in which they used the ServQual model to measure the service delivery quality for the UK Physiotherapy settings. Their study concluded that betterment of physical infrastructure augmented by the responsiveness of caregivers improved the perceived patient satisfaction significantly. While the model is occasionally critiqued for prioritizing service attributes over health outcomes, it continues to serve as a practical diagnostic tool for identifying operational shortcomings and guiding quality improvement strategies in healthcare delivery.

### **2.3.2. Patient Satisfaction Questionnaire (PSQ)**

This sub-section discusses the second highly reliable and valid instrument to gauge patient satisfaction i.e Patient Satisfaction Questionnaire (PSQ). This tool was developed by Ware et al (1983) as one of the fundamental tools used to assess the

patients' perception of healthcare services. PSQ uses different dimensions to collectively evaluate the patients' experiences. These include; technical quality, interpersonal manner, communication, financial concerns, accessibility, and convenience. Marshall et al. (1994) refined the PSQ and compacted it in a shorter version titled PSQ-18. This was a much more friendly, brief and accurate survey instrument.

Over the year PSQ has been extensively used across different settings and income backgrounds to evaluate the patients satisfaction. In Pakistan's context, Hussain et al. (2019) applied the PSQ-18 to examine the satisfaction levels of the patients getting healthcare services in Pakistan's public hospitals. Their specific focus has been on doctor-patient interaction, nursing care, and accessibility of services. The findings of their study proved that long waiting times and lack of communication between patients and healthcare providers were the key reasons for the patients' dissatisfaction with the healthcare services. Similarly, Manzoor et al (2019) carried out an extended investigation using the PSQ to discuss the impact of physician empathy and communication skills on patient satisfaction. Both studies prove that the PSQ is an effective and robust tool to measure patients' satisfaction in Pakistan's context. The present study also employs the adapted version of PSQ.

Aghamolaei & Fazal (2010) in their study have used PSQ to evaluate the satisfaction of medical students with the medical education services offered to them in Iranian teaching hospitals. This unique angle confirms that PSQ is not merely effective for patient satisfaction measurement but is also useful in measuring overall satisfaction of non-patient participants. However, till date PSQ has not yet been employed in non-medical contexts.

Although the ability of PSQ to combine the technical assessment with interpersonal evaluation, yet, some critiques argue that this is too patient centered and can thus affect the objectivity of the measure. The patient-centric approach can also underrepresent the unbiased clinical performances. Notwithstanding these concerns, the PSQ continues to enjoy a notable position amongst the instruments used to measure patient satisfaction across varied healthcare settings.

### **2.3.3. Maslach Burnout Inventory (MBI)**

MBI or the Maslach Burnout Inventory (MBI) was developed by Maslach, Jackson & Leiter (1996). It is arguable the most widely used tool to measure occupation burnout. This tool is adapted to accommodate different occupational backgrounds. To measure the burnout amongst healthcare professional MBI HSS MP is used which denotes Maslach Burnout Inventory – Human Services Survey for Medical Personnel. The MBI assesses the burnout amongst professionals across three core dimensions namely, emotional exhaustion, depersonalization, and personal accomplishments. MBI can effectively measure the overall stress and burnout levels amongst healthcare professionals and may be used as a measure to analyse the effect of burnout in the relationship between healthcare providers services and patient satisfaction. This is precisely the moderation model that has been used in this study where burnout is hypothesised to have a moderating role on the relationship between doctor services and nursing services with patient satisfaction.

Anagnostopoulos et al. (2012) in their study have used the MBI to analyse the high emotional exhaustion and depersonalization amongst Greek doctors and their subsequent impact on service provision by the medical personnel to the patients. They have concluded that higher burnout levels negatively affect the patient satisfaction levels.

In another study, Vahey et al. (2004) have documented the impact of burnout on the relationship between nursing services and patient satisfaction. They have proved that higher burnout levels amongst nursing staff diminishes the care quality and lead to patient dissatisfaction.

Mangory et al. (2021) have provided a comprehensive review illustrating the overall impact of burnout on healthcare outcomes. They have discussed the possibility of increased error rates and decreased clinical performance amongst medical healthcare providers owing to higher burnout levels. Similarly, Yuguero & Hodkinson (2023) have concluded in their study that burnout amongst healthcare workers during the COVID 19 pandemic proved to be a reason for misdiagnosis, mistreatment and lack of proper attention to patients. Their study was significant in highlighting the need to safeguard the mental and physical health of frontline workers.

Interestingly, apart from being used in clinical settings, MBI has been used to explore workforce management. One such study was carried out by Hoff et al (2017)

in which burnout levels were linked with the staff turnover rates especially amongst physician assistants and nurse apprentices. The study focused and concluded that improving workplace environment, job satisfaction, and lowering burnout levels significantly improve overall healthcare quality and reduce turnover rates.

#### **2.3.4. WHOQOL Survey**

The World Health Organization (WHO) designed their widely used instrument to measure the Quality of Life across multiple dimensions amongst the healthcare professionals. This is known as WHO Quality of Life Survey or the WHOQOL. This instrument has two variations available. The complete WHOQOL-100 consisting of 100 items, whereas the shorter version is WHOQOL-Bref, consisting of 24 items. Both versions are equally reliable and valid. In fact, the scores obtained through WHOQOL-Bref can be converted to WHOQOL-100. The data collected through WHOQOL-Bref is more accurate due to the fact that it is not detailed and the respondents find it easy to conveniently respond to all the items. For this study, to evaluate the moderating affect of Quality-of-Life of healthcare providers on the relationship between doctor services and nursing services with patient satisfaction WHOQOL-Bref has been used. The WHOQOL-Bref analysis the quality of life against four dimensions namely; physical, psychological, social relationships and environment.

WHOQOL is a very widely used instrument that is still very much relevant today. It has been used internationally across all countries in all healthcare settings without much deviation confirming the instrument's validity. Ryali et al. (2018) conducted a study in India using the WHOQOL and reported that doctors having higher quality of life also imparted better healthcare services to their patients, reflected through higher patient satisfaction levels.

Similarly, in his study in the Egyptian context, Ibrahim (2022) while making use of the WHOQOL survey found that poor quality of life amongst doctors correlated significantly with the lower levels of patient satisfaction, thus proving that lower levels of quality of life in healthcare professionals diminish the healthcare service effectiveness.

In the context of India, Kumar (2018) applied this framework to assess how the well-being and quality of life of 200 healthcare providers influence their job performance and resultant patient satisfaction. Their findings also proved that the

quality of life has a measurable, direct impact on the motivation of healthcare providers. This subsequently impacts the healthcare service delivery particularly in public hospitals, where there are high stress levels.

Yu et al. (2008) in their cross-section research explored the correlation between quality of their lives and their job satisfaction while collecting data from 1,020 nurses using the WHOQOL survey. Their study concluded that there was a very strong statistically significant relationship between the said variables. Similar results were also achieved by Ja-Min et al. (2004), who identified strong interrelation between quality of life and stress levels among 294 nurses in Korea.

The study by Skevington et al. (2004), while making use of the WHOQOL survey, also concluded that specific administrative and policy interventions to improve the psychological and physical quality of life of healthcare providers resulted in improved patient care and resultant patients satisfaction.

Although the WHOQOL has been critiqued for emphasizing subjective experiences over objective conditions, it remains a highly respected framework for measuring caregiver wellness and its implications for healthcare outcomes. By applying WHOQOL in tandem with clinical metrics, institutions can create more holistic strategies for improving patient satisfaction through staff support.

#### **2.4. Factors Influencing Patient Satisfaction**

As discussed in the start of the literature review, patient satisfaction is a multidimensional concept which encompasses a range of different factors affecting it. These include the quality of healthcare services being afforded to the patients, the overall behaviour of the healthcare providers, and the efficacy and efficiency of the administrative measures within the healthcare facility. This section aims to explore significant factors that influence the patients' perception of satisfaction with the healthcare services. Although, there can be far more important factors that influence the patient's satisfaction, however, the following may be considered the most significant of all. The factors which will be discussed hereunder are doctor services, nursing services, registration services and waiting time. Of these four factors, the first two are related to the healthcare providers whereas the other two are related to the administrative measures in the healthcare facility. The assessment and examination of these factors in detail would help explain and strength the underlying conceptual model adopted for this study. It is important to note that all factors play a considerable role in determining the

perception of the patients about the quality of healthcare which they receive and can be used, with a governance and policy perspective, to improve the patient satisfaction, healthcare services and overall healthcare outcomes.

#### **2.4.1. Doctor Services**

Healthcare services revolve around the doctors, who are the primary healthcare providers. Doctors are as much important within the healthcare service delivery system as the patients themselves. As discussed in the previous sections, we have seen that the interactions between physicians and patients significantly impacts the overall perception of healthcare service quality. O'Connor, Shewchuk, and Bowers (1991) opine that the relationship between doctors and patients serves as cornerstone for patient satisfaction. According to their study, effective communication, sense of empathy, and trust are the major determinants of positive patient experiences. They have concluded that the patients, who believe their physicians are empathetic and better communicators, follow the medicine and treatment regimen with zeal and also take interest in follow up visits, thus improving healthcare outcomes. The adherence to treatment plans is seen more in such patients as compared to those who find their doctors to be lacking interpersonal skills, communication, and empathy. The study by O'Connor, Shewchuk and Bowers (1991) especially emphasise on the fact that the interpersonal aspects of the interaction are as important determinants of patient satisfaction as the technical aspects of the medical care.

Similarly, in his study, Hoff (2017) has also expressed the undeniable paramount importance of doctor-patient relationship to frame better patient satisfaction levels. He argues that those doctors are more like to promote patient satisfaction who ensure a healthy, friendly and candid interaction with their patients. This is particularly the case in primary healthcare health facilities where adherence to treatment plan is essential to establish long term treatment relationship between doctors and patients to manage chronic conditions to promote preventive care.

The findings of the study carried out by Manzoor et al. (2019) also concluded that higher levels of patient satisfaction are reported by patients who believe that their doctors listen to their issues, understand their condition and share their feelings toward their condition. This study is particularly important in the context that it discussed the participatory nature of interaction with the patients calling for the patients to be made

part of the decision-making process for better healthcare facilities and services. They have opined that such steps improve public trust in government processes and decisions as well as foster a sense of empowerment amongst individuals.

Notwithstanding the above discussion, there are certain factors that significantly impact the overall doctor services in a negative way. One such example is that of doctor burnout. Such a study was done by Anagnostopoulos et al. (2012) wherein the relationship between physician burnout was examined with patient satisfaction in primary healthcare settings. This study concluded that unsatisfactory consultations and medical advice was rendered to patients by such doctors who experienced higher levels of emotional exhaustion, depersonalisation and lower levels of personal accomplishments. On the other hand, patients who were treated by such physicians who felt accomplished and reported lower levels of emotional exhaustion and depersonalization were more satisfied. This study is particularly important to highlight the importance of reducing burnout and workplace stress, ensuring better mental health and improving workplace environment to improve the overall healthcare services rendered to patients.

In Pakistani context, the study carried out by Hussain et al (2019) also discussed the relationship between doctor services and patient satisfaction in public hospitals. This study also found, in line with other studies discussed previously, that higher levels of satisfaction with healthcare services were reported by such patients whose physicians exhibited empathy towards them and communicated with them in a friendly and candid manner, providing clear explanations to their medical condition and also involved them in the decision-making process. On the other hand, it was also found that administrative issues like longer queues, waiting times, and lack of communication either by the healthcare providers or the administrative staff proved to be considerable barriers in achieving higher patient satisfaction levels.

#### **2.4.2. Nursing Services**

It can be said at the outset that the nursing services are as important to achieve higher levels of patient satisfaction as the doctor services within the healthcare service delivery systems. In fact, it is a fact that nurses spend more time with patients than the doctors do and also the levels of empathy and attention from the nursing staff towards the patients are required far more than that required from doctors. Needleman (2003)

opines that to maintain high levels of quality healthcare as well as to ensure patient satisfaction, adequate nursing services are essential. He concluded that lower patient satisfaction levels were reported where nursing staff was overworked or faced higher levels of stress and burnout. Hence, such healthcare facilities where the nurse-to-patient ratios were better, the patient satisfaction levels and healthcare quality levels were substantially higher, which highlights the undisputed importance of adequate staff in healthcare centres.

However, there are certain innate impediments that adversely affect the nursing services. In an attempt to explore such hurdles, Vahey et al. (2004) examined the adverse impacts of burnout amongst nursing staff that negatively affected the overall patient satisfaction levels in healthcare settings. Their study concluded that lower patient satisfaction was recorded when nurses within a healthcare environment faced high levels of burnout especially high emotional exhaustion and high depersonalization. Apart from the factor of burnout, other factors like doctor-nurses relationship, adequacy of nursing staff and support from the hospital administration were also found to be having a significant impact on overall nursing services, resultantly impacting the patient satisfaction perceptions. The findings of this particular study are important to highlight that improving workplace environment and mental health as well as reducing stress levels to mitigate the effects of burnout amongst nurses are essential factors to improve nursing services.

Hussain et al. (2019) in their study discussing the context of Pakistan's public healthcare system have also explored the relationship between patient satisfaction and nursing services being rendered to them. In line with the results related to doctor services, their study concluded that nursing staff that showed empathy, responsiveness and attention to the patients proved to emanate better satisfaction perceptions among their patients. The patients also showed their comfortability to be treated and cared by such nursing staff instead of the ones that were devoid of these empathetic gestures. Supporting the findings of Vahey et al. (2004), the study by Hussain et al. (2019) also concluded that long working hours and lower nurse-patient ratio were significant contributors in reducing the satisfaction of patients with nursing services leading to lower overall patient satisfaction with the healthcare system. The repeated nature of such findings underscore how important it is from the governance and public policy perspective to intervene in such scenarios to remove the impediments that affect the

nursing service delivery in public hospitals. It should be at the heart of any policy intervention to reduce burnout levels, improve nurse-patient ratio and improve the overall quality of life and well-being of healthcare providers to subsequently better the perceived satisfaction levels amongst patients. Hussain et al. (2019), with regard to their study about the nursing services in public hospitals in Pakistan, concluded that nursing staff should be increased, regular training programs to train the nursing staff be held, and policy interventions be introduced to lower stress and burnout levels amongst nursing staff to improve patients' experience and trust with the public healthcare system.

Just like burnout affects the nursing services in healthcare settings, studies have also confirmed that the quality of life of healthcare providers also impacts the relationship between nursing services and patient satisfaction. One such study, carried out in India by Kumar, Bhat & Riyali (2018) confirmed that better patient care was provided, and higher levels of job satisfaction were reported, by nurses who had higher quality of life scores. On the contrary, nursing staff that was experienced higher levels of stress, burnout, and poor quality of life reported job dissatisfaction and failed to provide adequate nursing services to the patients. While highlighting the need to improve the quality of life of the nursing staff to subsequently improve the patient satisfaction levels, this study recommended that necessary public policy interventions were called for to provide mental health support and improve workplace conditions to foster a positive environment to enhance the nursing staff's quality of life.

### **2.4.3. Registration Services**

Another important factor that is found to have significant impact on the overall patient satisfaction levels is the registration services at public healthcare facilities. This is one of the oft overlooked, yet critical dimensions that greatly influence the overall patient experience within a hospital. Registration desks are usually the first formal point of interaction between the healthcare service providers and the patients visiting the Outdoor Patients Department (OPD). Therefore, the first perception about the overall healthcare services is, in most cases, developed on the front registration desk.

Curry & Sinclair (2002) carried out a study explicitly discussing the role of administrative delays in negatively impacting the overall patient satisfaction and experience levels. As per their findings, such delays are a significant and major

obstruction to improved perceived quality of healthcare leading to increased patient dissatisfaction especially in busy healthcare settings like that of government hospitals. They concluded that patients who face long queues or waiting time or complex and difficult registration processes are often dissatisfied with the entire healthcare services delivery system and in some cases patients often leave the hospitals without taking necessary healthcare. Their study concluded that it is as imperative to improve the administrative processes within a public healthcare facility as to improve the technical aspects of healthcare services like improving doctor services and nursing services. Such interventions were found to be imperative to improve the patient satisfaction levels.

These findings were substantiated by a study conducted in the same year by Diaz & Ruiz (2002) who also aimed to explore the effects of administrative delays on the levels of perceived patient satisfaction. Their study focused on the service delays in hospitals leading to patient agitation and distress. They concluded that indeed delayed administrative processes, especially in registration services, often led to developing frustration, agitation, and negative reactions amongst the patients. The researchers recommended that due attention should be given to administrative processes to complement the steps to improve the technical aspects of the healthcare services. In this regard, they specifically highlighted the importance of making use of patient feedback system to identify the loopholes, deficiencies, and inefficiencies to redress the same effectively.

After discussing the role of doctor and nursing services in framing the patient satisfaction perception, Hussain et al. (2019) also discussed in their study the relationship between registration services and patient satisfaction in public healthcare facilities and hospitals of Pakistan. In a comparative analysis, they showed that patients were more satisfied with the healthcare services provided at the hospitals where registration processes were smooth and where they faced minimum administrative delays. However, the researchers also found that existing paperwork required to be completed especially within the government hospitals is too redundant and cumbersome that unavoidably causes the inordinate administrative delays. Yet again, they have highlighted the need for policy interventions to streamline the administrative processes to improve patient satisfaction with the public healthcare system. As a recommendation, the researchers recommended that in the context of public hospitals in Pakistan, electronic registration services be introduced and the redundant paperwork

be cut out, while imparting training to administrative staff for improving efficiency and reducing inordinate delays.

#### **2.4.4. Waiting Time**

Another administrative factor, which has been proved to have significant impact on the patient satisfaction levels within the public healthcare setup, is the waiting time. This include the time spent by a patient from entering the OPD of a public healthcare facility to leaving the hospital. Apart from the overall waiting time, there are some specific indicators within the overall waiting time dimension. These include the time waited by the patient in queue for registration, time spent during the actual registration process, time spent in the waiting lounge for preliminary check up, time waited to be seen by the doctor, time spent to get the medical tests done, and the time spent to get the prescribed medication.

In a similar study, Curry & Sinclair (2002) have discussed the role of waiting times in shaping the patient satisfaction and experiences. They concluded that timely access to healthcare services is paramount to ensure that patients perceive the healthcare services satisfactorily. Obviously, the patients who experience avoidable delays in getting the treatment to remedy their pain and suffering, would never rate the overall experience as satisfactory. Such patients always report lower levels of satisfaction and often show their frustration towards the healthcare experiences. They concluded that there is a dire need in reducing the waiting time to improve patient experiences in OPD of public hospitals.

In their study on the influence of waiting time on patient satisfaction levels, Xie & Or (2017) have identified waiting times as a key factor that determine the satisfaction levels of patients especially in OPD settings, therefore, being consonant to the findings of Curry & Sinclair (2002). They found that shorter waiting times in public healthcare settings translate into better and higher levels of patient satisfaction with the healthcare service delivery system. This also improves the overall patient experiences within the hospital leading to better adherence to treatment plan and timely follow-up visits, collectively contributing to higher healthcare outcomes. Thus, the researchers have emphasised on the need of managing waiting times to make them shorter, if cannot be fully eradicated.

Another study that complements the findings of the studies discussed above was carried out by Diaz & Ruiz (2002) who again discussed the importance of addressing the issue of longer waiting time to improve patient satisfaction. They found that lower levels of satisfaction were reported by patients who perceived delays and waiting times at the public hospitals to be avoidable and considered them unreasonable. The researchers have discussed in detail the need to enhance patient experience by engaging them in a productive way to avoid them being frustrated if the waiting time is unavoidable. This includes provision of accurate information about the actual waiting time and implementing strategies to reduce the delays whenever and to whatever extent possible. This includes deployment of sufficient administrative and healthcare staff, improving of medical equipment and paraphernalia as well as making healthcare processes more efficient.

The last factor which Hussain et al. (2019), apart from doctor services, nursing services, and registration services, have discussed in their study as determinant of patient satisfaction at public healthcare system of Pakistan, is the waiting times. In consonance with the earlier findings, their study has also concluded that patients reported higher levels of satisfaction with the hospitals where waiting time for doctor consultation and medical tests were shorter. On the contrary, they also found that hospitals where longer waiting times were experienced by the patients, satisfaction levels were drastically low. This was particularly the case with public hospitals. The findings of Hussain et al. (2019) are specifically relevant to this study as they discuss the Pakistani context and also suggest important policy and governance related interventions to address the prevalent impediments especially related to waiting times. No matter how high the standards and quality of technical aspects of healthcare services are, patients would always report their dissatisfaction merely, based on the fact that the public hospitals are overcrowded.

## **2.5. Moderating Factors: Burnout and Quality of Life**

Up till now we have discussed the relevant literature pertaining the factors that directly affect the overall patient satisfaction, i.e. doctor services, nursing services, registration services, and waiting time. These factors are direct impactors or predictors of the dependent variable ‘patient satisfaction’ which is the observed variable in the present study. However, as mentioned in Chapter 1 – Introduction to this study, this study hypothesizes that apart from the factors directly related to the patient satisfaction, certain other factors also play an important

role by defining, predicting, or impacting the relationship between the direct factors like doctor services and nursing services with the patient satisfaction. These are called moderating factors and for this study, we have hypothesized that two important factors i.e. Burnout in healthcare providers and the quality of life of healthcare providers impacts the relationship between healthcare providers services with the patient's satisfaction. In this section, relevant studies have been reviewed based on which the moderating role of burnout and quality of life was considered significant enough to be taken as a part of this study's conceptual framework.

### **2.5.1. Healthcare Providers' Burnout**

Although, in previous sections of this chapter, burnout as a factor has been discussed briefly, yet it is important to give a detailed overview of burnout in healthcare providers and how does it impact the healthcare provider's quality of services. The Merriam-Webster Dictionary defines Burnout as 'exhaustion of physical or emotional strength or motivation usually as a result of prolonged stress or frustration'. Similarly, the Collins Dictionary defines Burnout as 'a total loss of energy and interest and an inability to function effectively, experienced as a result of excessive demands on one's resources or chronic overwork'.

In terms of the instrument that has been used most widely to gauge the burnout amongst professionals, i.e. Maslach Burnout Inventory, burnout is characterised by three dimensions, namely: emotional exhaustion, depersonalization, and reduced personal accomplishments. (Maslach, Jackson & Leiter, 1996). Emotional exhaustion is a feeling of emotionally drained and overwhelmed by work. Whereas, depersonalization is behavioural response to longer working hours or excessive workplace expectations leading to development of a cynical and indifferent attitude towards the clients, in this case patients. On the other hand, reduced personal accomplishments refer to an individual's satisfaction with what they have achieved as a part of his job and may express their frustration with the lack of achievement in their lives, lack of spark, and lack of motivation. Burnout especially within the healthcare providers has been proved to impact the patient satisfaction levels indirectly since it impacts the healthcare providers overall will to help the patients. This subsequently hampers in achieving the healthcare outcomes and goals.

### **2.5.2. Impact of Physician Burnout on Patient Satisfaction**

In the context of analysing the impact of burnout on healthcare providers rendering of quality services to the patients, this study would analyse the impact of burnout on both doctors and nurses, considering both being the undeniably important part of the healthcare providers services. The study done by Anagnostopoulos et al. (2012) examined the relationship between patient satisfaction and the doctors' burnout in the context of primary healthcare hospitals. This important and groundbreaking study, which used MBI as appropriate instrument, showed that such doctors who experience higher levels of emotional exhaustion and depersonalization failed to provide satisfactory consultations to their clients, which resulted in lower levels of patient satisfaction. On the other hand, doctors who reported themselves to be motivated and emotionally balanced and stable, were found to have received higher levels of satisfaction from their patients. In this study, the researchers collected data from two groups of participants i.e. patient satisfaction data was obtained directly from the patients using the PSQ and burnout information was self-reported by the doctors themselves.

Mangory et al. (2021) in a recent study also conducted a systematic review of literature regarding studies that examined the impact of burnout amongst physicians on overall patient outcomes. Their review confirmed the adverse effects of burnout on patients satisfaction including but not limited reduction in quality of healthcare being afforded to them and increase in probability of misdiagnosis and mistreatment. Their review also concluded that systematic interventions are imperative to address the burnout not only for the betterment of the patients and to achieving the healthcare outcomes but also for the overall welfare and well-being of healthcare providers who are the backbone in public healthcare sector.

### **2.5.3. Impact of Nurse Burnout on Patient Satisfaction**

Just like burnout affects the performance of doctors or physicians, the negative effects of burnout in nursing staff also have detrimental impact on the healthcare service delivery. Vahey et al (2004) conducted an exploratory study in which they examined how burnout in nursing staff negatively affects the patient satisfaction in public hospitals. Just like the findings of earlier studies on doctor burnout, this study reported similar results stating that nurses who experienced higher level of emotional exhaustion and depersonalization were not likely to provide satisfactory healthcare services to the patients. They pinpointed the role of staff inadequacy, longer working hours, strained

doctor-nurse relationship, and lack of administrative support as primary reasons for higher levels of burnout in nursing staff.

Another important study in this regard was conducted by Hoff et al. (2017) that also examined the impact of burnout in doctor assistants and nurse practitioners on patient satisfaction levels. Just like the case of physicians, this study also concluded that burnout was found to have hampered the healthcare service outcomes by reducing the levels of satisfaction in patients for healthcare system. Yet again, healthcare providers who reported higher burnout levels were ranked as unsatisfactory service deliverers by the patients and vice versa. This study is particularly important as it suggested some governance and policy interventions to help mitigate the negative affects of burnout, recommending that hospitals must implement to ensure judicious workload and ensure mental health support for their healthcare providers.

#### **2.5.4. Global Perspective on Burnout in Healthcare**

It is important to note that the issue of burnout in healthcare providers is not one that can be discussed in silo. It is a globally recognized issue that has been proven to have negative affect on the healthcare systems across the globe. The latest study in this regard was published in 2023 by Yuguero and Hodkinson, who discussed the ‘public health problem of burnout in health professionals’ while emphasising its severe impact on patient satisfaction and healthcare outcomes. They argued that burnout is a very significant hurdle in providing quality healthcare to patients and recommended systemic interventions to address the issue. Their specific recommendations were to implement policies that would reduce workload to a fair level, provide continuous mental health support to health professionals, and the need to foster a positive and robust working environment which not only mitigate the effects of burnout in healthcare professionals but would also lead to a satisfied and content clientele.

Taking cognizance of the global nature of burnout as a factor that greatly influences the healthcare providers’ service delivery, especially in a post COVID environment, a special issue of the ‘Frontiers in Public Health’ was published in 2023 that specifically addressed the different aspects of burnout, job satisfaction, and the role of different facets, dimensions or variables to mitigate the burnout amongst the healthcare providers. The literature review grid for this special issue is given below:

Author(s)	Title	Year	Purpose of the Study	Methodology	Findings	Conclusions
Hodkinson et al.	Editorial: The Public Health Problem of Burnout in Health Professionals	2023	Highlight the global crisis of burnout among healthcare workers	Editorial synthesis	Burnout is widespread; systemic reforms needed	Organizational changes needed beyond financial incentives
Song et al.	Social Support, Resilience, and Burnout Among Chinese Pediatric Residents	2023	Examine links between social support, resilience, burnout, and negative emotions	Cross-sectional survey and mediation analysis	Social support and resilience reduce negative emotions through lower burnout	Social support and resilience are key protective factors
Zhang et al.	Psychological Capital, Job Satisfaction, and Work Engagement in Chinese Nurses	2023	Explore psychological capital, job satisfaction, and work engagement among nurses	Comparative survey and structural equation modeling	Psychological capital and job satisfaction drive work engagement	Psychological capital and job satisfaction are critical to engagement
Gossmann et al.	Daily Work-Related Rumination and Well-Being in Psychotherapists	2023	Analyze daily rumination and its link to therapist burnout and well-being	Daily diary study	Rumination worsens daily mood and predicts burnout	Reducing daily rumination can prevent therapist burnout
Otuonye et al.	Disparities in Burnout and the Protective Role of Immigrant Status	2022	Identify burnout disparities and protective role of immigrant status	Cross-sectional survey and logistic regression	Immigrant status protects against burnout; home life changes increase risk	Addressing life disruptions and supporting immigrants essential
Al-Dossary et al.	Risk Management, Fear Perception, and Mental Well-Being in Saudi Nurses	2022	Assess risk management, fear perception, and mental well-being during COVID-19	Descriptive cross-sectional survey	Better risk management and lower fear correlate with better mental health	Preparedness and reducing fear promote nurses' mental well-being
Makhdoom et al.	When Workaholism Is Negatively Associated with Burnout: A Moderated Mediation	2022	Test moderated mediation of workaholism, psychological capital, and burnout	Cross-sectional survey with moderated mediation analysis	Workaholism reduces burnout when psychological capital is high	Workaholism's effects vary depending on psychological resources
Chen et al.	Psychological Interventions for Empathy Fatigue in Nurses: A Meta-Analysis	2022	Evaluate effectiveness of interventions for empathy fatigue in nurses	Meta-analysis of intervention studies	Interventions reduce empathy fatigue and burnout, enhance satisfaction	Psychological interventions should be integrated routinely
Zhang et al.	Horizontal Violence and Turnover Intention in Nurses: A Meta-Analysis	2022	Examine relationship between horizontal violence and turnover intention	Systematic review and meta-analysis	Horizontal violence positively linked to turnover intention	Anti-bullying policies needed to improve nurse retention
Liu et al.	Occupational Benefit Perception of Acute and Critical Care Nurses	2022	Synthesize positive occupational benefits among critical care nurses	Qualitative meta-synthesis	Positive experiences like saving lives buffer burnout	Fostering positive work experiences buffers against burnout
Liu et al.	Factors Influencing Smoking Cessation Counselors' Intention to Stay	2022	Test conceptual model of factors influencing smoking cessation counselors' retention	Cross-sectional survey and path analysis	Institutional identification and job satisfaction boost retention	Institutional loyalty and satisfaction enhance workforce stability
Zhang et al.	Professional Identity, Job Satisfaction, Burnout, and Turnover Intention	2022	Analyze professional identity, job satisfaction, and burnout among rural health workers	Cross-sectional survey and mediation analysis	Professional identity and job satisfaction reduce burnout and turnover	Strengthening identity and satisfaction reduces rural turnover

Author(s)	Title	Year	Purpose of the Study	Methodology	Findings	Conclusions
Chen et al.	Global Insights into Rural Health Workers' Job Satisfaction	2022	Map global research trends on rural health workers' job satisfaction	Scientometric analysis of literature	Job satisfaction, burnout, and turnover intention are interconnected	Future research should focus on intervention development
O'Higgins et al.	Burnout, Psychopathology, and Purpose in Life in Healthcare Workers	2022	Investigate burnout, psychopathology, and life purpose among healthcare workers	Cross-sectional survey with regression analysis	Purpose in life lowers burnout and improves mental health	Strengthening life purpose can protect healthcare workers
Li et al.	Job Satisfaction and Related Factors Among Emergency Department Physicians in China	2022	Identify factors related to job satisfaction among Chinese ED physicians	Cross-sectional national survey	Low satisfaction linked to shift frequency, poor staffing, and work-life conflict	Shift redesign and support needed for emergency doctors
Chen et al.	Scientometric Analysis of Rural Health Workers' Job Satisfaction Research	2022	Analyze scientometric links between job satisfaction, burnout, and turnover	Scientometric methods and keyword analysis	Rural workforce research emphasizes satisfaction-burnout-turnover link	Job satisfaction is key to sustaining rural healthcare
Ahmed et al.	Burnout, Compassion Fatigue, and Secondary Traumatic Stress in Physicians	2022	Clarify construct overlap between burnout, compassion fatigue, and STS	Factor analysis (CFA, EFA)	Burnout, CF, and STS overlap considerably in physicians	Broader occupational distress model needed in physicians
Wang et al.	Work Environment Characteristics and Burnout in Chinese Healthcare Workers	2022	Analyze impact of work environment on burnout among healthcare workers	Cross-sectional survey and regression	Supportive leadership and manageable workload reduce burnout	Work environment improvements crucial for burnout prevention
Xiao et al.	Organizational Support, Occupational Stress, and Burnout in Community Health Workers	2022	Test organizational support as mediator between stress and burnout	Cross-sectional survey and mediation modeling	Organizational support reduces impact of stress on burnout	Support structures are essential to minimize burnout risk
Zhao et al.	Psychological Resilience as Mediator Between Stress and Burnout in Healthcare Workers	2022	Examine resilience as mediator between stress and burnout	Cross-sectional survey and mediation modeling	Resilience mediates stress-burnout relationship	Resilience building is key to combating burnout

### 2.5.5. Healthcare Providers' Quality of Life

Just like burnout, the overall quality of life of healthcare professionals is yet another important and significant moderating determinant that influences the patient experiences with the healthcare providers. As per WHO (1998), quality of life or QOL is an amalgamation of various significant dimensions or variables that collectively make up the overall quality of life. These include the healthcare professional's physical health, their psychological state, their social standings and relationships and the overall public and private environment. Theoretically, healthcare providers that report higher

levels of quality of life in all dimensions are better able to provide quality healthcare services to the patients while reporting higher levels of job satisfaction as well.

#### **2.5.6. Impact of Physicians' Quality of Life on Patient Satisfaction**

To examine the impact of quality of life of physicians on their success in providing satisfactory healthcare services, Abdelhadi Ibrahim et al. (2022) carried out research in the context of Egyptian tertiary care public hospitals. They examined the role of quality of life as a moderating factor to determine its impact on the relationship between physicians and patients. The findings of this study confirmed that physicians who scored higher on quality-of-life index were better able to provide quality patient care and received higher levels of satisfaction. Conversely, the doctors who reported lower levels of quality of life and reported higher levels of exhaustion, lower overall quality of life, and higher levels of physical or psychological stress, failed to provide satisfactory healthcare services. Such doctors were reported to have developed an indifferent attitude about the patients where they reported lower levels of empathy and care for their clients. The researchers in this identified the one most important factor for lack of motivation amongst doctors was their lack of psychological counselling and provision of assistance to maintain mental health.

Similar results were also reported by Ryali et al. (2018), who examined this relationship in the context of India. They also found that healthcare providers who reported higher levels of quality of life, were more satisfied with their jobs and demonstrated empathy and compassion towards the patients. Such doctors were found to be better in communicating with patients and listening to the patients condition in an engaging manner. The study found that owing to these characteristics such doctors showed high probability of correct diagnosis, appropriate treatment regime and recorded higher rate of follow up visits by the doctors. The important characteristic of this research is that it advocates the importance of addressing the psycho-social factors proving that psychological health and a healthcare provider's social relationships greatly affect the job satisfaction and stress levels.

#### **2.5.7. Impact of Nurses' Quality of Life on Patient Satisfaction**

While the study by Riyali et al. (2018) discussed the impact of doctor's quality of life on patient satisfaction, it also examined the impact of it on nursing services. In the context of India, just like in case of physicians, their findings proved that better

quality of life perceptions amongst nurses resulted in better patient care and reporting of higher levels of job satisfaction. However, they also highlighted that such nurses that reported higher levels of stress and poor quality of life were found to provide suboptimal healthcare, which resulted in lower patient satisfaction.

Yugueor & Hodkinon's (2023) study also discussed the importance of quality of life in healthcare providers for achieving the higher standards of universal healthcare in public sector. They remained adamant in arguing that to maintain positive relationship with patients, healthcare providers must self-report higher levels of quality of life. They presented the logical conclusion that individuals who are not satisfied with their own lives and for that matter the jobs they are performing can never be able to help others in a meaningful and effective manner. Healthcare professionals who report physical, psychological, or social issues would automatically render subpar services. Without having interest in the job they are doing, the ultimate outcome of better healthcare facilities can never be achieved. This also hampers the people's trust in the government institutions and policy interventions tend to remain unsuccessful.

#### **2.5.8. Global Perspective on Quality of Life in Healthcare**

Just like burnout amongst healthcare providers, the quality of life of medical professionals is also a global issue as it affects the healthcare regimes across the globe. It is a common problem which is prevalent in all countries irrespective of their economic ranking or conditions. While recognizing this as a global hurdle in provision of universal health services, World Health Organization has developed a standardized instrument for all healthcare facilities, whether public or private, to periodically gauge the quality of lives of their healthcare professionals. This recognizes the need of looking after the frontline healthcare professionals physically and psychologically as well as to help them improve their social relationships, all while making sure they have a robust and empowering environment. The WHOQOL-100 is a detailed 100 item instrument designed to analyse the self-reported levels of different dimensions of quality of life by healthcare professionals. A shorter version, which is also being used for this study, WHOQOL-Bref is a 26 item survey, which also has been proven to be reliable and valid tool for assessing the quality of life among healthcare providers in diverse cultural and economical contexts. Studies have shown, like that conducted by Skevington et al. (2004), to show the validity and reliability as well as the psychometric properties of the WHOQOL instruments.

## **2.6. Patient Satisfaction in Public vs. Private Healthcare Systems**

We have seen that patient satisfaction is probably the most important measure to assess the quality of healthcare services. However, this varies significantly in public and private healthcare settings. In previous sections we have discussed very briefly about this aspect, however, in this section we delve deep in understanding the basic differences between the dynamics that shape the patient satisfaction levels in public and private healthcare facilities.

Obviously, public healthcare systems are often funded and managed by the government, and they intend to provide universal healthcare coverage to the sittings, notwithstanding their social or economic standing. Public healthcare facilities are thus open for all and non-exclusive. On the contrary, private healthcare facilities are highly exclusive that are driven by the usual principles of economics, leeching on the fundament capitalist principle of profit maximization and working as a corporate entity. The role of public healthcare hospitals is to provide universal healthcare services, where as the aim of private healthcare hospitals is to maximise their profits. This is naturally appropriate and acceptable because in public hospitals the funding is generated through taxation, which is after all public's money and should be spent on the people. Whereas, private hospitals are funded privately and serve as an alternative to public healthcare system, swanking about their better facilities, friendly environment, personalised care, qualified and trained manpower, inter alia.

This section aims to explore all that and more to primarily analyse the challenges faced by the public healthcare system and how can they be addressed using the policy and governance related decision. By examining these aspects, this section intends to lay groundwork and to develop a comprehensive understanding of how patient satisfaction levels differ across private and public healthcare settings.

### **2.6.1. Comparative Analysis of Public and Private Healthcare Systems**

As already discussed in the introductory paragraph of this section, the fundamental difference between public and private healthcare systems lies in the sources of funding, management, objectives, and quality of service delivery. Where public hospitals focus on providing universal access to healthcare backed by government funding and ensuring equity and equality in service delivery, private hospitals focus on efficiency, profit maximisation, exclusivity, and personalized care. These stark differences have a very deep and profound impact on the levels of patient satisfaction amongst the people, etched deeply in the social hindsight of the society

even without practically having the experience thereto, as patients broadly believe that the healthcare services offered at private hospitals are far better than the ones provided at public hospitals. At what cost? No one usually considers. Let's now discuss the patient satisfaction levels and review the studies that examined this in both settings.

### **2.6.2. Patient Satisfaction in Public Healthcare Systems**

Public healthcare facilities, especially the ones in the developing or underdeveloped countries, like that of Pakistan, are characteristically marred by the challenges like overcrowding, long waiting times, indifferent human resource, and inadequate financial resources that all contribute negatively towards patient satisfaction. Hussain et al. (2019) while examining the patient satisfaction levels in public hospitals of Pakistan, concluded that the overall patient satisfaction levels were low owing to longer waiting times, lack of properly trained and empathetic human resource, let it be healthcare professionals or administrative staff, and above all poor infrastructure augmented by lack of facilities.

Although we will discuss the key issues and challenges with the public healthcare system in detail later on, it is not out of place to mention that the biggest challenge public hospitals across the countries face is that of insufficient funding. Inadequate budget leads to compromised healthcare facilities which include basic infrastructure, medical equipment, provision of free medicine, and, most importantly, understaffing. All these challenges directly impact the levels of patient satisfaction since they affect the quality of healthcare being afforded to them.

Another significant issue in public healthcare systems is the lack of patient-centred care which also distinguishes it primarily with the private hospitals that take pride in personalised healthcare. Public hospitals, again being short on funding, focus on cost-cutting and prioritize it over personalized care, leading to a more strained relationship between healthcare providers and patients. Patients in public healthcare systems report about the indifferent attitude of the service providers, who consider them unsympathetically and unemotionally. This sense of robotic treatment leads to lower patient satisfaction, as patients may feel that their concerns are not being adequately addressed (Hussain et al, 2019).

### **2.6.3. Patient Satisfaction in Private Healthcare Systems**

As already stated, private healthcare systems are always credited to provide high quality healthcare and ensure better patient experiences with a comfortable and peaceful environment, which augments the technical aspects of the patients medical treatment. In the context of Bangladesh, Andaleeb (2001) carried out a study wherein the author examined patient satisfaction levels with the private hospitals. The results of the findings concluded that the patients at private hospitals were more satisfied compared to the ones of the public hospitals primarily due to shorter waiting times, improved communication and interpersonal skills of the healthcare providers, and especially the personalised care offered to them. The study concluded that the factors of responsiveness, improved levels of empathy and high quality of medical care shaped the higher levels of patient satisfaction.

The study also highlighted that one of the characteristic key advantages of getting medical treatment from private medicate centres is the personalised care given to patients. Private hospitals are able do so owing to their substantial financial resources as well as administrative and financial autonomy to tailor the services to meet the individual needs. This advantage can hardly be replicated in public hospitals since treatment afforded at such hospitals has to be general and equitable. Yet, this one particular aspect has apparently placed the private healthcare sector at a very advantageous position.

Similarly, the ability of the private sector to provide empathetic and responsive services to their clients is a hallmark of private healthcare sector. Further, the patients experience improved administrative processes where there are shorter waiting times and streamlined registration services. These factors contribute positively to the patient experiences with the hospital. Apart from that, the unique characteristic of the private healthcare environment is the freedom that the patients enjoy. For example, appointments can be scheduled or modified in advance as per convenience of the patients with the physicians or consultants of their choice. Similarly, the medical diagnostic tests and nursing services are also far better in private hospitals and patients are not made to wait at every step of their healthcare experience.

#### **2.6.4. Global Perspective on Public vs. Private Healthcare Systems**

However, it must be noted that the stark difference prevalent between the public and private healthcare systems is not just limited to the developing or underdeveloped

countries but is also spread across the more advanced and economically stable countries. In their study in the UK context, Bleich et al (2009) compared the patient experiences in public and private healthcare systems of the UK. Their findings showed that patients in private healthcare systems reported higher levels of satisfaction since they underwent shorter waiting times, better communication with the healthcare professionals, and received more personalized care. Taking lessons from the private healthcare sector, this study concluded that public healthcare sector should reduce gaps between the service quality aspects of public and private sectors.

They moved on to discuss the role of National Health Service (NHS) in the UK that aims to provide universal healthcare coverage to all citizens of the country. However, hospitals managed by the NHS are reported to have longer queues, waiting times, limited and compromised access to certain medical equipment and treatments. This resultantly leads to lower levels of patient satisfaction with public hospitals. Yet, the public healthcare system in developed countries have more resources at their disposal and they are in a better position to bridge the gap between services offered at public and private hospitals.

## **2.7. Challenges in Public Healthcare Systems – the Pakistani context**

As already discussed, the public healthcare sector faces a lot of challenges that hamper achieving higher levels of patient satisfaction. These challenges include, but are not limited to, inadequate funding, overcrowding, long waiting times, and poor infrastructure and medical equipment. In order to improve patient satisfaction and healthcare outcomes in public sector, these challenges are required to be addressed, especially for the healthcare sector of Pakistan.

### **2.7.1. Inadequate Funding and Resource Allocation**

As already stated, the first and foremost important challenge to the public healthcare sector is the inadequate funding, particularly in developing countries. Shaikh and Hatcher (2005) conducted a study from the platform of Agha Khan Research Foundation in which they examined the challenges being faced by the Pakistan's public healthcare system. They concluded that insufficient funding and lack of proper resource allocation were significant hurdles in providing improved healthcare services, which subsequently led to lower patient satisfaction. The study especially focused on the need for increased healthcare funding and budget allocations, while making the resource

allocation and expenditure processes efficient and transparent to improve patient satisfaction in public healthcare systems.

As per Baig and Rahat (2004), in Pakistan healthcare budget is 0.4% of the total GDP which should be at least 6% of the GDP as prescribed by the World Health Organization (WHO). The total budget outlay for public healthcare services under the Primary & Secondary Healthcare Department and Specialised Healthcare and Medical Education Department, Government of the Punjab, for the FY 2024-25 is Rs.539.100 billion. This includes the non-development budget (recurring expenses like salaries, operating expenses, repair & maintenance, etc.) of Rs.410.500 billion, which is 76% of the total budget (Chaudhry, 2024). Keeping in view the total population of the province of Punjab during 2024-25, which is 127.68 million, the budget allocation reveals that for every citizen of Punjab, the government has allocated a maximum of Rs.4,222/- per person per annum. For reference, this amount accounts for a total of 126 strips of Paracetamol tablets (@Rs3.35 per tablet), which is probably the most widely common household medicine of Pakistan.

Lack of adequate and sufficient funding for public healthcare sector results in shortage of medical supplies, insufficient medical diagnostic testing capabilities, understaffing, issues of hygiene and better environment to improve patient experiences, and outdated and obsolete medical equipment. All these aspects obviously impact the quality of care extended to the patients of public hospitals which then results in dissatisfaction amongst patients for the healthcare sector.

In the Pakistani context, before the introduction of the 18<sup>th</sup> constitutional amendment, healthcare services were more a shared responsibility between the federal and provincial governments. The devolution of health services entirely to provinces was done to ensure that the people of Pakistan get better and improved medical facilities. However, according to Nishtar et al. (2013) political instability that has lasted for decades and which resulted in poor governance led to lack of interest of political regimes in investing in public health. As per the researchers, over 78% of citizens of the country pay for their healthcare services out of their own pockets. Although the 18<sup>th</sup> amendment devolved health responsibilities to provinces, providing them with a chance to introduce health sector reforms, yet institutional capacities, policy continuity, and financial mismanagement remained burning issues. In short, it resulted in Pakistan

lacking a federal health structure, worsening coordination, particularly in areas like regulation, health information, and epidemic control.

Similarly, a more recent study by Forman et al. (2022) discusses the Sehat Sahulat Program (SSP) initiative which was particularly successful in Khyber Pakhtunkhwa (KPK) and later proved fruitful in Punjab as well. This initiative aimed to achieve the goal of providing quality healthcare services as a universal health coverage program. The program envisioned to provide free inpatient treatment across public and private hospitals, significantly reducing catastrophic health expenditures. This program was particularly practical as it acknowledged the participation and role of private healthcare sector in Pakistan, taking cognizance of the fact that 70% of Pakistanis seek medical care from private healthcare sector in both urban and rural settings. This program, by 2022 in which the study was published, had facilitated 10 million household across the country. However, the study stresses the need for further investment in outpatient and preventive care, rural access, quality control, and robust surveillance to sustain and scale the initiative equitably.

### **2.7.2. Overcrowding and Long Waiting Times**

Another challenge in the context of public healthcare sector in Pakistan, especially in urban areas is that of overcrowding and longer waiting times. This fact is corroborated by the study undertaken by Hussain et al. (2019) which revealed that longer waiting times and overcrowding in public hospitals, especially in the outdoor patient department (OPD) were significant hurdles in achieving higher levels of patient satisfaction. The study concluded that in urban cities, the issue of overcrowding is particularly troublesome.

Kamran et al. (2024) undertook a study to examine the waiting times was conducted in Shalamar Hospital, Lahore. The results showed that more than 50% of the patients at the hospital had to wait for more than one hour to get medical treatment at OPD. Around 6% patients waited up to 6 hours before being getting the medical attention. They specially pointed out that waiting times, especially in gynaecology and obstetrics departments, needs to be curtailed keeping in view the prevalent 14% maternal mortality rate.

### **2.7.3. Poor Infrastructure and Inadequate Facilities**

In their study, Khan and Hussain (2008), while examining the patient satisfaction levels in public hospitals across Pakistan, revealed that poor infrastructure and inadequate facilities were major hurdles to patient satisfaction. They emphasised the need for policy interventions to improve the infrastructure and adequately facilitate the hospitals for improved medical outcomes.

Baig and Rahat (2024) point out the stark deficiencies in the healthcare infrastructure of Pakistan, specifically within the public healthcare system. They have opined that most of the healthcare facilities in the country are using outdated and obsolete medical equipment and face critical levels of understaffing in all departments. This is particularly the case in public healthcare facilities like BHUs and RHCs in rural settings where doctors often refuse to get posted. They have further provided that the lack of infrastructure facilities is not merely limited to the absence of physical facilities but also include the lack of basic and essential medical supplies. This substantially hampers patient satisfaction. Infrastructure inadequacy is not limited to physical facilities but also includes a systemic lack of essential medical supplies and equipment, hampering the delivery of quality healthcare services. The authors insist on the need for major policy and governance reforms to redress these chronic issues.

In their systematic review, Khan et al. (2023) provide a very comprehensive overview of Pakistan's healthcare infrastructure problems. They have pinpointed in existing literature the issues of underfunding, inadequate facilities, and unequal distribution of resources. They have noted that Pakistan spends only around US \$ 38 per head on health. This translates in provision of poor infrastructure and overall healthcare services. Public hospitals are not able to provide efficient diagnostic services, critical medical supplies, or even the basic amenities, especially in many rural facilities. They have also taken into consideration the impact of brain-drain, which compounds the lack of infrastructure.

In their cross-sectional study of seven public tertiary care hospitals in Lahore, Islamabad and Rawalpindi, Mumtaz et al. (2023) offer a practical review of non-medical infrastructure. They found prevalent deficiencies in hospital cleanliness, janitorial services, patient waiting areas, and staff behaviour. They found that the emergency and outdoor patient departments were very poorly equipped to handle mass casualty instance. The trauma-specific facilities were also found to be lacking and even the basic hygiene supplies like handwashing stations were absent. The authors

concluded that there was dire need for feedback surveys from patients to ensure infrastructure maintenance and introduction of policy-level reforms to bridge these administrative and infrastructural gaps.

## **2.8. Role of Policy and Governance in Improving Patient Satisfaction**

In the previous sections, we have noted that the patient satisfaction in public healthcare is the most important reflection of the efficiency, effectiveness, equity, and responsiveness of a healthcare system. In Pakistan, the patient satisfaction is deeply impacted by the health policy initiatives and decisions, and governance structures, on all levels of government, including federal, provincial and district levels, that determine the access to, quality of, and accountability in service delivery. We have also seen and statistically shown that public sector hospitals in Pakistan lack resources and face funding cuts. The public healthcare sector has also struggled with systemic challenges including, but not limited to, bureaucratic inefficiencies, poor regulation, and fragmented governance. However, in recent past, certain key reforms in health policy, digital governance, and decentralization have shown a promising future for patient care experiences.

### **2.8.1. Policy Interventions to Improve Service Delivery**

The systematic changes in policy framework of Pakistan's health policy demonstrate a growing focus on ensuring equality, equity and universal health coverage. The *National Health Vision 2016–2025* is a strategic policy document that promotes and calls for affordable, essential services through an inclusive health system aligned with the Sustainable Development Goals (MoNHSRC, 2016). One of the key milestones achieved by the government in this regard, is the launch of Sehat Sahulat Program (SSP), which is undoubtedly Pakistan's first major universal health coverage initiative. It has considerably enhanced financial protection by providing free inpatient services to 10 million household, as of 2022, hence, reducing the burden from the downtrodden segments of the society and indirectly improving patient satisfaction by minimizing financial stress (Khan et al., 2023).

Similarly, in Punjab, reforms at Basic Health Units (BHUs) and Rural Health Centres (RHCs) have been implemented to ensure provision of healthcare related service delivery at the doorsteps of the citizens in rural areas. These reforms are augmented by the support of ICT interventions for monitoring and evaluation purposes. supported by ICT-based monitoring mechanisms. Such interventions are key reforms

that are in the right direction, albeit their scale remains limited and their implementation is still weak (Callen et al., 2013). Similarly, the introduction of public-private partnership (PPP) model in public hospitals of Punjab, where radiology and laboratory services were outsourced to improve patient experiences, add value to the efforts of the government to improve service quality (Kurji et al., 2016). Also, the introduction of District Health Authorities in Punjab to cater for the Primary and Secondary Healthcare needs directly spearheaded by the medical professionals was a step in the right direction to avoid bureaucratic influence and bottlenecks. Yet, that initiative was also deliberately sabotaged when Deputy Commissioners of the districts were appointed as Administrators of these authorities. Therefore, strong institutional backing, policy continuation, and political will are essential for these reforms to bear fruit.

### **2.8.2. Regulatory Frameworks and Quality Assurance**

Similarly, the healthcare regulations in Pakistan have remained inadequate, devoid of oversight, lacking standardization and replicability. Each new government introduced regulatory frameworks and quality assurance programs that suited them. There has been almost always an absence of a centralized regulatory authority post-18th Constitutional Amendment has led to provincial disparities in regulatory effectiveness. On federal and provincial levels, certain quality assurance and regulatory bodies exist but they are not consolidated but segmented. For example, Drug Testing Laboratories (DTL) exist in all provinces as well as in the federal government. Similarly, Drugs Regulatory Authority of Pakistan (DRAP) is working under the Ministry of Health Regulations of Federal Government but lacks control over provincial jurisdiction. Siddiqi et al. (2020) opine in their study that while some provinces have set up health commissions, for example Punjab Healthcare Commission, and regulatory regimes, however, their enforcement still remains a challenge.

Again, efforts are underway to improve the prevalent situation in this regard. The Punjab government's recent initiative of digitising and standardizing the treatment, internal audit, medical audit, administrative, inventory, and infrastructure modules is a step towards the right direction. The implementation of Hospital Management Information System (HMIS) and Medicine Information Management System (MIMS) ensures that ICT infrastructure is introduced to overcome the bureaucratic challenges, thereby making the healthcare service delivery transparent. Yet challenges remain, as

a recent study in Lahore's tertiary hospitals identified critical challenges in truly implementing the HMIS and MIMS, particularly the inadequate allocation of fund and other logistic issues (Siddique et al., 2023). These bottlenecks prevent the realization of data-driven quality improvement strategies. Hence, there is a dire need to building a proactive and patient-centric regulatory environment complemented by financial autonomy for public hospitals, and data-driven decision making.

### **2.8.3. Governance Mechanisms and Accountability**

Accountability and answerability to the public has always remained an issue within the Pakistan's context. This reflects governance failure as the public healthcare sector of Pakistan is marred with lack of accountability, non-responsiveness, and absence of transparency. These all act as major hurdles in improving patient satisfaction in Pakistan's public hospitals. According to Mohamed and Nawaz (2022), there is no accountability mechanism within the public hospitals in Pakistan, resulting in delayed services, inequitable care, and patient neglect. The calls for strike in OPD of public hospitals has become a norm and every now and then, for genuine or false reasons, hospital staff and professionals stop providing healthcare services. This study highlights that while equity, transparency, and responsiveness positively influence health outcomes, accountability mechanisms remain underdeveloped and poorly institutionalized within the context of Pakistan.

Governance reforms always require clear allocation of roles across different levels of authorities, as emphasized by the *Review of Governance of Public Sector Hospitals in Pakistan* (Siddiqi et al., 2020). This review recommends continuous capacity development programs for hospital managers and professionals as well as adoption of e-governance initiatives to improve internal efficiency and public accountability. However, prevalent corruption, lack of or weak political will, and unnecessary bureaucratic interventions continue to undermine governance gains.

## **2.9. Gaps in Existing Literature**

Despite the growing body of research on patient satisfaction in Pakistan, several gaps remain in the existing literature. These gaps highlight the need for further research to better understand the factors influencing patient satisfaction and develop targeted interventions to improve healthcare services.

One of the key gaps in the existing literature is the limited research on patient satisfaction in rural areas of Pakistan. Most studies on patient satisfaction in Pakistan have focused on urban areas, with limited attention given to rural areas. This is a significant gap, as rural areas face unique challenges, such as poor infrastructure, inadequate facilities, and limited access to healthcare providers, which can significantly impact patient satisfaction. Further research is needed to examine patient satisfaction in rural areas and develop targeted interventions to address the challenges faced by rural healthcare systems.

Another gap in the existing literature is the lack of longitudinal studies on patient satisfaction in Pakistan. Most studies on patient satisfaction in Pakistan have been cross-sectional, providing a snapshot of patient satisfaction at a particular point in time. Longitudinal studies are needed to examine changes in patient satisfaction over time and identify the factors that contribute to these changes. This would provide valuable insights into the long-term impact of policy interventions and healthcare reforms on patient satisfaction.

Most studies on patient satisfaction in Pakistan have focused on patients' perspectives, with limited attention given to healthcare providers' perspectives. This is a significant gap, as healthcare providers' burnout and quality of life are critical factors that influence patient satisfaction. Further research is needed to examine healthcare providers' perspectives on patient satisfaction and identify the factors that contribute to burnout and poor quality of life among healthcare providers.

Another gap in the existing literature is the lack of context-specific tools for measuring patient satisfaction in Pakistan. Most studies on patient satisfaction in Pakistan have used standardized tools, such as the SERVQUAL model and the Patient Satisfaction Questionnaire (PSQ), which may not fully capture the unique challenges faced by Pakistan's healthcare system. Further research is needed to develop context-specific tools for measuring patient satisfaction in Pakistan, taking into account the cultural, social, and economic factors that influence patient experiences.

## **2.10. Conclusion**

The literature review presented in this thesis has explored various dimensions of patient satisfaction in healthcare, with a particular focus on the public healthcare system in Pakistan. By examining the theoretical frameworks, factors influencing patient satisfaction, moderating factors such as healthcare providers' burnout and quality of life, and the differences between public and private healthcare systems, this review has provided a comprehensive understanding

of the challenges and opportunities in improving patient satisfaction. The literature review has revealed several key findings regarding patient satisfaction in healthcare, particularly in the context of Pakistan's public healthcare system.

One of the most critical factors influencing patient satisfaction is the quality of doctor-patient relationships. Studies have consistently shown that patients are more satisfied when healthcare providers demonstrate empathy, effective communication, and a patient-centered approach (O'Connor et al., 1991; Hoff, 2017). In Pakistan, however, public healthcare systems often struggle to provide personalized care due to overcrowding, long waiting times, and inadequate resources (Hussain et al., 2019). These challenges highlight the need for interventions to improve doctor-patient interactions in public healthcare settings.

Nursing services also play a crucial role in shaping patient satisfaction. Nurses are often the primary point of contact for patients, and their ability to provide compassionate and attentive care significantly impacts patient experiences (Needleman, 2003). However, in Pakistan, nursing staff in public hospitals often face high levels of burnout due to long working hours, inadequate staffing, and poor working conditions (Vahey et al., 2004). Addressing these challenges is essential for improving patient satisfaction and healthcare outcomes.

Administrative processes, such as registration and waiting times, are another critical factor influencing patient satisfaction. Studies have shown that long waiting times and cumbersome administrative procedures can lead to frustration and dissatisfaction among patients (Curry & Sinclair, 2002; Diaz & Ruiz, 2002). In Pakistan, public hospitals often struggle with inefficient administrative processes, which contribute to lower patient satisfaction (Hussain et al., 2019). Streamlining these processes and reducing waiting times are essential for improving patient experiences.

Healthcare providers' burnout and quality of life are significant moderating factors that influence patient satisfaction. Burnout among healthcare providers, characterized by emotional exhaustion and depersonalization, has been shown to negatively impact patient satisfaction (Anagnostopoulos et al., 2012; Vahey et al., 2004). Similarly, healthcare providers with higher quality of life scores are more likely to provide better patient care and report higher levels of job satisfaction (Kumar et al., 2018). Addressing burnout and improving healthcare providers' quality of life are essential for enhancing patient satisfaction.

The literature review has also highlighted significant differences in patient satisfaction between public and private healthcare systems. Private healthcare systems are often perceived

as providing higher-quality care and more personalized services, leading to higher patient satisfaction (Andaleeb, 2001; Javed et al., 2018). In contrast, public healthcare systems in Pakistan face numerous challenges, such as inadequate funding, overcrowding, and poor infrastructure, which contribute to lower patient satisfaction (Khan & Hussain, 2008; Shaikh & Hatcher, 2005). Addressing these challenges is essential for improving patient satisfaction in public healthcare systems.

## **2.11. Implications for Policy and Practice**

The findings of this literature review have several important implications for policy and practice in Pakistan's healthcare system. One of the key policy recommendations is to improve doctor-patient interactions in public healthcare settings. This can be achieved through training programs that focus on enhancing healthcare providers' communication skills and empathy. Additionally, reducing the patient-to-doctor ratio in public hospitals can help ensure that healthcare providers have more time to spend with each patient, leading to more personalized care and higher patient satisfaction.

Addressing nursing staff burnout is another critical policy recommendation. This can be achieved by increasing staffing levels, reducing working hours, and providing mental health support for nursing staff. Additionally, fostering a positive work environment and improving working conditions can help reduce burnout and improve the quality of care provided by nursing staff.

Streamlining administrative processes and reducing waiting times are essential for improving patient satisfaction in public healthcare systems. This can be achieved by implementing electronic registration systems, reducing paperwork, and improving the efficiency of diagnostic services. Additionally, providing patients with accurate information about expected waiting times can help manage their expectations and reduce frustration.

Addressing healthcare providers' burnout and improving their quality of life are essential for enhancing patient satisfaction. This can be achieved by implementing policies to reduce workload, provide mental health support, and foster positive work environments. Additionally, providing healthcare providers with opportunities for professional development and career advancement can help improve their job satisfaction and quality of life.

Increasing funding and resources for public healthcare systems is another critical policy recommendation. This can be achieved by increasing government spending on healthcare, improving resource allocation, and attracting private sector investment. Additionally,

improving infrastructure and providing adequate facilities in public hospitals can help enhance the quality of care and improve patient satisfaction.

While this literature review has provided valuable insights into patient satisfaction in Pakistan's healthcare system, several gaps remain in the existing literature. These gaps highlight the need for further research to better understand the factors influencing patient satisfaction and develop targeted interventions to improve healthcare services.

One of the key gaps in the existing literature is the limited research on patient satisfaction in rural areas of Pakistan. Most studies on patient satisfaction in Pakistan have focused on urban areas, with limited attention given to rural areas. Further research is needed to examine patient satisfaction in rural areas and develop targeted interventions to address the challenges faced by rural healthcare systems.

Another gap in the existing literature is the lack of longitudinal studies on patient satisfaction in Pakistan. Most studies on patient satisfaction in Pakistan have been cross-sectional, providing a snapshot of patient satisfaction at a particular point in time. Longitudinal studies are needed to examine changes in patient satisfaction over time and identify the factors that contribute to these changes. This would provide valuable insights into the long-term impact of policy interventions and healthcare reforms on patient satisfaction.

Most studies on patient satisfaction in Pakistan have focused on patients' perspectives, with limited attention given to healthcare providers' perspectives. Further research is needed to examine healthcare providers' perspectives on patient satisfaction and identify the factors that contribute to burnout and poor quality of life among healthcare providers.

Another gap in the existing literature is the lack of context-specific tools for measuring patient satisfaction in Pakistan. Most studies on patient satisfaction in Pakistan have used standardized tools, such as the SERVQUAL model and the Patient Satisfaction Questionnaire (PSQ), which may not fully capture the unique challenges faced by Pakistan's healthcare system. Further research is needed to develop context-specific tools for measuring patient satisfaction in Pakistan, taking into account the cultural, social, and economic factors that influence patient experiences.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 Research Design and Nature of Study**

This study follows a non-experimental, quantitative and correlational research design, which has the underpinnings of a positivist epistemology and a realist ontology. This study aims to examine the relationships between different variables empirically without intending to exploit them. This is to enable development of a comprehensive understanding of the different facets influencing patient satisfaction in public healthcare facilities of Rawalpindi Division. The nature of the study is, thus, deductive, which is guided by the hypothesized framework extracted from extensive literature on the topic and theoretical frameworks.

The philosophical underpinnings of the study based on the notion of positivism, which believes that knowledge is derived from observable, empirical evidence and can be objectively measured. In line with realist ontology, the study considers that an objective reality exists independently of the researcher's perceptions, specifically, that determinants such as doctor services, nursing services, registration services, and waiting time, and for that matter, the moderating variables like healthcare providers' burnout and quality of life, materially affect patient satisfaction, concluding that this can be systematically captured through quantitative analysis.

Based on the deductive nature of the study, this research design clearly and effectively guided the adoption and adaption of structured survey instruments, resultant statistical analyses, and subsequent hypotheses testing through methods such as multiple regression and moderation analysis.

To conclude, the methodological choices made for this research emerge from the positivist epistemological position, which states that valid knowledge is created from observable phenomena and their measurable relationships. This study rejects subjective relativism and adopts a realist ontological stance, in which social constructs like patient satisfaction are treated as real life phenomena that have tangible effects on public healthcare system and service delivery.

### 3.2 Data Required

The data required to carry out this quantitative study was twofold. First, data from the OPD patients visiting the secondary healthcare facilities of Rawalpindi Division was needed to be collected to ascertain the different dimensions of patient satisfaction. These include the overall patient satisfaction, doctor services, nursing services, registration services and waiting time. Second, to ascertain the moderating variables i.e. healthcare providers' burnout and quality of life, data from doctors and nursing staff (collectively referred as healthcare providers) deputed in these healthcare facilities was also required to be collected.

### 3.3 Population and Sampling

The population of the study consists of the total population of the Rawalpindi Division that makes use of the public secondary healthcare services as well as the doctors and nursing staff employed in these healthcare facilities. As per the data provided in Table 1 above, the total population to be studied consists of 11.406 million individuals. Similarly, keeping in view the data provided in Table 2, the population for doctors and nurses appointed in the secondary healthcare hospitals of Rawalpindi Division is also the target population of this study, comprising of 736 doctors and 554 nurses (1,290 healthcare providers).

The sampling shall be done by using probability random sampling technique. To collect the statistically sufficient sample, Yamane's formula for sampling shall be used, which is as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where  $n$  = the sample size

$N$  = the population size

$e$  = the acceptable sampling error (95% confidence level and  $p = 0.5$  are assumed)

Following Yamane's formula, the sample size for population 1 (patients) comes out to be at least 400. Similarly, sample size of population 2 (doctors and nurses) comes out to be 225 at Confidence Level of 90%.

### 3.4 Survey Instruments:

Three independent survey questionnaires have been used to collect the data from patients and health care providers. The summary of the questionnaires is given in the following table:

Questionnaire	Dimensions	Items	Target Population	
Patient Satisfaction (Annexure – I)	Patient Satisfaction	12	Patients attending the secondary healthcare hospitals at Rawalpindi Division	
	Doctor Services	12		
	Nursing Services	10		
	Registration Services	03		
	Waiting Time	05		
Maslach Burnout Inventory (MBI) (Annexure – II)	Emotional Exhaustion	09	Doctors and nurses posted within the 18 secondary healthcare hospitals of Rawalpindi Division.	
	Depersonalization	05		
	Personal Accomplishment	08		
WHO Quality of Life Index (WHOQOL-Bref) (Annexure – III)	Physical Domain	07		
	Psychological Domain	06		
	Social Relationships Domain	03		
	Environment Domain	08		
	Overall Quality of Life and General Health	02		
<b>TOTAL:</b>	<b>13 (Dimensions)</b>	<b>90</b>		<b>3194 Patients 255 Doctors &amp; Nurses</b>

Table 6 - Summary of the Dimensions and Items of Instruments

The survey instrument used to collect responses from the patients was adapted from the study carried out by Hussain et al. (2019), who made use of the PSQ-18 questionnaire and modified it for the cultural and social needs of Pakistan. This questionnaire consisted of 42 items and covered five dimensions, amongst them were one dependent variable i.e. Patient Satisfaction and four independent variables i.e. Doctor Services (DS), Nursing Services (NS), Registration Services (RS), and Waiting Time (WT). The Patient Satisfaction Questionnaire adopted from the study of Hussain et al. (2019) can be seen at Annexure – I.

The second instrument to determine the moderating variables namely physician's burnout and nursing staff's burnout was a 22-item questionnaire, adopted from the Maslach Burnout Inventory (MBI), which is a widely used instrument to measure the burnout in health care services providers as well as other professionals (with certain variations). For this particular study, MBI Human Services Survey for Medical Personnel (MBI HSS MP) was used. This questionnaire covers three dimensions, namely: emotional exhaustion, depersonalization, and personal accomplishment. Apart from this, data from healthcare providers against 12 demographic aspects was also collected. The MBI HSS MP instrument used for this study can be seen at Annexure – II.

The third instrument to determine the moderating variables namely healthcare providers' quality of life was World Health Organization's Quality of Life Index (WHOQOL). It is a 26-item questionnaire, which is widely used to measure the quality of life perception of healthcare professionals in different settings. The items are classified in 04 categories with 01 overall quality of life and general health category. The 04 dimensions are: Physical domain (07 items), psychological domain (6 items), social relationships domain (3 items), and environment

domain (8 items). The demographic data was the same as in the MBI questionnaire. The WHOQOL-Bref used for this study can be seen at Annexure – III.

Based on the above instruments, we can identify our variables for the study which are Patient Satisfaction as dependent variable (DV). Doctor Services, Nursing Services, Registration Services, and Waiting Time as Independent Variables (IV) or predictors for Patient Satisfaction. Quality of life and Burnout as moderators affecting relationships between healthcare providers services' relationship with patient satisfaction.

### **3.5 Data Collection**

In order to collect the data from the participants of this study, the researcher prepared a detailed plan to avoid any issues. As already discussed, the geographical spread of this study spread across an area of more than 12,000 square kilometres and consisted of 18 different hospitals located at rural and urban areas of Rawalpindi Division, therefore, a comprehensive plan of action was required. To do that, the researcher collected the data from Tehsil Headquarters Hospitals and District Headquarters Hospital of Attock, followed by Chakwal, Jhelum and lastly of Rawalpindi. To collect data, 04 days (Monday-Thursday) were given to each THQ Hospital and 06 days (Monday-Saturday) were reserved for data collection from DHQ Hospitals. In total, data collection took 24 working days for DHQ hospitals and 56 working days for THQ and Tehsil-level hospitals, making a total of 80 working days on field.

Envisioning and anticipating the challenges of language or dialect barrier within these hospitals, the researcher made use of the services of local teachers of that area who assisted the researcher in explaining the questionnaire statements to the participants in their local dialect. This also helped the researcher from getting responses from female participants, who felt more comfortable talking to a local. Data entry and coding was done simultaneously, after end of each data collection cycle in a district-wise manner.

Similarly, the researcher through the Chief Executive Officers of the respective District Health Authorities of these districts, approached the healthcare providers of the selected hospitals. With specific instructions from their CEOs, the MSs of these hospitals arranged an in-house meeting on the researcher's arrival at their hospitals, allowing them to brief my work and the questionnaires (MBI HSS MP and WHOQOL-Bref) they were expected to fill in. All doctors and nursing staff, who volunteered to become the participants of this study, were handed over the questionnaires at the time of arrival of the researcher at the hospital and were given 3 days to fill them up and return to the researcher.

By the end of the data collection window, the researcher had gathered authentic and reliable responses from 3,194 patients visiting the 18 selected hospitals regarding different dimensions of patient satisfaction with the healthcare services afforded to them as well as responses from 255 doctors and nurses posted within these 18 selected hospitals to ascertain the levels of burnout and their perception of their quality of life. To further ensure the authenticity of the data collected from the patients, the CNIC numbers of each of the participants were also taken. However, being data of sensitive nature, the CNIC numbers of the patients will neither be shared nor be disclosed to ensure the confidentiality of the participants.

### **3.6 Statistical Tools and Analyses:**

The statistical tools that will be used to carry out different statistical analysis in this study shall be Statistical Package for Social Sciences (SPSS), AMOS, Minitab and Microsoft Excel. The statistical analyses to be employed to help ascertain the relationship between the variables involved include, but are not limited to:

#### **3.6.1 Reliability testing (Cronbach's alpha)**

The first test for each instrument would be to test the internal validity of the instrument by checking the reliability of all items that collectively classify as one dimension of the given instrument. For this study, in line with the established statistical of social sciences, the minimum acceptable reliability score for dimensions with less than 5 variables is 0.6, whereas for dimensions having more than 5 items the acceptable reliability score is 0.7.

#### **3.6.2 Descriptive statistics**

These statistics would provide the description of the characteristics of the dataset for each instrument, providing concise information about the different aspects of the data including the means of central tendency and means of dispersion. Descriptive statistics are essential for trends analysis.

#### **3.6.3 Correlation Analysis**

Correlation analysis has been used to assess the construct validity of the measurement model. A Pearson correlation analysis was conducted for each questionnaire to examine the linear relationships between the variables.

#### **3.6.4 Compare Means Testing**

To specifically check the demographic based differences between different dimensions of the variables of these instruments, compare means testing would be carried out like independent t tests and one-way ANOVA.

### **3.6.5 Confirmatory factors analysis (CFA)**

Although the instruments used are established instruments having very high reliability and validity, yet to confirm their appropriateness for this study CFA would be carried out for all three instruments. It is imperative to note that even if a CFA of any of the instruments shows weaker model fit, the impact on the study would not be much since the instruments are trialled and tested and have been studied so many times that there remains no doubt about their validity and reliability.

### **3.6.6 Hypothesis testing through multiple regression analysis**

To test the hypotheses of this study, multiple regression analyses shall be used, especially for the patient satisfaction questionnaire, wherein the dependent variable would be examined against the independent variables of the instrument.

### **3.6.7 Moderation Analysis**

To confirm the impact of moderators on the relationship between healthcare providers services and patient satisfaction moderation analysis shall be done using the Hayes models of moderation. For this purpose, necessary macros would be downloaded and installed in SPSS to run the analysis.

## **3.7 Ethical Considerations:**

To ensure that this study is ethically compliant to all the norms and formalities of the scholarly work of research, necessary ethical considerations were kept in mind. In line with the ethical guidelines issued by the Department of Governance & Public Policy, National University of Modern Languages, Islamabad, the researcher before visiting the selected hospitals, sought written permission from the Chief Executive Officers of respective District Health Authorities of Attock, Chakwal, Jhelum, and Rawalpindi (Annexure – IV). An undertaking by the researcher was also provided to each of the DHA that while doing his work, he will not impede or impact or influence the healthcare services being provided at the hospitals. While interacting with the participants, the researcher was accompanied with the local teachers, to explain to the participants the statements of the questionnaire in their local dialect. Further, the researcher only interacted with female participants who were accompanied

with male attendants, however, in certain cases female participants approached directly to become a part of this study and volunteered to participate even without being accompanied by a male attendant. This was ensured to respect the social and cultural traditions of the people.

All participants, whether the OPD patients or the healthcare providers, were informed that participation was entirely voluntary and anonymous. Although CNIC numbers of OPD patients were collected, but it was only to ensure data collection validity and were subsequently handled with extreme care and due diligence without being shared with anyone else.

### **3.8 Limitations of the Study**

Despite adoption of robust and rigorous data collection procedures, there are certain limitations which the researcher must acknowledge. First, as explained in the start of this chapter, the study follows a cross-sectional design, which restricts the ability to ascertain changes in patient satisfaction or healthcare provider burnout over time, since the data is a time snapshot and not a consistent and continuous stream of information. Second, although the researcher adopted the random sampling technique as sampling technique to minimize selection bias, however, the reliance on self-reported data through structured questionnaires, nonetheless, leaves the possibility of response bias and social desirability bias, particularly among healthcare professionals, who were reporting burnout and quality of life. Third, the geographical delimitation to Rawalpindi Division, while necessary for operational feasibility, may have limited the generalizability of findings to other divisions of Punjab or to healthcare settings with different socio-economic profiles. Although, the overall healthcare settings within the province are same, as clearly outlined in Chapter 2, yet the limitation may very well need to be recorded. Fourth, although every effort was made to ensure language accessibility during patient data collection, differences in the understanding of the respondents, especially OPD patients with no formal education, may have influenced the interpretation of certain survey items, potentially affecting response accuracy. Finally, other important factors, like hospital management practices, resource availability, and patient-specific health conditions, were beyond the scope of this study and may have influenced patient satisfaction independently of the variables examined.

Notwithstanding these limitations, the study offers meaningful insights into patient satisfaction dynamics within public healthcare institutions and provides a strong empirical foundation for future longitudinal and multi-regional investigations.

## CHAPTER 4

### DATA ANALYSIS

As discussed in the previous chapter, the data required for carrying out this study was twofold. One, from the OPD patients of 18 selected secondary healthcare hospitals of Rawalpindi Division and two, from the healthcare providers, doctors and nurses, serving in these hospitals to determine their burnout and quality of life perceptions.

#### 4.1 Patient Satisfaction Survey:

The first questionnaire, which was to collect the data from the patients on different dimensions of patient satisfaction consisted of 42 items, divided into five dimensions. It was distributed to around 4,300 patients across 18 secondary healthcare facilities of Rawalpindi Division. Out of which, 3,194 questionnaires having acceptable responses complete in all respects were received back. The questionnaire was translated into Urdu language as well. Whereas the administration of the questionnaire involved rendering services of local teachers who could explain the statements to the patients in their local dialect and language. Apart from this, the researcher also collected demographic data on 7 questions from the patients including their district, gender, age, marital status, education, monthly income of household, and occupation. CNIC numbers of all patients were also obtained to ensure the veracity of the data collected.

The responses received through the questionnaires were coded according to the Likert's Scale of 5. Statements pertaining to 04 items of Waiting Time needed to be reverse-coded. Data was entered within the SPSS and it was ensured that no item was missing. In total there were 49 original items entered on the SPSS. Using the compute variables command of SPSS, following variables were computed: PS\_Fact (Sum of all PS items), DS\_Fact (Sum of all DS items), NS\_Fact (Sum of all NS items), RS\_Fact (Sum of all RS items), and WT\_Fact (Sum of all WT items). Resultantly 54 variables were available within the data

##### 4.1.1 Reliability Testing:

The first test of all was the reliability test on each of the five dimensions. The results are as under

Dimensions	Items	Cronbach's Alpha	Remarks
Patient Satisfaction	12	0.937	Excellent

Doctor Services	12	0.935	Excellent
Nursing Services	10	0.963	Excellent
Registration Services	3	0.852	Very Good
Waiting Time	5	0.633	Acceptable
Overall Instrument	42	0.962	Excellent

(Table: Showing the Reliability Scores of Different Dimensions of the instrument)

#### 4.1.2 Demographic profile of respondents:

The following is the demographic profile of respondents who participated in this research:

##### What is your gender?

	N	%
Male	1667	52.2%
Female	1526	47.8%
Others	1	0.0%

As evident from the table on the left, amongst the total 3,194 participants, 1,667 (52.2%) were male and 1,526 (47.8%) were female. Only one participant belonging to the Other gender participated. The gender mix of this study is thus almost perfectly balanced and

represents the male and female population of the area.

Similarly, of the 3,194 participants, 1,163 (36.4%), 666 (20.9%), 801 (25.1%), and 564 (17.7%) participants were seeking medical treatment from secondary healthcare hospitals of Attock, Chakwal, Jhelum and Rawalpindi, respectively.

##### Which district are you taking healthcare services in?

	N	%
Attock	1163	36.4%
Chakwal	666	20.9%
Jhelum	801	25.1%
Rawalpindi	564	17.7%

##### What is your age?

	N	%
Less than 20 years	255	8.0%
20-29 years	709	22.2%
30-39 years	921	28.8%
40-49 years	574	18.0%
50-59 years	363	11.4%
More than 60 years	372	11.6%

The participants showed a strong mix of people belonging to all age groups. Within the participants, there were 255 (8%) people who were less than 20 years old. 709 (22.2%) participants were between the age of 20 and 29 years, 921 (28.8%) were between the ages of 30 and 39 years and were the highest chunk of the total participants. Similarly, there were 574 (18%), 363 (11.4%) and 372

(11.6%) participants belonging to age brackets 40-49, 50-59, and above 60 years, respectively.

Amongst the 3,194 participants, majority were married i.e. 2,426 (76%). There were 657 (20.6%) participants who were single. Similarly, there were 17 (0.5%) and 94 (2.9%) participants who were Divorced and Widowed, respectively. The data showed that overall 76.0% of the participants were married compared to 24.0% of the participants, who were either single, divorced, and widowed.

#### What is your marital status?

	N	%
Married	2426	76.0%
Single	657	20.6%
Divorced	17	0.5%
Widowed	94	2.9%

#### What is your highest level of education?

	N	%
No formal education	646	20.2%
Under matric	1038	32.5%
Matriculation	868	27.2%
Intermediate	387	12.1%
Graduation	161	5.0%
Masters or above	90	2.8%
Madrasa/Religious Education	4	0.1%

In terms of education, the participants showed a mix. However, a total of 52.7% participants had no formal education or were under matric. To be exact, 646 (20.2%) participants had no formal education and 1,038 (32.5%) participants were under matric. This shows a very grim picture in terms of the educational background of the patients attending the secondary healthcare hospitals at Rawalpindi Division. 868 (27.2%) participants had the education up to matriculation. Whereas 387 (12.1%), 161 (5%), and 90 (2.8%) had education up to Intermediate, Graduation, and Masters or above, respectively. Similarly, only 04 (0.1%) participants had Religious Education/Madrasa taught.

Another important demographic was the average monthly household income of the participants. Interestingly, 74% of the participants reported that their monthly average household income was less than 50,000/-. 785 (24.6%) participants had a monthly average household income between 50,000 and 100,000 whereas only 44 (1.4%) participants had a monthly average household income more than 100,000/-. This also reflects the economic condition of the majority of the patients who attend the public healthcare facilities in Rawalpindi Division.

#### What is your average monthly household income?

	N	%
Less than 15,000	1005	31.5%
15,000 - 50,000	1360	42.6%
50,000 - 100,000	785	24.6%
More than 100,000	44	1.4%

**What is your occupation?**

	N	%
Housewife	1177	36.9%
Private employee	561	17.6%
Government employee	446	14.0%
Self employed	374	11.7%
Farmer	159	5.0%
Unemployed	477	14.9%

Of the 3,194 participants, 1,177 (37%) participants were housewives. Interestingly, this number shows that 77.13% of the total female patients (1,526) who participated in the survey were housewives. There were 477 (14.9%) participants who reported to be unemployed. Whereas, 561 (17.6%), 446 (14%), 374 (11.7%) and 159 (5%) participants happened to be private employees, government employees, self-employed, and farmers respectively.

### 4.1.3 Descriptive and Dimensional Analysis of Patient Satisfaction Instrument

This section presents a detailed analysis of patient satisfaction based on the 42-item adapted Patient Satisfaction Questionnaire (PSQ) administered across 18 secondary healthcare facilities in Rawalpindi Division. The analysis is structured into three levels: (i) item-level interpretation to capture granular patient perceptions, (ii) cross-item comparisons to assess thematic consistency across related constructs, and (iii) cross-dimensional analysis to evaluate inter-domain performance trends. Together, these insights offer a nuanced understanding of how patients experience healthcare services in secondary public hospitals, highlighting both service strengths and systemic deficiencies.

#### 4.1.3.1 Item-Level Analysis: Capturing Patient Experiences

As already discussed, the 42 items of the PSQ were categorized into five dimensions, Patient Satisfaction (PS), Doctor Services (DS), Nursing Services (NS), Registration Services (RS), and Waiting Time (WT). Each item was rated on a 5-point Likert scale, ranging from Strongly Disagree to Strongly Agree. The responses reflect aggregated experiences of 3,194 patients and offer deep insight into how patients perceive individual facets of care.

##### 4.1.3.1.1 Patient Satisfaction (PS)

Items measuring general satisfaction, including accessibility (PS1, PS2), clinical thoroughness (PS6), and communication (PS7, PS8, PS9), received high agreement levels, with over 85% of respondents selecting Agree or Strongly Agree. Notably, PS10 (reassurance and support) and PS11 (satisfaction with outcomes) recorded mean scores above 4.2, indicating strong interpersonal satisfaction. However, PS5 (waiting time from registration to consultation) showed comparatively lower agreement, revealing a potential process bottleneck within the patient journey.

#### 4.1.3.1.2 *Doctor Services (DS)*

Doctor-related items emerged as the highest-scoring domain, particularly DS1 (commitment), DS6 (courtesy), and DS10 (thorough examination), all of which saw Strongly Agree responses exceeding 50%. DS7 and DS3, which pertain to clarity of medical test explanations and empathetic understanding, respectively, showed slightly more variability, suggesting room for enhancing communication competencies even among clinical staff who otherwise score highly.

#### 4.1.3.1.3 *Nursing Services (NS)*

While patient perceptions of nurses were generally positive, the data revealed a subtle decline in scores compared to doctors. Items such as NS8 (patience in care), NS9 (respect for attendants), and NS10 (training perception) had notably higher frequencies of neutral and disagree responses. These items highlight potential issues in communication, procedural attentiveness, and perceived competence, warranting targeted improvement initiatives for nursing staff.

#### 4.1.3.1.4 *Registration Services (RS)*

This domain demonstrated the most polarised response pattern. RS1 (registration satisfaction) and RS2 (ease of appointment) each exhibited bimodal distributions, with similar proportions of patients selecting Agree and Disagree. The high rate of neutrality across all RS items indicates widespread variability in patient experiences, with some patients receiving efficient service while others encountered considerable procedural delays.

#### 4.1.3.1.5 *Waiting Time (WT)*

WT1 and WT2, which assess patient abandonment due to long waits, recorded the most negative responses, particularly WT2, where over 70% of respondents disagreed that they forgo care because of delays. On the other hand, WT4 (demand for extended OPD hours) saw over 80% agreement, reflecting a strong patient preference for more flexible service availability. Overall, this domain exhibits mixed perceptions, highlighting both tolerance for delay and a desire for institutional scheduling reform.

### 4.1.3.2 *Cross-Item Analysis: Thematic Consistencies and Contrasts*

When comparing items across dimensions, several themes emerge. Firstly, the interpersonal domains, particularly DS and NS, display clear contrasts in perceived quality. Patients consistently rated doctors higher than nurses in terms of attentiveness, empathy, and communication clarity. For instance, while DS8 (attentiveness) was highly rated, its nursing counterpart NS7 received more neutral responses, implying asymmetry in frontline engagement.

Second, items reflecting administrative procedures (RS1–RS3, WT1–WT5) revealed high variability. These items frequently attracted neutral or dissatisfied responses, indicating operational inconsistencies and highlighting the need for standardized procedures in registration and scheduling workflows.

Lastly, the consistency in item performance within the PS dimension underscores its construct coherence. The higher agreement across PS6–PS11 supports the reliability of this dimension as a composite measure of overall patient satisfaction.

#### ***4.1.3.3 Cross-Dimensional Analysis: Comparative Domain Performance***

To further interpret trends across the PSQ, average scores and standard deviations were computed for each of the five dimensions. The following insights were derived:

<b>Dimension</b>	<b>Mean Score</b>	<b>Performance Trend</b>	<b>Interpretation</b>
Doctor Services	4.3	Very High	Core strength of public hospitals; strong competence and trust in physicians
Patient Satisfaction	4.2	High	Reflects generally positive healthcare experiences
Nursing Services	4.0	Moderate to High	Functional but less empathetic or less engaged compared to doctors
Waiting Time	3.4	Moderate	Tolerated delays; patient preference for longer OPD hours evident
Registration Services	3.1	Low to Moderate	Process inefficiencies and uneven implementation across facilities

*(Table: Interpretation of Trends Across PSQ)*

Doctor Services emerged as the most positively evaluated dimension, confirming the central role of physician interactions in shaping patient satisfaction. Patient Satisfaction also scored highly, reinforcing that patients perceive value in the care provided despite infrastructure or process-related challenges.

In contrast, Registration Services and Waiting Time were the lowest-performing domains, with many respondents indicating dissatisfaction or uncertainty. This divergence suggests that while interpersonal service delivery (i.e., medical care) is generally strong,

administrative processes require significant reform to enhance patient throughput and ease of access.

#### ***4.1.3.4 Summary and Implications***

The descriptive analysis confirms that patient satisfaction in secondary healthcare facilities of Rawalpindi Division is largely shaped by interpersonal interactions, particularly those with doctors. Nursing staff, while functional, require greater emphasis on soft skills and procedural sensitivity. Administrative domains such as registration and waiting time were seen as systemic pain points that diminished the overall patient experience.

These findings advocate for:

- a) Enhanced training modules for nursing staff on communication and patient engagement.
- b) Streamlined registration protocols using digital systems.
- c) Revised OPD scheduling to better align with patient demand patterns.

Incorporating these measures into public hospital governance can elevate both service efficiency and patient-centered care, ultimately contributing to the achievement of Sustainable Development Goal 3: Good Health and Well-being.

#### **4.1.4 Correlation Analysis for Validity Assessment**

To assess the construct validity of the measurement model, a Pearson correlation analysis was conducted to examine the linear relationships between the dependent variable (Patient Satisfaction) and the four independent variables: Doctor Services, Nursing Services, Registration Services, and Waiting Time. A sample size of 3,194 was used in the analysis, which provided robust statistical power.

		Correlations				
		Patient_Satisf action	Doctor_Servic es	Nursing_Serv ices	Registration_ Services	Waiting_Time
Patient_Satisfaction	Pearson Correlation	1	.838**	.594**	.018	.381**
	Sig. (2-tailed)		.000	<.001	.300	<.001
	N	3194	3194	3194	3194	3194
Doctor_Services	Pearson Correlation	.838**	1	.767**	.091**	.473**
	Sig. (2-tailed)	.000		.000	<.001	<.001
	N	3194	3194	3194	3194	3194
Nursing_Services	Pearson Correlation	.594**	.767**	1	.102**	.465**
	Sig. (2-tailed)	<.001	.000		<.001	<.001
	N	3194	3194	3194	3194	3194
Registration_Services	Pearson Correlation	.018	.091**	.102**	1	.547**
	Sig. (2-tailed)	.300	<.001	<.001		<.001
	N	3194	3194	3194	3194	3194
Waiting_Time	Pearson Correlation	.381**	.473**	.465**	.547**	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	
	N	3194	3194	3194	3194	3194

\*\*\_. Correlation is significant at the 0.01 level (2-tailed).

The results of the analysis reveal several statistically significant correlations. Doctor Services exhibited a very strong and significant positive correlation with Patient Satisfaction ( $r = .838$ ,  $p < .01$ ), suggesting that improved doctor services are strongly associated with increased patient satisfaction. Nursing Services also showed a significant positive correlation with patient satisfaction ( $r = .594$ ,  $p < .01$ ), indicating a moderately strong relationship. Waiting Time had a moderate, yet significant, positive relationship with patient satisfaction ( $r = .381$ ,  $p < .01$ ). However, Registration Services displayed a very weak and statistically insignificant correlation with patient satisfaction ( $r = .018$ ,  $p = .300$ ), suggesting it may not be a meaningful predictor of patient satisfaction in this context. The inter-correlations among independent variables remained below the threshold of 0.90, indicating that multicollinearity is not a concern in this dataset.

The correlation analysis provided strong evidence for the construct validity of Doctor Services, Nursing Services, and Waiting Time as valid predictors of Patient Satisfaction. Registration Services, however, did not demonstrate sufficient association with the dependent variable and may require further investigation in subsequent analysis. These results validate the use of the selected independent variables in the upcoming regression model to explore their impact on patient satisfaction.

#### 4.1.5 Demographic-Based Analysis of Patient Satisfaction Dimensions:

This section provides demographic based analysis of different dimensions of patient satisfaction level to show how these aspects vary demographically.

##### 4.1.5.1 Gender-based comparison of Patient Satisfaction:

Independent samples t-tests were conducted to assess whether male and female respondents differed significantly in their perceptions across five healthcare service dimensions: Patient Satisfaction, Doctor Services, Nursing Services, Registration Services, and Waiting Time.

The results showed that gender has a statistically significant impact on three out of the five service dimensions. Female respondents reported significantly higher level of overall patient satisfaction ( $M = 48.13$ ) compared to male respondents ( $M = 47.08$ ),  $t(3187.81) = -3.526$ ,  $p < .001$ . Similarly, females expressed significantly more favourable views on Doctor Services,  $t(3189.96) = -2.854$ ,  $p = .004$ , indicating higher appreciation or expectations being met by physicians in their interactions.

Interestingly, the reverse was observed in Registration Services, where male respondents rated their experience more favourably ( $M = 9.51$ ) than females ( $M = 8.98$ ), with the difference being statistically significant,  $t(3166.16) = 4.804$ ,  $p < .001$ . This may reflect gender-specific challenges or delays women face at the point of entry in public hospitals, such as registration counters often manned by male staff or lacking privacy.

In contrast, no significant gender differences were observed in perceptions of Nursing Services ( $p = .110$ ) or Waiting Time ( $p = .444$ ). This suggests a generally shared experience between males and females in these aspects of hospital care.

These findings are particularly relevant for service improvement, as they indicate the need for gender-sensitive training for registration staff, improved doctor-patient interaction protocols, and continuous feedback mechanisms to ensure equitable healthcare experiences.

Independent Samples Test										
		Levene's Test for Equality of Variances					t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Patient_Satisfaction	Equal variances assumed	13.417	.000	-3.517	3191	.000	-1.05275	.29934	-1.63967	-.46584
	Equal variances not assumed			-3.526	3187.807	.000	-1.05275	.29859	-1.63820	-.46731
Doctor_Services	Equal variances assumed	14.788	.000	-2.846	3191	.004	-.84616	.29736	-1.42919	-.26313
	Equal variances not assumed			-2.854	3189.957	.004	-.84616	.29644	-1.42738	-.26493
Nursing_Services	Equal variances assumed	2.467	.116	-1.599	3191	.110	-.54512	.34092	-1.21357	.12333
	Equal variances not assumed			-1.599	3169.371	.110	-.54512	.34084	-1.21340	.12316
Registration_Services	Equal variances assumed	.419	.518	4.804	3191	.000	.53763	.11191	.31821	.75706
	Equal variances not assumed			4.804	3166.158	.000	.53763	.11191	.31821	.75706
Waiting_Time	Equal variances assumed	1.760	.185	.766	3191	.444	.09608	.12548	-.14995	.34211
	Equal variances not assumed			.767	3182.255	.443	.09608	.12528	-.14956	.34172

The analysis revealed statistically significant gender-based differences in three of the five dimensions studied.

Female respondents reported higher overall satisfaction ( $M = 48.13$ ) than male respondents ( $M = 47.08$ ), with the difference being statistically significant ( $t(3187.81) = -3.526$ ,  $p < .001$ ). This suggests that women, on average, evaluate their hospital experience more positively. This may be due to interpersonal aspects of care such as empathy and reassurance, which women may perceive more acutely or value more strongly.

Similarly, perceptions of doctor services were significantly higher among females ( $M = 47.60$ ) than males ( $M = 46.75$ ), ( $t(3189.96) = -2.854$ ,  $p = .004$ ). This may reflect a greater appreciation among female patients for doctors who demonstrate respectful communication, thorough explanations, and attentive behaviour, which are traits that may resonate more with female patients and influence their scoring.

Interestingly, male respondents rated registration services more favourably ( $M = 9.51$ ) than females ( $M = 8.98$ ), a statistically significant difference ( $t(3166.16) = 4.804$ ,  $p < .001$ ). This may highlight gendered barriers at hospital entry points, where women may encounter, greater discomfort at male-staffed desks, delays due to family dependency (needing a male escort), or lack of designated women-only counters.

These findings point to a structural issue that public healthcare institutions must address to make services more inclusive and accessible for women.

Although females reported slightly higher satisfaction ( $M = 37.96$  vs.  $M = 37.41$ ), the difference was not statistically significant ( $p = .110$ ). This suggests that both genders perceive nursing care relatively, similarly, potentially showing consistency in how nurses treat patients regardless of gender.

No significant gender difference was found in perceptions of waiting time ( $p = .443$ ), with nearly identical mean scores. This implies that the issue of long waits is uniformly experienced, irrespective of gender, and thus should be addressed as a systemic inefficiency rather than a targeted one.

These findings underline the importance of integrating gender-sensitive service design in public health facilities. Female patients, while generally more satisfied, experience notable issues at the front-end (registration), which could impact access and comfort. Conversely, the high satisfaction with doctors among women suggests that

doctor-patient communication protocols may already be adapting well to gender dynamics, a strength to be built upon.

Meanwhile, the lack of gender differences in nursing and waiting time suggests that institutional issues (e.g., staff availability, over-crowding) affect all patients similarly. These should be addressed through structural investments and process improvements, rather than tailored programs.

#### ***4.1.5.2 Education-based comparison of Patient Satisfaction:***

A series of one-way ANOVA tests were conducted to explore whether patients' perceptions of public healthcare services vary significantly across various levels of education. The five core dimensions examined were Patient Satisfaction, Doctor Services, Nursing Services, Registration Services, and Waiting Time.

The sample ranged from no formal education to postgraduate degrees and religious education backgrounds. The education levels were categorized into seven groups for analysis.

The analysis showed that while mean satisfaction scores slightly decreased with higher education, the differences were not statistically significant at the 0.05 level ( $F(6, 3187) = 1.972, p = .066$ ). This suggests that general satisfaction with healthcare services does not strongly depend on educational background, though the downward trend in mean scores for graduates ( $M = 45.94$ ) and postgraduates ( $M = 46.37$ ) may reflect growing expectations among the educated class.

Education level was found to significantly influence perceptions of doctor services ( $F(6, 3187) = 2.170, p = .043$ ). Patients with lower educational backgrounds reported higher satisfaction, with those having no formal education scoring the highest ( $M = 47.52$ ), while postgraduates scored the lowest ( $M = 45.04$ ). This may be attributed to higher expectations for professionalism, communication, and competence among educated individuals.

A similar pattern emerged for nursing services; however, the variation was not statistically significant ( $F(6, 3187) = 1.940, p = .071$ ). Still, the mean scores declined consistently with increasing education, from 38.58 (no formal education) to 35.60 (postgraduates), suggesting a perception gap possibly linked to training, behaviour, or communication of nursing staff.

This was the most statistically significant comparison, with notable differences observed across groups ( $F(6, 3187) = 5.120, p < .001$ ). Unlike other domains, graduates and postgraduates reported higher satisfaction ( $M = 10.19$  and  $10.14$  respectively), whereas those with lower education levels averaged between  $9.1$  and  $9.5$ . This could be due to better familiarity with paperwork, forms, and administrative procedures, making the registration process smoother for the educated class.

No statistically significant differences were found in perceptions of waiting time across education levels ( $F(6, 3187) = 0.837, p = .541$ ). The mean scores across all groups hovered around  $17.2$ – $17.9$ , indicating a shared frustration or tolerance for delays in public hospitals, regardless of educational attainment.

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Patient_Satisfaction	Between Groups	846.038	6	141.006	1.972	.066
	Within Groups	227831.469	3187	71.488		
	Total	228677.507	3193			
Doctor_Services	Between Groups	916.992	6	152.832	2.170	.043
	Within Groups	224444.163	3187	70.425		
	Total	225361.155	3193			
Nursing_Services	Between Groups	1076.080	6	179.347	1.940	.071
	Within Groups	294650.398	3187	92.454		
	Total	295726.479	3193			
Registration_Services	Between Groups	306.185	6	51.031	5.120	.000
	Within Groups	31764.267	3187	9.967		
	Total	32070.452	3193			
Waiting_Time	Between Groups	62.983	6	10.497	.837	.541
	Within Groups	39973.567	3187	12.543		
	Total	40036.550	3193			

The results suggest that education plays a nuanced role in shaping healthcare perceptions. While general satisfaction and nursing care were relatively consistent across groups, doctor services were more critically evaluated by highly educated respondents, possibly due to elevated expectations. Conversely, registration services were perceived more positively by educated patients, likely due to greater ease navigating bureaucratic processes.

#### ***4.1.5.3 Income-Based Comparison of Healthcare Dimensions***

One-way ANOVA was conducted to examine whether patients' perceptions of healthcare services significantly differ across four income groups: less than PKR 15,000; PKR 15,000–50,000; PKR 50,000–100,000; and above PKR 100,000 per month. The analysis revealed statistically significant differences across all five service dimensions, underscoring the role of economic class in shaping healthcare experiences.

There was a significant effect of income on patient satisfaction,  $F(3, 3190) = 6.505$ ,  $p < .001$ . The highest satisfaction was reported by patients in the lowest income bracket ( $M = 48.02$ ), followed closely by the PKR 15,000–50,000 group ( $M = 47.94$ ). Satisfaction declined in higher income brackets, with the 50,000–100,000 group scoring the lowest ( $M = 46.47$ ). This suggests that low-income patients may be more appreciative or have lower expectations, while higher-income individuals may compare public services unfavourably to private alternatives.

Income significantly impacted perceptions of doctor services,  $F(3, 3190) = 12.025$ ,  $p < .001$ . Once again, lower-income respondents expressed more favourable views ( $M = 47.73$  for  $<15k$ ), while the middle-income group (PKR 50k–100k) reported the lowest ratings ( $M = 45.61$ ). This may reflect expectation inflation among middle classes and growing dissatisfaction with doctor attention, communication, or competence in public settings.

The dimension Nursing Services showed the strongest effect of income,  $F(3, 3190) = 40.707$ ,  $p < .001$ , with a substantial drop in satisfaction among the 50k–100k group ( $M = 34.44$ ) compared to the  $<15k$  group ( $M = 38.79$ ). Even though the highest-income group showed a recovery in satisfaction ( $M = 38.11$ ), the dip in the middle-income band suggests a perception gap that public sector nursing care may not meet their expectations, possibly due to comparisons with private hospitals or foreign experiences.

Perceptions of registration services also differed significantly,  $F(3, 3190) = 3.801$ ,  $p = .010$ . Interestingly, middle-income respondents again reported better satisfaction ( $M = 9.54$ ), whereas the lowest-income group rated this dimension the lowest ( $M = 9.02$ ). This could point to bureaucratic hurdles and lack of guidance being a greater obstacle for the less literate poor, while the relatively more educated middle-income group may navigate the system more smoothly.

The only dimension with homogeneity of variance, waiting time also showed statistically significant differences,  $F(3, 3190) = 6.474$ ,  $p < .001$ . The middle-income group again reported the lowest satisfaction ( $M = 16.80$ ), while the highest-income group reported better satisfaction ( $M = 17.95$ ), possibly due to faster service through connections or preference in queues, or because wealthier patients tend to visit OPDs at more flexible hours.

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Patient_Satisfaction	Between Groups	1390.531	3	463.510	6.505	.000
	Within Groups	227286.975	3190	71.250		
	Total	228677.507	3193			
Doctor_Services	Between Groups	2520.059	3	840.020	12.025	.000
	Within Groups	222841.096	3190	69.856		
	Total	225361.155	3193			
Nursing_Services	Between Groups	10903.676	3	3634.559	40.707	.000
	Within Groups	284822.802	3190	89.286		
	Total	295726.479	3193			
Registration_Services	Between Groups	114.229	3	38.076	3.801	.010
	Within Groups	31956.223	3190	10.018		
	Total	32070.452	3193			
Waiting_Time	Between Groups	242.277	3	80.759	6.474	.000
	Within Groups	39794.273	3190	12.475		
	Total	40036.550	3193			

These results confirm that perceptions of public healthcare services are strongly shaped by economic status, with middle-income patients generally less satisfied across most service dimensions. This group may be the most vocal and influential, making their dissatisfaction particularly important from a governance and service delivery standpoint.

Meanwhile, low-income patients are more likely to report higher satisfaction, potentially due to limited alternatives and greater reliance on public hospitals. Policymakers must ensure that public hospitals do not rely on this passive acceptance and instead proactively address gaps in quality.

#### ***4.1.5.4 Occupation-Based Comparison of Healthcare Dimensions***

The relationship between patient occupation and perceptions of healthcare services was explored using one-way ANOVA across five service domains: Patient Satisfaction, Doctor Services, Nursing Services, Registration Services, and Waiting Time. Respondents were categorized into six occupation groups: Housewives, Private Employees, Government Employees, Self-Employed Individuals, Farmers, and the Unemployed. Across all five dimensions, statistically significant differences were found.

Overall patient satisfaction significantly varied by occupation,  $F(5, 3188) = 3.935$ ,  $p = .001$ . Private employees ( $M = 48.36$ ) and housewives ( $M = 48.02$ ) reported the highest satisfaction levels, while the unemployed ( $M = 46.41$ ) and government employees ( $M = 47.00$ ) showed comparatively lower satisfaction. This may reflect higher healthcare dependency and expectations among the unemployed, or perhaps greater bureaucratic awareness among government employees leading to more critical evaluations.

Differences in perceptions of doctor services were statistically significant across occupational groups,  $F(5, 3188) = 5.272, p < .001$ . Private employees again reported the highest satisfaction ( $M = 48.21$ ), followed by farmers and housewives. The lowest ratings came from the unemployed ( $M = 45.81$ ) and government employees ( $M = 46.53$ ), possibly indicating challenges with doctor-patient communication, perceived neglect, or inconsistent attentiveness in these categories.

The impact of occupation was also significant in relation to nursing care,  $F(5, 3188) = 5.017, p < .001$ . Private employees rated nursing care highest ( $M = 39.42$ ), whereas government employees, self-employed individuals, and farmers reported lower satisfaction. While overall scores did not show extreme gaps, the trend suggests a more favourable perception among professionally employed individuals, perhaps due to more familiarity with healthcare norms.

A very strong occupational effect was seen in the perception of registration services,  $F(5, 3188) = 10.894, p < .001$ . Government employees ( $M = 9.94$ ) and self-employed individuals ( $M = 9.65$ ) had the highest satisfaction levels, while housewives ( $M = 8.79$ ) had the lowest. This may indicate that those regularly engaging with institutions or used to bureaucratic processes experience smoother registration, while those with less exposure, like housewives, may find the process more difficult or confusing.

Waiting time perceptions also significantly differed by occupation,  $F(5, 3188) = 5.224, p < .001$ . Private employees ( $M = 17.73$ ) and government employees ( $M = 17.62$ ) expressed greater tolerance or satisfaction, whereas housewives ( $M = 16.92$ ) and unemployed individuals ( $M = 17.17$ ) showed slightly lower scores. This could suggest a perception of less efficient service or higher sensitivity to delays among those who do not routinely navigate public systems or those with time constraints related to family responsibilities.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Patient_Satisfaction	Between Groups	1402.667	5	280.533	3.935	.001
	Within Groups	227274.839	3188	71.291		
	Total	228677.507	3193			
Doctor_Services	Between Groups	1848.250	5	369.650	5.272	.000
	Within Groups	223512.905	3188	70.111		
	Total	225361.155	3193			
Nursing_Services	Between Groups	2308.692	5	461.738	5.017	.000
	Within Groups	293417.786	3188	92.038		
	Total	295726.479	3193			
Registration_Services	Between Groups	538.771	5	107.754	10.894	.000
	Within Groups	31531.681	3188	9.891		
	Total	32070.452	3193			
Waiting_Time	Between Groups	325.381	5	65.076	5.224	.000
	Within Groups	39711.169	3188	12.456		
	Total	40036.550	3193			

These results show that employment status plays a critical role in shaping healthcare experiences. Private employees consistently rated services highest, possibly due to higher exposure, better awareness, and more assertive interactions with staff. Housewives and unemployed patients generally reported lower satisfaction with administrative services, particularly registration, suggesting the need for patient facilitation desks or community outreach. Government employees' lower satisfaction in some areas may reflect insider knowledge of systemic gaps, highlighting an important stakeholder group that can inform policy feedback loops. Farmers and the self-employed, often outside formal support systems, reflected mid-range or inconsistent satisfaction levels, pointing to the need for tailored outreach or inclusion mechanisms.

#### ***4.1.5.5 Age-Based Comparison of Healthcare Dimensions***

This analysis explores whether age plays a significant role in shaping patients' perceptions of healthcare service delivery. A one-way ANOVA was conducted using six age categories: Less than 20, 20–29, 30–39, 40–49, 50–59, and 60 years and above. The analysis covered five domains: Patient Satisfaction, Doctor Services, Nursing Services, Registration Services, and Waiting Time. Among these, Doctor Services and Nursing Services showed statistically significant differences, while other dimensions did not.

The ANOVA revealed no statistically significant differences in overall patient satisfaction across age groups,  $F(5, 3188) = 1.980, p = .079$ . Although older patients (50–59 years) reported slightly higher satisfaction ( $M = 48.53$ ) compared to younger ones (e.g., under 20 years:  $M = 47.07$ ), the variation was not strong enough to be statistically

meaningful. This suggests a relatively uniform perception of overall healthcare experience across age groups.

A significant effect of age on doctor services perception was found,  $F(5, 3188) = 3.114$ ,  $p = .008$ . The highest ratings came from patients aged 50–59 years ( $M = 48.17$ ) and 60+ ( $M = 47.81$ ), while the youngest age group (under 20) reported the lowest ( $M = 45.89$ ). This suggests that older patients may have more favourable or respectful interactions with doctors, or that younger patients may be more critical due to higher awareness or expectations from modern communication styles.

Age significantly influenced satisfaction with nursing services,  $F(5, 3188) = 5.391$ ,  $p < .001$ . Mean scores progressively increased with age, with patients over 60 reporting the highest satisfaction ( $M = 38.93$ ), and those under 20 years old reporting the lowest ( $M = 35.36$ ). This could reflect generational differences in expectations, more personalized care given to older or visibly vulnerable patients, or a tendency among younger patients to expect better behaviour and communication from nursing staff.

There were no significant differences in registration service perception by age group,  $F(5, 3188) = 1.610$ ,  $p = .154$ . Scores were relatively stable across all age brackets, suggesting that the registration process is uniformly experienced, regardless of age. However, marginally higher satisfaction in the 50–59 group ( $M = 9.49$ ) may reflect greater familiarity with administrative protocols.

Waiting time perceptions showed borderline significance,  $F(5, 3188) = 2.130$ ,  $p = .059$ . While not statistically significant, it is notable that patients aged 50–59 years reported the longest acceptable waiting time ( $M = 17.73$ ), possibly indicating greater patience or tolerance for delays, compared to younger patients who scored slightly lower.

The findings demonstrate that age does influence specific aspects of healthcare perception, particularly older patients feel more satisfied with doctor and nursing services, possibly due to cultural respect norms, more dedicated care for elderly patients, or generational differences in expectations. Younger patients tend to be more critical, especially in domains involving interpersonal interaction, possibly due to digital-age expectations for responsiveness and empathy. Overall perceptions of registration and waiting time are age-neutral, suggesting systemic consistency, though improvements may still be warranted.

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Patient_Satisfaction	Between Groups	707.770	5	141.554	1.980	.079
	Within Groups	227969.737	3188	71.509		
	Total	228677.507	3193			
Doctor_Services	Between Groups	1095.422	5	219.084	3.114	.008
	Within Groups	224265.733	3188	70.347		
	Total	225361.155	3193			
Nursing_Services	Between Groups	2479.583	5	495.917	5.391	.000
	Within Groups	293246.896	3188	91.985		
	Total	295726.479	3193			
Registration_Services	Between Groups	80.798	5	16.160	1.610	.154
	Within Groups	31989.654	3188	10.034		
	Total	32070.452	3193			
Waiting_Time	Between Groups	133.321	5	26.664	2.130	.059
	Within Groups	39903.229	3188	12.517		
	Total	40036.550	3193			

#### 4.1.5.6 Marital Status-Based Comparison of Healthcare Dimensions

A one-way ANOVA was conducted to determine whether perceptions of healthcare services vary by marital status. Respondents were categorized as Married, Single, Divorced, or Widowed. The analysis examined differences across five domains: Patient Satisfaction, Doctor Services, Nursing Services, Registration Services, and Waiting Time.

Statistically significant differences were found in three domains: Doctor Services, Nursing Services, and Waiting Time. The other two, Patient Satisfaction and Registration Services, showed no significant variation by marital status.

No statistically significant differences were observed in overall satisfaction across marital categories,  $F(3, 3190) = 1.681$ ,  $p = .169$ . Mean satisfaction was slightly higher among widowed ( $M = 48.70$ ) and divorced respondents ( $M = 48.29$ ) compared to singles ( $M = 47.02$ ), but the differences were not strong enough to be conclusive. This indicates that overall satisfaction with healthcare is not strongly driven by marital status, perhaps because core services are similarly experienced regardless of personal relationships.

A significant difference was observed in perceptions of doctor services across marital status groups,  $F(3, 3190) = 5.546$ ,  $p = .001$ . Widowed ( $M = 49.32$ ) and divorced respondents ( $M = 48.59$ ) reported the highest satisfaction, followed by married individuals ( $M = 47.33$ ). The lowest satisfaction was among single patients ( $M = 46.18$ ).

These results may be explained by greater attentiveness by medical staff towards widowed or divorced individuals, who may be perceived as more vulnerable. Less

assertive or less prioritized care experienced by single patients, possibly due to implicit bias or age factors. A sense of greater empathy extended by physicians toward those lacking spousal support.

This domain showed the most striking difference across groups,  $F(3, 3190) = 12.677, p < .001$ . Widowed respondents reported the highest satisfaction ( $M = 40.88$ ), followed by divorced ( $M = 39.06$ ) and married patients ( $M = 38.03$ ). Again, single respondents reported the lowest satisfaction ( $M = 35.85$ ). This might suggest that the nursing staff provide more attention or compassion to individuals without familial support at hospitals. Single patients may expect more modern interaction styles, leading to dissatisfaction if nurses follow more conventional or hierarchical patterns.

There were no significant differences in registration service perceptions,  $F(3, 3190) = 1.292, p = .275$ . Mean scores were fairly stable, indicating that marital status does not meaningfully affect the experience of administrative processes like OPD registration or appointment scheduling.

A significant but modest difference was found in perceptions of waiting time,  $F(3, 3190) = 3.810, p = .010$ . Widowed ( $M = 17.90$ ) and divorced ( $M = 17.94$ ) respondents again reported more favourable perceptions, while single individuals were least satisfied ( $M = 16.90$ ).

These findings reinforce the trend of more tolerance or patience among older, widowed patients, possibly due to life experience, different expectations, or lower time pressure compared to younger or unmarried patients.

The results show that marital status subtly influences interpersonal aspects of healthcare, particularly doctor and nursing services are more favourably rated by widowed and divorced individuals, perhaps due to increased attention from staff. Single respondents consistently report lower satisfaction, possibly due to unmet communication preferences or feeling less prioritized. However, administrative domains like registration and overall satisfaction appear largely immune to marital status influence, suggesting uniformity in non-personal service components.

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Patient_Satisfaction	Between Groups	360.959	3	120.320	1.681	.169
	Within Groups	228316.548	3190	71.573		
	Total	228677.507	3193			
Doctor_Services	Between Groups	1169.363	3	389.788	5.546	.001
	Within Groups	224191.791	3190	70.280		
	Total	225361.155	3193			
Nursing_Services	Between Groups	3483.989	3	1161.330	12.677	.000
	Within Groups	292242.490	3190	91.612		
	Total	295726.479	3193			
Registration_Services	Between Groups	38.913	3	12.971	1.292	.275
	Within Groups	32031.539	3190	10.041		
	Total	32070.452	3193			
Waiting_Time	Between Groups	142.935	3	47.645	3.810	.010
	Within Groups	39893.615	3190	12.506		
	Total	40036.550	3193			

#### 4.1.5.7 District-Based Comparison of Healthcare Dimensions

This analysis was done to examine how perceptions of public healthcare vary across the four districts covered in this study: Attock, Chakwal, Jhelum, and Rawalpindi. Using one-way ANOVA, significant differences were found in all five service dimensions, suggesting a strong geographic disparity in the delivery and experience of healthcare services. These findings provide critical insights into inter-district inequalities, resource allocation effectiveness, and patient expectations.

There were significant differences in patient satisfaction across districts,  $F(3, 3190) = 72.496$ ,  $p < .001$ . The highest satisfaction was reported in Jhelum ( $M = 49.76$ ) and Chakwal ( $M = 48.68$ ), while the lowest was in Rawalpindi ( $M = 43.37$ ). The wide gap between districts suggests that patients in urban centres like Rawalpindi may have higher expectations but perceive poorer service quality, or that smaller cities receive more personalized care.

Perceptions of doctor services also varied significantly,  $F(3, 3190) = 121.539$ ,  $p < .001$ . Once again, Jhelum led with the highest satisfaction ( $M = 49.99$ ), followed by Chakwal and Attock. Rawalpindi had the lowest rating ( $M = 41.79$ ), a stark gap of over 8 points. This suggests systemic issues in doctor availability, communication, or behaviour in large urban hospitals where caseloads may be unmanageable.

This was the most dramatically affected domain,  $F(3, 3190) = 248.833$ ,  $p < .001$ . Jhelum ( $M = 41.26$ ) and Chakwal scored the highest, while Rawalpindi ( $M = 28.90$ ) reported extremely low satisfaction. This may indicate overburdened nursing staff in

Rawalpindi, possibly combined with poor patient-staff communication or burnout, and reflects a clear service quality gap between metropolitan and semi-urban/rural districts.

Perceptions of registration services were also significantly different,  $F(3, 3190) = 33.682, p < .001$ . Chakwal ( $M = 10.15$ ) led this time, with Jhelum ( $M = 8.71$ ) and Attock ( $M = 8.94$ ) trailing. Rawalpindi fared better here ( $M = 9.65$ ) than in clinical dimensions, indicating that administrative efficiency may be less affected than interpersonal care in urban centres.

A significant effect was seen in perceived waiting time,  $F(3, 3190) = 82.132, p < .001$ . Chakwal ( $M = 18.59$ ) and Jhelum ( $M = 17.77$ ) reported longer waiting times but still had high satisfaction levels, suggesting a higher tolerance for delays when service is considered effective. Rawalpindi had the shortest waiting times ( $M = 15.73$ ) but lowest overall satisfaction, showing that efficiency alone does not guarantee positive perception if care quality is compromised.

This district-wise analysis confirms that geographic inequalities are a major determinant of perceived healthcare quality. Jhelum and Chakwal consistently outperform Rawalpindi in all domains, particularly in nursing and doctor services. Rawalpindi shows lowest satisfaction despite shorter wait times, reflecting potential dissatisfaction due to impersonal service, overcrowding, or high patient-to-staff ratios. Registration services vary less dramatically, implying more standardization in administrative processes.

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Patient_Satisfaction	Between Groups	14595.683	3	4865.228	72.496	.000
	Within Groups	214081.824	3190	67.110		
	Total	228677.507	3193			
Doctor_Services	Between Groups	23116.492	3	7705.497	121.539	.000
	Within Groups	202244.663	3190	63.400		
	Total	225361.155	3193			
Nursing_Services	Between Groups	56080.198	3	18693.399	248.833	.000
	Within Groups	239646.281	3190	75.124		
	Total	295726.479	3193			
Registration_Services	Between Groups	984.658	3	328.219	33.682	.000
	Within Groups	31085.794	3190	9.745		
	Total	32070.452	3193			
Waiting_Time	Between Groups	2870.711	3	956.904	82.132	.000
	Within Groups	37165.839	3190	11.651		
	Total	40036.550	3193			

#### 4.1.5.8 Summarizing the Demographic Based Assessment of Patient Satisfaction

##### *Dimensions:*

The following table summarizes the demographic based assessment of patient satisfaction dimensions as discussed in the previous sections:

Demographic Variable	Patient Satisfaction	Doctor Services	Nursing Services	Registration Services	Waiting Time	Overall Sensitivity
Gender	<input checked="" type="checkbox"/> (p = .000)	<input checked="" type="checkbox"/> (p = .004)	<input checked="" type="checkbox"/> (p = .110)	<input checked="" type="checkbox"/> (p = .000)	<input checked="" type="checkbox"/> (p = .444)	Moderate
Education	<input checked="" type="checkbox"/> (p = .066)	<input checked="" type="checkbox"/> (p = .043)	<input checked="" type="checkbox"/> (p = .071)	<input checked="" type="checkbox"/> (p = .000)	<input checked="" type="checkbox"/> (p = .541)	Moderate
Income	<input checked="" type="checkbox"/> (p = .000)	<input checked="" type="checkbox"/> (p = .000)	<input checked="" type="checkbox"/> (p = .000)	<input checked="" type="checkbox"/> (p = .010)	<input checked="" type="checkbox"/> (p = .000)	High
Occupation	<input checked="" type="checkbox"/> (p = .001)	<input checked="" type="checkbox"/> (p = .000)	Very High			
Age	<input checked="" type="checkbox"/> (p = .079)	<input checked="" type="checkbox"/> (p = .008)	<input checked="" type="checkbox"/> (p = .000)	<input checked="" type="checkbox"/> (p = .154)	<input checked="" type="checkbox"/> (p = .059)	Moderate
Marital Status	<input checked="" type="checkbox"/> (p = .169)	<input checked="" type="checkbox"/> (p = .001)	<input checked="" type="checkbox"/> (p = .000)	<input checked="" type="checkbox"/> (p = .275)	<input checked="" type="checkbox"/> (p = .010)	Moderate
District	<input checked="" type="checkbox"/> (p = .000)	Very High				

- i. Doctor Services is the most sensitive dimension, significantly impacted by all six demographic variables.
- ii. Nursing Services is significantly influenced by four variables, especially district, occupation, and marital status.
- iii. Registration Services and Waiting Time are less affected overall, but still significantly influenced by some variables (especially district and occupation).
- iv. District emerges as the strongest differentiator, significantly affecting all five dimensions.
- v. Marital Status and Age have a limited effect on satisfaction but do influence interpersonal service domains like doctor and nursing care.

#### 4.1.6 Multiple Linear Regression Analysis (Hypothesis Testing)

In this analysis, a Multiple Linear Regression (MLR) was conducted to assess the influence of four independent variables, Doctor Services (DS\_Fact), Nursing Services (NS\_Fact), Waiting Time (WT\_Fact), and Registration Services (RS\_Fact), on Patient Satisfaction (PS\_Fact). The objective was

##### Variables Entered/Removed<sup>a</sup>

Model	Variables Entered	Variables Removed	Method
1	WT_Fact, NS_Fact, RS_Fact, DS_Fact <sup>b</sup>	.	Enter

a. Dependent Variable: PS\_Fact

b. All requested variables entered.

to determine how these predictors contribute to patient satisfaction and to evaluate their individual and collective effects.

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.844 <sup>a</sup>	.712	.712	4.54393	.712	1971.611	4	3189	.000

a. Predictors: (Constant), WT\_Fact, NS\_Fact, RS\_Fact, DS\_Fact  
b. Dependent Variable: PS\_Fact

The regression model showed a strong overall fit, with the R-squared value of 0.712. This shows that approximately 71.2% of the variance in Patient Satisfaction (PS\_Fact) is explained by the four predictors, which is a substantial proportion. The Adjusted R-squared value of 0.712 confirms that the model explains a high level of variability in the dependent variable while accounting for the number of predictors in the model.

The F-statistic of 1971.611 (with  $df = 4, 3189$ ) was significant ( $p < 0.0001$ ), suggesting that the overall regression model is highly reliable and that at least one of the independent variables significantly contributes to explaining patient satisfaction.

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	162833.412	4	40708.353	1971.611	.000 <sup>b</sup>
	Residual	65844.094	3189	20.647		
	Total	228677.507	3193			

a. Dependent Variable: PS\_Fact  
b. Predictors: (Constant), WT\_Fact, NS\_Fact, RS\_Fact, DS\_Fact

The ANOVA table further supports the statistical significance of the model, with the Regression Sum of Squares being 162,833.412 and the Residual Sum of Squares being 65,844.094. The F-value of 1971.611 indicates that the model fits the data well, and the p-value of 0.000 reinforces that the model is highly statistically significant.

The following regression coefficients provide insight into the relationship between each predictor and Patient Satisfaction:

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.069	.517		15.619	<.001
	DS_Fact	.925	.015	.918	60.221	.000
	NS_Fact	-.110	.013	-.125	-8.296	<.001
	RS_Fact	-.210	.031	-.079	-6.747	<.001
	WT_Fact	.115	.032	.048	3.589	<.001

a. Dependent Variable: PS\_Fact

The unstandardized coefficient for Doctor Services ( $B = 0.925$ ) suggests that for each unit increase in the quality of doctor services, Patient Satisfaction increases by 0.925 units. The standardized coefficient ( $Beta = 0.918$ ) indicates that Doctor Services have the strongest effect on Patient Satisfaction among all the predictors, with a highly significant t-value of 60.221 ( $p < 0.0001$ ). This result highlights the critical role of doctor-patient interactions in shaping patient satisfaction.

The unstandardized coefficient for Nursing Services ( $B = -0.110$ ) indicates a negative relationship with Patient Satisfaction, suggesting that higher Nursing Services scores are associated with lower levels of Patient Satisfaction. The standardized coefficient ( $Beta = -0.125$ ) suggests a moderate negative effect, with a t-value of -8.296 ( $p < 0.0001$ ). This result suggests that Nursing Services, despite being an essential aspect of patient care, may have a complex and potentially negative impact on Patient Satisfaction in this sample.

The unstandardized coefficient for Registration Services ( $B = -0.210$ ) shows a negative effect on Patient Satisfaction, where each unit increase in Registration Services results in a 0.210 decrease in Patient Satisfaction. The standardized coefficient ( $Beta = -0.079$ ) suggests that Registration Services have a relatively weak but significant negative effect on Patient Satisfaction, with a t-value of -6.747 ( $p < 0.0001$ ). This finding highlights the importance of efficient registration processes in healthcare settings, where poor experiences may detract from overall patient satisfaction.

The unstandardized coefficient for Waiting Time ( $B = 0.115$ ) suggests a small positive effect on Patient Satisfaction, with each additional unit of waiting time leading to a 0.115 increase in satisfaction. The standardized coefficient ( $Beta = 0.048$ ) and a t-value of 3.589 ( $p < 0.0001$ ) suggest that although Waiting Time has a positive effect, its impact is relatively modest compared to the other predictors. This could reflect a nuanced relationship, where some

waiting time may be perceived as a necessary aspect of healthcare, especially when patients feel they are receiving quality care.

The residual statistics show that the residuals are well-distributed, with a mean of 0 and a standard deviation of 4.54108, indicating that the model fits the data without significant bias. The minimum residual of -42.88866 and maximum residual of 32.98669 are consistent with the variability expected in real-world data.

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	15.9679	61.5245	47.5848	7.14122	3194
Residual	-42.88866	32.98669	.00000	4.54108	3194
Std. Predicted Value	-4.427	1.952	.000	1.000	3194
Std. Residual	-9.439	7.260	.000	.999	3194

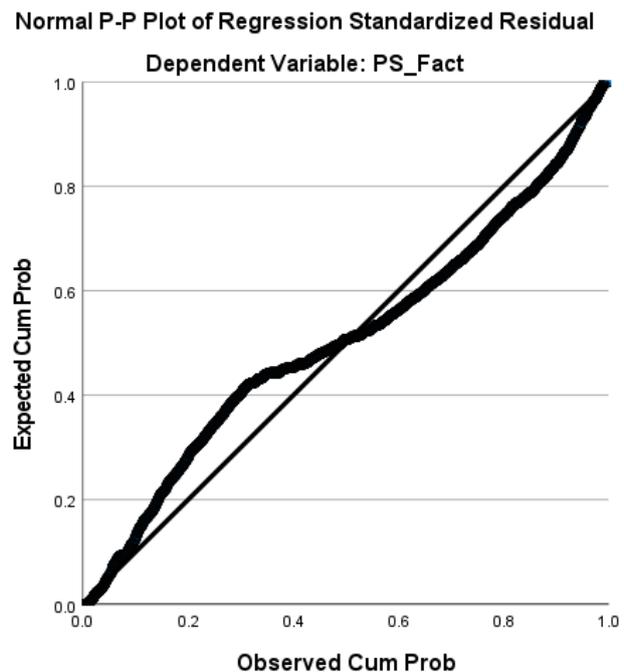
a. Dependent Variable: PS\_Fact

The predicted values range from 15.9679 to 61.5245, with a mean predicted value of 47.5848, suggesting that the model provides reasonably accurate predictions of Patient Satisfaction across the sample.

The P-P plot suggests that the residuals from the regression analysis are approximately normally distributed. While minor deviations from the diagonal line may exist, they are not severe enough to invalidate the normality assumption. This indicates that the regression model's results are likely valid, and we can proceed with confidence in the statistical tests conducted.

The results from this Multiple Linear Regression analysis reveal that Doctor Services have the most significant positive impact on Patient Satisfaction, followed by

Waiting Time, which has a modest positive effect. On the other hand, Nursing Services and Registration Services show negative associations with Patient Satisfaction, suggesting that improvements in these areas might be necessary to enhance overall patient experiences.



The results of the multiple linear regression analysis revealed important insights into the factors that significantly influence patient satisfaction in the public healthcare sector. The model, which included Doctor Services, Nursing Services, Registration Services, and Waiting Time as independent variables, accounted for 71.2% of the variance in patient satisfaction. This demonstrates the strength of the selected predictors in explaining patient experiences.

Among all predictors, Doctor Services emerged as the most influential factor, with a strong positive standardized beta coefficient ( $\beta = 0.918$ ,  $p < 0.001$ ). This indicates that the quality of interaction between doctors and patients plays a central role in shaping overall patient satisfaction. These findings validate the critical importance of doctor–patient communication, trust, and perceived competence in service delivery.

Waiting Time also showed a significant positive effect ( $\beta = 0.048$ ,  $p < 0.001$ ), although weaker in magnitude. This suggests that reduced waiting periods are positively associated with patient satisfaction, albeit not as strongly as doctor-related factors. This reinforces the notion that operational efficiency and time management in service delivery are perceived positively by patients.

Conversely, Nursing Services and Registration Services showed significant negative relationships with patient satisfaction ( $\beta = -0.125$  and  $\beta = -0.079$  respectively). These results may reflect issues such as inadequate interpersonal interaction, delays in procedural handling, or poor administrative support. While these services are essential, shortcomings in these areas may frustrate patients and contribute to negative evaluations, even if medical treatment outcomes are satisfactory.

The negative association with nursing services is particularly noteworthy and counterintuitive, as previous studies often highlight nursing care as a cornerstone of patient-centred healthcare. This anomaly may reflect service gaps, staff workload, patient neglect, or systemic inefficiencies in the local context, which require further investigation through qualitative inquiry.

#### **4.1.7 Hypothesis Testing Results:**

Based on the above Multiple Linear Regression analyses, the following can be concluded:

##### *4.1.7.1 Hypothesis for Doctor Services (DS\_Fact)*

Null Hypothesis (H<sub>0</sub>): There is no significant effect of Doctor Services (DS\_Fact) on Patient Satisfaction (PS\_Fact).

Alternative Hypothesis (H<sub>1</sub>): Doctor Services (DS\_Fact) have a significant effect on Patient Satisfaction (PS\_Fact).

The coefficient for Doctor Services ( $\beta = 0.925$ ) is highly significant ( $p < 0.0001$ ). The null hypothesis is rejected, and the alternative hypothesis is accepted. This means that Doctor Services significantly affect Patient Satisfaction, with a strong positive relationship.

#### 4.1.7.2 Hypothesis for Nursing Services (NS\_Fact):

Null Hypothesis (H<sub>0</sub>): There is no significant effect of Nursing Services (NS\_Fact) on Patient Satisfaction (PS\_Fact).

Alternative Hypothesis (H<sub>1</sub>): Nursing Services (NS\_Fact) have a significant effect on Patient Satisfaction (PS\_Fact).

The coefficient for Nursing Services ( $\beta = -0.110$ ) is statistically significant ( $p < 0.0001$ ), and it is negative. The null hypothesis is rejected, and the alternative hypothesis is accepted. This suggests that Nursing Services have a significant negative effect on Patient Satisfaction in this dataset.

#### 4.1.7.3 Hypothesis for Registration Services (RS\_Fact):

Null Hypothesis (H<sub>0</sub>): There is no significant effect of Registration Services (RS\_Fact) on Patient Satisfaction (PS\_Fact).

Alternative Hypothesis (H<sub>1</sub>): Registration Services (RS\_Fact) have a significant effect on Patient Satisfaction (PS\_Fact).

The coefficient for Registration Services ( $\beta = -0.210$ ) is statistically significant ( $p < 0.0001$ ), and it is also negative. The null hypothesis is rejected, and the alternative hypothesis is accepted. This suggests that Registration Services have a significant negative effect on Patient Satisfaction.

#### 4.1.7.4 Hypothesis for Waiting Time (WT\_Fact)

Null Hypothesis (H<sub>0</sub>): There is no significant effect of Waiting Time (WT\_Fact) on Patient Satisfaction (PS\_Fact).

Alternative Hypothesis (H<sub>1</sub>): Waiting Time (WT\_Fact) has a significant effect on Patient Satisfaction (PS\_Fact).

The coefficient for Waiting Time ( $\beta = 0.115$ ) is statistically significant ( $p < 0.0001$ ), indicating a small positive effect. The null hypothesis is rejected, and the alternative hypothesis is accepted. This suggests that Waiting Time has a significant effect on Patient Satisfaction, although the effect is relatively modest.

Summary of accepted Hypotheses for each of the four predictors is given as under:

- i. *For Doctor Services (DS\_Fact)*: The null hypothesis ( $H_0$ ) is rejected, whereas the alternative hypothesis ( $H_1$ ) is accepted.

*“Doctor Services significantly influence Patient Satisfaction.”*

- ii. *For Nursing Services (NS\_Fact)*: The null hypothesis ( $H_0$ ) is rejected, and the alternative hypothesis ( $H_1$ ) is accepted. Nursing Services have a significant negative effect on Patient Satisfaction.

*“Nursing Services significantly influence Patient Satisfaction”*

- iii. *Registration Services (RS\_Fact)*: The null hypothesis ( $H_0$ ) is rejected, whereas the alternative hypothesis ( $H_1$ ) is accepted. Registration Services have a significant negative effect on Patient Satisfaction.

*“Registration Services significantly influence Patient Satisfaction”*

- iv. *Waiting Time (WT\_Fact)*: The null hypothesis ( $H_0$ ) is rejected. The alternative hypothesis ( $H_1$ ) is accepted. Waiting Time has a significant positive effect on Patient Satisfaction, but the effect is smaller compared to the other predictors.

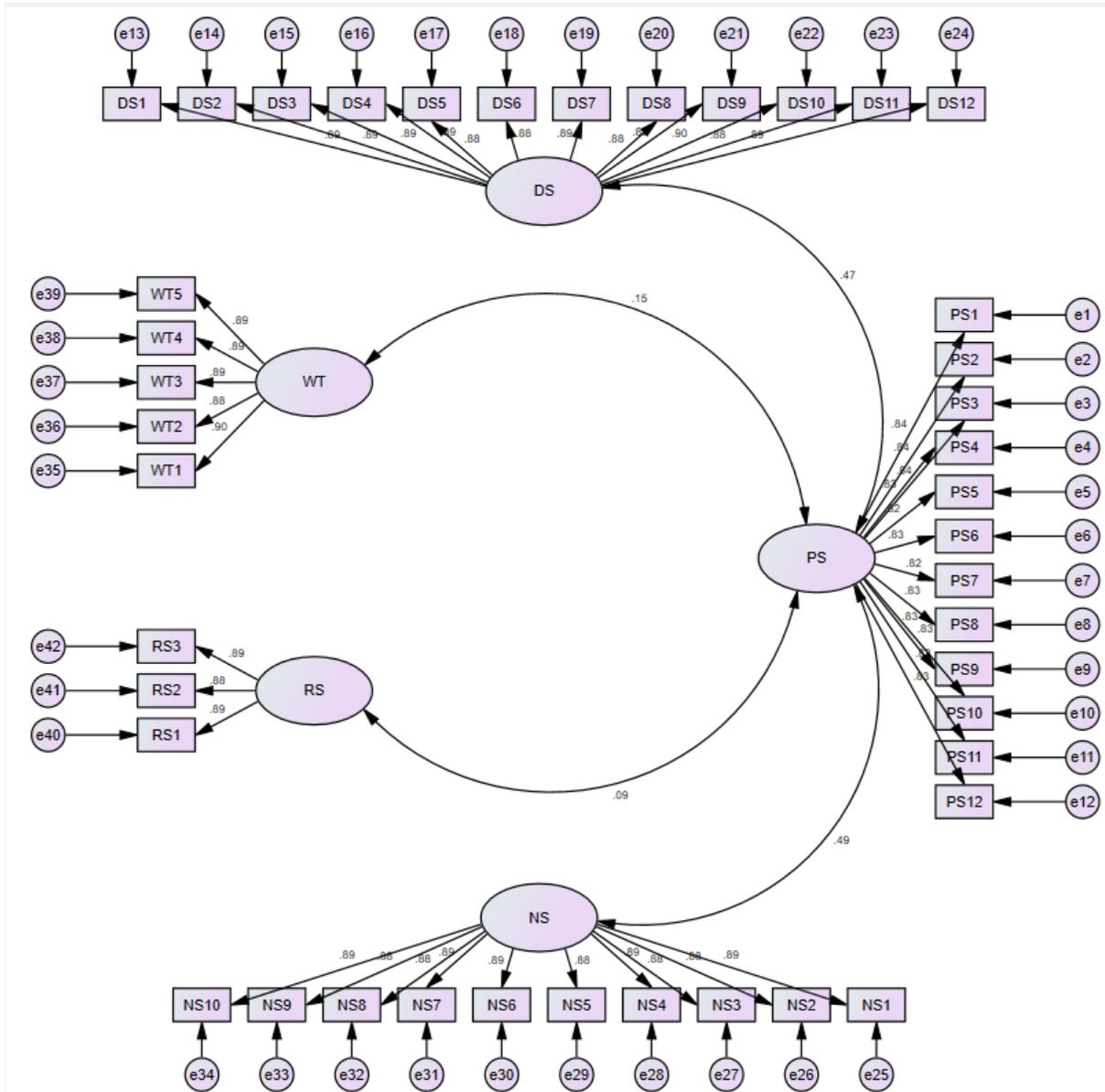
*“Waiting Time significantly influences Patient Satisfaction”*

Hence, for all four predictors – Doctor Services, Nursing Services, Registration Services, and Waiting Time – the null hypothesis is rejected, and the alternative hypothesis is accepted. This means that all four predictors have a significant effect on Patient Satisfaction, but with varying strengths and directions of influence.

#### **4.1.8 Confirmatory Factors Analysis (CFA) for the Patient Satisfaction Instrument:**

Confirmatory Factor Analysis (CFA) was carried out to assess the factor structure of the Patient Satisfaction (PS\_Fact) data. The aim was to assess whether the hypothesized model, based on theoretical expectations, fits the observed data well. Below is a detailed analysis of

the CFA results, including model fit indices, parameter estimates, and overall model performance.



Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	88	8379.843	815	.000	10.282
Saturated model	903	.000	0		
Independence model	42	165104.800	861	.000	191.759

(Table: Model Fit Summary)

The Model Fit Summary provides critical insight into the overall adequacy of the CFA model. The Chi-Square statistic (CMIN) for the default model was 8379.843 with 815 degrees of freedom, resulting in a p-value of 0.000, which indicates that the model does not fit perfectly

to the data. However, the Chi-Square/df ratio (CMIN/DF) of 10.282 suggests that while the model has some room for improvement, it falls within an acceptable range (values below 5 are generally considered acceptable, though values slightly above 5 can be acceptable depending on sample size). The Saturated Model shows a perfect fit with CMIN = 0, as expected, because it represents a model where the data and the hypothesized model align perfectly. The Independence Model represents the worst-case scenario, where no relationships between variables are hypothesized, yielding a very large CMIN value of 165104.800, with a CMIN/DF ratio of 191.759, which indicates a very poor fit.

Model	RMR	GFI	AGFI	PGFI
Default model	.153	.880	.867	.794
Saturated model	.000	1.000		
Independence model	.233	.060	.014	.057

*(Table: Goodness of Fit Indices)*

The Goodness-of-Fit Indices (GFI) provide further evidence of the model's fit. The RMR (Root Mean Square Residual) for the default model is 0.153, which is a reasonable value (lower values indicate better fit, typically below 0.08). The GFI is 0.880, suggesting that the model explains about 88% of the variance in the observed covariance matrix, which is a satisfactory level for model fit. The Adjusted GFI (AGFI) is 0.867, also indicating good fit, as values above 0.8 are generally considered acceptable.

Additional fit indices include the **PGFI (Parsimony Goodness-of-Fit Index)**, which is **0.794**, indicating a reasonable balance between fit and model complexity.

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.949	.946	.954	.951	.954
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

*(Table: Baseline Comparisons)*

Baseline comparison indices help assess how well the model fits relative to simpler models. For this model, the Normed Fit Index (NFI) for the default model is 0.949, suggesting that the model explains 94.9% of the variance relative to the baseline model, indicating a good fit. The Comparative Fit Index (CFI) is 0.954, which is well above the 0.90 threshold for good fit. This suggests that the hypothesized model fits the data better than the baseline model (independence model). The Tucker-Lewis Index (TLI) and Incremental Fit Index (IFI) are 0.951 and 0.954, respectively, further indicating a robust model fit.

The Parsimony-Adjusted Measures help assess whether the model is providing a good fit while avoiding excessive complexity. The Parsimony Ratio (PRATIO) for the default model is 0.947, which is a strong value indicating that the model achieves a good balance between fit and parsimony. The Parsimony Normed Fit Index (PNFI) is 0.899, and the Parsimony Comparative Fit Index (PCFI) is 0.903, both suggesting that the model is efficient and not overly complex.

The RMSEA value is an important measure of model fit, with lower values indicating better fit. The RMSEA for the default model is 0.054, which is within the acceptable range (typically  $<0.08$ ), indicating good model fit. The 90% Confidence Interval for RMSEA is  $[0.053, 0.055]$ , suggesting a precise estimate of the model's fit. The PCLOSE value of 0.000 indicates that the model is unlikely to have a population RMSEA greater than 0.05, further supporting the adequacy of the model.

The AIC for the default model is 8555.843, and the BIC is 9089.917, both suggesting that the model is relatively good in terms of fit to complexity ratio. The Saturated Model has an AIC of 1806.000, and the Independence Model has an extremely high AIC of 165188.800, further highlighting the superior fit of the hypothesized model. The ECVI values provide an estimate of how well the model would perform with new data. The ECVI for the default model is 2.680, suggesting that the model fits well, with a lower ECVI indicating better cross-validation performance.

HOELTER's Critical N values indicate the sample size required to achieve an acceptable model fit. For the default model, the HOELTER values at .05 and .01 are 337 and 348, respectively. These values suggest that the model has acceptable fit for typical sample sizes in social science research.

In short, the Confirmatory Factor Analysis (CFA) for the Patient Satisfaction (PS\_Fact) model demonstrates good fit across multiple indices. The RMSEA and CFI are within acceptable ranges, and the AIC, BIC, and NFI suggest that the model is efficient and well-fitting. The model's residuals also show reasonable alignment with expected normality, as indicated by the P-P plot of the regression standardized residuals. These results indicate that the hypothesized factor structure is a good fit for the observed data, providing support for the validity of the factors included in the model for assessing Patient Satisfaction. Future research may explore refinements to the model or consider alternative constructs, but as it stands, the model appears robust and reliable.

#### 4.2 Data Analysis for Maslach Burnout Inventory (MBI)

The second dataset required for this study was based on the Maslach Burnout Inventory for Medical Personnel. This consisted of 3 Dimensions and 22 items as summarized below:

- a) Emotional Exhaustion Dimension (EE) consisting of 9 items
- b) Depersonalization Dimension (DP) consisting of 5 items
- c) Personal Accomplishment (PA) consisting of 8 items.

The questionnaire was distributed to 360 Doctors and Nurses working in the 18 Secondary Healthcare Hospitals selected for this study across 04 districts of the Rawalpindi Division. Of the distributed questionnaires, 255 complete and acceptable filled-in questionnaires were made part of this study. The questionnaire was designed both in English and Urdu, however, no doctor or nurse chose to respond the questionnaire in Urdu language and all opted the questionnaire in English language.

The MBI HSS MP is gauged on a Likert's Scale of 5. After assigning proper codes for each of the item on the SPSS, where items pertaining to Personal Accomplishment were reverse-coded, since higher score on these items means less burnout. Whereas, for other dimensions the coding was not required to be reversed. The coding of items for the MBI HSS MP questionnaire is summarized in the following table:

<b>Dimension</b>	<b>No. of Items</b>	<b>Likert's Scale</b>
Emotional Exhaustion (EE)	9 Items	1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Always
Depersonalization (DP)	5 Items	1 = Always 2 = Often 3 = Sometimes 4 = Rarely 5 = Never
Personal Accomplishment (PA)	8 Items	1 = Always 2 = Often 3 = Sometimes 4 = Rarely 5 = Never

Apart from the main 22 items, data from Doctors and Nursing staff on 12 Demographics was also obtained namely: Gender, Designation, Basic Pay Scale, Profession, Age, Experience, District where posted, Total Family Members, Monthly Average Income, Marital Status, Hours per week worked, and highest level of education.

After the data entry within the SPSS, the variables Emotional Exhaustion (EE), Depersonalization (DP), and Personal Accomplishment (PA), were computed by using the 'Compute Variable' command in the SPSS.

#### 4.2.1 Reliability Testing

The first test applied on the dataset was to find the reliability of each of the dimension within the dataset. For this, Reliability Test of Cronbach's Alphas was used. The results are as under:

<b>Dimensions</b>	<b>Items</b>	<b>Cronbach' Alpha</b>	<b>Remarks</b>
Emotional Exhaustion	09	0.903	Excellent
Depersonalization	05	0.609	Acceptable (Given the small number of items)
Personal Accomplishment	08	0.824	Very Good
<b>Overall MBI Reliability</b>	<b>22</b>	<b>0.860</b>	<b>Very Good</b>

The results indicate that the MBI scale demonstrates acceptable to excellent internal consistency across most subscales. The Emotional Exhaustion dimension shows excellent reliability with  $\alpha = 0.903$ , reflecting strong coherence among the items measuring emotional depletion at work. The Personal Accomplishment domain also demonstrated a high level of internal consistency ( $\alpha = 0.824$ ), even after reverse coding of the items.

The Depersonalization subscale, while slightly lower, still returned a moderate internal consistency score ( $\alpha = 0.609$ ). Although this falls below the conventional threshold of 0.70, it remains within acceptable limits for exploratory studies or when fewer items are involved. This finding is consistent with prior research on MBI where the DP subscale often exhibits lower reliability due to its abstract psychological construct and fewer item count (Maslach & Jackson, 1981; Schaufeli et al., 1996).

The overall MBI reliability score of 0.860 confirms that the instrument, as a whole, is highly reliable for assessing burnout among healthcare professionals in the present context.

#### 4.2.2 Construct Validity of the Maslach Burnout Inventory (MBI)

To evaluate the construct validity of the Maslach Burnout Inventory (MBI), Pearson correlation coefficients were computed among the three subscales, Emotional Exhaustion (EE),

Depersonalization (DP), and Personal Accomplishment (PA), along with their correlation with the Overall Burnout score. The scores are summarized in the following table:

		Overall_Burnout	EE_Total	DP_Total	PA_Total
Overall_Burnout	Pearson Correlation	1	.861**	.650**	.581**
	Sig. (2-tailed)		.000	.000	.000
	N	255	255	255	255
EE_Total	Pearson Correlation	.861**	1	.502**	.163**
	Sig. (2-tailed)	.000		.000	.009
	N	255	255	255	255
DP_Total	Pearson Correlation	.650**	.502**	1	.102
	Sig. (2-tailed)	.000	.000		.105
	N	255	255	255	255
PA_Total	Pearson Correlation	.581**	.163**	.102	1
	Sig. (2-tailed)	.000	.009	.105	
	N	255	255	255	255

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The construct validity test showed a very strong correlation ( $r = .861$ ) between Overall Burnout and Emotional Exhaustion, which suggests that emotional fatigue is a dominant component of perceived burnout, in line with Maslach's original theoretical model. Similarly, Depersonalization is also significantly related to Overall Burnout ( $r = .650$ ), validating its role as a core subdimension. Also, Personal Accomplishment correlates positively with Overall Burnout ( $r = .581$ ), but this may reflect the fact that PA scores were reverse-coded, so lower PA implies higher burnout. There was also a moderate positive correlation between EE and DP ( $r = .502$ ) that aligns with burnout theory, stating that emotional exhaustion often precedes or co-occurs with detachment and cynicism. Lastly, the relatively weak correlation between DP and PA ( $r = .102$ , ns) might suggest that feelings of accomplishment are not necessarily diminished in tandem with depersonalization, particularly in cultural or contextual settings like healthcare in Pakistan.

The findings confirm the construct validity of the Maslach Burnout Inventory in this sample. The expected positive correlations among the negative dimensions of burnout (EE and DP), and their inverse association with personal accomplishment, broadly align with theoretical expectations.

### 4.2.3 Prevalence and categorization of burnout

To find the extent of burnout among healthcare professionals, individual scores from each Maslach Burnout Inventory (MBI) subscale were classified into Low, Moderate, and High categories using established threshold criteria (Maslach & Jackson, 1986), which is as under:

Subscale	Levels of Burnout		
	Low	Moderate	High
<b>Emotional Exhaustion (EE)</b>	≤ 16	17–26	≥ 27
<b>Depersonalization (DP)</b>	≤ 6	7–12	≥ 13
<b>Personal Accomplishments (PA)</b>	≥ 39	32–38	≤ 31 ( <i>Low = high burnout</i> )

The classification was conducted separately for the three core domains: Emotional Exhaustion (EE), Depersonalization (DP), and Personal Accomplishment (PA). The results are summarized in the tables below:

**EE\_Level**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	74	29.0	29.0	29.0
	Moderate	99	38.8	38.8	67.8
	High	82	32.2	32.2	100.0
	Total	255	100.0	100.0	

**DP\_Level**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	28	11.0	11.0	11.0
	Moderate	138	54.1	54.1	65.1
	High	89	34.9	34.9	100.0
	Total	255	100.0	100.0	

**PA\_Level**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	1	.4	.4	.4
	Moderate	7	2.7	2.7	3.1
	High	247	96.9	96.9	100.0
	Total	255	100.0	100.0	

*Note: High EE and DP + Low PA indicate **high burnout**.*

#### 4.2.4 Summary of Burnout Level Categorization by MBI Subscales

Subscale	Levels of Burnout			Total
	Low	Moderate	High	
<b>Emotional Exhaustion (EE)</b>	74 (29.0%)	99 (28.8%)	82 (32.2%)	255
<b>Depersonalization (DP)</b>	28 (11.0%)	138 (54.1%)	89 (34.9%)	255
<b>Personal Accomplishments (PA)</b>	1 (0.4%)	7 (2.7%)	247 (96.9%)	255

*Note: PA scores were reverse-coded; therefore, lower PA shows higher burnout.*

The results show that a considerable proportion of healthcare professionals reported elevated levels of Emotional Exhaustion (32.2%) and Depersonalization (34.9%), showing elevated psychological strain and detachment from patients. An overwhelming 96.9% showed low scores in Personal Accomplishment, suggesting that nearly the entire sample felt ineffective, unaccomplished, or lacking impact in their professional role. Collectively, this profile is consistent with moderate to elevated levels of burnout, with the most severe dimension being diminished personal accomplishment, followed by emotional fatigue and interpersonal disengagement.

These findings underscore a widespread prevalence of burnout, with a considerable proportion of healthcare professionals experiencing multiple dimensions of the syndrome. The pattern strongly justifies further intervention-based research and policy consideration.

#### 4.2.5 Demographic-Based Analyses:

This section discusses the demographic based variation amongst different dimensions of burnout amongst healthcare professionals.

##### 4.2.5.1 Gender-Based Differences in Burnout Dimensions

To explore whether burnout differs by gender, an Independent Samples T-Test was conducted comparing male and female healthcare professionals across the three dimensions of the Maslach Burnout Inventory (MBI), which are Emotional Exhaustion (EE), Depersonalization (DP), and Personal Accomplishment (PA). The results are summarized in the table below:

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EE_Total	Equal variances assumed	3.377	.067	2.661	253	.008	2.949	1.108	.766	5.133
	Equal variances not assumed			2.571	165.728	.011	2.949	1.147	.685	5.214
DP_Total	Equal variances assumed	.342	.559	2.831	253	.005	1.351	.477	.411	2.290
	Equal variances not assumed			2.795	176.271	.006	1.351	.483	.397	2.304
PA_Total	Equal variances assumed	.085	.771	2.862	253	.005	2.183	.763	.681	3.685
	Equal variances not assumed			2.818	174.823	.005	2.183	.775	.654	3.712

The results showed that Emotional Exhaustion was significantly higher among male professionals ( $M = 24.29$ ) compared to females ( $M = 21.34$ ),  $t(253) = 2.66$ ,  $p = .008$ . Depersonalization levels were also significantly elevated in males ( $M = 12.14$ ) relative to females ( $M = 10.79$ ),  $t(253) = 2.83$ ,  $p = .005$ . For Personal Accomplishment,

males reported higher scores ( $M = 18.92$ ) than females ( $M = 16.74$ ), indicating lower burnout in this dimension. This difference was statistically significant as well,  $t(253) = 2.86, p = .005$ .

These findings reveal that male healthcare professionals experience significantly higher emotional exhaustion and depersonalization than their female counterparts. However, they also report slightly greater feelings of personal accomplishment, suggesting a more complex emotional burnout profile. This insight highlights the need for gender-sensitive interventions when addressing burnout in the healthcare sector.

#### 4.2.5.2 Profession-Based Differences in Burnout Dimensions

To examine profession-based differences in burnout, an **Independent Samples T-Test** was conducted comparing **Doctors** and **Nursing Staff** across the three MBI dimensions: Emotional Exhaustion (EE), Depersonalization (DP), and Personal Accomplishment (PA). The analysis assessed whether the nature of professional role affects the level of occupational burnout experienced by healthcare providers. The results are summarized as under:

		Independent Samples Test									
		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
EE_Total	Equal variances assumed	9.484	.002	5.945	253	<.001	6.173	1.038	4.128	8.218	
	Equal variances not assumed			6.301	235.682	<.001	6.173	.980	4.243	8.103	
DP_Total	Equal variances assumed	.634	.427	1.865	253	.063	.885	.475	-.050	1.820	
	Equal variances not assumed			1.890	208.983	.060	.885	.468	-.038	1.808	
PA_Total	Equal variances assumed	1.347	.247	2.251	253	.025	1.703	.757	.213	3.193	
	Equal variances not assumed			2.201	186.466	.029	1.703	.774	.177	3.229	

The results show that Emotional Exhaustion (EE) was significantly higher among doctors ( $M = 24.70$ ) compared to nurses ( $M = 18.53$ ),  $t(253) = 5.95, p < .001$ . This suggests that doctors are more emotionally fatigued, likely due to more intense decision-making and patient responsibility. While Depersonalization (DP) was slightly higher in doctors ( $M = 11.60$ ) than in nurses ( $M = 10.72$ ), the difference was not statistically significant ( $p = .063$ ), indicating similar levels of emotional distancing between the two groups. For Personal Accomplishment (PA), doctors scored significantly higher ( $M = 18.15$ ) than nurses ( $M = 16.45$ ),  $p = .025$ . Since PA is reverse-coded, this suggests that

nurses experience greater burnout in this domain , potentially due to less recognition or decision-making autonomy in their roles.

These results confirm that doctors experience significantly higher emotional exhaustion, while nurses report lower personal accomplishment, both reflecting different burnout profiles across professional categories. These findings reinforce the need for profession-specific support mechanisms, especially targeted wellness strategies for both groups.

#### 4.2.5.3 Age-Based Differences in Burnout Dimensions

To investigate the influence of age on the three dimensions of burnout (Emotional Exhaustion, Depersonalization, and Personal Accomplishment), a one-way ANOVA was conducted. The participants were divided into seven age groups: *Under 25, 26–30, 31–35, 36–40, 41–45, 46–50, and 50 and above.*

The mean EE scores showed slight variations across age groups, with the highest mean EE reported among participants aged 31–40 and the lowest in those under 25. However, the differences were not statistically significant ( $F(6,248) = 1.909, p = .080$ ). This suggests that emotional exhaustion is experienced relatively equally across age brackets, though younger professionals may experience slightly less exhaustion.

		Sum of Squares	df	Mean Square	F	Sig.
EE_Total	Between Groups	821.625	6	136.937	1.909	.080
	Within Groups	17788.477	248	71.728		
	Total	18610.102	254			
DP_Total	Between Groups	132.309	6	22.052	1.644	.135
	Within Groups	3326.020	248	13.411		
	Total	3458.329	254			
PA_Total	Between Groups	317.554	6	52.926	1.539	.166
	Within Groups	8528.171	248	34.388		
	Total	8845.725	254			

Although descriptive statistics revealed slightly higher DP scores among professionals aged 31–35 and 26–30 compared to those over 45, the differences across groups were not statistically significant ( $F(6,248) = 1.644, p = .135$ ). Thus, no conclusive evidence was found to associate age with depersonalization tendencies.

The mean PA scores followed a descending trend with increasing age, suggesting that younger professionals (especially those aged 26–35) reported higher personal

accomplishment. However, ANOVA results indicated these differences were also not statistically significant ( $F(6,248) = 1.539, p = .166$ ).

Despite some noticeable trends in the descriptive statistics (e.g., higher EE and DP in mid-career professionals and slightly reduced PA in older age groups), no statistically significant age-based differences were found in any of the burnout dimensions. This indicates that burnout, as measured by the MBI, may be influenced more strongly by other demographic or occupational factors than by age alone.

#### 4.2.5.4 Working Hours-Based Differences in Burnout Dimensions

Participants were divided into four groups based on their average weekly working hours: up to 30 hours, 31–40 hours, 41–50 hours, and more than 50 hours. The mean scores for the three MBI dimensions across these groups revealed an increasing trend in Emotional Exhaustion (EE) with longer working hours. The EE mean increased from 17.65 for those working up to 30 hours, to 24.38 for those working more than 50 hours per week.

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
EE_Total	Between Groups	1048.826	3	349.609	4.997	.002
	Within Groups	17561.276	251	69.965		
	Total	18610.102	254			
DP_Total	Between Groups	27.364	3	9.121	.667	.573
	Within Groups	3430.965	251	13.669		
	Total	3458.329	254			
PA_Total	Between Groups	28.347	3	9.449	.269	.848
	Within Groups	8817.378	251	35.129		
	Total	8845.725	254			

For Depersonalization (DP) and Personal Accomplishment (PA), however, the trends were not as clear. Slight fluctuations were observed, but the differences in means were relatively small across groups.

For Emotional Exhaustion (EE), the ANOVA revealed a statistically significant difference in Emotional Exhaustion across weekly working hours groups:  $F(3, 251) = 4.997, p = .002$ . Post hoc comparisons using the Tukey HSD test indicated that respondents working more than 50 hours per week had significantly higher EE scores compared to those working up to 30 hours (Mean Diff = 6.73,  $p = .001$ ). Similarly, those working 31–40 hours also reported significantly higher EE compared to those working up to 30 hours (Mean Diff = 5.24,  $p = .009$ ).

These findings support the notion that longer working hours are positively associated with emotional exhaustion, consistent with existing literature on healthcare burnout.

However, for Depersonalization (DP) no significant differences in DP scores were found across weekly working hour groups:  $F(3, 251) = 0.667, p = .573$ . Although slight variations were observed (mean ranging from 10.80 to 11.75), these differences were not statistically meaningful, suggesting that depersonalization may be influenced more by role-specific factors or organizational climate than just the number of hours worked. Similarly, the analysis for PA also yielded non-significant results:  $F(3, 251) = 0.269, p = .848$ . Interestingly, those working more than 50 hours had marginally higher PA scores ( $M = 18.08$ ), but again, the difference was not statistically meaningful. This suggests that perceived professional accomplishment may be more linked to intrinsic motivation, recognition, or career stage than weekly work load.

The results confirm that emotional exhaustion is strongly associated with excessive working hours, particularly above 40 hours per week. This has serious implications for healthcare workforce planning, staff rotation, and mental health policy. Depersonalization and Personal Accomplishment, in contrast, do not vary significantly with hours worked, hinting at other contributing variables that require further investigation (e.g., job role, organizational support, personality traits). From a managerial standpoint, efforts to limit long working hours, provide regular breaks, and staff rotation policies may help reduce EE and improve overall staff wellbeing.

#### **4.2.5.5 Family Size-Based Differences in Burnout Dimensions**

Participants were categorized into three groups based on family size, Up to 5 family members, 6 to 10 family members, and More than 10 family members. The mean Emotional Exhaustion (EE) was relatively similar for the first two groups (22.56 and 22.48), while it was notably lower (18.22) among those with more than 10 family members. Depersonalization (DP) scores also showed only minor fluctuations across groups (from 11.17 to 12.22). However, Personal Accomplishment (PA) exhibited a somewhat more prominent variation, those with 6–10 family members reported the highest PA ( $M = 18.45$ ), and those with more than 10 reported the lowest PA ( $M = 13.78$ ).

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
EE_Total	Between Groups	161.653	2	80.827	1.104	.333
	Within Groups	18448.449	252	73.208		
	Total	18610.102	254			
DP_Total	Between Groups	10.388	2	5.194	.380	.685
	Within Groups	3447.942	252	13.682		
	Total	3458.329	254			
PA_Total	Between Groups	223.346	2	111.673	3.264	.040
	Within Groups	8622.380	252	34.216		
	Total	8845.725	254			

The statistical analysis revealed that, Emotional Exhaustion (EE) [ $F(2, 252) = 1.104, p = 0.333$ ] across family sizes was not statistically significant, though a small downward trend was observed for those with very large families. Similarly, for Depersonalization (DP) [ $F(2, 252) = 0.380, p = 0.685$ ] there was no statistically significant difference among family size groups. This suggests that family size, as a social variable, may not directly impact professional detachment or cynicism.

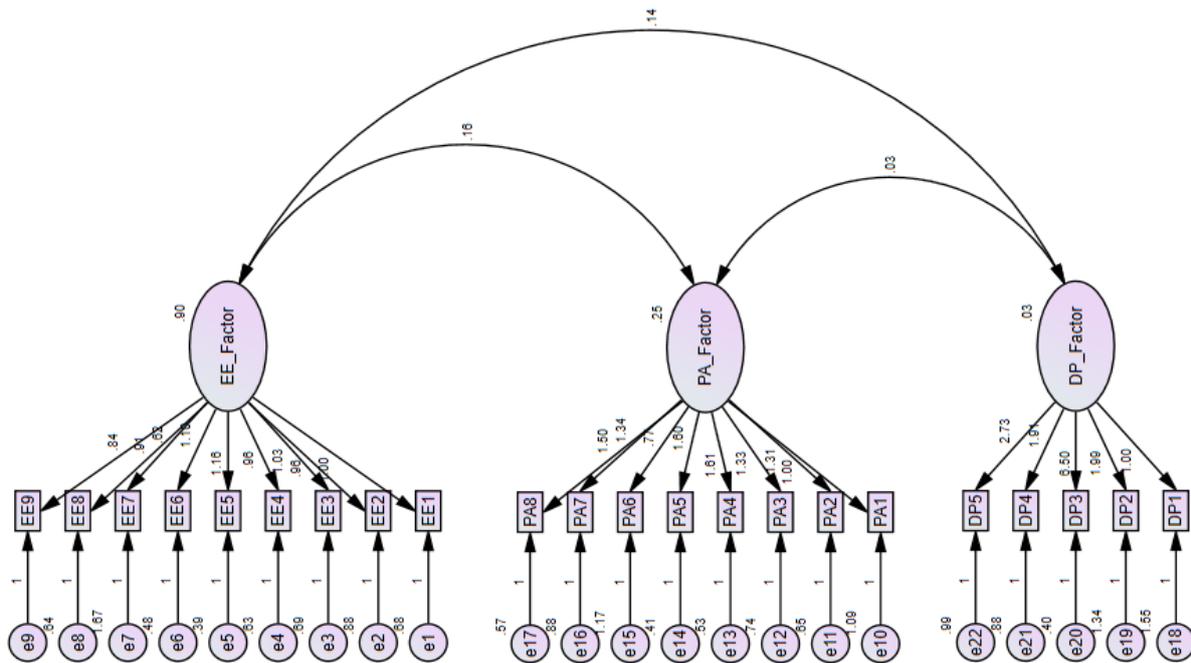
However, for Personal Accomplishment (PA) [ $F(2, 252) = 3.264, p = 0.040$ ] there was statistically significant result, indicating that family size does affect the sense of professional accomplishment. Interestingly Post hoc tests (Tukey HSD) showed marginal significance ( $p = 0.060$ ) between 6–10 family members and more than 10 family members, with the latter reporting significantly lower PA. The direction of this relationship suggests that larger family responsibilities may negatively impact perceived professional success or satisfaction.

The results imply that larger families (especially  $>10$ ) may place additional domestic and emotional demands on healthcare workers, potentially affecting their sense of achievement and fulfilment at work. However, Emotional Exhaustion and Depersonalization remain unaffected, suggesting that burnout in those domains may be more closely tied to workplace stressors (e.g., workload, hours, resources) rather than domestic burdens alone. The finding that medium-sized families (6–10) show the highest PA is intriguing, it may reflect a "support buffer" effect, where family presence enhances emotional resilience and personal motivation, but only up to a certain size.

#### 4.2.6 Use of MBI and CFA Justification

The present study employed the Maslach Burnout Inventory (MBI) to assess burnout among healthcare professionals, using its original structure comprising three subscales:

Emotional Exhaustion (EE), Depersonalization (DP), and Personal Accomplishment (PA). The instrument was applied without modification, in line with its established psychometric validity and global acceptance as a reliable measure of occupational burnout. Internal consistency reliability was confirmed for all three subscales, with Cronbach's alpha values of 0.903 (EE), 0.609 (DP), and 0.824 (PA), and 0.860 for the overall 22-item scale, supporting the scale's internal coherence in the current sample.



Although a Confirmatory Factor Analysis (CFA) was conducted to explore model fit with the sample data, the results indicated modest fit indices (CFI = .877, RMSEA = .074, GFI = .839). These findings, while slightly below optimal thresholds, do not undermine the reliability or interpretive value of the instrument, particularly given that the MBI was utilized in its original, validated form. Existing literature acknowledges that the MBI, despite occasional deviations in fit statistics, remains a robust and widely endorsed tool across diverse settings (Schaufeli et al., 2001). Therefore, this study prioritizes the MBI's established theoretical grounding and empirical reliability over a strict adherence to model fit criteria, especially in light of the research's primary aim: to assess and analyse burnout prevalence and its demographic associations, rather than to validate the instrument's factorial structure.

#### 4.3 Data Analysis for WHO-Quality of Life Survey (WHOQOL-Bref)

The third dataset used for this study was collected through the WHO Quality of Life (WHOQOL-Bref) Survey. The instrument consisted of 26 items which are subsequently

summarized in 05 dimensions. One dimension ‘Overall Quality of Life and General Health’ consisting of 02 items, is not taken into account during the statistical analysis. The actual number of variables based on this instrument are four as summarised below:

- a) Physical Domain (Phy) consisting of 07 items
- b) Psychological Domain (Psy) consisting of 06 items
- c) Social Relationships Domain (SR) consisting of 03 items
- d) Environment Domain (Env) consisting of 08 items
- e) Overall Quality of Life and General Health consisting of 02 items.

This questionnaire was also distributed to 360 Doctors and Nurses working in the 18 Secondary Healthcare Hospitals selected for this study across 04 districts of the Rawalpindi Division. Of the distributed questionnaires, 255 complete and acceptable filled-in questionnaires were made part of this study. The questionnaire was designed both in English and Urdu, however, no doctor or nurse chose to respond the questionnaire in Urdu language and all opted the questionnaire in English language.

The WHOQOL-Bref is gauged on a Likert’s scale of 5. After assigning proper codes for each of the item on the SPSS, where 02 items pertaining to Physical Domain and 01 item pertaining to Psychological domain was reverse-coded, certain statistical tests were run. The questionnaire as well as the scale of the items can be seen at *Annexure - III*

Apart from the main 26 items, data from Doctors and Nursing staff on 12 Demographics was also obtained namely: Gender, Designation, Basic Pay Scale, Profession, Age, Experience, District where posted, Total Family Members, Monthly Average Income, Marital Status, Hours per week worked, and highest level of education.

After the data entry within the SPSS, the variables Physical Domain (Phy), Psychological Domain (Psy), Social Relationships Domain (SR), and Environment Domain (Env) were computed by using the ‘Compute Variable’ command in the SPSS.

#### **4.3.1 Reliability Testing**

To ensure the internal consistency and reliability of the WHOQOL-BREF instrument within the context of this study, Cronbach’s alpha was calculated for each of its four domains: Physical Health, Psychological Health, Social Relationships, and Environment. Cronbach’s alpha is a widely accepted measure of scale reliability and is interpreted as a measure of the interrelatedness of items within a test or domain. Values above 0.70 are generally considered

acceptable, while values above 0.80 are regarded as good to excellent (Nunnally & Bernstein, 1994).

<b>Dimensions</b>	<b>Items</b>	<b>Cronbach' Alpha</b>	<b>Remarks</b>
Physical Domain	07	0.774	Acceptable
Psychological Domain	06	0.795	Good
Social Relationships Domain	03	0.777	Acceptable
Environment Domain	08	0.829	Very Good
<b>Overall Reliability</b>	<b>24</b>	<b>0.926</b>	<b>Excellent</b>

These results demonstrate that all four domains of the WHOQOL-BREF scale exhibit satisfactory internal consistency. The Physical Health domain, with a Cronbach's alpha of 0.774, shows good reliability, indicating coherent responses across items measuring physical functioning, energy, mobility, and related factors. The Psychological Health domain attained an alpha of 0.795, confirming a reliable measurement of emotional well-being, cognitive functioning, and self-esteem. Despite comprising only three items, the Social Relationships domain maintained a robust reliability score of 0.777, which is noteworthy and indicates adequate internal consistency. The highest reliability was observed in the Environment domain, with an alpha of 0.829, reflecting consistent responses on items related to financial resources, safety, health services, and physical environment.

The reliability coefficients suggest that the WHOQOL-BREF instrument is a psychometrically sound tool for assessing the multidimensional quality of life among the study population. The satisfactory Cronbach's alpha scores across all domains provide compelling evidence for the internal consistency of the instrument in this context, supporting its use in later inferential and multivariate analyses.

#### **4.3.2 Construct Validity of the WHOQOL-Bref**

Construct validity is used to ascertain and calculate the level to which different dimensions within an instrument or questionnaire measure each other as hypothesised within the study. For the WHOQOL-BREF instrument, construct validity was evaluated through Pearson correlation analysis among the four quality of life domains: Physical Health, Psychological Health, Social Relationships, and Environment. The assumption is that these domains, while distinct, should be moderately to strongly interrelated, as they collectively stand for the overall quality of life.

		<b>Correlations</b>			
		Physical_Domain	Psycho_Domain	Environment_Domain	Social_Relations_Domain
Physical_Domain	Pearson Correlation	1	.760**	.714**	.549**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	255	255	255	255
Psycho_Domain	Pearson Correlation	.760**	1	.727**	.610**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	255	255	255	255
Environment_Domain	Pearson Correlation	.714**	.727**	1	.590**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	255	255	255	255
Social_Relations_Domain	Pearson Correlation	.549**	.610**	.590**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	255	255	255	255

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The analysis revealed statistically significant positive correlations among all four domains at the 0.01 level (2-tailed), supporting the convergent validity of the instrument. The strong correlation between the Physical and Psychological domains ( $r = .760, p < .01$ ) indicates that individuals experiencing better physical health tend also to report better psychological well-being. Similarly, the Psychological domain was strongly correlated with the Environment domain ( $r = .727, p < .01$ ), suggesting that environmental factors such as access to resources, safety, and living conditions are strongly associated with mental health outcomes.

The Social Relationships domain, despite having fewer items, also demonstrated moderate to strong correlations with other domains, particularly with the Psychological domain ( $r = .610, p < .01$ ) and the Environment domain ( $r = .590, p < .01$ ). The correlation between the Physical and Environment domains was also notably high ( $r = .714, p < .01$ ), underscoring the interconnectedness of one's physical condition with their surrounding environmental factors.

The magnitude and significance of these correlations provide strong empirical support for the construct validity of the WHOQOL-BREF instrument in this study. The findings align with the theoretical expectations that different dimensions of quality of life are interrelated but conceptually distinct, confirming the multidimensional nature of the instrument.

### 4.3.3 Demographic-Based Analyses:

#### 4.1.1.1 Gender-Based Differences in QOL Dimensions

An independent samples t-test was employed to figure out whether statistically significant differences exist between male and female participants in their perceptions of quality of life across these domains.

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Physical_Domain	Equal variances assumed	.937	.334	-1.577	253	.116	-3.80202	2.41103	-8.55026	.94622
	Equal variances not assumed			-1.540	171.011	.125	-3.80202	2.46811	-8.67391	1.06987
Psycho_Domain	Equal variances assumed	5.094	.025	-2.725	253	.007	-6.08081	2.23169	-10.47587	-1.68575
	Equal variances not assumed			-2.584	157.168	.011	-6.08081	2.35285	-10.72809	-1.43353
Environment_Domain	Equal variances assumed	.756	.385	-3.088	253	.002	-9.06667	2.93567	-14.84813	-3.28520
	Equal variances not assumed			-3.015	170.664	.003	-9.06667	3.00729	-15.00295	-3.13039
Social_Relations_Domain	Equal variances assumed	3.027	.083	-1.408	253	.160	-1.70505	1.21133	-4.09062	.68052
	Equal variances not assumed			-1.328	154.927	.186	-1.70505	1.28361	-4.24068	.83058

Descriptive statistics showed that female participants reported higher mean scores than male participants across all four domains of quality of life.

- a) Physical Health: Males (M = 95.42, SD = 19.34); Females (M = 99.22, SD = 17.87)
- b) Psychological Health: Males (M = 77.82, SD = 19.00); Females (M = 83.90, SD = 15.86)
- c) Environmental Domain: Males (M = 96.53, SD = 23.59); Females (M = 105.60, SD = 21.73)
- d) Social Relationships: Males (M = 44.89, SD = 10.42); Females (M = 46.59, SD = 8.54)

These figures suggest a trend whereby female respondents perceive a more favourable quality of life than their male counterparts, particularly in the domains of psychological and environmental well-being.

To assess whether the observed differences in means were statistically significant, independent samples t-tests were conducted for each domain. The assumption of equality of variances was tested using Levene's Test, with appropriate adjustments made where variances were not equal.

For the Physical Health Domain, the difference in mean scores between males and females was not statistically significant,  $t(253) = -1.577$ ,  $p = 0.116$ . This suggests that both male and female respondents experienced comparable levels of physical well-being. Regarding Psychological Health Domain, a statistically significant difference was observed,  $t(253) = -2.725$ ,  $p = 0.007$ , with female participants reporting higher psychological health. This result may reflect differences in emotional coping mechanisms, access to psychological support, or gendered experiences of stress and mental well-being. Similarly, for environmental Domain,

the results also revealed a significant difference between males and females,  $t(253) = -3.088$ ,  $p = 0.002$ , favouring female participants. The environmental domain encompasses factors such as financial resources, accessibility of health and social services, safety, and physical environment, areas where females in this sample reported higher satisfaction. On the Social Relationships Domain, although females scored slightly higher than males in this domain, the difference was not statistically significant,  $t(253) = -1.408$ ,  $p = 0.160$ . This suggests that both genders perceived a similar level of quality in personal relationships and social support.

The results indicate that gender plays a significant role in shaping perceptions of quality of life in specific domains, notably psychological and environmental well-being. The significantly higher scores among female participants in these domains may be attributed to various sociocultural, economic, or workplace-related factors. For instance, women may have access to more robust informal support networks or experience greater perceived safety and satisfaction in their environment.

Conversely, the lack of statistically significant differences in the physical health and social relationships domains suggests that gender may not exert a strong influence in these aspects, or that such influences are mediated by other demographic or contextual variables.

#### **4.1.1.2 Age-Based Differences in Quality of Life Dimensions**

Understanding how perceptions of quality of life differ across age groups is crucial for tailoring health and social interventions to specific demographic needs. In this study, the World Health Organization Quality of Life – BREF (WHOQOL-BREF) instrument was used to measure four domains of quality of life, Physical Health, Psychological Health, Environmental Conditions, and Social Relationships, across seven distinct age categories.

The descriptive results revealed variation in the mean scores of the four QoL domains across age groups. In general, participants aged 50 years and above reported the highest levels of quality of life across Physical, Psychological, Environmental, and Social domains, while participants in the 46–50 years category showed relatively lower mean scores in the same areas.

For Physical Health Domain, the highest mean score was recorded for the oldest age group (50+ years;  $M = 106.40$ ), while the 46–50 years group reported the lowest ( $M = 93.00$ ). With regard to Psychological Domain, the youngest (<25 years) and oldest (50+ years) participants reported relatively higher means ( $M = 87.56$  and  $M = 89.07$  respectively), whereas the 46–50 years group showed the lowest ( $M = 78.00$ ). On the Environmental Domain, again, the 50+ group stood out with the highest mean ( $M = 115.20$ ), in contrast to the 46–50 group,

which had the lowest mean ( $M = 95.33$ ). Whereas for the Social Relationships Domain, the highest score was again observed in the 50+ category ( $M = 49.33$ ), whereas the 31–35 and 26–30 age groups reported lower social relationship scores ( $M = 44.86$  and  $M = 45.61$  respectively).

These trends may reflect variations in life satisfaction, stability, and adaptation mechanisms that evolve with age, with older individuals possibly developing more resilience and acceptance in managing life circumstances.

A one-way Analysis of Variance (ANOVA) was conducted to evaluate whether the observed differences in domain scores across age groups were statistically significant. The results indicated no statistically significant differences across the domains. The results are summarized as under:

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Physical_Domain	Between Groups	2310.329	6	385.055	1.134	.343
	Within Groups	84178.141	248	339.428		
	Total	86488.471	254			
Psycho_Domain	Between Groups	2289.717	6	381.619	1.292	.261
	Within Groups	73243.209	248	295.336		
	Total	75532.925	254			
Environment_Domain	Between Groups	3707.671	6	617.945	1.197	.309
	Within Groups	128055.529	248	516.353		
	Total	131763.200	254			
Social_Relations_Domain	Between Groups	331.364	6	55.227	.638	.700
	Within Groups	21456.620	248	86.519		
	Total	21787.984	254			

Although descriptive statistics suggest certain age-related trends in quality of life, with older age groups generally reporting more favourable outcomes, these differences were not statistically significant. This indicates that age alone does not significantly influence quality of life scores across the measured domains within this sample. It is possible that other intersecting factors such as socioeconomic status, marital status, or occupational stress may play a more defining role in shaping QoL outcomes than age in isolation.

Furthermore, the psychological well-being of the youngest and oldest groups being relatively higher might suggest the presence of optimism during early adulthood and emotional maturity or contentment in later life. Middle-aged groups, especially those between 46 and 50, exhibited lower mean scores across all domains, possibly due to stressors related to career pressures, caregiving responsibilities, or declining physical health.

The findings indicate that while descriptive trends support the hypothesis that quality of life improves in later years, particularly after the age of 50, the lack of statistical significance

points toward a more complex interplay of factors affecting perceived well-being. Future studies should consider conducting multivariate analyses to explore whether age interacts with other demographic or psychosocial variables to influence quality of life.

#### 4.1.1.3 Profession-Based Differences in Quality of Life Dimensions

Professional role within the healthcare system is a critical determinant of workplace experience, stress exposure, and ultimately, perceived quality of life. In this study, a comparison was drawn between two professional categories – Doctors and Nursing Staff – to explore whether significant differences exist across the four domains of the WHOQOL-BREF i.e. Physical Health, Psychological Health, Environmental Conditions, and Social Relationships.

Initial descriptive analysis revealed consistently higher quality of life scores among Nursing Staff across all four domains. On the Physical Health Domain, Nursing staff reported a significantly higher mean score ( $M = 103.71$ ,  $SD = 14.73$ ) than doctors ( $M = 94.36$ ,  $SD = 19.59$ ). For the Psychological Domain, Nurses again outperformed doctors with a mean of 87.00 compared to 78.59. Whereas for Environmental Domain, The mean for nurses was 107.38 versus 99.40 for doctors and for Social Relations Domain, Nursing staff reported a mean of 47.79, while doctors averaged 44.91.

These findings suggest a more favourable perception of quality of life among nurses as compared to doctors, across physical, mental, environmental, and social domains.

Independent samples *t*-tests were conducted to determine whether the differences in domain scores between the two professional groups were statistically significant. Prior to the *t*-test, Levene's Test for Equality of Variances was assessed, and appropriate statistics were interpreted accordingly. The results are presented as follows:

		Independent Samples Test					t-test for Equality of Means				
		Levene's Test for Equality of Variances							95% Confidence Interval of the Difference		
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
Physical_Domain	Equal variances assumed	7.253	.008	-4.034	253	.000	-9.34355	2.31644	-13.90552	-4.78159	
	Equal variances not assumed			-4.322	240.995	.000	-9.34355	2.16208	-13.60255	-5.08456	
Psycho_Domain	Equal variances assumed	3.377	.067	-3.875	253	.000	-8.40881	2.16981	-12.68200	-4.13561	
	Equal variances not assumed			-4.055	228.606	.000	-8.40881	2.07361	-12.49463	-4.32298	
Environment_Domain	Equal variances assumed	1.692	.195	-2.745	253	.006	-7.97877	2.90670	-13.70318	-2.25436	
	Equal variances not assumed			-2.810	215.305	.005	-7.97877	2.83937	-13.57530	-2.38224	
Social_Relations_Domain	Equal variances assumed	4.731	.031	-2.434	253	.016	-2.88601	1.18565	-5.22101	-.55100	
	Equal variances not assumed			-2.545	228.056	.012	-2.88601	1.13416	-5.12078	-.65123	

The results suggest statistically significant profession-based disparities across all four domains of quality of life. Nurses reported better outcomes in physical health, psychological well-being, environmental satisfaction, and social relationships. This pattern may be attributed to several contextual and structural factors:

- a) Doctors often face longer working hours, more critical decision-making pressure, and higher professional liability, which may contribute to reduced well-being and satisfaction across domains.
- b) Nursing roles, while demanding, may offer stronger peer support systems, structured routines, and comparatively more collaborative environments, which can positively influence perceptions of QoL.
- c) Nurses may experience better work-life balance due to rotational duties or shift systems, potentially contributing to higher scores in the social and psychological domains.

The findings show that professional role is a significant determinant of quality of life among healthcare personnel. The data highlight the need for targeted interventions aimed at improving the well-being of doctors, who appear to experience comparatively lower quality of life across all measured domains. Addressing factors such as workload management, psychological support, and workplace resources for doctors may help bridge this professional disparity and promote a fairer and supportive healthcare environment.

#### **4.1.1.4 Working Hours-Based Differences in Quality of Life Dimensions**

Workload, in terms of weekly working hours, plays a critical role in shaping healthcare professionals' perceptions of their quality of life. To explore this relationship, respondents were grouped into four categories based on their reported working hours: up to 30 hours, 31–40 hours, 41–50 hours, and more than 50 hours per week. The impact of this variable was assessed across all four domains of the WHOQOL-BREF instrument, Physical Health, Psychological Health, Environmental Conditions, and Social Relationships.

The descriptive statistics reveal a clear trend i.e. respondents working fewer hours tend to report higher quality of life, particularly in the Physical, Psychological, and Environmental domains. Notably, the Physical Health Domain score was highest among those working up to 30 hours ( $M = 107.76$ ), gradually declining with each increase in working hours, reaching the lowest among those working more than 50 hours ( $M = 94.92$ ). Similar patterns are seen in the Psychological Domain, where those working  $\leq 30$  hours had a mean score of 86.94 compared

to 79.49 for those working >50 hours. The Environmental Domain also follows this downward trend, from a mean of 109.18 in the lowest workload group to 98.73 in the highest. In contrast, Social Relations Domain scores did not show any substantial variation across groups, with all means hovering around 46, suggesting limited impact of working hours on perceived social connectedness.

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Physical_Domain	Between Groups	4031.378	3	1343.793	4.091	.007
	Within Groups	82457.092	251	328.514		
	Total	86488.471	254			
Psycho_Domain	Between Groups	1257.170	3	419.057	1.416	.239
	Within Groups	74275.756	251	295.919		
	Total	75532.925	254			
Environment_Domain	Between Groups	3950.197	3	1316.732	2.586	.054
	Within Groups	127813.003	251	509.215		
	Total	131763.200	254			
Social_Relations_Domain	Between Groups	48.612	3	16.204	.187	.905
	Within Groups	21739.372	251	86.611		
	Total	21787.984	254			

To assess the statistical significance of these observed trends, One-Way ANOVA was conducted for each domain. For the Physical Domain, the analysis revealed a statistically significant difference across working hour categories,  $F(3, 251) = 4.091$ ,  $p = .007$ . This confirms that working hours significantly influence physical health perceptions among healthcare workers. On the Psychological Domain, although the trend showed lower psychological well-being with increased working hours, the result was not statistically significant,  $F(3, 251) = 1.416$ ,  $p = .239$ . However, for the Environmental Domain, the result approached significance,  $F(3, 251) = 2.586$ ,  $p = .054$ , showing a marginal association between working hours and perceived environmental quality. Post hoc analysis may further clarify these differences. Yet, for the Social Relations Domain, there was no significant difference found,  $F(3, 251) = .187$ ,  $p = .905$ , affirming that the number of weekly working hours did not substantially influence perceived social support or interpersonal satisfaction.

The data show that longer working hours are negatively associated with several dimensions of quality of life, particularly physical health and, to a lesser extent, psychological and environmental well-being. The statistically significant finding in the Physical Health Domain suggests that extended workloads may directly affect physical exhaustion, rest, and general well-being.

While the Psychological and Environmental domains did not reach conventional significance levels, their consistent directional patterns across groups highlight the potential

cumulative burden of overwork. Social relationships, however, appear to be more resilient to workload changes, possibly reflecting the supportive role of peer networks and institutional structures in healthcare settings.

These findings underscore the importance of workload management policies, especially in the healthcare sector. Strategic interventions such as flexible scheduling, workload redistribution, and institutional support can be critical in safeguarding health professionals' well-being, particularly in physically and emotionally demanding environments.

The analysis reinforces the notion that working hours are a significant determinant of physical quality of life among healthcare professionals, with potential implications for broader well-being. Reducing excessive working hours and promoting healthier work-life balance could significantly enhance physical and psychological well-being, ultimately leading to improved patient care and staff retention.

#### **4.1.1.5 Marital-Status Based Differences in Burnout Dimensions**

Marital status has long been associated with well-being outcomes, especially in high-stress professions such as healthcare. This section analyses the influence of marital status on the four core domains of quality of life using the WHOQOL-BREF instrument: Physical Health, Psychological Health, Environment, and Social Relationships.

Participants were categorized into four marital status groups: Single ( $n = 59$ ), Married ( $n = 193$ ), Divorced ( $n = 2$ ), and Widowed ( $n = 1$ ). Due to the extremely limited number of respondents in the divorced and widowed categories, caution must be exercised when interpreting findings related to these groups. In the Physical Domain, mean scores were highest among widowed (108.00), followed by single (99.19) and married (97.53) respondents. Divorced participants had the lowest mean (88.00), although the small sample size makes this result unreliable. The Psychological Domain showed a modest advantage for widowed (88.00) and divorced (82.00) individuals over single (79.80), while married participants scored 82.32. The Environmental Domain means were generally consistent across marital statuses, with scores ranging from 80.00 (widowed) to 102.76 (married). The most notable variation appeared in the Social Relations Domain, where married individuals ( $M = 47.05$ ) scored higher than singles ( $M = 42.98$ ), showing a stronger sense of interpersonal support among those in marital relationships. Divorced respondents again recorded the lowest mean (32.00), highlighting potential social isolation post-divorce.

To statistically assess these differences, One-Way ANOVA was employed. On the Physical Domain, no statistically significant difference was found across marital status groups,  $F(3, 251) = 0.410, p = .746$ . For the Psychological Domain, again, the differences were not statistically significant,  $F(3, 251) = 0.364, p = .779$ . On the Environmental Domain, there was no significant difference observed here either,  $F(3, 251) = 0.605, p = .612$ . The only domain to show a statistically significant difference across marital statuses was the Social Relations Domain,  $F(3, 251) = 4.638, p = .004$ . This suggests that marital status plays a meaningful role in the perceived quality of social relationships among healthcare professionals.

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Physical_Domain	Between Groups	421.490	3	140.497	.410	.746
	Within Groups	86066.980	251	342.896		
	Total	86488.471	254			
Psycho_Domain	Between Groups	327.283	3	109.094	.364	.779
	Within Groups	75205.642	251	299.624		
	Total	75532.925	254			
Environment_Domain	Between Groups	946.256	3	315.419	.605	.612
	Within Groups	130816.944	251	521.183		
	Total	131763.200	254			
Social_Relations_Domain	Between Groups	1144.421	3	381.474	4.638	.004
	Within Groups	20643.563	251	82.245		
	Total	21787.984	254			

The results suggest that marital status does not significantly impact perceived physical, psychological, or environmental quality of life. However, the significant variation in the Social Relations Domain highlights the value of close interpersonal relationships that are often cultivated through marital bonds.

Married respondents reported better scores in this domain, likely due to emotional support from spouses and broader family systems. Conversely, single and divorced participants reported lower scores, pointing toward greater risks of social isolation.

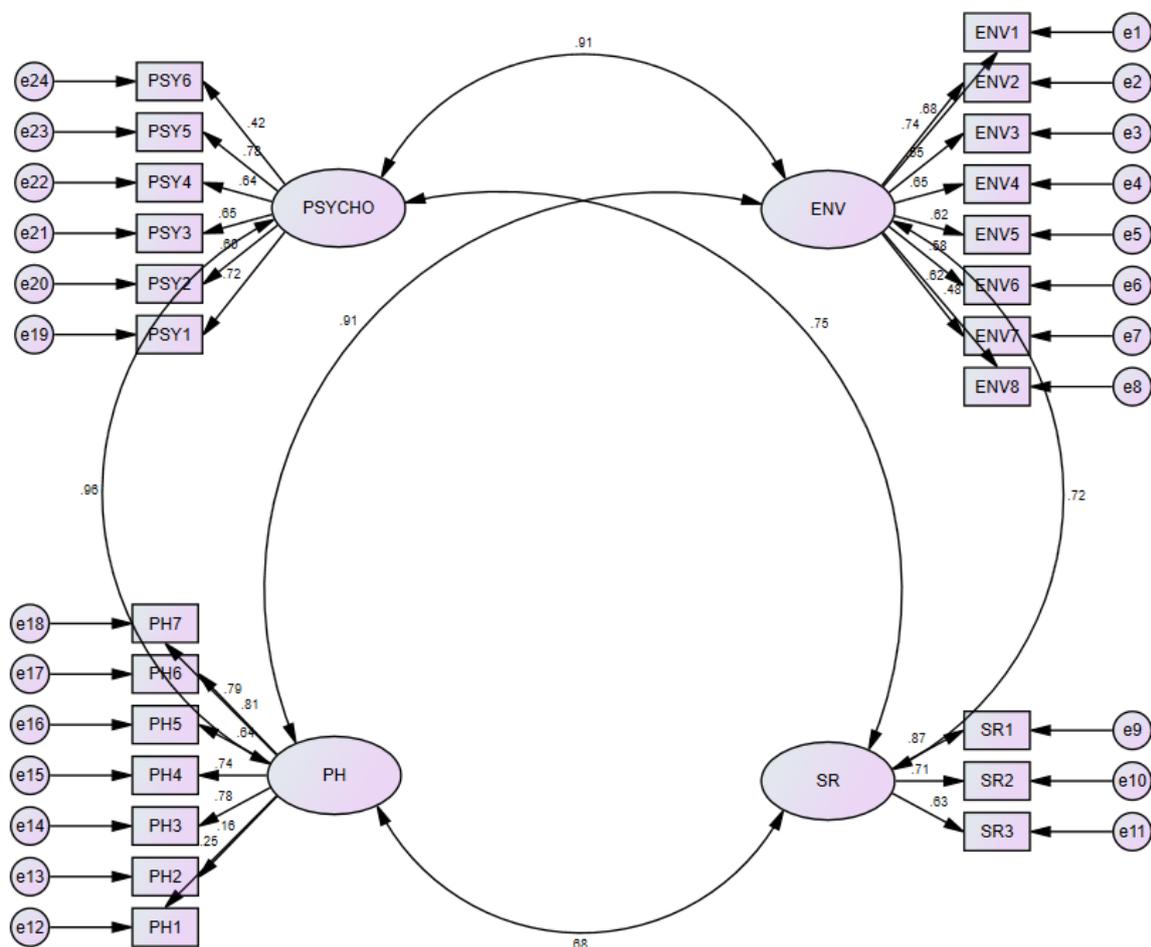
Despite the non-significant results in most domains, the consistent trend of slightly higher means among married individuals, coupled with significant findings in social well-being, indicates that marital status is a contributing, though not decisive, factor in overall quality of life.

The analysis concludes that marital status significantly affects social relationship satisfaction among healthcare professionals, with married individuals reporting better outcomes. Although differences across other domains were not statistically significant, the general trends favouring married respondents suggest that social support structures inherent in

marital life may contribute positively to overall well-being. These findings emphasize the need for institutional peer-support systems, especially for single, divorced, or widowed staff, to mitigate potential disparities in social connectedness and quality of life.

#### 4.3.4 CFA of the WHOQOL-Bref Instrument:

To empirically verify the factorial validity of the WHOQOL-BREF instrument within the sample of healthcare professionals, Confirmatory Factor Analysis (CFA) was conducted using AMOS. This analysis was aimed at confirming the hypothesized four-domain structure of the instrument comprising: Physical Health, Psychological Health, Social Relationships, and Environmental Well-being. Each of these latent variables was measured using the corresponding set of items prescribed by the WHOQOL-BREF framework.



The CFA model consisted of 54 estimated parameters, with a total of 246 degrees of freedom. The estimation was conducted using the maximum likelihood (ML) approach, which assumes multivariate normality and is appropriate for continuous indicators as used in the

current analysis. The hypothesized model structure was based on theoretical underpinnings of the WHOQOL-BREF instrument and previous empirical validations in healthcare contexts.

The chi-square value was 491.359 with  $df = 246$  ( $p < .001$ ). While a significant chi-square is often interpreted as a sign of poor fit, it is widely acknowledged that this test is highly sensitive to sample size. To address this, the normed chi-square ratio (CMIN/DF) was calculated, yielding a value of 1.997, which is within the commonly accepted threshold of 2 to 3 (Kline, 2016), thus indicating an acceptable level of fit.

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	54	491.359	246	.000	1.997
Saturated model	300	.000	0		
Independence model	24	2933.040	276	.000	10.627

(Table: Model Fit summary CFA WHOQOL)

The Root Mean Square Error of Approximation (RMSEA) value was 0.063, with a 90% confidence interval ranging from 0.055 to 0.071, and a PCLOSE value of 0.006. These values are indicative of good model fit, as values less than 0.08 are generally acceptable, and values below 0.06 represent a close fit of the model to the data (Hu & Bentler, 1999).

Model	RMR	GFI	AGFI	PGFI
Default model	.055	.853	.821	.699
Saturated model	.000	1.000		
Independence model	.365	.233	.166	.214

(Table: RMR GFI results for CFA WHOQOL)

Standardized Root Mean Square Residual (SRMR), represented by the RMR in this output, was 0.055, suggesting an adequate fit, as values below 0.08 are desirable. Goodness-of-Fit Index (GFI = 0.853) and Adjusted Goodness-of-Fit Index (AGFI = 0.821), although slightly below the conventional cut-off of 0.90, are nonetheless considered marginally acceptable in complex models with many observed variables.

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.832	.812	.909	.896	.908
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

(Table: Baseline Summary for CFA WHOQOL)

Comparative Fit Index (CFI = 0.908), Tucker-Lewis Index (TLI = 0.896), and Incremental Fit Index (IFI = 0.909) all approach or exceed the threshold of 0.90, which is indicative of strong incremental fit compared to the independence model. These indices suggest that the hypothesized model performs substantially better than a null model with uncorrelated variables. Normed Fit Index (NFI = 0.832) and Relative Fit Index (RFI = 0.812) were slightly

below optimal levels but still within a tolerable range for model acceptability, especially in the context of complex psychological constructs. Parsimony-based indices also supported the adequacy of the model.

Model	PRATIO	PNFI	PCFI
Default model	.891	.742	.809
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

(Table: Parsimony-Adjusted measures for CFA WHOQOL)

The Parsimony Comparative Fit Index (PCFI = 0.809) and the Parsimony Normed Fit Index (PNFI = 0.742) indicate a good balance between model fit and model complexity. Information Criteria such as the Akaike Information Criterion (AIC = 599.359) and the Bayesian Information Criterion (BIC = 790.587) were lower than those of the independence model (AIC = 2981.040), affirming that the proposed model is superior in terms of explanatory power and parsimony. The Expected Cross-Validation Index (ECVI) for the default model was 2.360, substantially lower than the independence model's 11.736, suggesting strong predictive validity and potential for replication in other samples.

Lastly, the Hoelter Critical N values were 147 at  $p = .05$  and 156 at  $p = .01$ , indicating that the model could be considered an adequate fit for sample sizes of at least 147 and 156, respectively. This reinforces the notion that the model has reasonable statistical power.

The results of the confirmatory factor analysis support the construct validity of the WHOQOL-BREF instrument in this study. The four-domain structure was found to be statistically adequate and theoretically meaningful. While some indices slightly underperformed against the most stringent benchmarks, the overall fit statistics fall within acceptable parameters, especially given the multidimensional nature of the quality of life construct and the complexity of the model.

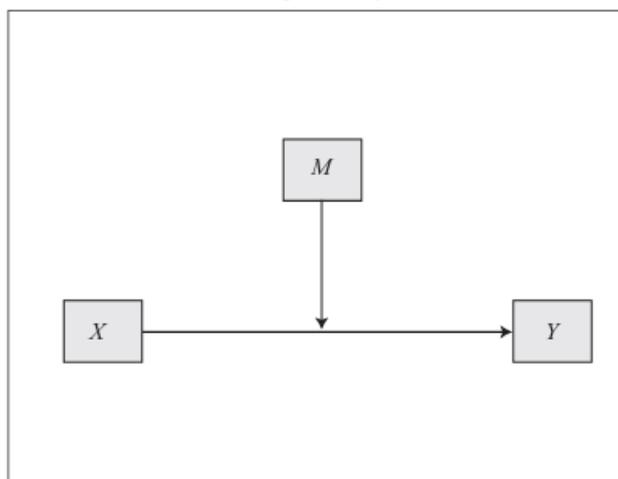
These findings confirm the use of WHOQOL-BREF in assessing the multi-faceted domains of quality of life among healthcare professionals. The model provides a robust basis for further inferential analysis involving demographic group comparisons and structural equation modelling. Although, the WHOQOL-Bref instrument is widely used for assessing the quality of life amongst the medical professionals, the need for CFA was not a must. Yet, the results further confirm the use of the certain instrument for this study.

#### 4.4 Moderation Analysis

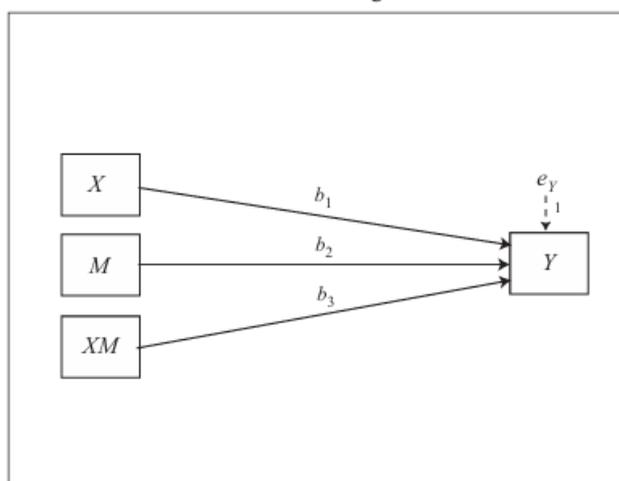
This study uses the following hypothetical model to evaluate the impact of Burnout in healthcare professionals and their quality of life on the relationship between doctor services and nursing services with patient satisfaction. The relevant conceptual diagram and statistical diagram, as prescribed by Hayes (2016), is model 1, as shown below:

### Model 1

Conceptual Diagram

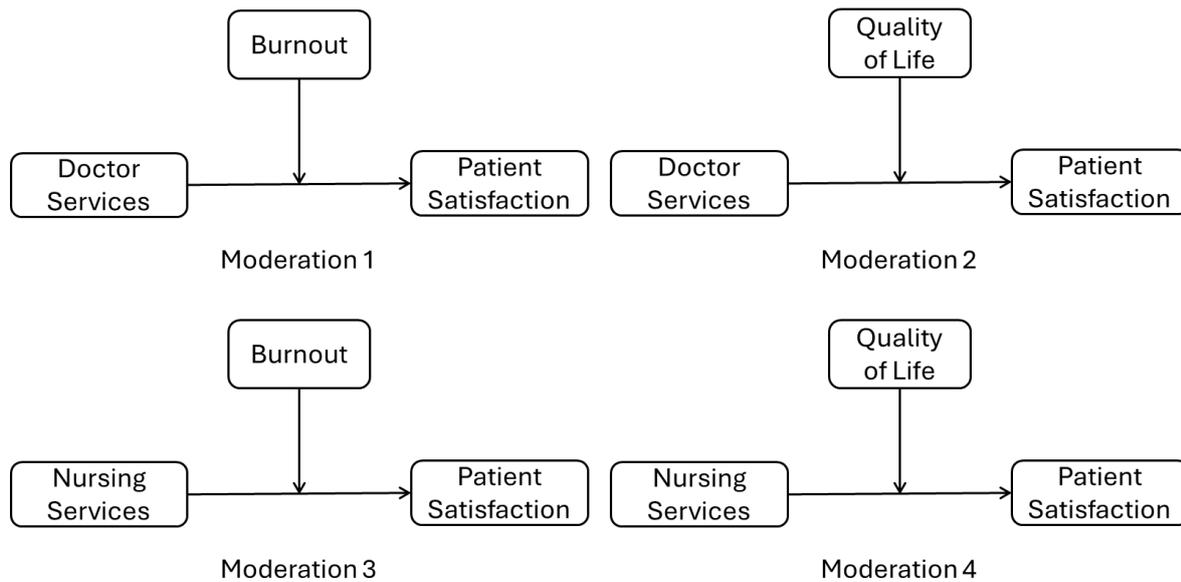


Statistical Diagram



Conditional effect of  $X$  on  $Y = b_1 + b_3M$

Based on this model, the following conceptual diagrams are drawn with regard to dependent and independent variables as well as moderators used in this study:



Using the Hayes Process<sup>®</sup> model macros for SPSS, moderation analysis was carried out for each of the moderation models. The detailed analysis of the results are given below.

#### 4.4.1 Moderation Analysis: Burnout as a Moderator in the Doctor Services-Patient Satisfaction Relationship

In this analysis, the moderation effect of Burnout (BRNOUT) on the relationship between Doctor Services (DS\_Fact) and Patient Satisfaction (PS\_Fact) was tested using Hayes' Model 1 (Hayes, 2022). The moderation model was evaluated with a sample size of 255 participants. The dependent variable (Y) was Patient Satisfaction (PS\_Fact), the independent variable (X) was Doctor Services (DS\_Fact), and the moderator (W) was Burnout (BRNOUT).

The results revealed a strong and significant overall model fit, as indicated by the R-squared value of 0.8008, which suggests that approximately 80.08% of the variance in Patient Satisfaction (PS\_Fact) is explained by the predictor variables and the moderator. The F-statistic was 336.2860 (df1 = 3, df2 = 251), with a p-value of 0.0000, indicating that the model was highly significant.

The effect of Doctor Services on Patient Satisfaction was found to be statistically significant ( $\beta = 0.9571$ ,  $p = 0.0000$ ), meaning that better doctor services significantly contribute to higher levels of patient satisfaction. The confidence interval for this coefficient (LLCI = 0.7650, ULCI = 1.1492) does not include zero, further supporting the significance of this relationship.

The direct effect of Burnout on Patient Satisfaction was found to be non-significant ( $\beta = 0.1178$ ,  $p = 0.1937$ ), suggesting that Burnout, in isolation, does not have a direct effect on

Patient Satisfaction in this model. The confidence interval for this effect (LLCI = -0.0602, ULCI = 0.2959) includes zero, further indicating the lack of statistical significance.

```

Model Summary
      R      R-sq      MSE      F      df1      df2      p
      .8949      .8008      20.8576      336.2860      3.0000      251.0000      .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant      1.1239      4.5608      .2464      .8056      -7.8584      10.1062
DS_Fact      .9571      .0975      9.8122      .0000      .7650      1.1492
BRNOUT      .1178      .0904      1.3033      .1937      -.0602      .2959
Int_1      -.0019      .0019      -1.0166      .3103      -.0057      .0018

Product terms key:
Int_1      :      DS_Fact x      BRNOUT

Test(s) of highest order unconditional interaction(s):
      R2-chng      F      df1      df2      p
X*W      .0008      1.0335      1.0000      251.0000      .3103
-----
      Focal predict: DS_Fact (X)
      Mod var: BRNOUT (W)

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/
      DS_Fact BRNOUT PS_Fact .
BEGIN DATA.
      36.9600      37.0000      38.2058
      48.0000      37.0000      47.9799
      53.0000      37.0000      52.4066
      36.9600      50.0000      38.8059
      48.0000      50.0000      48.3017
      53.0000      50.0000      52.6023
      36.9600      65.0000      39.4983
      48.0000      65.0000      48.6729
      53.0000      65.0000      52.8281
END DATA.
GRAPH/SCATTERPLOT=
      DS_Fact WITH      PS_Fact BY      BRNOUT .

***** ANALYSIS NOTES AND ERRORS *****

```

The interaction term, standing for the moderation effect of Burnout on the relationship between Doctor Services and Patient Satisfaction (Int\_1: DS\_Fact × BRNOUT), was also non-significant ( $\beta = -0.0019$ ,  $p = 0.3103$ ). This suggests that Burnout does not significantly moderate the relationship between Doctor Services and Patient Satisfaction. The confidence interval for the interaction term (LLCI = -0.0057, ULCI = 0.0018) includes zero, further confirming the absence of a significant moderation effect.

The results of this moderation analysis indicate that, contrary to expectations, Burnout does not significantly moderate the relationship between Doctor Services and Patient Satisfaction in this sample. While Doctor Services have a direct positive impact on Patient Satisfaction, Burnout does not appear to alter this effect. The lack of a significant moderation effect suggests that other factors may be more influential in shaping the relationship between these variables.

Despite the non-significant moderation, the strong direct effect of Doctor Services on Patient Satisfaction highlights the critical role that healthcare providers play in influencing patient outcomes. Future research may consider exploring alternative moderators or examining the potential for Burnout to impact Patient Satisfaction through other pathways, such as the quality of care provided or healthcare professionals' emotional well-being.

#### **4.4.2 Moderation Analysis: Quality of Life as a Moderator in the Doctor Services-Patient Satisfaction Relationship**

In this second moderation analysis, it was examined whether Quality of Life (QOL) moderates the relationship between Doctor Services (DS\_Fact) and Patient Satisfaction (PS\_Fact) using Hayes' PROCESS Model 1. The purpose was to determine if a patient's Quality of Life influences the effect of Doctor Services on their overall satisfaction with healthcare.

The analysis used Patient Satisfaction as the dependent variable, Doctor Services as the independent variable, and Quality of Life as the moderator. The model showed a strong fit with an R-squared of 0.7990, explaining almost 80% of the variance in Patient Satisfaction. The F-statistic was significant (332.5822,  $p < 0.0001$ ), confirming that the model is statistically reliable.

Doctor Services (DS\_Fact) had a significant positive effect on Patient Satisfaction ( $\beta = 0.8061$ ,  $p < 0.0001$ ), meaning better doctor services lead to higher patient satisfaction. The confidence interval (LLCI = 0.5454, ULCI = 1.0668) supports this finding.

Quality of Life (QOL), however, did not have a significant direct effect on Patient Satisfaction ( $\beta = -0.0428$ ,  $p = 0.5596$ ), suggesting that Quality of Life, in isolation, does not directly influence patient satisfaction in this context.

The interaction between Doctor Services and Quality of Life (the moderation effect) was non-significant ( $\beta = 0.0007$ ,  $p = 0.6505$ ), meaning Quality of Life did not significantly alter the relationship between Doctor Services and Patient Satisfaction. This suggests that the effect of doctor services on patient satisfaction is not dependent on a patient's quality of life.

```

Model Summary
      R      R-sq      MSE      F      df1      df2      P
      .8939      .7990      21.0432      332.5822      3.0000      251.0000      .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant      10.3366      6.2077      1.6651      .0971      -1.8892      22.5623
DS_Fact      .8061      .1324      6.0899      .0000      .5454      1.0668
QOL      -.0428      .0732      -.5843      .5596      -.1870      .1014
Int_1      .0007      .0016      .4536      .6505      -.0024      .0038

Product terms key:
Int_1      :      DS_Fact x      QOL

Test(s) of highest order unconditional interaction(s):
      R2-chng      F      df1      df2      p
X*W      .0002      .2057      1.0000      251.0000      .6505
-----
      Focal predict: DS_Fact (X)
      Mod var: QOL (W)

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/
      DS_Fact      QOL      PS_Fact      .
BEGIN DATA.
      36.9600      67.9600      39.0157
      48.0000      67.9600      48.4507
      53.0000      67.9600      52.7238
      36.9600      84.0000      38.7528
      48.0000      84.0000      48.3143
      53.0000      84.0000      52.6447
      36.9600      97.0000      38.5398
      48.0000      97.0000      48.2038
      53.0000      97.0000      52.5806
END DATA.
GRAPH/SCATTERPLOT=
      DS_Fact WITH      PS_Fact BY      QOL      .

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
95.0000

----- END MATRIX -----

```

To conclude, while Doctor Services significantly influence Patient Satisfaction, Quality of Life does not moderate this relationship. This suggests that improvements in doctor-patient interactions and the quality of medical care may be the most direct and effective strategies for enhancing patient satisfaction, regardless of a patient's overall quality of life. Further research could explore other potential moderators to better understand the factors influencing patient satisfaction.

#### 4.4.3 Moderation Analysis: Burnout as a Moderator in the Nursing Services-Patient Satisfaction Relationship

In this third moderation analysis, it was investigated whether Burnout moderates the relationship between Nursing Services (NS\_Fact) and Patient Satisfaction (PS\_Fact), using Hayes' PROCESS Model 1. The goal was to examine whether the level of Burnout among

healthcare providers affects the relationship between the quality of Nursing Services and patient satisfaction.

The dependent variable (Y) was Patient Satisfaction (PS\_Fact), the independent variable (X) was Nursing Services (NS\_Fact), and the moderator (W) was Burnout (BRNOUT). The overall model showed a good fit, with an R-squared value of 0.5845, indicating that approximately 58.45% of the variance in Patient Satisfaction is explained by the predictors. The F-statistic was 117.6827 (df1 = 3, df2 = 251), with a p-value of 0.0000, confirming the significance of the model.

Nursing Services (NS\_Fact) had a significant positive effect on Patient Satisfaction ( $\beta = 1.0687$ ,  $p = 0.0000$ ). This suggests that higher quality nursing services are strongly associated with greater patient satisfaction. The confidence interval for this effect (LLCI = 0.7431, ULCI = 1.3943) does not include zero, indicating the robustness of this result.

Burnout (BRNOUT) showed a marginally significant direct effect on Patient Satisfaction ( $\beta = 0.2439$ ,  $p = 0.0519$ ). Although this effect was close to statistical significance, it did not fully reach the conventional threshold ( $p < 0.05$ ), implying that Burnout has a small but potential impact on patient satisfaction, which might warrant further investigation.

The interaction term between Nursing Services and Burnout (represented by Int\_1, or NS\_Fact  $\times$  BRNOUT) was not significant ( $\beta = -0.0050$ ,  $p = 0.1198$ ), indicating that Burnout does not significantly moderate the relationship between Nursing Services and Patient Satisfaction. The confidence interval for this interaction term (LLCI = -0.0114, ULCI = 0.0013) also includes zero, supporting the conclusion that the effect of Nursing Services on Patient Satisfaction remains largely unaffected by Burnout levels.

While Nursing Services significantly influence Patient Satisfaction, the expected moderating effect of Burnout was not supported by the data. Burnout did not significantly alter the relationship between the quality of Nursing Services and patient satisfaction in this analysis. This suggests that improving the quality of nursing care is likely to have a direct impact on patient satisfaction, independent of healthcare providers' Burnout levels. Further research may explore other potential moderators or investigate the indirect effects of Burnout through other mechanisms, such as caregiver engagement or emotional support provided during patient interactions.

```

Model Summary
      R      R-sq      MSE      F      df1      df2      p
      .7645      .5845      43.5026      117.6827      3.0000      251.0000      .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant      3.6683      6.3208      .5804      .5622      -8.7803      16.1169
NS_Fact      1.0687      .1653      6.4643      .0000      .7431      1.3943
BRNOUT      .2439      .1249      1.9533      .0519      -.0020      .4898
Int_1      -.0050      .0032      -1.5611      .1198      -.0114      .0013

Product terms key:
Int_1      :      NS_Fact x      BRNOUT

Test(s) of highest order unconditional interaction(s):
      R2-chng      F      df1      df2      p
X*W      .0040      2.4370      1.0000      251.0000      .1198
-----
      Focal predict: NS_Fact (X)
      Mod var: BRNOUT (W)

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/
      NS_Fact      BRNOUT      PS_Fact      .
BEGIN DATA.
      30.0000      37.0000      39.1565
      40.0000      37.0000      47.9778
      42.0000      37.0000      49.7421
      30.0000      50.0000      40.3609
      40.0000      50.0000      48.5267
      42.0000      50.0000      50.1599
      30.0000      65.0000      41.7506
      40.0000      65.0000      49.1601
      42.0000      65.0000      50.6421
END DATA.
GRAPH/SCATTERPLOT=
      NS_Fact WITH      PS_Fact BY      BRNOUT      .

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
95.0000

----- END MATRIX -----

```

#### 4.4.4 Moderation Analysis: Quality of Life as a Moderator in the Nursing Services-Patient Satisfaction Relationship

In the final moderation analysis, it was investigated whether Quality of Life (QOL) moderates the relationship between Nursing Services (NS\_Fact) and Patient Satisfaction (PS\_Fact), again using Hayes' PROCESS Model 1. The aim was to assess whether a patient's Quality of Life influences the effect of Nursing Services on their satisfaction with healthcare.

The analysis was conducted with a sample size of 255 participants. The dependent variable (Y) was Patient Satisfaction (PS\_Fact), the independent variable (X) was Nursing Services (NS\_Fact), and the moderator (W) was Quality of Life (QOL). The model demonstrated a strong fit with an R-squared value of 0.5784, meaning that 57.84% of the variance in Patient Satisfaction is explained by Nursing Services and Quality of Life, along

with their interaction. The F-statistic was 114.7759 ( $df_1 = 3$ ,  $df_2 = 251$ ), with a p-value of 0.0000, confirming the significance of the overall model.

Nursing Services (NS\_Fact) had a significant positive effect on Patient Satisfaction ( $\beta = 0.7596$ ,  $p = 0.0008$ ). This suggests that higher quality nursing services lead to higher patient satisfaction, with the confidence interval (LLCI = 0.3197, ULCI = 1.1995) not including zero, confirming the robustness of this result.

Quality of Life (QOL), however, did not have a significant direct effect on Patient Satisfaction ( $\beta = -0.0656$ ,  $p = 0.5190$ ). The confidence interval (LLCI = -0.2657, ULCI = 0.1345) includes zero, indicating that Quality of Life alone does not directly influence Patient Satisfaction.

The interaction term between Nursing Services and Quality of Life (represented by Int\_1, or NS\_Fact  $\times$  QOL) was also non-significant ( $\beta = 0.0008$ ,  $p = 0.7696$ ), indicating that Quality of Life does not significantly moderate the relationship between Nursing Services and Patient Satisfaction. The confidence interval for the interaction term (LLCI = -0.0044, ULCI = 0.0060) includes zero, further confirming the absence of a significant moderation effect.

In short, Nursing Services significantly influence Patient Satisfaction, Quality of Life does not moderate this relationship. This suggests that improvements in the quality of nursing care have a direct and robust effect on patient satisfaction, regardless of a patient's overall Quality of Life. Further studies could explore additional moderators or investigate indirect effects of Quality of Life on satisfaction through other pathways, such as emotional well-being or overall healthcare experiences.

```

Model Summary
      R      R-sq      MSE      F      df1      df2      p
      .7605      .5784      44.1398      114.7759      3.0000      251.0000      .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant      21.0130      8.5934      2.4453      .0152      4.0887      37.9373
NS_Fact      .7596      .2234      3.4008      .0008      .3197      1.1995
QOL      -.0656      .1016      -.6458      .5190      -.2657      .1345
Int_1      .0008      .0027      .2933      .7696      -.0044      .0060

Product terms key:
Int_1      :      NS_Fact x      QOL

Test(s) of highest order unconditional interaction(s):
      R2-chng      F      df1      df2      p
X*W      .0001      .0860      1.0000      251.0000      .7696
-----
      Focal predict: NS_Fact (X)
      Mod var: QOL (W)

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/
      NS_Fact      QOL      PS_Fact      .
BEGIN DATA.
      30.0000      67.9600      40.9291
      40.0000      67.9600      49.0542
      42.0000      67.9600      50.6792
      30.0000      84.0000      40.2512
      40.0000      84.0000      48.5012
      42.0000      84.0000      50.1512
      30.0000      97.0000      39.7018
      40.0000      97.0000      48.0530
      42.0000      97.0000      49.7232
END DATA.
GRAPH/SCATTERPLOT=
      NS_Fact WITH      PS_Fact BY      QOL      .

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
      95.0000

----- END MATRIX -----

```

#### 4.4.5 Summarizing the Findings of Moderation Analyses

For this study, four moderation analyses were conducted to explore the role of various factors, Burnout and Quality of Life, in moderating the relationships between Doctor Services, Nursing Services, and Patient Satisfaction. The moderation analyses utilized Hayes' PROCESS Model 1 to determine whether these moderators influenced the direct effects of the healthcare services on patient satisfaction.

Across all four analyses, the key finding is that Doctor Services and Nursing Services consistently had significant direct effects on Patient Satisfaction, underscoring the importance of quality healthcare delivery in shaping patient outcomes. However, neither Burnout nor Quality of Life appeared as significant moderators in these relationships. This suggests that, in

this dataset, the quality of medical and nursing services played a more prominent role in determining patient satisfaction than the individual factors of Burnout or Quality of Life.

While Burnout was found to have a small, marginally significant effect on patient satisfaction in some cases, its moderating influence was not substantial enough to alter the direct relationships between healthcare services and patient satisfaction. Similarly, Quality of Life, though important in many other contexts, did not appear to influence the healthcare satisfaction outcomes in this study, at least not through moderation.

These results show that interventions aimed at improving Doctor Services and Nursing Services should remain a primary focus for enhancing patient satisfaction. While Burnout and Quality of Life may play indirect roles in influencing healthcare outcomes, they do not significantly alter the essential relationship between the quality of care provided and the satisfaction of patients.

Further research could explore other potential moderators or examine more complex, indirect relationships between these variables. Exploring other aspects of healthcare quality, such as patient expectations or emotional support, may provide a more nuanced understanding of the factors that influence patient satisfaction.

#### **4.4.6 Hypotheses testing based on moderation analyses:**

For the hypothesis suggesting the moderating role of Burnout on the Relationship Between Doctor Services and Patient Satisfaction, we accept the null hypothesis, because as per the findings of this study, the interaction term (Burnout  $\times$  Doctor Services) was non-significant ( $p = 0.3103$ ), suggesting that Burnout does not significantly moderate the relationship.

For the second hypothesis suggesting the moderating role of Quality of Life on the relationship between Doctor Services and Patient Satisfaction, the null hypothesis is accepted, since the results indicate that the interaction term (Quality of Life  $\times$  Doctor Services) was non-significant ( $p = 0.6505$ ), indicating that Quality of Life does not moderate the relationship.

For the third hypothesis suggesting the moderating role of burnout in healthcare professionals on the relationship between Nursing Services and Patient Satisfaction, again the null hypothesis is accepted because the interaction term (Burnout  $\times$  Nursing Services) was non-significant ( $p = 0.1198$ ), suggesting that Burnout does not significantly moderate the relationship.

Lastly, for the fourth hypothesis suggesting the moderating role of quality of life of healthcare professionals on the relationship between Nursing Services and Patient Satisfaction, the null hypothesis must be accepted, since the results show that the interaction term (Quality of Life  $\times$  Nursing Services) was non-significant ( $p = 0.7696$ ), indicating that Quality of Life does not moderate the relationship.

For all four moderation analyses, the interaction terms were non-significant, which means there was no moderation effect by either Burnout or Quality of Life in the relationships between Doctor Services/ Nursing Services and Patient Satisfaction. Therefore, we accept the null hypothesis in each case, showing that the moderators did not significantly alter the relationships between the predictors and the dependent variable.

#### **4.5 Conclusion**

The data analysis has examined the patterns, determinants, and implications of patient satisfaction within the public secondary healthcare system of Rawalpindi Division, Pakistan in a greater detail. Drawing on a large-scale, empirically rich dataset consisting of responses from 3,194 patients and 255 healthcare professionals across 18 DHQ and THQ hospitals, the analysis serves as a pivotal response to the core concerns articulated in the Statement of the Problem: the absence of systematic evaluation of patient satisfaction in secondary healthcare institutions, and the critical need to understand how both clinical and systemic service dimensions shape patient perceptions in a complex governance landscape.

Aligned with the Research Objectives, the analysis not only assessed patient satisfaction levels and their variability across demographic strata but also established statistically robust relationships between satisfaction and the four core domains of service delivery, doctor services, nursing services, registration services, and waiting time. Further, it evaluated the moderating effects of healthcare providers' burnout and quality of life (QOL), as these provider-side factors were hypothesized to influence the quality of interaction and ultimately, patient satisfaction.

The results of the Multiple Linear Regression analysis serve as a compelling validation of the hypothesized model. The model explained an impressive 71.2% of the variance in patient satisfaction, attesting to the theoretical soundness and empirical strength of the selected predictors. Among these, Doctor Services emerged as the single most powerful determinant, with a  $\beta = 0.918$  ( $p < .001$ ), highlighting the centrality of doctor-patient interactions in shaping overall service perceptions. This underscores that empathy, effective communication,

respectful conduct, and clinical competency on the part of doctors are not just important, they are foundational to public trust in the healthcare system.

Conversely, Nursing Services and Registration Services revealed a surprising and statistically significant negative relationship with patient satisfaction. This finding diverges from conventional assumptions and flags serious policy concerns. While nurses spend more time with patients than doctors and are central to day-to-day care, the negative  $\beta$  for nursing services ( $\beta = -0.125$ ,  $p < .001$ ) may reflect systemic issues such as staff shortages, poor interpersonal training, or workload-induced detachment. The similarly negative  $\beta$  for registration services ( $\beta = -0.079$ ,  $p < .001$ ) reveals administrative inefficiencies, procedural bottlenecks, and possibly poor patient facilitation mechanisms, particularly affecting underprivileged or female patients, as also observed in gender-based subgroup analyses.

Waiting time showed a modest but statistically significant positive relationship with patient satisfaction ( $\beta = 0.048$ ,  $p < .001$ ). Although counterintuitive, this suggests that patients may be willing to endure some delays if the eventual care they receive is of sufficient quality, a testament to the buffering role of perceived service efficacy.

Both the Patient Satisfaction instrument and the WHOQOL-Bref tool underwent rigorous Confirmatory Factor Analysis (CFA). The model fit indices for the PS tool (CFI = .954, RMSEA = .054) and the QOL tool (CFI = .908, RMSEA = .063) confirm that the theoretical constructs guiding this research are empirically valid in the context of Pakistan's public healthcare system. These results provide strong evidence that the instruments are both psychometrically sound and contextually appropriate, allowing for confident interpretation of complex multidimensional constructs such as satisfaction, burnout, and quality of life.

The analysis revealed pronounced disparities in satisfaction based on demographic factors, which reflect deeper systemic and governance-related issues. District-wise comparisons showed that Rawalpindi district consistently performed the worst across all dimensions, despite being the urban hub of the division. This paradox highlights that infrastructural presence or urban proximity does not translate into better patient experiences; rather, overcrowding, staff fatigue, and bureaucratic disengagement may compromise care quality in high-pressure urban facilities.

Gender disparities were also prominent. Female patients reported higher satisfaction with doctor services, but lower satisfaction with registration services, likely due to gender-insensitive entry protocols or discomfort with male-dominated counters. Education and income

levels also played a substantial role, patients with higher education or income were generally more critical, reflecting higher expectations, better comparative exposure, and possible dissatisfaction with the suboptimal public service relative to private alternatives. Notably, middle-income groups were the most dissatisfied, a finding that carries important governance implications, as this segment is typically more vocal, mobile, and politically engaged.

The analysis of the Maslach Burnout Inventory (MBI) paints a bleak picture of healthcare workforce well-being. Over 32% of healthcare professionals reported high Emotional Exhaustion, and a staggering 96.9% scored low on Personal Accomplishment, indicating a systemic erosion of morale and a professional identity crisis. Doctors reported higher emotional exhaustion than nurses, while nurses showed lower scores on personal accomplishment, suggesting demoralization and lack of recognition.

Burnout did not moderate the doctor services–patient satisfaction or nursing services–patient satisfaction relationships in a statistically significant manner. Nonetheless, its independent levels and prevalence indicate a public health governance emergency. Policy inertia in the face of such widespread burnout is untenable; targeted mental health interventions, rest breaks, staffing reinforcements, and improved support structures are no longer optional, they are essential.

The WHOQOL-Bref analyses revealed that doctors consistently reported lower QOL scores than nurses across all domains, physical, psychological, environmental, and social. Working hours significantly influenced QOL, with those working over 50 hours a week reporting markedly lower scores. This has clear implications for hospital administration and staffing policy. Quality of life, though not a statistically significant moderator in this study, remains a critical background determinant of motivation, performance, and retention in public service delivery.

The moderation analyses using Hayes' PROCESS Model 1 did not support the hypothesis that Burnout or Quality of Life significantly moderate the impact of Doctor and Nursing Services on Patient Satisfaction. This finding diverges from global literature but must be interpreted in the Pakistani healthcare context, where structural determinants may overwhelm interpersonal moderators. Patients may prioritize the availability and quality of medical consultation over subtle variations in provider mood or well-being, especially in a resource-constrained system.

Nonetheless, the absence of moderation should not be construed as irrelevance. Rather, it suggests a need for future research employing longitudinal or qualitative designs to better capture the latent and indirect pathways through which provider burnout and QOL influence service quality.

This analysis validates and expands upon the theoretical assumptions outlined in the research proposal. It confirms that patient satisfaction is a multifactorial phenomenon shaped not only by clinical interaction but also by administrative efficiency, provider well-being, and governance quality. The findings answer the research questions by establishing that doctor services, nursing services, registration services, and waiting time all significantly impact patient satisfaction, albeit in varying directions and magnitudes. They also confirm that burnout and quality of life, while not moderating effects in this model, are critical contextual variables that public policy cannot afford to overlook.

Above all, this analysis underscores the urgent need for health governance reform in Punjab's secondary hospitals. Investments in infrastructure must be accompanied by investments in people, training, recognition, support, and systemic reform. Patient satisfaction is not merely a metric, it is a mirror reflecting the state's contract with its citizens. And at present, that mirror reveals cracks which must be acknowledged and addressed with both urgency and empathy.

## CHAPTER 5

### FINDINGS, DISCUSSION & CONCLUSION

This chapter serves as the culmination of the analytical journey undertaken in this research. Building upon the statistical findings detailed in Chapter 4 and grounded in the theoretical and methodological foundations established in earlier sections, this chapter aims to interpret the results within a broader framework of governance, public policy, and healthcare service delivery. It synthesizes empirical insights, critically evaluates the proposed hypotheses, and links the findings to the conceptual model outlined in the research proposal.

The core focus of this study has been to assess patient satisfaction with public healthcare services in the secondary hospitals of Rawalpindi Division, with particular attention to the roles played by doctor services, nursing services, registration processes, and waiting time. Furthermore, the study introduced a novel inquiry into how the burnout and quality of life of healthcare providers might moderate the relationship between service delivery and patient satisfaction, a question of increasing relevance in the governance of healthcare systems.

In doing so, this research directly addresses key gaps identified in the literature and aligns itself with the growing discourse on citizen-centred governance, as well as Pakistan's commitment to Sustainable Development Goal 3: *Ensure healthy lives and promote well-being for all at all ages*. The study's relevance is amplified by the context of Punjab's health sector, where population pressures, under-resourced facilities, and uneven service quality continue to challenge policymakers and administrators.

This chapter is structured to achieve several key objectives. First, it provides a concise summary of the major findings, organized around the four core research questions and the eight related hypotheses. Second, it offers a critical discussion of the results by integrating them with the theoretical framework and empirical literature. Third, it explores the practical implications of the findings for healthcare governance and policy formulation, particularly in the context of public sector reform and service delivery enhancement. Finally, it concludes with a reflection on the limitations of the study and suggests directions for future research.

By weaving together statistical evidence and conceptual analysis, this chapter aspires not only to explain what the data reveal, but also to articulate why these insights matter in the broader landscape of public sector health management in Pakistan.

## 5.1 Recap of Key Results

This section provides a consolidated overview of the key empirical results derived from the comprehensive statistical analyses presented in Chapter 4. These findings are interpreted in alignment with the research questions, objectives, and theoretical framework outlined in the proposal. The section is organized thematically, corresponding to each major inquiry of the study.

The analysis of the patient satisfaction instrument, which consisted of 12 carefully designed items, demonstrated excellent internal consistency (Cronbach's  $\alpha = 0.937$ ). This affirms the reliability of the construct and supports its use as a valid outcome variable.

Patient satisfaction levels, however, displayed notable variability across demographic groups. District-level differences were substantial, with Rawalpindi district scoring the lowest across all dimensions, while Jhelum and Chakwal reported the highest levels of satisfaction. Income-based comparisons showed that lower-income patients expressed greater satisfaction, possibly reflecting lower expectations or a higher degree of reliance on public facilities. Occupation and age also yielded statistically significant variations, indicating that employment status and life stage influence how patients evaluate public healthcare services. These trends suggest that satisfaction with healthcare delivery is not uniformly distributed and is deeply conditioned by socio-economic, geographical, and experiential factors.

A multiple linear regression analysis was conducted to evaluate the influence of four service-related independent variables on the dependent variable of patient satisfaction. The model demonstrated excellent explanatory power, with an  $R^2$  value of 0.712, meaning that 71.2% of the variance in patient satisfaction is explained by doctor services, nursing services, registration services, and waiting time.

Doctor Services had a strong and statistically significant positive effect on patient satisfaction ( $\beta = 0.918$ ,  $p < 0.001$ ). This confirms the critical role that doctor-patient interaction plays in shaping satisfaction and supports Hypothesis H1. Nursing Services demonstrated a statistically significant negative relationship with patient satisfaction ( $\beta = -0.125$ ,  $p < 0.001$ ).

Contrary to expectations, higher nursing service scores were associated with lower satisfaction, lending a complex dimension to Hypothesis H2. Registration Services also exhibited a negative but significant relationship ( $\beta = -0.079$ ,  $p < 0.001$ ), validating Hypothesis H3 and pointing to administrative inefficiencies as a contributing factor to dissatisfaction. Waiting Time showed a modest positive effect ( $\beta = 0.048$ ,  $p < 0.001$ ), indicating that within acceptable limits, some waiting time may not adversely affect perceptions. This provides support to Hypothesis H4, though the result requires contextual interpretation.

The regression analysis revealed that Doctor Services is the most influential factor, while the unexpected negative impact of Nursing Services and Registration Services necessitates deeper reflection on process quality and patient interaction protocols.

To examine the conditional effects of healthcare provider wellbeing on patient satisfaction, four moderation analyses were conducted using Hayes' PROCESS Model 1 in SPSS. The goal was to determine whether Burnout and Quality of Life (QoL) among healthcare providers moderated the relationships between service delivery (doctor and nursing services) and patient satisfaction.

Across all four models, the moderation effects were found to be statistically non-significant, leading to the rejection of all moderation hypotheses. Burnout did not significantly moderate the relationship between Doctor Services and Patient Satisfaction (H1a rejected), nor between Nursing Services and Patient Satisfaction (H2a rejected). Quality of Life also did not significantly moderate either relationship (H1b and H2b rejected).

Although both moderators were theoretically relevant, their lack of statistical significance suggests that patients may evaluate their experience based on observable service dimensions, rather than the underlying psychological states of providers.

Notably, despite high burnout prevalence among providers, especially nurses, its impact on satisfaction may manifest through indirect or unmeasured pathways, such as the actual quality of care or medical errors, which lie outside the patient's immediate perception.

<b>Hypothesis</b>	<b>Description</b>	<b>Result</b>
H1	Doctor Services → Patient Satisfaction	<b>Accepted</b>
H2	Nursing Services → Patient Satisfaction	<b>Accepted (negative)</b>
H3	Registration Services → Patient Satisfaction	<b>Accepted (negative)</b>
H4	Waiting Time → Patient Satisfaction	<b>Accepted (modest positive)</b>
H1a	Burnout × Doctor Services → PS	<b>Rejected</b>
H1b	QoL × Doctor Services → PS	<b>Rejected</b>

<b>Hypothesis</b>	<b>Description</b>	<b>Result</b>
H2a	Burnout × Nursing Services → PS	<b>Rejected</b>
H2b	QoL × Nursing Services → PS	<b>Rejected</b>

*(Table: Summary of Hypotheses testing results)*

These results reaffirm the centrality of service delivery in public health governance and challenge common assumptions regarding the role of provider wellbeing in influencing patient evaluations. While burnout and quality of life may be significant for clinical outcomes and staff retention, their effects on perceived satisfaction require further exploration through more complex or qualitative models.

## **5.2 Detailed Discussion of Findings**

This section presents a critical interpretation of the study's empirical results within the context of public healthcare service delivery, theoretical expectations, and existing literature. Each subsection is organized thematically, corresponding to the primary service dimensions and the hypothesized moderating effects. The discussion seeks to uncover the deeper meanings and policy relevance of the results, situating them within Pakistan's public health governance framework.

### **5.2.1 Doctor Services: The Cornerstone of Patient Satisfaction**

The most striking outcome of the multiple regression analysis is the strong positive influence of doctor services on patient satisfaction ( $\beta = 0.918$ ,  $p < 0.001$ ). This finding affirms Hypothesis H1 and is consistent with a large body of literature (Bitner, 1990; Hoff, 2017; Manzoor et al., 2019) emphasizing that the interpersonal quality of care provided by physicians is pivotal to shaping patients' experiences.

From a governance perspective, this result reflects a central reality in public service delivery: citizens often judge the state's performance through their direct interactions with frontline personnel. In the healthcare context, the physician becomes a symbol of the system's empathy, competence, and responsiveness. Patients' satisfaction is therefore tightly linked to whether doctors appear attentive, communicate clearly, provide explanations, and exhibit genuine concern.

Given this, the implications for policy are profound. Enhancing doctor-patient communication protocols, soft-skills training, and embedding empathy-based performance evaluations could significantly uplift satisfaction levels in public hospitals. It also justifies

investments in continuous professional development (CPD) frameworks, not just in clinical knowledge, but in human-centred healthcare.

### **5.2.2 Nursing Services: A Negative Influence**

Perhaps the most unexpected finding of the study is the negative relationship between nursing services and patient satisfaction ( $\beta = -0.125$ ,  $p < 0.001$ ), which, while statistically significant, contradicts Hypothesis H2. This is particularly surprising given that nurses are often perceived as the most accessible and engaged staff within hospital settings.

Several interpretations are possible. First, the burnout levels among nurses, especially the 96.9% reporting low personal accomplishment, may be manifesting in unintentional behaviours such as emotional detachment, delays in attention, or perceived indifference, which negatively affect patient perceptions. Second, the quality of interaction may be hindered by systemic issues like staff shortages, inadequate training, or absence of supervisory structures that enforce patient care standards.

This divergence from global literature (Vahey et al., 2004; Needleman, 2003) also indicates a context-specific governance failure. In the Pakistani public hospital environment, nurses may lack institutional incentives or support systems to consistently deliver quality interpersonal care. Thus, improving nursing satisfaction and training is not merely an HR matter, it is central to restoring patient trust.

Policy responses must therefore address not only nurse-patient ratios, but also performance motivation, respectful workplace culture, and recognition mechanisms. Without these, public hospitals risk undermining the very personnel that patients most often rely on.

### **5.2.3 Registration Services: The Bureaucratic Bottleneck**

The registration process exhibited a statistically significant but negative association with patient satisfaction ( $\beta = -0.079$ ,  $p < 0.001$ ), thus validating Hypothesis H3. While registration may appear an administrative formality, it is, in fact, a patient's first point of contact with the health system. Poor signage, overcrowded queues, absence of help desks, or perceived discrimination at counters can create lasting negative impressions.

Notably, gender-based analysis showed that women consistently rated registration services lower than men, a finding with considerable implications. It likely reflects the

patriarchal dynamics and infrastructural limitations (e.g., absence of female-only counters) that discourage autonomous access for women in public spaces.

These insights highlight the symbolic and functional importance of administrative efficiency in public sector legitimacy. Reforms such as digitized OPD tokens, triage-based prioritization, and gender-sensitive registration spaces should be considered immediate interventions. Further, incorporating administrative staff within service quality audits can help integrate bureaucratic functioning into the broader accountability mechanisms of healthcare governance.

#### **5.2.4 Waiting Time: A Modest Positive Influence?**

Contrary to prevailing assumptions, waiting time showed a modest yet positive relationship with patient satisfaction ( $\beta = 0.048$ ,  $p < 0.001$ ), thereby confirming Hypothesis H4, though in a somewhat counterintuitive manner.

This result suggests that a reasonable degree of waiting is tolerated, and perhaps even understood, in the public healthcare context, especially when perceived fairness or quality of care compensates for delay. In other words, patients may be willing to wait longer if they believe that the wait ensures proper attention by the doctor or reflects equity in service provision.

However, district-wise analysis showed that patients in Rawalpindi, despite having the shortest waiting time, reported the lowest satisfaction, suggesting that speed alone is insufficient if interpersonal care or procedural clarity is lacking.

The insight here is nuanced: efficiency must not be pursued at the cost of dignified treatment or transparent communication. Administrators should therefore aim to strike a balance between streamlined patient flow and interpersonal engagement. Structural investments in triage systems, SMS-based queue management, and real-time updates on delays can enhance both perception and process.

#### **5.2.5 Burnout and Quality of Life as Moderators**

Despite their theoretical significance and empirical robustness in other studies, neither burnout nor quality of life significantly moderated the relationship between healthcare service

variables and patient satisfaction, resulting in the rejection of Hypotheses H1a, H1b, H2a, and H2b.

This null finding, while surprising, may be explained by two possibilities:

1. Patients may lack visibility into the psychological state of providers. They typically evaluate based on observable behaviours rather than internal well-being, highlighting a perceptual gap between what staff feel and what patients perceive.
2. The effects of burnout and quality of life may not operate as direct moderators but as mediators or latent influences affecting broader organizational culture, staff turnover, or error rates. Their impact may be indirect, long-term, or only evident under extreme conditions.

Despite the lack of statistical moderation, the high prevalence of burnout and moderate QoL scores among providers must not be dismissed. These are critical indicators for human resource sustainability in the public health system. From a governance lens, ignoring staff well-being is likely to have cumulative and systemic costs, including absenteeism, lower morale, and patient mistrust over time.

Future research might better explore these relationships through structural equation modelling, qualitative interviews, or longitudinal study designs that can capture the complex interplay between staff wellbeing and service delivery outcomes.

### **5.3 Linking to Theoretical Framework and Hypotheses**

The conceptual framework underpinning this study was designed to explore the determinants of patient satisfaction within secondary healthcare settings in Rawalpindi Division, incorporating both service quality variables and provider-centric moderating factors. The framework posited that the quality of doctor services, nursing services, registration services, and waiting time would have a direct and significant impact on patient satisfaction. Furthermore, it hypothesized that burnout and quality of life of healthcare providers would moderate the relationship between the interpersonal service dimensions (doctor and nursing services) and patient satisfaction. The results of the study, while largely affirming the core structure of this framework, also offer critical refinements that warrant discussion.

#### **5.3.1 Validation of Direct Service-Satisfaction Relationships**

The theoretical framework's primary proposition, that patient satisfaction is shaped by the perceived quality of healthcare services, was strongly validated. Specifically, Doctor Services emerged as the most powerful predictor, confirming Hypothesis H1 and supporting longstanding theories of interpersonal trust and relational governance in public service settings (O'Connor et al., 1991; Bitner, 1990). The empirical evidence aligns closely with the argument that the doctor-patient relationship is central to perceived service legitimacy in the health sector.

The negative influence of Nursing Services, although statistically significant and thus supporting Hypothesis H2, contradicts the expected direction of the relationship. This challenges the framework's initial assumption of a universally positive correlation and suggests that service dimensions may have asymmetrical effects, depending on context-specific variables such as staffing patterns, burnout prevalence, and the socio-cultural role of nurses in Pakistan's public sector hospitals.

Registration Services and Waiting Time, addressed through Hypotheses H3 and H4, both showed statistically significant associations with patient satisfaction, affirming the role of administrative and operational efficiency in public perception. These findings align with the governance literature that emphasizes the importance of process legitimacy alongside clinical quality (Duggirala et al., 2008; Curry & Sinclair, 2002).

Thus, the core causal pathway outlined in the framework that healthcare service dimensions directly influence patient satisfaction was empirically substantiated. The magnitude and direction of these relationships, however, varied more than anticipated, offering opportunities for theoretical enrichment.

### **5.3.2 Non-Significant Moderation: A Framework Reconsideration**

The framework also hypothesized that the burnout and quality of life (QoL) of healthcare providers would moderate the relationship between interpersonal care (doctor and nursing services) and patient satisfaction. These assumptions were grounded in prior research suggesting that emotionally exhausted or demotivated providers may be less empathetic, less attentive, or even mechanical in their delivery of care, thus affecting how patients experience and rate their interactions (Anagnostopoulos et al., 2012; Ibrahim et al., 2022).

However, all four moderation hypotheses (H1a, H1b, H2a, H2b) were statistically rejected. This null finding suggests that the moderating effects of burnout and QoL, while

theoretically compelling, may not manifest in ways that are perceptible to patients. It raises an important distinction between clinical competence and emotional disposition, the former being directly experienced, the latter often hidden.

This result invites a revision of the framework. Rather than acting as moderators, burnout and QoL may better be conceptualized as:

1. Mediators in the broader relationship between institutional structure and service delivery outcomes,
2. Independent variables influencing internal outcomes such as staff turnover, absenteeism, or performance consistency,
3. Or even latent contextual variables that indirectly shape patient satisfaction through organizational culture and collective morale.

Moreover, the rejection of moderation effects does not negate the salience of provider well-being. Instead, it highlights the complexity of modelling emotional labour within satisfaction frameworks and the need for multi-method approaches that go beyond perceptual instruments to capture affective and behavioural outcomes.

### **5.3.3 Implications for Theory Development**

The partial confirmation of the framework's hypotheses suggests several refinements:

1. Not all service domains affect satisfaction in the same direction or magnitude. The negative impact of nursing and registration services points to contextual vulnerabilities, suggesting that frameworks must accommodate sectoral, institutional, and cultural contingencies in interpreting service quality effects.
2. The absence of moderation effects calls for greater integration of organizational behaviour and HR management constructs, such as perceived organizational support, institutional trust, and role clarity, as part of future frameworks exploring satisfaction and performance in the public health domain.
3. The findings support incorporating governance dimensions such as accountability, transparency, and citizen engagement into models of public service satisfaction.

These constructs may help explain variation in patient perceptions, particularly in settings with uneven state capacity and social capital.

In sum, while the core theoretical structure of the study remains valid, the findings advocate for a more dynamic and context-sensitive expansion of the framework, one that is attuned to the realities of frontline service delivery, provider psychology, and institutional culture.

#### **5.4 Implications for Public Policy and Healthcare Governance**

The findings of this study offer critical insights for reforming public healthcare delivery in Punjab, particularly within the context of patient-centred governance. As Pakistan continues its pursuit of the Sustainable Development Goals, specifically SDG 3, which focuses on ensuring healthy lives and promoting well-being, the efficiency, equity, and responsiveness of secondary healthcare institutions have emerged as essential governance concerns. This research, anchored in the public hospitals of Rawalpindi Division, not only identifies the variables that most significantly influence patient satisfaction but also surfaces broader institutional and administrative challenges that affect the legitimacy and efficacy of public service provision.

##### **5.4.1 Doctor Services as a Pillar of State-Citizen Trust**

Perhaps the most powerful implication of this research lies in the unequivocal role that doctor services play in determining patient satisfaction. The strength of this relationship reinforces the view that physicians are not merely clinical actors, but frontline representatives of the state in the eyes of citizens. When patients feel heard, respected, and thoroughly examined by doctors, their satisfaction with the entire healthcare system rises, regardless of infrastructural or procedural deficiencies.

This calls for a deliberate policy shift to reposition doctor-patient interactions at the centre of service reform. Continuing professional development (CPD) programs must include modules on communication, empathy, and interpersonal ethics. Equally important is the introduction of formalized feedback loops in which patients can evaluate their experience with doctors, thereby integrating user perception into personnel performance frameworks. Institutionalizing such measures would not only enhance service quality but also strengthen the symbolic contract between citizens and the state.

### **5.4.2 Revitalizing Nursing Services Through Systemic Reform**

The negative correlation between nursing services and patient satisfaction signals an area of serious concern. Nurses, who typically spend more time with patients than doctors, should ideally be pillars of compassionate care. However, in this study, their services were consistently rated unfavourably, a likely outcome of systemic burnout, low job satisfaction, inadequate training, and lack of professional autonomy.

Reforms in this domain must address both material and motivational deficits. Introducing structured mentorship programs, recognition platforms for exceptional care, and career advancement pathways can begin to rebuild morale. Equally essential is the implementation of institutional wellness initiatives, including access to counselling services and burnout prevention strategies. Improving the quality of nursing services is not simply about upskilling a workforce; it is about restoring dignity to a profession that has, for too long, been overlooked within Pakistan's public healthcare governance framework.

### **5.4.3 Streamlining Administrative Interfaces for Patient Dignity**

The administrative frontlines, especially the registration counters, play a foundational role in shaping a patient's perception of the healthcare system. Although procedural in nature, these interfaces carry heavy symbolic weight. The study found that inefficiencies, long queues, and gender-insensitive setups at registration desks contributed to dissatisfaction, particularly among women and marginalized groups.

Improving the registration process requires a dual approach: technological upgrades and human-centred redesign. The introduction of digital token systems and SMS-based appointment scheduling can drastically reduce wait times and manual errors. However, such advances must be complemented by the establishment of help desks, especially for women and elderly patients, and the training of administrative staff in inclusive, respectful communication. Reducing bureaucratic friction at the entry point of care affirms the patient's right to be treated with dignity, a cornerstone of effective governance.

### **5.4.4 Rethinking Waiting Time as a Governance Signal**

Contrary to intuitive assumptions, waiting time showed a modest positive relationship with patient satisfaction in this study. While this may reflect patient tolerance or realistic

expectations, it also indicates that what matters most is not the duration of the wait, but how that time is perceived and managed. Patients are more likely to accept delays if they believe the system is transparent, fair, and attentive to their needs.

Therefore, healthcare managers must focus not only on reducing waiting times but on managing the **experience** of waiting. Transparent queue displays, regular announcements regarding expected delays, and equitable triage systems can help enhance patient perceptions. Moreover, ensuring that those with urgent or special needs are prioritized will reinforce the values of fairness and procedural justice. In doing so, hospitals can transform waiting from a source of frustration into an opportunity to demonstrate organizational empathy and efficiency.

#### **5.4.5 Bridging Geographic Inequities Through Adaptive Governance**

A particularly salient finding of the study was the stark disparity in satisfaction levels across districts. Urban centres like Rawalpindi, despite being better resourced, recorded the lowest satisfaction scores, while smaller districts such as Jhelum and Chakwal performed markedly better. These variations suggest that resource allocation alone does not guarantee effective service delivery. Local institutional culture, leadership quality, and accountability mechanisms play a critical role.

To address this, the provincial government must embrace a model of adaptive governance that allows district-level innovation and problem-solving. Introducing comparative performance scorecards for hospitals, facilitating inter-district learning exchanges, and providing targeted support to underperforming areas can promote equity and shared learning. Rather than enforcing uniform policies, empowering districts to tailor interventions to their unique contexts will yield more meaningful improvements in service delivery.

#### **5.4.6 Staff Wellbeing as a Governance Priority**

Although burnout and quality of life did not statistically moderate the relationship between service delivery and patient satisfaction, the prevalence of high emotional exhaustion and low personal accomplishment among healthcare providers remains deeply concerning. These are not merely individual pathologies; they are systemic symptoms of an overstretched, undervalued public health workforce.

To sustain the integrity and resilience of healthcare delivery, staff wellbeing must be integrated into institutional governance metrics. Hospitals should routinely monitor burnout levels, absenteeism patterns, and staff turnover as part of their quality audits. Introducing rest areas, psychological support services, and flexible scheduling options are not luxuries, they are governance imperatives in a sector defined by human labour and emotional labour. Recognizing and addressing the invisible burdens borne by doctors and nurses will not only improve their quality of life but ultimately enhance the quality of care they provide.

#### **5.4.7 A ‘Model of Relational Public Health Governance’**

Ultimately, this study affirms a foundational truth: patient satisfaction is shaped not just by technical outcomes or medical accuracy, but by relational experiences, how individuals are treated, respected, and engaged. Healthcare, in this light, is not just a service but a site of social trust, emotional exchange, and democratic encounter. It is a daily referendum on the quality of governance itself.

Public policy must therefore shift from a transactional model of health service delivery to a **relational model**, one that prioritizes citizen dignity, institutional empathy, and participatory feedback. Hospitals should be governed not merely by checklists and procurement cycles, but by values of justice, equity, and compassion. Embedding patient voices in reform initiatives, decentralizing decision-making to facility-level governance units, and developing real-time feedback dashboards are all steps toward this vision.

In this way, the hospital ceases to be a bureaucratic outpost and becomes what it was always meant to be: a site of healing, not just of the body, but of the fragile social contract between citizens and the state.

### **5.5 Limitations of the Study**

No empirical inquiry is without its limitations, and this study is no exception. While the research offers significant insights into the dynamics of patient satisfaction within public healthcare institutions in Punjab, it is important to acknowledge the constraints that may influence the interpretation, generalizability, and scope of the findings. Recognizing these limitations does not diminish the value of the research; rather, it enhances its transparency and provides a roadmap for future inquiry.

The most fundamental limitation stems from the cross-sectional design of the study. Data were collected at a single point in time, which restricts the ability to capture temporal changes or causality. Patient satisfaction is a dynamic construct that can evolve with shifts in health policy, administrative practices, or personal experiences over time. Longitudinal data could have offered a more nuanced understanding of how patient perceptions fluctuate with repeated interactions and ongoing service reforms.

The study heavily relies on self-reported data from both patients and healthcare professionals. While efforts were made to ensure clarity and linguistic accessibility, such as translating instruments into Urdu and using trained local facilitators, response bias remains a potential concern. Participants may have over-reported satisfaction due to social desirability, or under-reported burnout and dissatisfaction due to fear of reprisal or professional embarrassment. Despite assurances of anonymity, such biases may have introduced distortions in both direction and magnitude of responses.

Although the sample size was large and statistically robust, the study was geographically delimited to the four districts of Rawalpindi Division. While these districts offer a diverse socio-economic and administrative landscape, ranging from urban centres like Rawalpindi to more rural areas like Jhelum and Chakwal, caution must be exercised in generalizing the findings to other divisions of Punjab or to the national context. Variations in provincial governance, healthcare infrastructure, and demographic composition may result in different patterns of patient satisfaction and service delivery elsewhere.

While the study accounted for a wide range of demographic and institutional variables, there may still be unmeasured confounding factors that influence both the independent and dependent variables. For instance, patient health status, severity of illness, individual expectations, or prior experiences with the health system were not included in the model but could substantially affect satisfaction scores. Similarly, hospital-level variables such as leadership style, funding adequacy, and internal grievance mechanisms could have mediated or moderated the service-satisfaction relationships but were beyond the scope of this research.

In the moderation analyses, burnout and quality of life were modelled as moderators using a sample of 255 healthcare providers. However, this sample was not directly matched with the individual patient responses, which could have enhanced the contextual relevance of moderation findings. A matched or nested data design, where individual doctors or nurses are

linked to the patients they serve, might have yielded more precise moderation effects and stronger explanatory power.

While the study deployed sophisticated quantitative tools, including confirmatory factor analysis, regression, and moderation modelling, it did not include qualitative data that could have added interpretive richness. Interviews or focus group discussions with patients and staff may have uncovered hidden narratives, emotional undertones, or institutional cultures that are not easily captured through structured questionnaires. Such qualitative insights could have been particularly valuable in explaining counterintuitive findings, such as the negative effect of nursing services on satisfaction.

Finally, the study did not account for broader health system or policy-level dynamics that could have influenced the service environment. Ongoing reforms, budgetary constraints, pandemic-related disruptions, or intergovernmental tensions may have shaped the day-to-day functioning of hospitals in subtle but significant ways. These external variables lie beyond the research scope but are essential for a more holistic evaluation of public healthcare delivery.

## **5.6 Recommendations for Future Research**

This study has contributed valuable insights into the complex interplay between healthcare service delivery and patient satisfaction in the context of public sector hospitals in Rawalpindi Division. However, the findings also reveal several areas where deeper investigation is warranted. The following recommendations for future research are designed to both extend the scope of the current study and to address its methodological and conceptual limitations. They are grounded in a vision of building a more comprehensive, contextual, and actionable knowledge base for public healthcare reform in Pakistan.

Given the cross-sectional design of the present research, future studies should consider longitudinal approaches to track changes in patient satisfaction and healthcare provider well-being over time. Such research could examine how satisfaction evolves in response to service delivery reforms, infrastructure upgrades, or policy changes. Time-series data would enable scholars and policymakers to better understand the durability of satisfaction and the lagged effects of institutional interventions.

While this study employed robust quantitative techniques, it lacked a qualitative dimension that could have enriched the interpretive analysis, particularly with regard to

counterintuitive findings, such as the negative effect of nursing services on patient satisfaction. Future research should adopt mixed-methods designs, incorporating in-depth interviews, focus group discussions, and ethnographic observations with patients, nurses, and doctors. Such approaches can help uncover the subjective meanings, emotions, and institutional cultures that shape patient experiences and staff behavior in complex ways not captured through structured instruments.

To enhance the generalizability of findings, future research should replicate this study in other divisions of Punjab and across provinces, including under-researched areas such as southern Punjab, interior Sindh, and Balochistan. Moreover, extending the study to tertiary care hospitals, basic health units (BHUs), and rural health centers (RHCs) could provide a more comprehensive understanding of patient satisfaction across the continuum of care. A comparative analysis between primary, secondary, and tertiary healthcare institutions would also be valuable in identifying system-wide patterns and localized disparities.

A significant limitation of the current study was the absence of directly matched data between patients and the specific doctors or nurses who treated them. Future research could employ nested or hierarchical models using matched datasets that pair patients with their respective care providers. Such designs would allow for a more granular analysis of how specific provider traits (e.g., burnout level, communication style, tenure) influence individual patient satisfaction outcomes. This could also open the door to multi-level modeling techniques to capture contextual effects at the ward or hospital level.

While the present study tested moderation effects using Hayes' PROCESS models, the complex relationships among service quality, burnout, quality of life, and patient satisfaction may be better explained through mediated and moderated mediation models. Future research should consider Structural Equation Modelling (SEM) as a more sophisticated technique to simultaneously assess latent constructs, direct and indirect effects, and model fit. This would be particularly useful in clarifying the pathways through which provider well-being influences satisfaction, perhaps not as a moderator, but as a mediator of service quality.

Although burnout and quality of life were selected as key moderators in this study, future research should test alternative contextual or psychological variables that might influence satisfaction. For instance, perceived trust in the healthcare system, digital health literacy, patient empowerment, or hospital reputation could all serve as moderating or

mediating factors. Additionally, exploring how social identity markers such as gender, class, caste, and ethnicity intersect with healthcare experiences could deepen our understanding of inequities in patient satisfaction.

There is a growing need for empirical studies that evaluate the effectiveness of specific health governance interventions, such as patient feedback systems, staff burnout mitigation programs, or administrative reforms, on service quality and satisfaction. Future research should undertake policy evaluation studies or experimental/quasi-experimental designs to assess the causal impacts of these interventions. Such studies could support evidence-based policymaking and provide actionable insights to provincial health departments and hospital administrators.

Finally, it would be fruitful to explore how patient satisfaction differs between public and private sector healthcare institutions, especially considering that many middle- and upper-income patients opt out of public services altogether. A comparative analysis could illuminate the structural and relational differences that account for higher satisfaction levels in private care, and more importantly, what lessons the public sector can adopt from those models without compromising accessibility and equity.

In conclusion, this study opens multiple avenues for future inquiry that can refine, challenge, and expand the current understanding of patient satisfaction in public healthcare settings. By employing more dynamic methodologies, broader geographic coverage, and deeper conceptual models, future research can play a pivotal role in informing governance reforms and strengthening the social legitimacy of public healthcare in Pakistan.

## **5.7 Conclusion**

This study set out to explore a deceptively simple yet deeply consequential question: *How satisfied are patients with public healthcare services in Punjab's secondary hospitals, and what explains their satisfaction or lack thereof?* In seeking an answer, this research has journeyed through the institutional corridors of eighteen public hospitals across Rawalpindi Division, collected the voices of over four hundred patients and more than two hundred healthcare professionals, and applied a rigorous quantitative methodology to unpack the mechanics of satisfaction in a setting marked by high population pressure, limited resources, and systemic complexity.

The findings are both illuminating and sobering. Primarily, the study reaffirms the centrality of the doctor-patient relationship as the single most powerful predictor of patient satisfaction. When patients are treated with empathy, respect, and attentiveness, they feel seen and valued, not merely as cases, but as human beings. This insight must anchor all future efforts to humanize and professionalize public healthcare delivery. Conversely, the unexpected negative correlation between nursing services and satisfaction levels serves as a cautionary tale about the dangers of staff burnout, professional neglect, and institutional apathy. The fact that those who spend the most time with patients, nurses, are contributing negatively to their experiences speaks to a deeper malaise within the workforce that cannot be ignored.

The study also casts light on procedural dimensions of dissatisfaction. The registration process, though often overlooked in policy discourse, emerged as a friction point for many patients, particularly women and lower-income individuals. This finding affirms that patient satisfaction is not only about clinical excellence but also about navigational ease, dignity, and inclusion in bureaucratic processes. Similarly, waiting time, though modest in impact, revealed that transparency and perceived fairness matter more to patients than raw efficiency.

Perhaps most intriguingly, the study found no significant moderating effects of healthcare provider burnout or quality of life on the relationship between service delivery and patient satisfaction. This result challenges prevailing assumptions and invites a rethinking of how, and whether, patients perceive provider well-being in their evaluations of care. It suggests that while burnout and QOL undoubtedly matter for institutional performance, their influence may manifest in more subtle or delayed ways than captured by standard satisfaction instruments.

Taken together, these findings make several important contributions to the fields of public policy, healthcare governance, and service delivery research. The study advances a contextually grounded, empirically validated model of patient satisfaction, highlighting the multifactorial nature of the phenomenon while emphasizing the outsized role of relational and procedural dimensions. It demonstrates that effective public healthcare cannot be reduced to infrastructure or expenditure alone, it must be attentive to interactional quality, administrative coherence, and the wellbeing of those who deliver care. In doing so, this thesis responds to the call for a more people-centered governance paradigm, in which the everyday experiences of citizens are taken seriously as indicators of institutional legitimacy and effectiveness.

At a practical level, the research offers actionable recommendations for policymakers, including the need to invest in doctor-patient communication skills, redesign administrative interfaces to be more inclusive, revitalize nursing through morale-building and burnout mitigation, and empower district-level governance structures to tailor reforms based on local realities. In a province as diverse and populous as Punjab, such decentralized and adaptive reforms are not just desirable, they are indispensable.

Finally, at a more philosophical level, the study underscores the idea that patient satisfaction is ultimately about recognition, recognition of the patient's time, dignity, pain, and personhood. In this sense, the hospital becomes more than a service site; it becomes a site of moral and political encounter between state and citizen. When that encounter is respectful, responsive, and humane, it fosters not only satisfaction but also trust in public institutions, a currency that is both rare and essential in the governance of health.

In sum, this thesis has attempted to bridge the technical with the human, the statistical with the experiential, and the institutional with the relational. It is hoped that the insights offered here will contribute to a more just, empathetic, and accountable healthcare system in Punjab, one in which every patient leaves not only treated, but heard.

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### Instrument 1 – Patient Satisfaction Survey (Hussain et al., 2019)

Demographic Data	<i>Which district are you getting the healthcare services in? (D1)</i>
	<i>What is your gender? (D2)</i>
	<i>What is your age? (D3)</i>
	<i>What is your marital status? (D4)</i>
	<i>What is your highest level of education? (D5)</i>
	<i>What is your average household monthly income? (D6)</i>
	<i>What is your occupation (D7)</i>
Patient Satisfaction (PS_Fact)	<i>The location of the Hospital is easy for me to reach. (PS1)</i>
	<i>The timings of OPD in the Hospital are convenient for me. (PS2)</i>
	<i>I am able to access the health care services at the Hospital whenever needed. (PS3)</i>
	<i>Healthcare providers at Hospital took keen interest in outcome of my medical problem. (PS4)</i>
	<i>I am satisfied with the time I waited at Hospital from registration to check up by the doctor. (PS5)</i>
	<i>Healthcare providers at Hospital provided me with thorough medical treatment. (PS6)</i>
	<i>Healthcare providers at Hospital explained to me the medical procedures for my treatment. (PS7)</i>
	<i>Healthcare providers at Hospital explained to me the medical tests he/she prescribed. (PS8)</i>
	<i>Healthcare providers at Hospital paid attention to what I had to say about my condition. (PS9)</i>
	<i>I am satisfied with the reassurance and support offered to me by the healthcare providers. (PS10)</i>
	<i>I am satisfied with the outcomes of the healthcare provided at the hospital. (PS11)</i>
	<i>I am satisfied with the facilities available at the hospital. (PS12)</i>
Doctor Services (DS_Fact)	<i>The doctors showed commitment and care towards me (DS1)</i>
	<i>The doctors were respectful towards me (DS2)</i>
	<i>The doctors seemed to understand how I experienced my situation (DS3)</i>
	<i>The doctors respected my privacy in discussing my condition (DS4)</i>
	<i>The doctors correctly diagnosed my condition (DS5)</i>
	<i>The doctors treated me in a very friendly and courteous manner (DS6)</i>
	<i>The doctors explained to me the reasons for the medical tests (DS7)</i>
	<i>The doctors were very attentive to what I had to say about my condition (DS8)</i>
	<i>The doctors spent sufficient time in my check up (DS9)</i>
	<i>The doctors examined me thoroughly (DS10)</i>
	<i>The doctors were courteous and respectful towards my attendants (DS11)</i>
	<i>Doctors usually spend considerable time with me while treating me (DS12)</i>
Nursing Services (NS_Fact)	<i>The nursing staff showed commitment and care towards me (NS1)</i>
	<i>The nursing staff were respectful towards me (NS2)</i>
	<i>The nursing staff seemed to understand how I experienced my situation (NS3)</i>
	<i>The nursing staff respected my privacy in discussing my condition (NS4)</i>
	<i>The nursing staff was very friendly and courteous to me (NS5)</i>
	<i>The nursing staff explained to me the reasons for the medical tests (NS6)</i>
	<i>The nursing staff was very attentive to what I had to say about my condition (NS7)</i>
	<i>The nursing staff attended me in a patient manner (NS8)</i>
	<i>The nursing staff was courteous and respectful towards my attendants (NS9)</i>
	<i>The nursing staff was well-trained (NS10)</i>
Registration Services (RS_Fact)	<i>I am satisfied with the registration process at OPD (RS1)</i>
	<i>I do not find it hard to get an appointment for examination medical right away (RS2)</i>
	<i>I did not have to wait for long in queue for registration at OPD (RS3)</i>
Waiting Time (WT_Fact)	<i>I am usually kept waiting for long time when I am at the doctor's office (WT1)</i>
	<i>Sometimes I go without the medical care because of the waiting time (WT2)</i>
	<i>The OPD hours are very convenient for me (WT3)</i>
	<i>The OPD should be open for more hours than it is for right now (WT4)</i>
	<i>People have to wait too long for emergency treatment in this hospital (WT5)</i>

**Instrument 2 – MBI HSS MP**

<i>Demographic Data</i>	<i>What is your gender?</i>
	<i>What is your profession?</i>
	<i>What is your designation?</i>
	<i>What is your basic pay scale?</i>
	<i>What is your age?</i>
	<i>How much professional experience do you have?</i>
	<i>Which district are you currently posted in?</i>
	<i>How many family members do you have?</i>
	<i>What is your monthly average income?</i>
	<i>What is your marital status?</i>
	<i>How many average hours per week do you work?</i>
<i>What is your highest level of education?</i>	
<i>Emotional Exhaustion (EE)</i>	<i>I feel emotionally drained from my work</i>
	<i>I feel used up at the end of the workday</i>
	<i>I feel fatigued when I get up in the morning and have to face another day on the job</i>
	<i>I feel frustrated by my job</i>
	<i>Working with people directly puts too much stress on me</i>
	<i>I feel very energetic</i>
	<i>I can easily create a relaxed atmosphere with my recipients</i>
	<i>I have accomplished many worthwhile things in this job</i>
<i>I worry that this job is hardening me emotionally</i>	
<i>Depersonalization (DP)</i>	<i>I feel burned out from my work</i>
	<i>I can easily understand how my recipients feel about things</i>
	<i>I deal very effectively with the problems of my recipients</i>
	<i>I feel exhilarated after working closely with my recipients</i>
<i>Personal Accomplishment (PA)</i>	<i>I feel recipients blame me for some of their problems</i>
	<i>Working with people all day is really a strain for me</i>
	<i>I feel I'm working too hard on my job</i>
	<i>I feel like I'm at the end of my rope</i>
	<i>I feel I'm positively influencing other people's lives through my work</i>
	<i>In my work, I deal with emotional problems very calmly</i>
	<i>I feel I treat some recipients as if they were impersonal 'objects'</i>
<i>I've become more callous toward people since I took this job</i>	
<i>I don't really care what happens to some recipients</i>	

### Instrument 3 – WHOQOL-Bref

<i>Demographic Data</i>	<i>What is your gender?</i>
	<i>What is your profession?</i>
	<i>What is your designation?</i>
	<i>What is your basic pay scale?</i>
	<i>What is your age?</i>
	<i>How much professional experience do you have?</i>
	<i>Which district are you currently posted in?</i>
	<i>How many family members do you have?</i>
	<i>What is your monthly average income?</i>
	<i>What is your marital status?</i>
	<i>How many average hours per week do you work?</i>
<i>What is your highest level of education?</i>	
<i>Physical Domain</i>	<i>To what extent do you feel that physical pain prevents you from doing what you do</i>
	<i>How much do you need medical treatment to function in your daily life?</i>
	<i>Do you have enough energy for everyday life?</i>
	<i>How well are you able to get around?</i>
	<i>How satisfied are you with your sleep?</i>
	<i>How satisfied are you with your ability to perform your daily living activities?</i>
<i>Psychological Domain</i>	<i>How satisfied are you with your capacity for work?</i>
	<i>How much do you enjoy life?</i>
	<i>To what extent do you feel your life to be meaningful?</i>
	<i>How well are you able to concentrate?</i>
	<i>Are you able to accept your bodily appearance?</i>
	<i>How satisfied are you with yourself?</i>
<i>Social Relationships Domain</i>	<i>How often do you have negative feelings like mood swings, despair, anxiety or depression?</i>
	<i>How satisfied are you with your personal relationships?</i>
	<i>How satisfied are you with your married life?</i>
<i>Environment Domain</i>	<i>How satisfied are you with the support you get from your friends?</i>
	<i>How safe do you feel in your daily life?</i>
	<i>How healthy is your physical environment?</i>
	<i>Have you enough money to meet your needs?</i>
	<i>How available to you is the information that you need in your day-to-day life?</i>
	<i>To what extent do you have the opportunity for leisure activities?</i>
	<i>How satisfied are you with the conditions of your place of living?</i>
<i>How satisfied are you with your access to health services?</i>	
<i>Overall quality of life and health</i>	<i>How satisfied are you with your transport?</i>
	<i>How would you rate your quality of life</i>
	<i>How satisfied are you with your health?</i>