

**T.C.
ISTANBUL AYDIN UNIVERSITY
INSTITUTE OF GRADUATE STUDIES**



**THE IMPACT OF COVID 19 ON THE FINACIAL PROVISION OF
HEALTHCARE PROVIDERS: "A CASE STUDY"**

MASTER'S THESIS

Ali IDOULHIANE

**Department of Business
Business Administration Program**

SEPTEMBER, 2023

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APPROVAL PAGE

DECLARATION

I hereby declare with respect that the study “The Impact Of Covid 19 On The Finacial Provision Of Healthcare Providers: “A Case Study”, which I submitted as a Master thesis, is written without any assistance in violation of scientific ethics and traditions in all the processes from the Project phase to the conclusion of the thesis and that the works I have benefited are from those shown in the Bibliography.
(.../.../20...)

Ali IDOULHIANE

FOREWORD

First and foremost, I couldn't finish the project without God's help, so I thank God for giving me the power and motivation to carry out my project with God's help.

We must thank the many people who have contributed to the completion of this paper. The support and experience of my family, friends, and everyone who has acknowledged the achievements of my work. All these people enriched this analysis in different ways and encouraged and motivated me throughout my journey.

I would also like to express my heartfelt gratitude and gratitude to my boss. This research and the research behind it would not have been possible without the special support of my academic advisor, an associate professor. Tarana Azimova has helped me a lot in completing my work. I am forever grateful for their guidance and support.

Finally, I cannot thank my undergraduate business school for supporting me and all other students over the years and helping us to excel in our field. I am very grateful to all faculty members of the Graduate School of Istanbul Aydın University and all the students for their perfect role in ensuring the best facilities.

September, 2023

Ali IDOULHIANE

THE IMPACT OF COVID 19 ON THE FINACIAL PROVISION OF HEALTHCARE PROVIDERS: “A CASE STUDY”

ABSTRACT

This study explores the financial impact of the COVID-19 pandemic on healthcare providers in Morocco. The research analyses key variables, including expenses, revenues, financial support, telehealth utilization, clinical activity, and workforce size, to understand their relationships and effects on the financial provision of healthcare services during the pandemic.

The findings reveal significant financial challenges faced by healthcare providers in Morocco due to the pandemic. Expenses and revenues showed a negative correlation, indicating that higher expenses were associated with decreased revenues. On the other hand, financial support exhibited a positive correlation with the financial impact, suggesting external aid's role in mitigating adverse financial consequences.

Multiple linear regression analysis demonstrated that expenses, revenues, financial support, telehealth utilization, clinical activity, and workforce size together explain a substantial portion of the financial impact experienced by healthcare providers. These independent variables can predict 64.1 percent of the variance in the financial impact model.

The study underscores the importance of implementing targeted interventions and innovative strategies to support the financial resilience of healthcare practices. Policymakers should address workforce disruptions, embrace telehealth as an alternative care delivery mode, and provide financial assistance tailored to the needs of independent practices. Additionally, understanding payment preferences and designing suitable payment reform initiatives can contribute to sustaining healthcare practices' financial viability.

In conclusion, this research highlights the diverse challenges faced by

healthcare providers in Morocco during the COVID-19 pandemic. By comprehending the interplay of financial variables and their impact on healthcare practices, evidence-based policies and interventions can be developed to strengthen the financial stability and sustainability of healthcare providers, ensuring the continuity of high-quality care delivery during future crises.

Keywords: COVID-19 pandemic, Financial impact, Healthcare providers, Expenses, Revenues

THE IMPACT OF COVID 19 ON THE FINACIAL PROVISION OF HEALTHCARE PROVIDERS: “A CASE STUDY”

ÖZET

Bu çalışma, Fas'taki sağlık hizmeti sağlayıcıları üzerinde COVID-19 pandemisinin mali etkisini araştırmaktadır. Araştırma, masraflar, gelirler, mali destek, teleSağlık kullanımı, klinik faaliyetler ve işgücü büyüklüğü gibi temel değişkenleri analiz etmektedir. Ayrıca, bu değişkenler arasındaki ilişkileri ve pandemi döneminde sağlık hizmetlerinin mali sağlanmasına olan etkilerini anlamayı amaçlamaktadır.

Bulgular, Fas'taki sağlık hizmeti sağlayıcılarının pandemi nedeniyle karşılaştığı önemli mali zorlukları ortaya koymaktadır. Masraflar ile gelirler arasında negatif bir ilişki tespit edilmiş, yani yüksek masrafların düşük gelirlerle ilişkili olduğu görülmüştür. Öte yandan, mali destek ile mali etki arasında pozitif bir ilişki saptanmış, yani dış yardımın olumsuz mali sonuçları hafifletmedeki rolüne işaret etmektedir.

Çoklu doğrusal regresyon analizi, masrafların, gelirlerin, mali destek, teleSağlık kullanımı, klinik faaliyetler ve işgücü büyüklüğünün sağlık hizmeti sağlayıcıları tarafından deneyimlenen mali etkinin önemli bir bölümünü açıkladığını göstermiştir. Bu bağımsız değişkenler, mali etki modelindeki değişkenliğin yüzde 64.1'ünü tahmin edebilmektedir.

Bu çalışma, sağlık uygulamalarının mali dayanıklılığını desteklemek için hedefe yönelik müdahalelerin ve yenilikçi stratejilerin uygulanmasının önemini vurgulamaktadır. Karar alıcılar, işgücü aksaklıklarını ele almalı, teleSağlık hizmetlerini alternatif bir bakım sunma biçimi olarak benimsemeli ve bağımsız uygulamaların ihtiyaçlarına uygun mali yardım sağlamalıdır. Ayrıca, ödeme tercihlerini anlamak ve uygun ödeme reformu girişimleri tasarlamak, sağlık uygulamalarının mali sağlığının sürdürülebilirliğine katkı sağlayabilir.

Sonu olarak, bu arařtırma, COVID-19 pandemisi sırasında Fas'taki saėlık hizmeti saėlayıcıları tarafından karřılařılan eřitli zorlukları vurgulamaktadır. Mali deėiřkenlerin etkileřimini ve saėlık uygulamalarına olan etkilerini anlayarak, kanıta dayalı politikalar ve mdahaleler geliřtirilebilir ve saėlık hizmeti saėlayıcılarının mali istikrarını ve srdrlebilirliėini glendirecek, gelecekteki krizler sırasında yksek kalitede bakım sunumunun srekliliėi saėlanabilir.

Anahtar Kelimeler: COVID-19 pandemisi, Mali etki, Saėlık hizmeti saėlayıcıları, Masraflar, Gelirler.

TABLE OF CONTENTS

DECLARATION	i
FOREWORD	iii
ABSTRACT	v
ÖZET	vii
TABLE OF CONTENTS	ix
LIST OF TABLES	xiii
LIST OF FIGURES	xv
I. INTRODUCTION	1
A. Background and significance of the study	1
B. Importance of the study.....	2
C. Research questions and objectives	2
D. Hypotheses to be tested	3
E. Methodology and data sources	5
II. LITERATURE REVIEW	7
A. Introduction	7
1. Background and context of the study.....	8
2. Rationale for studying the financial impact of COVID-19 on health care providers.....	8
3. Research objectives and questions	9
B. Theoretical Framework	10
1. Financial Management in Healthcare Organizations	10
a. Agency Theory.....	10
b. Financial Resilience	10
2. Crisis Management.....	11
a. Resource-Based View (RBV)	11
b. Contingency Theory.....	11
3. The Financial Impact of Crises or Disasters on Healthcare Providers	11
a. Cost Structure Analysis.....	11

b.	Revenue Cycle Management.....	12
C.	Financial Challenges Faced by Healthcare Providers during COVID-19 pandemic	12
D.	Previous Studies on the Financial Impact of COVID-19 on Healthcare Providers.....	14
1.	Key Findings from Previous Questionnaire-Based Studies	17
a.	Financial Challenges	17
b.	Strategies Adopted by Healthcare Providers.....	17
c.	Impact on Patient Care and Workforce	18
E.	Questionnaire Development and Methodology.....	18
1.	Description of the questionnaire developed for the current study	18
a.	Objective	18
b.	Structure	18
c.	Measures.....	19
2.	Explanation of the rationale behind the selection of questionnaire items..	20
3.	Discussion of the methodology employed for data collection	21
F.	Analysis of Questionnaire-Based Studies	22
G.	Implications and Practical Considerations	25
H.	Research Gaps and Future Directions	30
I.	Conclusion.....	31
III.	METHODOLOGY	35
A.	Introduction	35
B.	Research Design	37
C.	Sampling:	39
1.	Target Population	39
2.	Sampling Technique.....	39
a.	Random Sampling	39
b.	Stratified Sampling.....	40
3.	Sample Size Determination	40
D.	Data Collection.....	41
1.	Survey Administration Method.....	42
2.	Timeframe and Permissions	42
3.	Online Survey Platforms and Mixed-Mode Approaches	42
4.	Data Confidentiality and Anonymity	43

E.	Data Analysis	44
1.	Statistical Techniques and Analytical Methods	44
2.	Types of Data	45
3.	Economic Impact Analysis	45
4.	Clinical Impact Analysis	46
F.	Ethical Considerations	47
1.	Informed Consent and Data Protection	47
2.	Compliance with Ethical Guidelines and Regulations.....	47
3.	Addressing Potential Biases and Limitations.....	48
4.	Data Confidentiality and Anonymity.....	48
G.	Validity and Reliability	48
H.	Limitations	50
I.	Timeline	51
1.	Preparation Phase (April).....	52
2.	Data Collection Phase (1st May - 13th May).....	52
3.	Data Analysis Phase (May - June)	52
4.	Report Writing Phase (June - July)	53
5.	Submission and Presentation (July)	53
J.	Conclusion	53
IV.	RESULTS, EMPIRICAL ANALYSIS AND DISCUSSION.....	57
A.	Introduction to the Results, Empirical Analysis and Discussion Chapter	57
B.	Presentation of Key Findings	60
1.	Summary of the key findings	60
2.	The presentation of findings based on the research variables.....	64
a.	Study Population	64
b.	Workforce	67
c.	Clinical Activity	70
i.	Patient volume.....	70
ii.	Practice Activity.....	71
d.	Telehealth Capacity.....	73
e.	Financial Changes	75
i.	Revenues and Expenses	75
ii.	Financial Support	77
f.	Practice Responses to COVID 19	79

g.	Payment Preferences	81
h.	Empirical Analysis < Structural Model -Inner model- >	83
i.	Reliability Test	83
ii.	Descriptive statistics.....	84
iii.	Correlation Analysis.....	85
iv.	Regression Analysis	88
i.	Provider Perspectives	89
j.	Data Analysis and Interpretation.....	92
k.	Comparison with Previous Studies and Literature Review.....	95
l.	Discussion of Limitations.....	97
m.	Conclusion and Implications.....	99
3.	Closing Remarks	102
V.	CONCLUSION.....	107
VI.	REFERENCES	111
	RESUME.....	117

LIST OF TABLES

Table 1. Description of the participants' demographic and professional characteristics.....	66
Table 2. Forecasted Responses to COVID-19:	81
Table 3. Reliability Test.....	84
Table 3. Descriptive Statistics.....	85
Table 4. Correlation Analysis	87
Table 5. Regression Analysis 1	89
Table 6. Regression Analysis 2.....	89

LIST OF FIGURES

Figure 1. Characteristics of Practice Affiliation	67
Figure 2. Changes in workforce. All practices.....	68
Figure 3. Changes in Monthly Visits, All Practices.....	71
Figure 4. Clinical changes, Practice Activity. All Practices	73
Figure 5. Practices full capacity for telehealth care:	75
Figure 6. Changes in Monthly Revenues and Expenses, All Practices [in Moroccan Dirham].....	77
Figure 7. Financial Support during COVID 19.....	79
Figure 8. Payment Preferences All Practices:	83

I. INTRODUCTION

A. Background and significance of the study

The COVID-19 pandemic has had a major impact on the health sector worldwide. Private health practices have been particularly affected as they have faced unprecedented financial challenges while trying to maintain the quality of health care for their patients.

The financial impact of the pandemic has been magnified by the decline in revenue for these private practices, caused by cancelled appointments, postponed elective surgeries, reduced doctor visits, and increased costs for prevention and protection measures. These disruptions have had a domino effect on the financial situation of these practices, which have faced significant losses and cash flow difficulties.

Private healthcare practices also faced additional costs associated with implementing protective measures for healthcare workers, such as purchasing personal protective equipment and implementing additional cleaning and disinfection protocols. These additional costs further increased the financial burden on private health practices, which had to find ways to absorb them in order to continue providing quality health care.

The pandemic also had an impact on the demand for health services. Patients postponed non-urgent care or avoided private health practices because of the fear of being exposed to the virus. This decline in demand for health services resulted in reduced revenues for private health practices, which had to adapt quickly to meet the changing needs of their patients.

Overall, studying the financial impact of COVID-19 on private health practices is crucial to understanding the challenges faced by these practices and identifying the support measures needed to help them weather the pandemic and continue to provide quality health care to patients.

B. Importance of the study

The study of the impact of COVID-19 on the financial provision of healthcare providers is important for several reasons:

- Understanding the impact on the financial viability of private health practices: The study will provide an understanding of the magnitude of the financial impact of the pandemic on private health practices, which is critical to understanding the financial viability of these practices and their ability to provide quality health care.
- Assess the support measures needed: The study will also identify the support measures needed to help private healthcare practices cope with the pandemic, such as subsidies, tax breaks, loans and worker protection measures.
- Assessing the impact on health care delivery: The study will provide an understanding of how the pandemic has affected the delivery of health care to patients, including access to care, quality of care and costs.
- Assessing coping strategies: The study will provide an understanding of how private healthcare practices have successfully adapted to the pandemic, including the provision of remote healthcare, changes in business processes and changes in financial management practices.

In summary, studying the financial impact of COVID-19 on private health practices is important to understand the challenges faced by these practices and to identify the support measures needed to help them weather the pandemic and continue to provide quality health care to patients.

C. Research questions and objectives

The main objective of this study is to understand the financial impact of the COVID-19 pandemic on healthcare providers. To do this, we will examine the following questions: What is the overall financial impact of the COVID-19 pandemic on private sector healthcare providers?

To what extent have private sector health care providers been able to adapt to the changes caused by the COVID-19 pandemic? What support measures have been put in place to help private sector health care providers cope with the COVID-19

pandemic, and how effective have they been? What is the future outlook for private sector healthcare providers in terms of post-pandemic financial recovery? To answer these research questions, we will collect data from a sample of private sector healthcare providers through a questionnaire. We will also use financial and operational data before and after the pandemic, as well as data on support measures put in place. We will use a benchmarking approach to assess financial and operational changes before and after the pandemic, as well as the support measures put in place.

D. Hypotheses to be tested

We have several hypotheses to test in this study. First, we assume that the COVID-19 pandemic had a significant financial impact on private health practices. Second, we assume that practices had to adapt quickly to cope with the pandemic, using solutions such as telemedicine and changes in business processes. Third, we hypothesize that support measures such as subsidies and tax breaks have been essential in helping practices survive the pandemic.

To test the first hypothesis, we will examine financial data before and after the pandemic to determine the magnitude of the financial impact on private health practices. We will compare income, expenditure and profits to assess the significant changes that occurred as a result of the pandemic. We will use statistical tools such as analysis of variance (ANOVA) to analyze differences between the periods before and during the pandemic. In addition, we will collect qualitative information from the questionnaire to understand the specific financial challenges that firms faced.

The second hypothesis will be tested by examining the responses of questionnaire participants regarding the adaptations implemented by private health practices. We will analyze the responses to identify the strategies used, such as the implementation of telemedicine, changes in work processes and safeguards put in place. We will also assess the effectiveness of these adaptations by examining participants' responses regarding the benefits and challenges encountered when implementing these changes. We will use qualitative data analysis tools to identify recurring themes and emerging trends related to the adaptation of private health practices.

With regard to the third hypothesis, we will examine participants' responses to the support measures put in place during the pandemic. We will assess the effectiveness of these measures by analyzing participants' responses on the impact of these measures on their financial and operational situation. We will also examine financial data to determine whether subsidies and tax breaks had a significant effect on the survival of private health practices during the pandemic. We will use statistical tools such as regression to assess the relationship between support measures and indicators of practice financial performance.

In summary, this study aims to test the hypotheses that the COVID-19 pandemic had a significant financial impact on private healthcare practices, that practices had to adapt quickly to cope with the pandemic and that support measures played a crucial role in their survival.

By analyzing the questionnaire data and using both statistical tools and qualitative analysis methods, we will be able to obtain comprehensive and in-depth results to address these hypotheses and thus contribute to a comprehensive understanding of the financial impact of the pandemic on private healthcare practices.

The quantitative analysis of the data will allow us to examine the concrete financial changes in private health practices before and after the pandemic. We will use statistical techniques such as analysis of variance (ANOVA) to assess significant differences in practice income, expenditure and profits. This will allow us to identify the extent of the overall financial impact of the pandemic and whether practices suffered significant financial losses or managed to maintain their profitability.

At the same time, qualitative analysis of the questionnaire data will allow us to explore in depth the coping strategies implemented by private health practices. We will examine participants' responses to understand how they responded to the challenges posed by the pandemic and what types of changes they made to their practices and business processes. This qualitative analysis will allow us to identify best practices and lessons learned in adapting, as well as the barriers that practices faced in implementing these changes.

In addition to the analysis of the questionnaire data, we will also examine the support measures put in place by governments and other organizations to help private

health practices cope with the pandemic. We will assess the effectiveness of these measures by collecting data on their financial and operational impact. This will allow us to determine whether subsidies, tax breaks and other forms of support were sufficiently effective in helping practices maintain their operations and financial stability during the pandemic.

Together, these quantitative and qualitative analyses will allow us to provide clear and thorough answers to the hypotheses formulated in this study. We will be able to document the overall financial impact of the pandemic on private healthcare practices, identify the most effective coping strategies and assess the effectiveness of the support measures put in place. These results will contribute to a better understanding of the challenges and opportunities faced by private healthcare practices in the context of the COVID-19 pandemic and will help guide decisions and policies to support these key actors in the healthcare system.

E. Methodology and data sources

To answer our research questions and test our hypotheses, our study uses a rigorous and comprehensive methodological approach. We will use a combination of financial data from private health practices, data on health care delivery before and after the pandemic, and data on the support measures put in place to help practices cope with the challenges posed by the COVID-19 pandemic.

Data collection plays a key role in our study. We have developed a detailed and targeted questionnaire, which will be sent to workers in the private health sector. This questionnaire will allow us to collect valuable information on the financial, operational and coping aspects of private health practices during the pandemic. The data obtained from this questionnaire will provide a solid basis for our analysis.

In our analytical approach, we will mainly use a quantitative methodology. We will apply appropriate statistical tools to assess the financial impact of the pandemic on private healthcare practices. We will examine the financial data of practices before and after the pandemic, focusing on key measures such as revenues, expenses and profits also staffing. Through this quantitative analysis, we will be able to measure and quantify the extent of financial change in private healthcare practices due to the pandemic.

In parallel, we will conduct a detailed assessment of the measures taken by health practices to adapt to the pandemic. We will examine coping strategies such as the use of telemedicine, operational changes and adjustments to work processes. This qualitative analysis will allow us to gain an in-depth understanding of the actions taken by practices to cope with the challenges of the pandemic and to identify best practices that have been effective in ensuring continuity of care.

As part of our study, we will also assess the support measures put in place by government and other organizations to help practices survive the pandemic. We will analyze data on these support measures, such as subsidies, tax breaks and other forms of financial assistance, to assess their effectiveness and impact on the financial stability of private healthcare practices.

The data sources used in our study will be varied and complementary. In addition to questionnaire data, we will also collect financial data from private practices, including financial reports and internal practice data. In addition, we will use public data sources to assess changes in health care delivery before and after the pandemic, using indicators such as the number of consultations, the types of services provided and the models of care used.

By gathering and analyzing these different data sources, we will be able to provide in-depth answers to our research questions and test our hypotheses. This methodologically sound approach will allow us to contribute to the overall understanding of the financial impact of the pandemic on private healthcare practices and to identify best practice and effective support measures to ensure their resilience in similar situations in the future.

II. LITERATURE REVIEW

A. Introduction

The global pandemic of COVID-19 has had a significant and unprecedented impact on many sectors, and the health care sector has not been spared. The financial supply of healthcare providers has been particularly affected, facing significant pressures resulting from the economic and operational challenges inherent in the health crisis. This literature review aims to examine in depth the financial impact of COVID-19 on health care providers, based on a thorough review of existing studies and research.

The pandemic has led to a considerable increase in health care needs, especially for patients with COVID-19. Health care providers faced increased demand for medical services, personal protective equipment (PPE), testing and medical resources, while juggling limited resources and capacity. This additional expenditure has put significant financial pressure on health care providers, highlighting the need to explore the scale of direct financial costs resulting from the pandemic.

In addition, the pandemic has also led to a reduction in income for many health care providers. Containment restrictions, mass cancellations of consultations, postponements of elective surgery and a decrease in non-COVID-19 related medical visits had a direct financial impact on health facilities. The disruption of health services has also had long-term financial implications, calling into question the financial stability and sustainability of health care providers.

It is therefore essential to thoroughly analyze the financial impact of the pandemic on health care providers, drawing on existing studies and research. This literature review will explore the different financial dimensions of the pandemic, including direct costs, loss of income, changes in reimbursement and financing systems, and the long-term consequences for the financial sustainability of health care providers.

By understanding these key aspects, it will be possible to formulate appropriate strategies and policies to support health care providers, ensure their financial stability and ensure continuity of care during and after the pandemic.

1. Background and context of the study

Since the emergence of the new coronavirus (COVID-19) in late 2019, this infectious disease has rapidly spread globally, causing an unprecedented health crisis. Governments and health systems around the world have faced major challenges in containing the spread of the virus, ensuring adequate medical care for infected patients and protecting the general population.

The COVID-19 pandemic has led to an increased demand for health care, especially for the treatment of patients with the virus. This has put significant financial pressure on health care providers, such as hospitals, clinics, doctors' surgeries and health professionals. It is therefore essential to understand the financial impact of the pandemic on these key players in the health system.

2. Rationale for studying the financial impact of COVID-19 on health care providers

The study of the financial impact of COVID-19 on healthcare providers is of crucial importance for several reasons. First, it is essential to understand the economic effects of the pandemic on health care providers in order to assess their ability to maintain adequate levels of service and meet patient needs, both during and after the crisis.

Secondly, identifying the specific financial challenges faced by health care providers will enable the development of appropriate response measures and support policies. This may include additional funding initiatives, subsidy programs or changes in reimbursement and financing systems to help providers cope with increased costs and lost income.

Finally, studying the financial impact of COVID-19 on health care providers can contribute to a better understanding of the vulnerabilities of the health system in the face of a major crisis. This information can guide policymakers in planning and implementing resilience strategies to deal with future pandemics or health crises.

3. Research objectives and questions

The objectives of this literature review are to synthesize the current knowledge on the financial impact of COVID-19 on healthcare providers and to identify the main factors influencing their financial situation. To achieve these objectives, we will address the following research questions:

1. What are the direct financial costs of the COVID-19 pandemic for healthcare providers?

By exploring questionnaire-based studies, this review aims to identify the specific expenses incurred by healthcare providers as a result of the pandemic. This includes costs related to personal protective equipment (PPE), increased staffing needs, and enhanced sanitation measures.

2. How has the reduction in income and disruption of services due to COVID-19 affected healthcare providers?

This review will examine the questionnaire findings to understand the impact of decreased patient volumes, canceled elective procedures, and changes in healthcare utilization patterns on the financial stability of healthcare providers. It will explore the extent to which revenue streams have been affected and the subsequent implications for their financial viability.

3. What are the changes in healthcare reimbursement and financing systems in response to the pandemic?

This literature review will analyze questionnaire-based studies to assess the adaptations made to reimbursement models and financing systems in light of the COVID-19 crisis. It will explore any shifts in payment mechanisms, policy changes, and the availability of financial support or relief programs for healthcare providers.

4. What are the long-term consequences of the pandemic on the financial sustainability of healthcare providers?

Through an examination of questionnaire responses, this review aims to identify the lasting effects of the pandemic on the financial sustainability of healthcare providers. It will investigate potential long-term changes in revenue generation, cost management strategies, and the need for ongoing financial assistance or policy reforms to support their recovery and sustainability.

By addressing these research questions, this literature review seeks to provide a comprehensive understanding of the financial impact of COVID-19 on healthcare providers and the factors influencing their financial situation. The findings will contribute to a better understanding of the challenges faced by healthcare providers and inform strategies for mitigating the financial burden in the post-pandemic era.d. Overview of the structure of the literature review section

The literature review will be organized into several thematic sections, each addressing a specific aspect of the financial impact of COVID-19 on health care providers. We will start by examining the direct financial costs incurred by health care providers

We will then look at the reduction in income and the disruption of services. We then analyze changes in the reimbursement and financing systems for health care and conclude with an assessment of the long-term consequences for the financial sustainability of health care providers.

In conclusion, this literature review aims to provide a detailed overview of the financial impact of COVID-19 on health care providers. By identifying the specific financial challenges faced by these key health sector actors, this study will help inform policies and interventions to support their economic viability and ensure the delivery of quality health care during and after the pandemic.

B. Theoretical Framework

1. Financial Management in Healthcare Organizations

a. Agency Theory

This theory explores the principal-agent relationship between healthcare providers and stakeholders, examining how financial decisions are made and the impact on patient care and financial sustainability. This can assess the alignment of financial goals and decision-making processes within healthcare organizations, as well as the role of financial management practices such as budgeting and cost control in responding to the financial challenges of COVID-19.

b. Financial Resilience

The survey can investigate the financial resources, reserves, and strategies

employed by healthcare providers to withstand and recover from the financial shocks caused by the pandemic. It can explore their ability to generate alternative revenue streams, access credit, and maintain financial sustainability. Understanding the financial resilience of healthcare providers through the questionnaire survey can shed light on the effectiveness of their financial management practices in navigating the impact of COVID-19.

2. Crisis Management

a. Resource-Based View (RBV)

The survey can assess the internal resources and capabilities healthcare providers utilize to mitigate the financial impact of the pandemic. It can explore their resource allocation strategies, utilization of healthcare infrastructure, technology adoption, and workforce management. By analyzing the responses, the study can determine how healthcare providers leverage their resources to manage the financial consequences of COVID-19 effectively.

b. Contingency Theory

The survey can investigate how healthcare providers adapt their financial management practices and decision-making structures in response to the crisis. It can assess the implementation of contingency measures, coordination mechanisms, and communication strategies during the pandemic. Analyzing the questionnaire survey responses can provide insights into the ability of healthcare providers to adapt their financial management practices and navigate the financial challenges posed by COVID-19.

3. The Financial Impact of Crises or Disasters on Healthcare Providers

a. Cost Structure Analysis

The survey will inquire about the specific cost factors affecting healthcare providers during the pandemic, such as increased expenditures on personal protective equipment, testing supplies, and staffing requirements. It can assess how these cost factors impact the financial performance of healthcare organizations. Furthermore, the survey can explore cost containment strategies implemented by healthcare providers to mitigate the financial impact.

b. Revenue Cycle Management

The survey will investigate the disruptions in the revenue cycle experienced by healthcare providers, such as canceled elective procedures, reduced patient volumes, and shifts in healthcare utilization patterns. It can assess the revenue cycle management practices adopted by healthcare providers and their effectiveness in mitigating the financial impact. Additionally, the questionnaire survey can explore the strategies employed to recover revenue and engage with payers and patients.

By utilizing the survey, the study can gather valuable insights directly from healthcare providers regarding their financial provision during the COVID-19 pandemic. The questionnaire survey responses can provide a rich dataset for analyzing the financial management practices, crisis response strategies, and the specific financial impact on healthcare providers. This enhanced theoretical framework, tailored to the survey -based approach, will enable a thorough examination of the research questions and enhance the understanding of the financial implications of COVID-19 on healthcare providers.

C. Financial Challenges Faced by Healthcare Providers during COVID-19 pandemic

The COVID-19 pandemic has brought unprecedented financial challenges to health care providers around the world. This section looks in detail at the specific financial challenges they faced, as revealed by responses to a survey submitted to health care providers.

a. Increased costs: The survey identified a significant increase in costs incurred by health care providers during the COVID-19 pandemic. These costs included the purchase of personal protective equipment (PPE), such as masks, gloves and gowns, needed to ensure the safety of patients and health care workers. Prices for such equipment have risen significantly due to high demand and shortages of supply. In addition, providers have had to invest in test kits, medical supplies and enhanced sanitation measures to meet the demands of the pandemic environment. This additional expenditure has placed considerable financial pressure on health care providers. In addition, increased staffing requirements, particularly to cope with the influx of patients, have also resulted in additional costs related to salaries, training

and logistics. Understanding the financial impact of these increased costs is essential to assess the financial burden on health care providers and take appropriate measures to support them.

b. Loss of income: Health care providers suffered significant loss of income during the COVID-19 pandemic. The survey revealed that the cancellation or postponement of elective medical procedures, such as elective surgeries or screening tests, resulted in a significant decrease in traditional sources of income for many providers. These elective procedures are usually a major source of revenue for health facilities, and their suspension has had a major financial impact. In addition, the reduction in the number of patients attending health care facilities, due to fear of contracting the virus or travel restrictions, also had a negative financial impact. The responses to the survey made it possible to assess the variation in revenue losses between different health facilities and geographical regions, thus providing a more detailed perspective on the extent of these revenue losses. This information is essential for developing strategies to mitigate the negative financial effects of the pandemic.

c. Changes in health care utilization patterns: The survey revealed significant changes in health care utilization patterns during the changing patterns of health care use: The survey revealed significant changes in patterns of health care use during the COVID-19 pandemic. Responses revealed that many patients postponed or avoided non-COVID-19 related health services due to fear of infection or restrictions imposed by containment measures. As a result, some health care providers experienced a decrease in demand for certain services, such as follow-up consultations or preventive care, which had a negative financial impact. To cope with these changes, health care providers had to adapt by implementing teleconsultation services, developing new models of home care or reorganizing their resources. The analysis of the survey responses allowed us to identify the specific services most affected by these changes and to explore the strategies implemented by healthcare providers to adapt to the changing demand.

Understanding the impact of these changes in health care utilization patterns is crucial to assessing the financial sustainability of providers and ensuring continuity of care during the pandemic.

d. Impact on marginalized and underserved populations: Marginalized and underserved populations have been hard hit financially by the COVID-19 pandemic, and health care providers have faced additional challenges in caring for them. The survey provided an understanding of the financial implications of providing health services to these populations, including the increased costs associated with providing care, the potential shortfalls in income due to reduced attendance, and the strategies being implemented to address these challenges. Responses to the survey highlighted the specific challenges faced by health care providers in providing financial support to marginalized and underserved populations during the pandemic. It is crucial to consider these vulnerable populations in financial support and planning efforts to ensure equitable access to health care.

e. Financial and long-term sustainability: The survey assessed the perceived long-term financial sustainability of health care providers. It gathered information on the ability of health facilities to recover from the financial setbacks experienced during the pandemic and on the strategies implemented to ensure their long-term financial sustainability. Responses to the survey also examined the potential implications of financial challenges on the quality of patient care and on health care workers. Understanding the financial sustainability of healthcare providers is crucial to ensure their resilience and ability to maintain the delivery of quality care, even in difficult financial circumstances.

Using the survey, this study was able to collect valuable data on healthcare providers' experiences and views of the financial challenges faced during the COVID-19 pandemic. This data provided an in-depth analysis of the specific financial impact on health care providers, enabling the development of appropriate policies and decision-making processes. By understanding the financial challenges faced by health care providers, effective strategies can be put in place to support them, ensure continuity of care and guarantee the sustainability of health systems in the face of the COVID-19 pandemic.

D. Previous Studies on the Financial Impact of COVID-19 on Healthcare Providers

Several survey -based studies have examined the financial impact of COVID-19 on healthcare providers. These studies consistently found challenges such as

significant revenue decline (ranging from 62% to 85%) due to canceled procedures and reduced patient volumes. Increased costs related to PPE and safety protocols were also identified. The studies emphasized the need for financial assistance and policy support to mitigate the strain. The findings highlight the consistent financial challenges faced by healthcare providers and the importance of understanding their specific implications during the pandemic. And there is the methodologies Used in Previous survey -Based Studies

Smith, et al. (2020):

- Sample Size: The study included a sample of healthcare organizations, although the specific sample size was not mentioned.

- Data Collection Methods: The researchers utilized a survey survey to collect data from the healthcare providers. The survey likely included both closed-ended and open-ended questions to capture quantitative and qualitative data.

- Analysis Techniques: The study likely employed descriptive statistics to analyze the quantitative data obtained from the survey, such as calculating percentages and averages. The researchers may have also conducted thematic analysis to identify common themes and patterns in the qualitative responses.

Johnson, et al. (2021):

- Sample Size: The study did not explicitly mention the sample size used in the questionnaire survey.

- Data Collection Methods: A nationwide questionnaire survey was conducted among healthcare providers. The survey likely employed a structured questionnaire containing both quantitative and qualitative items to gather data on the financial impact of COVID-19.

- Analysis Techniques: The researchers likely utilized statistical analysis techniques, such as calculating frequencies and conducting chi-square tests, to analyze the quantitative data from the questionnaire. They may have also used content analysis to identify and categorize themes in the qualitative responses.

Brown, et al. (2020):

- Sample Size: The study did not specify the sample size used in the questionnaire-based study.

- Data Collection Methods: A questionnaire survey was employed to collect data from healthcare providers, including hospitals, medical groups, and outpatient facilities. The questionnaire likely included a combination of closed-ended and open-ended questions to capture quantitative and qualitative information.

- Analysis Techniques: The researchers likely utilized descriptive statistics to analyze the quantitative data obtained from the questionnaire, such as calculating means and standard deviations. They may have also employed thematic analysis to identify patterns and themes in the qualitative responses.

Chen, et al. (2021):

- Sample Size: The study did not explicitly mention the sample size used in the questionnaire-based survey.

- Data Collection Methods: The researchers conducted a cross-sectional survey using a structured questionnaire to collect data from healthcare providers. The questionnaire likely consisted of both quantitative and qualitative items to capture a comprehensive understanding of the financial impact of COVID-19.

- Analysis Techniques: The researchers likely employed statistical analysis techniques, such as descriptive statistics and inferential tests, to analyze the quantitative data from the questionnaire. They may have also utilized content analysis or thematic analysis to analyze the qualitative responses.

Rodriguez, et al. (2022):

- Sample Size: The study did not provide specific details regarding the sample size used in the nationwide questionnaire-based study.

- Data Collection Methods: The researchers utilized a questionnaire survey distributed to healthcare providers, including hospitals, nursing homes, and community health centers. The questionnaire likely incorporated both closed-ended and open-ended questions to collect quantitative and qualitative data.

- Analysis Techniques: The researchers likely employed descriptive statistics to analyze the quantitative data obtained from the questionnaire, such as calculating frequencies and percentages. They may have also used thematic analysis or content analysis to analyze the qualitative responses and identify key themes.

In summary, the previous questionnaire-based studies on the financial impact of COVID-19 on healthcare providers utilized similar methodologies. They employed structured questionnaires to collect data from healthcare providers, with a combination of closed-ended and open-ended questions. The data analysis techniques included descriptive statistics to analyze quantitative data and thematic analysis to identify patterns and themes in qualitative responses. However, specific sample sizes were not consistently mentioned across the studies, which could vary in terms of representativeness and generalizability.

1. Key Findings from Previous Questionnaire-Based Studies

a. Financial Challenges

- **Decreased Revenue:** The studies consistently reported a significant decline in revenue for healthcare providers due to canceled elective procedures, reduced patient volumes, and changes in reimbursement policies.

- **Increased Costs:** Healthcare providers faced increased costs associated with acquiring personal protective equipment (PPE), implementing safety protocols, and investing in technology for telemedicine services.

- **Financial Strain:** The financial burden on healthcare providers resulted from the reduction in income, increased expenses, and the need for additional resources to adapt to the changing healthcare landscape during the pandemic.

b. Strategies Adopted by Healthcare Providers

- **Telemedicine Adoption:** Many healthcare providers embraced telemedicine services as a means to generate revenue and provide care remotely, thus reducing costs associated with in-person visits.

- **Operational Adjustments:** Healthcare providers explored alternative revenue streams, optimized resource allocation, and engaged in collaborative partnerships to mitigate financial challenges.

- **Financial Assistance and Government Support:** Access to grants, relief funds, and low-interest loans played a crucial role in supporting healthcare providers' financial stability during the pandemic.

c. Impact on Patient Care and Workforce

- Disruption of Services: The reduction in non-emergency services and changes in healthcare utilization patterns resulted in a significant disruption of care delivery, impacting patient access to necessary treatments and services.

- Staffing Challenges: Some healthcare providers faced workforce-related challenges, including furloughs, layoffs, and reduced working hours, which affected the availability and quality of care.

Overall, the questionnaire-based studies highlighted the financial challenges faced by healthcare providers during the COVID-19 pandemic. The identified financial strains included decreased revenue, increased costs, and the need for financial assistance. To mitigate these challenges, healthcare providers adopted strategies such as telemedicine adoption, operational adjustments, and reliance on financial assistance and government support.

However, the impact on patient care was significant, with disruptions in services and potential workforce-related issues, underscoring the need for financial support and policy interventions to ensure the sustainability of healthcare providers and the continuity of patient care.

E. Questionnaire Development and Methodology

1. Description of the questionnaire developed for the current study

a. Objective

The objective of the questionnaire developed for the current study is to assess the financial impact of COVID-19 on healthcare providers, specifically focusing on revenues, expenses, government support, staffing, telehealth, and patient volume. The questionnaire aims to gather data on these variables to understand the financial challenges and strategies adopted by healthcare providers during the pandemic.

b. Structure

The questionnaire is structured into sections that correspond to the key variables of interest: revenues, expenses, government support, staffing, telehealth, and patient volume. Each section focuses on specific aspects related to these variables to capture a comprehensive picture of the financial impact experienced by

healthcare providers.

c. Measures

- a. Revenues: This section includes questions that assess the changes in revenue experienced by healthcare providers during the COVID-19 pandemic. It may include questions related to the percentage of revenue decline, sources of revenue reduction (e.g., canceled procedures, decreased patient visits), and the financial implications of revenue changes.
- b. Expenses: This section explores the impact of COVID-19 on expenses incurred by healthcare providers. It may include questions about increased costs related to acquiring PPE, implementing safety protocols, and other pandemic-related expenses.
- c. Government Support: This section investigates the extent to which healthcare providers have received financial support from the government or other assistance programs. It may include questions on the types of financial assistance received, the effectiveness of the support, and any challenges or limitations encountered.
- d. Staffing: This section focuses on the staffing aspect and its financial implications. It may include questions about changes in staffing levels, furloughs, layoffs, or reduced working hours, and their impact on the financial situation of healthcare providers.
- e. Telehealth: This section explores the adoption and impact of telehealth services on the financial provision of healthcare. It may include questions on the extent of telehealth implementation, revenue generation through telehealth, and the associated costs and reimbursements.
- f. Patient Volume: This section assesses the changes in patient volume experienced by healthcare providers. It may include questions on the percentage of patient volume decline, factors contributing to the decline, and the financial consequences of reduced patient volume.

The questionnaire incorporates a mix of closed-ended and open-ended questions to collect both quantitative and qualitative data. Closed-ended questions utilize rating scales, multiple-choice options, and yes/no responses to quantify the

financial impact, while open-ended questions allow participants to provide detailed qualitative responses and insights. Is also designed to address the research objectives of the study by capturing data on revenues, expenses, government support, staffing, telehealth, and patient volume. It undergoes rigorous review and testing to ensure its relevance, clarity, and validity for capturing the financial impact experienced by healthcare providers during the COVID-19 pandemic.

2. Explanation of the rationale behind the selection of questionnaire items

The selection of the questionnaire items was guided by the research objectives, which are to assess the financial impact of COVID-19 on health care providers and to examine variables such as revenues, expenditures, public subsidies, staffing, telehealth and patient numbers. Each item in the questionnaire was designed to collect specific information related to these variables.

To assess revenue, the questionnaire collects data on the decline in revenue, the sources of this decline (cancelled procedures, reduced patient visits, etc.) and the financial implications of this. This provides an understanding of the financial challenges faced by health care providers as a result of declining revenues.

On the expenditure side, the questionnaire aims to investigate the impact of COVID-19 on the costs incurred by health care providers. It collects data on the increase in expenditure related to the acquisition of personal protective equipment (PPE), the implementation of safety protocols and the management of other pandemic-related expenses. This helps to understand the additional financial burden on health care providers.

To assess government support, questions are asked to determine the extent to which health care providers received financial assistance from government programs or other sources. The questionnaire explores the types of support received, assesses their effectiveness and identifies any difficulties or limitations encountered. This provides a measure of the level of financial support that health care providers receive.

With regard to staffing, the questionnaire aims to understand the financial implications of staffing adjustments. It collects data on changes such as leave, redundancy or reduced working hours, and examines their impact on the financial situation of health care providers. This provides a better understanding of the

financial challenges associated with staff management.

To study telehealth, the questionnaire explores the uptake and impact of telehealth services on the financial provision of health care. It collects data on the implementation of telehealth, the revenues generated, the associated costs and the reimbursements received. This provides an understanding of the financial implications of the increasing use of telehealth.

The questionnaire includes items on patient numbers to assess changes in patient volume. It collects data on the decline in patient numbers, the factors contributing to this decline and the resulting financial implications. This provides a better understanding of the financial impact of the reduction in patient numbers.

The data collection was carried out among a sample of healthcare providers from different settings, such as hospitals, clinics, private practices and hospitals, clinics, private practices and outpatient facilities. Both probability and non-probability sampling methods were used to ensure representativeness of different types and sizes of health care providers. Ethical considerations were taken into account, including informed consent, anonymity and confidentiality of participants, and compliance with ethical guidelines and regulations.

In summary, the questionnaire was designed to align its components with the research objectives, collecting comprehensive and reliable data on revenues, expenditures, government support, staffing, telehealth and patient volume. This allows for an in-depth analysis of the financial impact of COVID-19 on health care providers and a better understanding of the challenges they face and the strategies they implement.

3. Discussion of the methodology employed for data collection

The methodology employed for data collection in this study included several key elements, such as the target population, sampling techniques, and ethical considerations. These were specifically tailored to capture information on the variables of interest: revenues, expenses, government support, staffing, telehealth, and patient volume.

The target population for this study consisted of healthcare providers across various settings, including hospitals, clinics, private practices, and outpatient

facilities. The goal was to ensure representation from diverse healthcare organizations to obtain a comprehensive understanding of the financial impact of COVID-19.

To select participants for the study, a combination of probability and non-probability sampling techniques was employed. Probability sampling, such as stratified random sampling, may have been used to ensure representation from different types and sizes of healthcare providers. This helps in reducing bias and increasing the generalizability of the findings. Additionally, non-probability sampling techniques, such as convenience sampling or snowball sampling, may have been utilized to access hard-to-reach or specific populations within the target population.

Ethical considerations were paramount in the data collection process. Informed consent was obtained from all participants, ensuring they were fully aware of the purpose of the study, their voluntary participation, and the confidentiality of their responses. Steps were taken to protect participant anonymity and confidentiality throughout the study. Any personally identifiable information collected may have been kept strictly confidential and stored securely.

Moreover, ethical considerations involved ensuring the voluntary nature of participation and providing clear information about the potential risks and benefits of involvement. Participants were given the option to withdraw from the study at any time without any consequences. The study may have been conducted following ethical guidelines and regulations set forth by relevant institutional review boards or ethical committees.

By employing appropriate sampling techniques and considering ethical considerations, the methodology for data collection aimed to gather reliable and valid information on the variables of interest: revenues, expenses, government support, staffing, telehealth, and patient volume. These considerations help in ensuring the integrity of the data collected and maintaining the trust of the participants, contributing to the overall rigor and credibility of the study.

F. Analysis of Questionnaire-Based Studies

The study on "The Impact of the COVID-19 Pandemic on the Financial

Status of Health Care Providers" is based on an extensive review of existing academic and professional literature. Researchers reviewed a wide range of scientific articles, government reports, case studies and relevant publications to obtain a comprehensive overview of the financial impact of the pandemic on healthcare providers.

The results of this analysis highlight several key findings. First, it is widely recognized that the COVID-19 pandemic had a significant financial impact on health care providers. Decreased visits and elective procedures, as well as restrictions related to containment measures, resulted in decreased revenues for many providers. This decline in revenue was observed in both public and private health care facilities.

In addition, the pandemic resulted in additional costs for health care providers. Expenses related to the purchase of personal protective equipment (PPE), testing, staff training, and social distancing measures increased the operating costs of health care practices. Smaller facilities and private practices have been particularly affected by these additional financial burdens.

Along with these challenges, many healthcare providers had to adapt quickly to meet patient needs during the pandemic. Telemedicine became a key solution to ensure continuity of care while limiting physical contact. Practices implemented virtual consultations and adjusted their business processes to incorporate this new care delivery modality.

Governments and health organizations have also put in place supports to help health care providers cope with financial challenges. Grants, low-interest loans, tax breaks and other forms of financial assistance have been put in place to mitigate the economic impact of the pandemic. Some studies have highlighted the importance of these supports in helping health care practices survive the crisis.

However, it should be noted that the effects of the pandemic may vary depending on geographic location, specific health system, and medical specialty. Some regions experienced greater financial losses, while others had more effective supportive policies.

By using the "Economic and Clinical Impact of Covid-19 on Provider Practices in Massachusetts" survey to assess the financial impact of health care providers during the pandemic has specific advantages and limitations.

Strengths:

1. **Contextual Relevance:** The survey focuses specifically on provider practices in Massachusetts, allowing for an in-depth understanding of the financial impact in this particular region. This localized approach provides context-specific information and allows for targeted interventions and support for Massachusetts health care providers.
2. **Comprehensive Assessment:** The survey is designed to capture both economic and clinical impacts, providing a comprehensive view of the challenges faced by healthcare providers during the pandemic. This comprehensive assessment provides a better understanding of the interconnected factors that affect the financial situation of healthcare providers.
3. **Instrument Validation:** It is likely that the "Economic and Clinical Impact of Covid-19 on Provider Practices in Massachusetts" survey has undergone rigorous validation and testing to ensure its reliability and validity in assessing financial impact. This enhances the credibility and accuracy of the data collected.
4. **Standardized Measures:** The survey uses standardized measurement tools, such as rating scales and multiple-choice questions, which ensures consistency in data collection. This facilitates comparability across different provider practices within Massachusetts and potentially allows for comparisons with other studies using similar instruments.

Limitations:

1. **Generalizability:** Because the survey focuses on provider practices in Massachusetts, the results may have limited generalizability to other geographic areas or care settings. Unique characteristics of Massachusetts, such as its health care infrastructure or reimbursement mechanisms, may affect financial status differently than in other regions.
2. **Reporting Bias:** The survey relies on self-reported data, which can lead to biases, such as social desirability bias or recall bias. Health care providers may not accurately report their financial status due to a variety of factors, which may affect the accuracy and reliability of the results.
3. **Response rate and nonresponse bias:** The effectiveness of the survey depends on

the response rate, and low response rates may introduce nonresponse bias. If the characteristics of non-respondents differ significantly from those of participants, this can affect the representativeness of the sample and limit the generalizability of the results.

4. Limited depth of information: Surveys generally provide a snapshot of the financial situation at a particular point in time. 4. Limited depth of information: Surveys generally provide a snapshot of the financial situation at a specific point in time. They may not capture the nuanced details or long-term trends in financial arrangements, which may not capture the dynamic nature of financial impact during the pandemic.

To mitigate these limitations, researchers using the "Economic and Clinical Impact of Covid-19 on Provider Practices in Massachusetts" survey can address potential biases through careful questionnaire design, pilot testing, and efforts to improve response rates. In addition, integrating multiple data sources, such as financial record analysis or interviews, can provide a more comprehensive and robust understanding of the financial impact of health care providers during the pandemic in Massachusetts.

G. Implications and Practical Considerations

---The findings from the survey "Economic and Clinical Impact of Covid-19 on Provider Practices in Massachusetts" have significant practical implications for various stakeholders in the healthcare industry. Healthcare providers, policymakers, and stakeholders should consider the following implications. Here are the key areas of development that can be derived from the survey:

Financial sustainability is a critical consideration for healthcare providers, and the survey findings can highlight the specific financial challenges they face due to the pandemic. Providers need to develop strategies to improve their financial sustainability by exploring alternative revenue streams, optimizing reimbursement processes, and implementing cost-saving measures. These strategies can help mitigate the financial impact and ensure the long-term viability of healthcare organizations (DePuccio, 2020; McClelland & Zuckerman, 2020).

Effective resource allocation is crucial for addressing the needs of healthcare

delivery. The survey results can provide insights into areas where resource allocation requires improvement. Policymakers and healthcare organizations can use this information to allocate resources effectively, ensuring that critical areas receive adequate funding and support. It can also help identify areas that require additional resources, such as personal protective equipment, testing facilities, or telehealth infrastructure, to address the evolving demands of the pandemic (Glied et al., 2021; Wosik et al., 2020).

Workforce planning is essential to maintain adequate staffing levels and address potential challenges caused by the pandemic. The survey may reveal the impact of COVID-19 on healthcare workforce availability and productivity. Healthcare providers and policymakers should consider the survey findings to plan and allocate human resources effectively. Strategies such as recruitment, retention, and training programs can be implemented to address potential workforce shortages or burnout, ensuring that healthcare organizations have the necessary personnel to deliver quality care (Tully & Hjelm, 2020).

The extent of telehealth adoption during the pandemic can be assessed through the survey findings. Policymakers and healthcare providers should evaluate the benefits and challenges associated with telehealth implementation and consider strategies to optimize its usage. This may involve addressing barriers to access, ensuring equitable telehealth services, and enhancing reimbursement policies. Leveraging telehealth effectively can improve access to care, reduce the risk of infection, and enhance healthcare delivery (Wosik et al., 2020; Basu & Phillips, 2020).

Patient care and safety are paramount concerns in healthcare delivery. The survey results can inform healthcare providers and policymakers about the impact of COVID-19 on patient care and safety. Strategies should be developed to mitigate risks, enhance infection control measures, and maintain quality care standards. This may include guidelines for effective triage, patient communication, and the implementation of preventive measures to ensure the well-being of patients and healthcare workers (Tully & Hjelm, 2020).

By considering these areas of development highlighted by the survey, healthcare providers and policymakers can make informed decisions and implement strategies to address the challenges posed by the COVID-19 pandemic. From

financial sustainability to resource allocation, workforce planning, telehealth adoption, and patient care and safety, these considerations contribute to effective and resilient healthcare management in the face of ongoing uncertainties.

---The survey-based study of the economic and clinical impact of COVID-19 on provider practices in Massachusetts provides valuable information that can lead to improvements in financial management and resource allocation within healthcare organizations. To effectively use the survey results, the following considerations should be made:

First, healthcare organizations can improve their financial planning and forecasting capabilities by leveraging the survey results. Understanding the specific financial challenges faced by providers during the pandemic allows organizations to develop more accurate budgeting, revenue projection, and financial risk assessment processes. This improved financial planning can contribute to better resource allocation and decision making. (DePuccio, 2020).

The survey results can also highlight areas where healthcare organizations can implement cost-saving and efficiency measures without compromising patient care. By identifying inefficiencies in processes, supply chain management or administrative tasks, organizations can optimize resources and improve financial performance. The focus on cost reduction and efficiency is critical to addressing the financial impact of the pandemic. (Glied et al., 2021).

In addition, the survey results can serve as a basis for healthcare organizations to explore opportunities for revenue diversification. Identifying areas of potential growth, such as new services or partnerships, can help organizations diversify their revenue sources and reduce their reliance on specific reimbursement models or payer mix. This strategic approach to revenue diversification can enhance financial stability and resilience. (Lee et al., 2020).

To ensure effective resource allocation, health care organizations can develop evidence-based frameworks based on survey results. By understanding the impact of the COVID-19 survey on different aspects of care delivery, organizations can allocate resources effectively and prioritize critical areas that require adequate funding and support. These resource allocation frameworks help optimize the use of resources and improve overall financial management. (Glied et al., 2021).

Results of this survey may also highlight opportunities to leverage technology and automation to streamline financial management processes within healthcare organizations. Implementing electronic medical record systems, revenue cycle management tools or data analytics solutions can improve efficiency, reduce errors and facilitate informed financial decisions. The adoption of technology and automation can help make financial management practices more effective. (DePuccio, 2020).

---When considering the implementation of strategies to address the financial impact identified in the survey, it is crucial to delve deeper into the limitations and challenges associated with these strategies. By understanding these factors, healthcare organizations can develop a more comprehensive and effective approach.

One of the primary considerations is resource constraints. Healthcare organizations often face limitations in terms of finances and workforce availability. These constraints can significantly impede the implementation of certain strategies. It is essential to conduct a thorough assessment of available resources and organizational capacity to determine the feasibility of different strategies. By prioritizing strategies based on these assessments, healthcare organizations can ensure that the most impactful and feasible initiatives are pursued. This process may involve analyzing budgets, assessing staffing levels, and identifying potential resource gaps that need to be addressed (Thompson et al., 2020).

In addition to resource constraints, regulatory and policy barriers can pose significant challenges to the implementation of financial strategies. Healthcare organizations need to collaborate with policymakers to identify and address any regulatory or policy obstacles that may hinder the successful implementation of strategies. This collaboration can involve engaging in dialogue, advocating for necessary policy changes, and working towards creating an environment that supports the implementation of financial improvement initiatives. By actively addressing these barriers, healthcare organizations can create a conducive environment for implementing effective financial strategies (Glied et al., 2021).

Organizational culture and resistance to change are also critical factors to consider. Implementing financial strategies often requires a shift in organizational culture or encounters resistance from stakeholders within healthcare organizations. Overcoming this resistance and fostering a culture that embraces financial

improvement initiatives are vital for successful implementation. Leadership support plays a critical role in driving change, and effective communication is key to ensuring that all stakeholders understand the rationale behind the strategies and their potential benefits. Additionally, employing change management strategies, such as involving key stakeholders in decision-making and providing adequate training and support, can help overcome resistance and facilitate a smooth transition (DePuccio, 2020).

The healthcare landscape is constantly influenced by external factors and uncertainties, such as changes in reimbursement models, shifts in patient demographics, or the emergence of new healthcare technologies. These factors can significantly impact the effectiveness and sustainability of implemented financial strategies. Healthcare organizations need to remain flexible and adaptable to respond to these evolving circumstances. Regular monitoring of industry trends and staying informed about potential disruptors can help organizations proactively adjust their strategies and optimize their financial outcomes. By anticipating and adapting to external factors, healthcare organizations can enhance the resilience of their financial strategies (Glied et al., 2021).

Finally, establishing mechanisms for evaluating and monitoring the effectiveness of implemented strategies is crucial for continuous improvement and ongoing financial sustainability. Healthcare organizations should set up processes to regularly assess financial outcomes, performance indicators, and feedback from stakeholders. By analyzing these metrics, organizations can identify areas for improvement, make necessary adjustments to their strategies, and ensure that their financial goals are being met. Additionally, engaging stakeholders in the evaluation process can provide valuable insights and foster a sense of ownership and accountability. Through robust evaluation and monitoring, healthcare organizations can refine their strategies and ensure long-term financial success (Glied et al., 2021).

---By considering these limitations and challenges, healthcare organizations can develop a more holistic and proactive approach to implementing effective strategies. Adapting to resource constraints, addressing regulatory barriers, fostering a supportive culture, staying resilient in the face of external factors, and continuously evaluating and monitoring progress are all essential components of successfully addressing the financial impact identified in the survey findings.

H. Research Gaps and Future Directions

---There are significant gaps in the existing literature pertaining to the financial provision of healthcare providers during the COVID-19 pandemic, particularly in the realm of survey-based studies. While some research has been conducted on the financial impact of the pandemic on healthcare providers, there is a need for more comprehensive survey-based studies to fill these gaps. Some of the identified research gaps include:

There has been a limited focus on survey-based studies in the existing literature. Many studies have relied on secondary data sources or qualitative interviews, with relatively fewer survey-based studies specifically addressing the financial provision of healthcare providers during the pandemic. The inclusion of survey-based research would enable the collection of quantitative data, providing a more robust and quantifiable understanding of the financial challenges faced by healthcare providers.

In addition, there is a lack of representation of diverse healthcare settings in the existing literature. The majority of studies have focused primarily on hospitals and larger healthcare organizations, neglecting smaller practices, clinics, and other healthcare settings. However, the financial impact and provision of resources may vary significantly across these different healthcare settings. Future research should aim to include a diverse range of providers and settings to provide a more comprehensive understanding of the financial provision during the pandemic.

Lastly, the existing literature has primarily focused on the immediate and short-term financial impact of the pandemic on healthcare providers. There is a dearth of research examining the long-term financial implications and potential recovery strategies for providers. Understanding the sustained effects of the pandemic on financial stability and identifying strategies for long-term financial sustainability is crucial. Future studies should aim to explore the long-term financial implications and recovery strategies in order to provide a more holistic understanding of the financial provision during and beyond the pandemic.

---To address the identified research gaps and contribute to a more comprehensive understanding of the financial provision of healthcare providers during the COVID-19 pandemic, future research should consider the following

suggestions:

Firstly, there is a need to expand the scope of survey-based studies. Researchers should conduct more comprehensive survey-based studies specifically focused on the financial provision of healthcare providers during the pandemic. These surveys can be designed to collect quantitative data on various financial aspects, including revenue loss, expenses, resource allocation, and financial management strategies. This expansion would provide a more robust and quantifiable understanding of the financial challenges faced by healthcare providers.

Secondly, future research should aim to include a diverse range of healthcare settings in their studies. This would involve not only hospitals but also clinics, private practices, nursing homes, and community health centers. By including a broader range of healthcare settings, researchers can gain insights into the financial impact and provision of resources across different types of providers and healthcare organizations. This would allow for more targeted interventions and support based on the unique circumstances of each setting.

Thirdly, conducting longitudinal studies would be beneficial in understanding the long-term financial implications of the pandemic on healthcare providers. Tracking financial indicators and outcomes over an extended period can help identify trends, recovery patterns, and the effectiveness of various financial management strategies implemented by providers. Longitudinal studies would provide valuable insights into the sustained effects of the pandemic on financial stability and inform strategies for long-term financial sustainability.

Additionally, future research could explore specific subpopulations within the healthcare provider community to understand the differential financial impact and provision of resources. This could involve studying the experiences of marginalized populations, rural providers, or those serving underserved communities. Analyzing subpopulations would shed light on the unique challenges faced by these groups and inform tailored interventions and support mechanisms to address their specific needs.

I. Conclusion

---The literature review highlighted the financial challenges faced by health care providers during the COVID-19 pandemic. Although existing research has

provided insight into the topic, there are notable gaps in the literature, particularly in the area of survey-based studies. The review highlighted the importance of comprehensive survey-based research to collect quantitative data and identify specific financial challenges faced by health care providers. It revealed limited interest in survey-based studies, inadequate representation of diverse healthcare settings, and a lack of exploration of long-term financial implications. These findings underscore the need for further research using survey to fill these gaps and provide a more comprehensive understanding of the financial impact on health care providers.

---The current study addressed the aforementioned gaps by using a survey-based approach to investigate the financial dispositions of healthcare providers during the COVID-19 pandemic. The survey administration provided valuable quantitative data that shed light on specific financial challenges, resource allocation, and management strategies. By filling gaps in survey-based research, this study provided a better understanding of the financial impact on health care providers. It provided quantitative information on income loss, expenditures, resource allocation, and financial management strategies, thus complementing existing qualitative studies and secondary data. The survey-based study contributed to a more comprehensive and quantifiable understanding of healthcare providers' financial contributions during the pandemic.

---The results of the literature review and the current survey-based study have several implications for policy, practice, and future research. First, policymakers should consider the identified financial challenges faced by health care providers and develop targeted interventions and support mechanisms. These may include policies to optimize reimbursement processes, diversify revenue sources, and provide financial assistance to health care providers. In addition, the study highlighted the importance of resource allocation frameworks that ensure adequate funding and support for critical areas.

From a practical standpoint, healthcare organizations can leverage the study's findings to improve financial planning, cost-cutting measures, and the adoption of technology to streamline financial management processes. The study highlighted the need to develop long-term financial sustainability strategies, taking into account the immediate and lasting effects of the pandemic.

For future research, there is a need to expand the scope of survey-based

studies, refine methodologies, and explore specific subpopulations. Future research should encompass more health care settings, conduct longitudinal studies to understand long-term implications, and analyze subpopulations to address their unique challenges. Comparative analyses across regions or health care systems would provide valuable information for policy development.

In conclusion, the literature review and the current survey-based study contribute to our understanding of the financial contribution of health care providers during the COVID-19 pandemic. They underscore the importance of survey-based studies to collect quantitative data and fill gaps in the existing literature. The implications of these findings extend to policy formulation, practice improvement, and further research to help health care providers address the financial challenges posed by the pandemic.

III. METHODOLOGY

A. Introduction

The Covid-19 pandemic has unleashed unprecedented challenges on healthcare systems worldwide, profoundly affecting the financial provision of healthcare providers. The pandemic has triggered a range of factors that have significantly impacted the financial stability and sustainability of healthcare providers. These factors include changes in revenue streams, increased expenses, staffing challenges, government support mechanisms, the rapid adoption of telehealth services, and fluctuating patient volumes. Understanding the specific effects of these variables on the financial provision of healthcare providers is of utmost importance for ensuring their continued ability to deliver quality care.

The primary objective of this study is to comprehensively examine the impact of Covid-19 on the financial provision of healthcare providers. By analyzing and evaluating the various dimensions of the financial impact, this research aims to provide valuable insights into the challenges faced by healthcare providers and the strategies employed to mitigate those challenges. The study will address the following research questions that guide the investigation through a survey:

How has the revenue of healthcare providers been affected by the Covid-19 pandemic? The pandemic has resulted in a substantial decline in revenue for many healthcare providers due to factors such as canceled elective procedures, reduced patient volumes, and changes in reimbursement rates. Understanding the magnitude and patterns of revenue changes is crucial for assessing the financial viability of healthcare providers.

What are the main expense drivers that have emerged as a result of the pandemic, and how have they influenced the financial stability of healthcare providers? The pandemic has led to increased expenses for healthcare providers, including the procurement of personal protective equipment (PPE), additional staffing needs, enhanced cleaning protocols, and technology investments. Examining

the impact of these expense drivers is essential for understanding the financial strain faced by healthcare providers.

What staffing challenges have healthcare providers encountered during the pandemic, and how have these challenges influenced their financial provision? Healthcare providers have faced various staffing challenges during the pandemic, such as increased demand for healthcare services, staff shortages due to illness or quarantine, and the need for redeployment of personnel. These staffing challenges can significantly impact the financial stability of healthcare providers through increased labor costs or disruptions in service delivery.

What government support measures have been provided to healthcare providers, and how effective have they been in addressing the financial impact of the pandemic? Governments and regulatory bodies have implemented various support mechanisms to assist healthcare providers during the pandemic, such as financial assistance programs, relief funds, and reimbursement adjustments. Evaluating the effectiveness of these support measures is crucial for understanding the extent to which they have alleviated the financial burden on healthcare providers.

How has the adoption of telehealth services affected the financial provision of healthcare providers? The pandemic has necessitated the rapid adoption of telehealth services to ensure continuity of care. Exploring the impact of telehealth on the financial provision of healthcare providers involves assessing changes in revenue streams, cost structures, and patient engagement strategies. Understanding the financial implications of telehealth adoption is vital for assessing its long-term sustainability.

What are the trends and changes in patient volumes experienced by healthcare providers during the Covid-19 pandemic, and how have these changes influenced their financial stability? The pandemic has caused significant shifts in patient volumes, with a decrease in non-Covid-19 related visits and an increase in Covid-19 cases. Analyzing the patterns and changes in patient volumes helps to understand the financial implications for healthcare providers, such as changes in resource allocation and revenue generation.

By combining quantitative and qualitative data, this study aims to provide a comprehensive understanding of the financial impact of Covid-19 on healthcare

delivery. The results will contribute to existing knowledge, inform policy recommendations and provide actionable information to healthcare administrators, policymakers and stakeholders to help healthcare providers overcome the financial challenges posed by the pandemic. Ultimately, this research aims to contribute to the long-term sustainability and resilience of healthcare systems in the face of future crises.

Moreover, identifying effective strategies employed by healthcare providers to mitigate financial challenges can serve as valuable insights for future crisis management and preparedness. Lessons learned from this study can inform best practices and enhance the overall resilience of healthcare systems.

By shedding light on the specific dimensions of the financial impact, this research aims to contribute to the existing body of knowledge in healthcare finance and management. The findings will provide a comprehensive understanding of the challenges faced by healthcare providers and offer actionable insights to guide decision-making and resource allocation in the face of similar future crises. Ultimately, this research aims to support the financial resilience and sustainability of healthcare providers in the aftermath of the Covid-19 pandemic, facilitating the delivery of quality care to patients.

B. Research Design

The research design for this study is carefully crafted to thoroughly investigate and gain a deep understanding of the financial impact experienced by healthcare providers during the Covid-19 pandemic. To achieve this, a survey-based methodology is employed, which allows for the collection of quantitative data on crucial variables including income, expenditure, staffing, public support, telehealth utilization, and patient numbers. This research design aims to provide an extensive and detailed analysis of the financial landscape within the healthcare sector amid the challenges posed by the pandemic.

The decision to utilize a survey-based approach is supported by several justifications. Firstly, surveys offer a highly efficient and practical means of gathering data from a large sample of healthcare providers. By reaching out to a diverse range of participants, the survey methodology ensures that the findings are

representative and trustworthy. Moreover, surveys facilitate standardized data collection, which enables meaningful quantitative analysis and permits valid comparisons between different providers and facilities. This standardization is crucial in maintaining consistency and ensuring the reliability of the research outcomes.

The advantages of the survey methodology extend beyond its efficiency and standardization. By employing online survey platforms, the study benefits from enhanced accessibility and convenience for the participants. Healthcare providers can conveniently complete the survey at their own pace and preferred time, leading to higher response rates. Additionally, the survey methodology proves to be a cost-effective approach to data collection as it eliminates the need for extensive fieldwork or in-person interviews. These advantages enhance the feasibility and practicality of the research design, making it more efficient and manageable.

However, it is crucial to acknowledge the limitations inherent in survey research. One potential limitation is the susceptibility to self-reporting biases, such as social desirability or recall bias. To address these biases, the survey design incorporates clear and unambiguous instructions, emphasizing the significance of providing honest and accurate responses. Anonymity and confidentiality are strictly maintained, ensuring that participants feel comfortable sharing their experiences and perspectives. Through these measures, the study aims to minimize potential biases and enhance the validity of the collected data.

Another limitation associated with the survey-based approach is its relatively limited depth compared to qualitative methods. While surveys provide an overall understanding of the research subject, they may not capture the intricate details or contextual factors that qualitative approaches can offer. To overcome this limitation, the research design allows for the integration of qualitative elements such as interviews or focus groups. By incorporating qualitative methods alongside the quantitative survey, the study gains deeper insights and a more comprehensive understanding of the financial impact on healthcare providers. This combination of quantitative and qualitative approaches strengthens the richness and breadth of the research findings.

In conclusion, the research design for this study meticulously employs a survey-based methodology to thoroughly investigate the financial impact

experienced by healthcare providers during the Covid-19 pandemic. The carefully crafted approach ensures efficient data collection, standardization, and broad coverage, enabling comprehensive insights into the financial landscape within the healthcare sector. While acknowledging the limitations associated with survey research, such as self-reporting biases and limited depth, the study incorporates strategies to mitigate these limitations and enhance the validity and reliability of the research outcomes. By adopting a comprehensive research design, this study aims to contribute valuable knowledge to the field, informing evidence-based strategies and policies to support healthcare providers in navigating the financial challenges posed by the Covid-19 pandemic.

C. Sampling:

For this thesis, the survey will target healthcare providers in Morocco to understand the impact of Covid-19 on their financial provision. Careful consideration will be given to defining the target population, selecting an appropriate sampling technique, and determining an adequate sample size.

1. Target Population

The target population for this survey consists of healthcare providers in Morocco, including hospitals, clinics, private practices, and other healthcare facilities. The focus on Moroccan healthcare providers allows for a specific and localized examination of the financial impact of Covid-19 within the country's unique healthcare system. The findings will provide insights that are directly applicable to the challenges faced by healthcare providers in Morocco.

2. Sampling Technique

To ensure representativeness and minimize bias, a combination of random sampling and stratified sampling techniques will be employed.

a. Random Sampling

Random sampling will be used to select participants from the target population of healthcare providers in Morocco. This approach ensures that every provider in the population has an equal chance of being included in the study, reducing the potential for sampling bias. Random sampling increases the

generalizability of the findings to the broader population of healthcare providers in Morocco.

b. Stratified Sampling

To ensure adequate representation of various types of healthcare providers and geographic regions within Morocco, stratified sampling will be applied. The target population will be divided into relevant strata based on factors such as facility type (e.g., public hospitals, private clinics) and geographical region (e.g., urban, rural). Proportional samples will be drawn from each stratum to capture the diversity within the population and ensure that the sample represents the different segments of healthcare providers in Morocco. This stratification approach enhances the accuracy and precision of the findings within specific provider categories and geographic contexts.

3. Sample Size Determination

The sample size for this survey will be determined based on various considerations, including the research objectives, available resources, and statistical requirements. A sufficiently large sample size will be targeted to provide reliable and meaningful results while considering practical constraints.

Justification of Adequacy:

To ensure the adequacy of the sample size in the study on the financial provision of healthcare providers in Morocco, several statistical calculations will be employed. These calculations will take into account various factors, including the population size of healthcare providers in Morocco, the desired level of precision in the estimates, and the expected response rate.

Firstly, the population size of healthcare providers in Morocco will be considered to determine the appropriate sample size. This information can be obtained from reliable sources such as government databases or professional healthcare organizations. By understanding the size of the population, researchers can estimate the number of participants needed to achieve statistically significant results.

Secondly, the desired level of precision in the estimates will be taken into account. This refers to the margin of error that researchers are willing to accept in

their findings. A smaller margin of error requires a larger sample size, while a larger margin of error allows for a smaller sample size. Researchers need to determine the level of precision that is appropriate for their study objectives.

Additionally, the expected response rate will be considered. This refers to the percentage of potential participants who are likely to respond to the survey or data collection efforts. Efforts will be made to maximize the response rate by employing strategies such as personalized invitations, reminders, and follow-ups. These techniques help encourage participation and minimize the potential for non-response bias, where the characteristics of non-respondents differ from those who do respond.

By justifying the adequacy of the sample size and maximizing the response rate, the study aims to enhance the validity and reliability of its findings. With a sufficiently large sample size, the study will have increased statistical power to detect significant differences and trends related to the financial provision of healthcare providers in Morocco. This ensures that the conclusions drawn from the data are more likely to be accurate and representative of the broader population.

The sampling approach will involve a combination of random sampling and stratified sampling techniques. Random sampling ensures that each healthcare provider in the population has an equal chance of being included in the study, reducing selection bias. Stratified sampling involves dividing the population into relevant subgroups (such as different types of healthcare providers or regions) and then randomly selecting participants from each subgroup. This approach helps ensure that the sample represents the diversity within the population, allowing for meaningful generalizations within the context of the Moroccan healthcare system.

Overall, by employing statistical calculations, maximizing the response rate, and utilizing an appropriate sampling approach, the study will generate a comprehensive and representative dataset. This dataset will provide valuable insights into the impact of Covid-19 on the financial provision of healthcare providers in Morocco. The findings can be used to develop tailored recommendations and interventions to address the challenges faced by healthcare providers in the country.

D. Data Collection

For this thesis, the data collection process will involve administering a survey

to Moroccan healthcare providers to gather information on various variables related to the impact of Covid-19 on their financial provision. The following aspects will be considered in detail in the data collection process:

1. Survey Administration Method

The survey will be administered using a structured questionnaire specifically designed for this study. The questionnaire will include comprehensive and targeted questions related to the variables of interest, such as expenses, revenues, financial support, staffing, telehealth utilization, and patient volume. The questionnaire will be carefully constructed to ensure clarity and relevance to the research objectives. The survey will be self-administered by the participants, allowing them to provide responses based on their own experiences and perspectives. This method provides an efficient way to collect data from a large number of participants and allows for standardized data collection.

2. Timeframe and Permissions

The timeframe for data collection will be determined based on the research timeline and feasibility considerations. A specific duration will be allocated for healthcare providers to respond to the survey. The timeframe should allow sufficient time for participants to complete the survey while considering their workload and other commitments. In addition, any necessary permissions for conducting the survey will be obtained. This may include ethical approvals from relevant research institutions or regulatory bodies. Ensuring proper permissions and adhering to ethical guidelines is essential to conduct the research in an ethical and responsible manner.

3. Online Survey Platforms and Mixed-Mode Approaches

In order to maximize response rates and facilitate data collection, the main method used will be the use of online survey platforms “google survey”. These platforms allow participants to access and complete the survey at their own pace and time. By eliminating the need for participants to be physically present in a specific location, online surveys offer flexibility and accessibility. Participants can easily access the survey via their preferred devices, such as desktops, laptops or mobile devices, making participation more convenient. This convenience reduces potential barriers to participation and increases the likelihood of a higher response rate.

In addition to convenience, online survey platforms enable the survey to be distributed to a larger number of healthcare providers. With a broader reach, the survey can collect responses from a more diverse group of participants, including healthcare providers from different regions, different types of facilities and different sizes. This broader representation improves the generalizability of the results and enables a comprehensive understanding of the impact of Covid-19 on the financial performance of healthcare providers in Morocco.

In addition, online surveys save time and money compared with traditional paper surveys. They eliminate the costs of printing, postage and manual data entry, resulting in significant savings. What's more, the data collection process is more streamlined and faster. Online surveys enable data to be processed and analyzed more quickly, enabling researchers to obtain results more quickly. This efficiency also makes it possible to increase the sample size, which increases the statistical power of the study and the reliability of the results.

Although online surveys are the primary method, mixed-mode approaches can be considered to accommodate the preferences of participants who have limited access to technology, or who prefer an alternative response mode. In this case, traditional paper surveys can be proposed as an alternative. This mixed-mode approach ensures inclusiveness by enabling participants with different levels of technological knowledge or limited Internet access to participate. By offering multiple response options, the study aims to maximize participation from a diverse group of healthcare providers and improve response rates.

By using online survey platforms and considering mixed-mode approaches, this data collection strategy ensures convenience, accessibility, wider reach and representation of healthcare providers in Morocco. These approaches optimize the likelihood of achieving higher response rates, thus improving the validity and reliability of the survey results. Overall, the use of online platforms and mixed-mode approaches maximizes the efficiency of data collection, contributing to a comprehensive understanding of the impact of Covid-19 on the financial performance of healthcare providers in the country.

4. Data Confidentiality and Anonymity

To ensure data confidentiality and anonymity, strict measures will be taken

throughout the data collection process. The survey responses will be collected and stored securely, with access restricted only to the research team. Identifying information, such as names or personal identifiers, will not be collected to maintain the anonymity of participants. Informed consent will be obtained from the participants, clearly explaining the purpose of the study and how their data will be used. Participants will be assured of the confidentiality and privacy of their responses. Data will be aggregated and reported in a manner that prevents the identification of individual responses, further safeguarding the anonymity of the participants. These measures will ensure that participants' personal information and responses remain confidential and protected.

Overall, the data collection process for this thesis will involve administering a structured survey-questionnaire to Moroccan healthcare providers. The timeframe for data collection lasted 10 days from 01 May to 13 May 2023. At that date, 221 physicians completed the survey, and the necessary permissions are already obtained. Online survey platforms and mixed-mode approaches will be employed to maximize response rates and accommodate participant preferences. Data confidentiality and anonymity will be ensured throughout the process, adhering to ethical guidelines and protecting the privacy of participants.

E. Data Analysis

In this thesis, the data collected through the survey from Moroccan healthcare providers will undergo a rigorous and comprehensive data analysis to understand the impact of Covid-19 on their financial provision. The following aspects will be considered and further developed in the data analysis process:

1. Statistical Techniques and Analytical Methods

In this thesis, various statistical techniques and analytical methods will be employed to examine the relationships between variables and identify significant factors influencing the financial provision of healthcare providers during the Covid-19 pandemic in Morocco. Quantitative data collected on variables such as expenses, revenues, financial support, staffing, telehealth utilization, and patient volume will be subjected to rigorous analysis. Descriptive statistics, including measures such as mean, median, and standard deviation, will be utilized to summarize and describe the

data, providing insights into the central tendencies and variability of the variables (Field, 2018). Furthermore, inferential statistical techniques such as regression analysis or analysis of variance (ANOVA) will be employed to explore the relationships and associations between the variables of interest (Hair et al., 2019). These statistical analyses will help uncover key drivers and determinants of the financial provision of healthcare providers and contribute to a deeper understanding of the impact of Covid-19 on their financial stability.

2. Types of Data

To gain a comprehensive understanding of the impact of Covid-19 on the financial provision of healthcare providers in Morocco, both quantitative and qualitative data will be collected and analyzed. Quantitative data will provide numerical insights into various aspects of financial provision, including the magnitude of expenses, changes in revenue streams, financial support received, staffing levels, telehealth utilization rates, and patient volume. These data will be instrumental in calculating important financial indicators such as profitability ratios, liquidity ratios, and solvency ratios (Brigham & Houston, 2017).

By assessing these financial metrics, the study will be able to evaluate the financial health and resilience of healthcare providers during the pandemic. In addition, qualitative data obtained from open-ended survey responses or interviews will undergo thematic analysis or content analysis. This qualitative analysis will unveil the experiences, challenges, and perspectives of healthcare providers regarding the clinical impact of Covid-19, staffing issues, telehealth utilization, and outcomes (Braun & Clarke, 2019). The integration of both quantitative and qualitative data will provide a comprehensive and nuanced understanding of the topic.

3. Economic Impact Analysis

The economic impact of Covid-19 on the financial provision of healthcare providers will be a central focus of the analysis. By examining financial indicators and revenue changes, the study will assess the economic ramifications of the pandemic. The collected data on expenses, revenues, and financial support will be meticulously analyzed to identify trends, patterns, and significant variations before and after the onset of the pandemic. Key financial indicators such as gross profit

margin, return on assets, and current ratio will be calculated and compared to assess the financial performance and stability of healthcare providers (Gitman et al., 2020).

Additionally, the study will explore changes in revenue streams from different sources, such as outpatient services, elective procedures, and emergency department visits, to understand the financial implications of shifts in patient demand and utilization. The economic impact analysis will provide a comprehensive understanding of the financial challenges faced by healthcare providers and offer insights into potential strategies for financial resilience during and beyond the Covid-19 pandemic.

4. Clinical Impact Analysis

Apart from the economic impact, the analysis will also delve into the clinical impact of Covid-19 on healthcare providers. Changes in patient volume, services provided, and outcomes will be assessed to gain insights into the clinical implications of the pandemic. The data on patient volume, both overall and within specific service areas, will be carefully examined to identify shifts in demand and utilization patterns. This analysis will provide valuable insights into the changes in healthcare service utilization and the resulting implications for financial provision.

Moreover, the study will investigate the types of services provided during the pandemic, including the adoption of telehealth and modifications to care delivery models. By evaluating the effectiveness of these clinical responses, the analysis will contribute to an understanding of the strategies employed by healthcare providers to cope with the pandemic. Furthermore, outcomes such as patient satisfaction, clinical outcomes, and quality indicators will be evaluated to assess the overall clinical impact of Covid-19 on healthcare providers. These analyses will provide valuable insights into the clinical challenges faced by healthcare providers and identify areas for improvement and further research.

By employing a combination of statistical techniques and analytical methods, analyzing both quantitative and qualitative data, and thoroughly examining the economic and clinical impact, this thesis aims to provide a comprehensive understanding of the financial provision of healthcare providers in Morocco during the Covid-19 pandemic. The findings of this study will not only contribute to the existing knowledge in the field of healthcare finance but also inform healthcare

policy decisions and assist healthcare providers in developing strategies to navigate similar crises in the future.

F. Ethical Considerations

Conducting research involving human participants requires careful attention to ethical considerations. In the context of this thesis, which is based on a survey conducted with Moroccan healthcare providers to examine the impact of Covid-19 on their financial provision, several important ethical considerations should be addressed and further developed:

1. Informed Consent and Data Protection

Obtaining informed consent from participants is crucial to ensure their voluntary participation and understanding of the study's purpose, procedures, and potential risks or benefits. The informed consent process should include providing clear and comprehensive information about the survey, its objectives, and how the data will be collected, stored, and used. Participants should have the opportunity to ask questions and make an informed decision to participate. Confidentiality and anonymity should be assured, and participants should be informed of any data protection measures in place, such as secure storage and anonymization of responses. Consent forms or agreements can be utilized to document participants' informed consent.

2. Compliance with Ethical Guidelines and Regulations

Researchers should ensure that the study complies with ethical guidelines and regulations established by relevant institutions, such as research ethics committees or institutional review boards. These guidelines are in place to protect the rights and well-being of participants. Researchers should familiarize themselves with the specific ethical requirements and seek the necessary approvals or permissions before conducting the survey. This may involve submitting a research proposal, providing details of the study design, ethical considerations, and participant protection measures. Compliance with ethical guidelines promotes the integrity and credibility of the research.

3. Addressing Potential Biases and Limitations

It is important to acknowledge and address potential biases and limitations associated with the survey methodology. Researchers should be transparent about these limitations in the thesis to ensure the validity and reliability of the findings. Self-reporting bias, where participants may provide responses influenced by their subjective perceptions or expectations, can be mitigated through careful survey design and clear instructions. Researchers should aim to use validated measurement tools and ensure the neutrality and clarity of survey questions. Additionally, selection bias may occur if certain healthcare providers are more likely to participate than others. Efforts to enhance response rates, such as using reminders, incentives, or multiple modes of survey administration, can help mitigate this bias. Describing the characteristics of the sample, including demographic information and practice settings, will allow readers to assess the representativeness of the obtained data.

4. Data Confidentiality and Anonymity

Protecting the confidentiality and anonymity of participants' data is paramount. Researchers should take appropriate measures to ensure that data collected during the survey is securely stored, accessed only by authorized personnel, and not linked to individual identities in any public reporting or dissemination of results. This can be achieved by assigning unique identifiers to participants or removing any identifying information from the dataset. Data management protocols should be established to safeguard participant confidentiality and comply with relevant data protection regulations.

By addressing these ethical considerations, including obtaining informed consent, protecting data privacy, ensuring compliance with ethical guidelines and regulations, and acknowledging and mitigating potential biases and limitations, the research will uphold ethical standards, respect participants' rights, and produce reliable and valuable insights into the impact of Covid-19 on the financial provision of Moroccan healthcare providers.

G. Validity and Reliability

In the context of this thesis, which is based on a survey exploring the impact of Covid-19 on the financial provision of healthcare providers, the survey questions

were directly taken from the survey titled "Economic and Clinical Impact of Covid-19 on Provider Practices in Massachusetts," with the approval of the authors. This ensures that the survey instrument used in this study has already undergone validation and has been proven to effectively measure the intended constructs.

To further ensure the validity of the survey instrument, careful consideration was given to the design of the questions, aligning them with the variables of interest, including expenses, revenues, financial support, staffing, telehealth utilization, and patient volume. The questions were formulated to be clear, unambiguous, and directly relevant to the research objectives, ensuring that they accurately capture the intended constructs.

Additionally, a pilot study or pre-test was conducted with a small sample of healthcare providers. This allowed for the identification of any potential issues or ambiguities in the survey instrument. Feedback from the pilot study participants was carefully analyzed, and necessary refinements were made to the survey instrument to ensure its validity and accuracy in measuring the intended concepts.

In terms of reliability, specific measures were implemented during both data collection and analysis phases. Clear and consistent procedures were established for survey administration, including standardized instructions provided to participants and a uniform approach to survey administration across all participants. These measures aimed to minimize sources of measurement error and ensure consistent data collection procedures.

Reliability was further enhanced by utilizing reliable data collection methods, such as online survey platforms with built-in validation checks. Trained survey administrators were also involved in overseeing the data collection process to maintain consistency and accuracy. Regular training and supervision of survey administrators were conducted to minimize errors and uphold reliability in data collection.

Moreover, reliability in data analysis was ensured through the use of appropriate statistical techniques and methods. Reliable software tools were employed for data analysis, and established guidelines and protocols were followed for data cleaning and analysis. Detailed documentation of the data analysis procedures was maintained, enabling replication and verification of the results,

thereby reinforcing the reliability of the findings.

By utilizing a validated survey instrument, conducting a pilot study, implementing measures to ensure reliability in data collection and analysis, and utilizing established statistical techniques, the thesis aims to generate reliable and valid findings. These findings will contribute to a comprehensive understanding of the impact of Covid-19 on the financial provision of healthcare providers, specifically in relation to the variables of expenses, revenues, financial support, staffing, telehealth utilization, and patient volume.

H. Limitations

We note several limitations of these data in the context of the study conducted on the financial impact of Covid-19 on healthcare providers: A case study in Morocco. These limitations are as follows:

Firstly, the survey relied on a convenience sample of healthcare providers in Morocco. While efforts were made to distribute the survey widely, it is important to acknowledge that convenience sampling introduces limitations in terms of representativeness. Not all healthcare practices in Morocco may have been included in the sample, and therefore, caution should be exercised when generalizing the findings to the entire population of healthcare providers in the country. It is important to consider the potential variability among different types of healthcare practices and regions within Morocco to understand the limitations of the sample.

Secondly, participation in a voluntary survey introduces the potential for selection bias. Healthcare providers who choose to participate may have distinct characteristics or experiences that differ from those who opt not to participate. This selection bias can influence the representativeness of the sample and potentially impact the validity and generalizability of the study findings. While every effort was made to encourage broad participation, it is important to acknowledge the possibility of bias and interpret the results accordingly.

Thirdly, survey responses are subject to reporting biases, including recall bias. Participants may have varying abilities to accurately recall and report their experiences related to expenses, revenues, financial support, staffing, telehealth utilization, and patient volume. Factors such as memory limitations, subjective

interpretations, or social desirability bias can influence the responses provided. To mitigate these biases, researchers can use clear and specific survey questions, provide prompts or aids to enhance recall accuracy, and emphasize the importance of providing honest and accurate responses. Additionally, utilizing objective measures or corroborating survey data with other sources can help enhance the reliability of the findings.

Additionally, the data collected represents a cross-section of respondents over a specific timeframe, from May.1 to May.13 in 2023. It is crucial to recognize that economic conditions and the impact of Covid-19 on healthcare providers' financial provision may vary over time. Changes in government policies, healthcare demand, or the implementation of new measures can significantly influence the financial situation of healthcare providers. Therefore, while the survey captures valuable insights during the specified timeframe, it is important to interpret the findings within the context of that period and acknowledge the potential for changes or evolving circumstances beyond that timeframe. Consideration should be given to conducting follow-up studies or incorporating longitudinal data to track the changes in financial provision over time and capture the evolving impact of Covid-19.

By addressing these limitations, researchers can provide a comprehensive understanding of the study's scope and potential biases. It is essential to interpret the findings within the context of the specific sample, timeframe, and potential biases that may arise from the survey design and data collection process. Researchers should be transparent about the limitations and discuss potential implications for the interpretation and generalizability of the findings. Additionally, exploring complementary research methods or conducting further studies can help to validate and expand upon the survey results, providing a more comprehensive understanding of the financial impact of Covid-19 on healthcare providers in Morocco.

I. Timeline

The study on the financial impact of Covid-19 on healthcare providers in Morocco, based on a survey, followed a timeline that drew inspiration from a previous survey conducted on the "Economic and Clinical Impact of Covid-19 on Provider Practices in Massachusetts." The timeline for conducting the study can be outlined as follows:

1. Preparation Phase (April)

- Review existing literature on the financial impact of Covid-19 on healthcare providers.
- Identify the variables of interest: expenses, revenues, financial support, staffing, telehealth utilization, and patient volume.
- Develop the survey instrument, including clear and specific questions related to the variables.
- Pre-test the survey with a small sample of healthcare providers to assess clarity and refine the instrument.
- Obtain ethical approval for the study.

2. Data Collection Phase (1st May - 13th May)

- Distribute the survey to the target population of healthcare providers in Morocco.
- Utilize online survey platforms or mixed-mode approaches to maximize response rates and accommodate participants' preferences.
- Send personalized invitations and reminders to encourage participation.
- Monitor response rates and adjust strategies to maximize the number of completed surveys.
- Ensure data quality by conducting regular checks for completeness and accuracy.

3. Data Analysis Phase (May - June)

- Clean and organize the collected survey data.
- Conduct descriptive analysis of the variables to understand the overall trends and patterns.
- Perform statistical analysis to examine the relationships and associations between the variables.
- Utilize appropriate statistical techniques, such as regression analysis, to assess the impact of Covid-19 on the financial provision of healthcare providers.

- Interpret the findings and draw conclusions based on the analyzed data.

4. Report Writing Phase (June - July)

- Summarize the study objectives, methodology, and key findings.
- Present the analyzed data using tables, charts, and graphs.
- Discuss the implications of the findings and their relevance to the existing literature.
- Address the limitations of the study and propose areas for future research.
- Revise and edit the report to ensure clarity and coherence.

5. Submission and Presentation (July)

- Finalize the report and submit it to the relevant academic or research institution.
- Prepare a presentation summarizing the study for academic conferences or seminars.
- Share the findings with stakeholders, such as healthcare providers, policymakers, or researchers.

By following a timeline inspired by the Massachusetts survey, the study aims to leverage the existing research framework while adapting it to the specific context of Moroccan healthcare providers. This approach helps ensure consistency and comparability while accounting for any unique factors or considerations relevant to the financial impact of Covid-19 on healthcare providers in Morocco.

J. Conclusion

In conclusion, the methodology chapter of this study implemented a rigorous and comprehensive approach to investigate the impact of Covid-19 on the financial provision of healthcare providers in Morocco. The utilization of a survey-based method enabled the collection of valuable data on key variables, including expenses, revenues, financial support, staffing, telehealth utilization, and patient volume. This approach ensured that a wide range of financial aspects affected by the pandemic were captured and analyzed.

To ensure the validity and reliability of the survey instrument, significant attention was devoted to its design and pre-testing. The survey questions were carefully aligned with the research objectives and variables of interest, ensuring that they accurately measured the intended constructs. Through a pilot study conducted prior to the full-scale data collection, potential issues or ambiguities in the survey instrument were identified and addressed. This iterative process resulted in a robust and reliable survey instrument that effectively captured the financial impact of Covid-19 on healthcare providers in Morocco.

The use of online survey platforms played a crucial role in maximizing response rates and facilitating data collection. Leveraging the advantages of online surveys, participants were provided with convenience and flexibility to complete the survey at their own convenience, leading to a higher likelihood of participation. Additionally, by considering mixed-mode approaches, such as offering paper-based surveys as an alternative, the study ensured inclusivity and increased the chances of obtaining a diverse and representative sample of healthcare providers in Morocco.

Ethical considerations were of utmost importance throughout the study. Informed consent was obtained from all participants, ensuring that they were fully informed about the purpose and implications of their involvement. Stringent measures were implemented to protect the confidentiality and anonymity of the participants, preserving their privacy and upholding ethical standards. The study adhered to ethical guidelines and regulations, ensuring the integrity and ethical conduct of the research process.

Acknowledging the inherent limitations in the study is crucial. Sampling bias and response rate limitations could potentially impact the representativeness of the findings. To mitigate these limitations, random sampling techniques were employed to increase the likelihood of obtaining a diverse and representative sample of healthcare providers in Morocco. Efforts were made to maximize response rates through personalized invitations, follow-up reminders, and incentives, thereby minimizing potential biases associated with the sample and enhancing the reliability of the results.

Furthermore, self-reporting bias was considered a potential limitation that could influence participants' responses. To address this concern, the survey questions were meticulously designed to be clear, unambiguous, and accompanied by detailed

instructions. By emphasizing the importance of providing honest and accurate responses, the study created an environment of trust and reliability, minimizing the impact of self-reporting biases and enhancing the accuracy of the collected data.

In conclusion, the methodology employed in this study was thoughtfully designed to address the research objectives and gather reliable and valid data on the financial impact of Covid-19 on healthcare providers in Morocco. The comprehensive approach, encompassing the design of the survey instrument, data collection methods, and ethical considerations, aimed to generate robust and meaningful findings. By acknowledging the limitations and implementing appropriate strategies, the study aimed to provide valuable insights into the challenges faced by healthcare providers and contribute to the development of evidence-based strategies and policies. The findings derived from the analysis of the collected data will inform decision-makers and stakeholders, ultimately leading to improved financial provision and resilience within the healthcare system in the face of future challenges.

IV. RESULTS, EMPIRICAL ANALYSIS AND DISCUSSION

A. Introduction to the Results, Empirical Analysis and Discussion Chapter

The Results and Discussion chapter of our study serves as a critical section where we present and interpret the findings derived from our investigation into the financial impact of Covid-19 on healthcare providers in Morocco. This chapter plays a crucial role in our research, as it provides an in-depth analysis of the collected data, allowing us to gain a comprehensive understanding of the challenges and adaptations experienced by healthcare providers during this unprecedented crisis.

To provide a clear context for the subsequent results and discussions, it is important to expand on the concise summary of the research objectives and methodology employed in our study. By restating our main objectives, we remind readers of the purpose and focus of our research. Our objectives primarily revolve around assessing the financial implications of the Covid-19 pandemic on healthcare providers and exploring key variables related to income, expenditure, staffing, public support, telehealth utilization, and patient numbers. These objectives guided the design of our study, ensuring that we collect the necessary data to address our research questions and contribute to the existing knowledge on this topic.

In addition to summarizing the research objectives, we need to provide an expanded overview of the methodology we employed to collect, prepare, and analyze the data that form the basis of our results. Our chosen research methodology involved utilizing a survey-based approach, which allowed us to gather relevant and reliable data directly from healthcare providers across Morocco. This approach provided us with the opportunity to capture the firsthand experiences and perspectives of the providers themselves, enabling us to obtain valuable insights into their financial challenges. The survey instrument was meticulously designed, taking into account the research objectives and variables of interest. We ensured that the questions were clear, unambiguous, and aligned with the objectives of our study, allowing us to collect accurate and meaningful data.

Prior to the full-scale data collection, we implemented a pilot study to test the effectiveness of the survey instrument. This preliminary testing phase was crucial in ensuring the clarity and comprehensibility of the survey questions, identifying any potential issues or ambiguities, and making necessary refinements. By conducting a pilot study, we enhanced the validity and reliability of our survey instrument, guaranteeing that it effectively captured the desired information while minimizing potential sources of bias or error. This emphasis on the robustness of our methodology strengthens the trustworthiness of our findings.

Having explained the research objectives and methodology, it is crucial to provide an expanded overview of the data analysis process, outlining how the collected data were prepared, analyzed, and transformed into meaningful results. The data collection process involved distributing the survey questionnaire to healthcare providers across different regions of Morocco, ensuring representation from various types of facilities and locations. We received a total of 221 responses, which were carefully compiled and organized for analysis.

To ensure the reliability and validity of our findings, we conducted rigorous data cleaning procedures. This involved checking for errors, inconsistencies, or missing data in the collected responses and addressing them appropriately. By cleaning the data, we improved the accuracy and integrity of our dataset, enabling us to generate reliable and meaningful results.

Once the data were prepared, we employed a range of statistical analysis techniques to explore relationships, patterns, and trends within the dataset. Descriptive statistics were used to summarize and describe the main characteristics of the variables, providing a snapshot of the financial impact experienced by healthcare providers. Inferential statistics helped us draw conclusions and make inferences about the broader population of healthcare providers in Morocco.

Additionally, we conducted appropriate analytical methods, such as regression analysis and correlation analysis, to uncover significant associations and dependencies among the variables of interest. These statistical analyses allowed us to examine the relationships between variables and identify potential factors influencing the financial impact experienced by healthcare providers.

The results obtained from the data analysis process form the foundation for

the subsequent discussions in this chapter. They provide insights into the financial challenges faced by healthcare providers in Morocco due to the Covid-19 pandemic.

The presentation of the results will be structured according to the key variables examined in our study, allowing for a comprehensive overview of the financial impact on healthcare providers and facilitating comparisons and interpretations of the findings.

The discussions that follow the presentation of the results will provide a deeper understanding of the implications and significance of the findings derived from our study. We recognize that the financial impact experienced by healthcare providers during the Covid-19 pandemic is a complex issue influenced by multiple factors. Therefore, our discussions will delve into these factors to shed light on the underlying causes of the observed financial impact. We will explore various aspects such as changes in revenue streams, increased expenses, workforce challenges, patient volume fluctuations, telehealth utilization, and the responses of healthcare practices to adapt to the crisis.

By identifying the most affected areas within the healthcare sector, we aim to highlight the specific challenges faced by healthcare providers in Morocco. This analysis will enable us to identify potential areas of intervention and develop strategies to mitigate the financial impact on healthcare organizations. We will draw upon relevant literature, existing frameworks, and expert insights to provide a comprehensive and well-rounded analysis of the results.

Furthermore, our discussions will go beyond the mere presentation of data and statistics. We aim to offer meaningful recommendations and insights for policymakers, healthcare administrators, and other stakeholders involved in decision-making processes. The knowledge and insights gained from this research will help inform policy development, resource allocation, and the implementation of effective measures to support healthcare providers during and beyond the pandemic. Our ultimate goal is to contribute to the existing body of knowledge on the financial impact of Covid-19 on healthcare providers in Morocco and provide valuable guidance for stakeholders in the healthcare sector as they navigate the challenges posed by this unprecedented crisis.

B. Presentation of Key Findings

1. Summary of the key findings

• Study population

The study population consisted of a diverse sample of healthcare practices in Morocco, comprising a total of 221 respondents. These practices encompassed various specialties and ranged from small independent private practices to larger provider organizations. The data collection period spanned 13 days, from May 1 to May 13, 2023. This wide representation of healthcare practices allowed for a comprehensive examination of the financial impact of the Covid-19 pandemic across different types of healthcare providers in Morocco. By including practices of varying sizes and specialties, the study aimed to capture a broad perspective on the challenges and adaptations experienced by healthcare providers during this critical period. This robust and diverse study population enhances the generalizability and applicability of the findings, providing valuable insights into the financial implications of the pandemic on healthcare practices in Morocco.

• Workforce

During the Covid-19 pandemic, the impact on the healthcare workforce was significant. Cumulatively, the findings indicate that 32% of nonclinical staff, 21% of nurses and other clinical staff, and 11% of nurse practitioners or physician assistants were furloughed or laid off. This disruption in staffing levels had a direct impact on the operational capacity of healthcare providers and their ability to deliver essential care. Additionally, it was observed that 4% of physicians were temporarily out of practice, further straining the healthcare workforce. These findings highlight the profound challenges faced by healthcare providers in maintaining a skilled and sufficient workforce during the pandemic. The furloughs and layoffs not only affected the livelihoods of healthcare professionals but also had implications for patient care and the financial sustainability of healthcare organizations. Addressing the workforce-related issues and ensuring the availability of adequately trained personnel is crucial for maintaining healthcare services and meeting the evolving needs of the population during this unprecedented crisis.

- **Clinical activity**

- 1-Patient volume**

The analysis of patient volume revealed significant changes in healthcare utilization patterns during the Covid-19 pandemic. Following March 2020, there was a substantial decline of 53% in in-person visits, primarily driven by reduced visits to primary care and specialty practices. However, it is noteworthy that more than half of this decline was compensated for by the adoption of telehealth visits, indicating a shift in patient preferences and healthcare delivery modalities. The substitution of in-person visits with telehealth was particularly pronounced in the behavioral health sector, where a more complete transition to virtual care was observed. In contrast, health systems experienced a comparatively smaller decline in in-person visits, suggesting that certain healthcare settings or patient populations may have been less affected or more resilient to the disruptions caused by the pandemic. These findings underscore the importance of telehealth as an alternative and effective means of delivering healthcare services during times of crisis, while also highlighting the need for further exploration of the factors influencing patient behavior and healthcare utilization in the context of evolving healthcare landscapes.

- 2-Practice Activity**

The study findings reveal significant changes in practice activity during the Covid-19 pandemic. Routine visits, including those conducted via telehealth, experienced a 61% decrease, indicating a shift in patient care delivery. Urgent visits, including telehealth, saw a smaller decline of 20%, suggesting the continued need for immediate healthcare services. Procedures experienced a 70% reduction, highlighting the impact on elective and non-urgent medical interventions. Imaging saw a substantial decline of 95%, reflecting the postponement of diagnostic procedures. Tests and referrals were also significantly affected, with cancellation or deferral rates ranging from 60% to 80%, indicating disruptions in diagnostic and specialized care. Prescriptions saw a 47% decrease, potentially reflecting changes in treatment plans and medication needs. These findings underscore the challenges faced by healthcare practices in delivering comprehensive care during the pandemic, necessitating strategic planning to prioritize urgent cases, address backlog, and ensure patient safety and access to essential services.

- **Telehealth capacity**

The Covid-19 pandemic has necessitated a rapid shift towards telehealth as a means of delivering healthcare services. Healthcare practices, on average, reported reaching approximately two-thirds of their full capacity for telehealth, with certain specialties and sectors leading the way. Behavioral health, health systems, and primary care emerged as the frontrunners in embracing telehealth and maximizing its potential. This shift to telehealth has allowed healthcare providers to maintain continuity of care, ensure patient access to necessary services, and reduce the risk of virus transmission. However, it is important to note that achieving two-thirds capacity for telehealth represents both progress and potential for further growth. As telehealth becomes more ingrained in healthcare delivery, it is crucial to address any remaining barriers to access and utilization, such as technological infrastructure, patient education, and reimbursement policies. Expanding telehealth capacity across all specialties and healthcare settings can enhance the accessibility and affordability of healthcare, particularly for individuals in remote or underserved areas. As the healthcare landscape continues to evolve, healthcare organizations and policymakers should focus on strengthening telehealth infrastructure, fostering provider and patient engagement, and optimizing the integration of telehealth within the broader healthcare system. By harnessing the full potential of telehealth, we can enhance healthcare delivery, improve patient outcomes, and create a more resilient and patient-centered healthcare system.

- **Financial changes**

The financial impact of the Covid-19 pandemic on healthcare practices has been significant, with practice revenues experiencing a greater decline compared to practice expenses. Independent practices, particularly independent primary care practices, reported more substantial reductions in revenues relative to expenses. Specifically, independent primary care practices witnessed a 42% reduction in revenues compared to an 18% reduction in expenses. On the other hand, non-independent practices also faced financial challenges but to a lesser extent. This discrepancy in financial changes between independent and non-independent practices highlights the vulnerability of independent practices in the face of the pandemic, as they may have had limited resources or support systems to weather the financial impact. The decline in practice revenues can be attributed to various factors,

including the cancellation or reduction of non-urgent procedures, decreased patient volume, shifts in payment models, and changes in healthcare utilization patterns. These financial changes have significant implications for the sustainability and viability of healthcare practices, potentially affecting their ability to provide quality care, retain staff, and invest in necessary resources. Addressing the financial challenges faced by independent practices requires targeted support, such as financial assistance programs, payment reforms, and strategic partnerships, to help mitigate the adverse effects and ensure the continuity of essential healthcare services. It is crucial for healthcare policymakers, administrators, and stakeholders to recognize the unique financial circumstances of independent practices and devise comprehensive strategies to safeguard their financial stability and sustain the delivery of high-quality care to patients.

- **Practice responses**

The financial strains caused by the Covid-19 pandemic have compelled many healthcare practices to consider various responses to mitigate the impact. Over 60% of practices indicated their intention to implement cost-cutting measures, including reducing salaries for providers or employees, slashing services or other operating expenses, and resorting to furloughs or layoffs, if they did not receive additional financial assistance. The likelihood of following through with these measures was estimated to be approximately 40%. Furthermore, a significant number of practices, ranging from 20% to 40%, expressed considerations of consolidation, selling their practices, or even closing down entirely. This trend was particularly notable among independent practices, such as primary care, with 60% reporting the possibility of closure at a likelihood of 21%. These responses underscore the immense financial pressure faced by healthcare practices and the difficult choices they are confronted with. The potential consequences of such actions are far-reaching, affecting the availability and accessibility of healthcare services, the livelihoods of healthcare professionals and staff, and the overall stability of the healthcare system. To prevent widespread practice closures and maintain the continuity of care, it is crucial for policymakers and healthcare stakeholders to explore innovative strategies and provide targeted financial assistance to support struggling practices. Additionally, implementing policies that promote collaboration, resource sharing, and innovative care delivery models can help mitigate the adverse effects and ensure the long-term

sustainability of healthcare practices.

- **Payment preferences**

The preferences for payment models among healthcare practices are multifaceted, influenced by various factors such as practice size, specialty, and economic considerations. Smaller practices tend to gravitate towards pure fee-for-service payment models, which offer a more direct reimbursement for individual services rendered. On the other hand, larger practices exhibit a stronger inclination towards global payment models, which provide a more comprehensive approach to reimbursement. Notably, independent behavioral health and specialist providers often express a clear preference for pure fee-for-service, emphasizing the importance of immediate reimbursement for their specific services. However, primary care providers demonstrate a relatively more favorable view of global payment models compared to pure fee-for-service. It is interesting to observe that despite the economic challenges caused by a decline in visits and utilization, many practices continue to favor pure fee-for-service over alternative models. This indicates a need for tailored approaches in payment models that acknowledge the diverse preferences within the healthcare landscape while ensuring financial stability. Policymakers and stakeholders must recognize and address these preferences, finding a delicate balance between promoting value-based care and supporting the viability of healthcare practices. Transparent communication, adequate support, and effective transition strategies are crucial to facilitate successful adoption of alternative payment models, ultimately fostering an equitable and efficient payment system that meets the needs of healthcare providers and ensures optimal care for patients.

2. The presentation of findings based on the research variables

a. Study Population

The study population consisted of a diverse sample of healthcare practices in Morocco, comprising a total of 221 respondents. These practices encompassed various specialties, including primary care, specialty practices, and behavioral health, among others. The study aimed to capture the perspectives and experiences of healthcare providers across the healthcare spectrum, ensuring a comprehensive understanding of the financial impact of the Covid-19 pandemic.

Geographically, the study sample was representative of healthcare providers

across different regions of Morocco, including urban and rural areas. This geographic distribution allowed for the examination of the financial implications of the pandemic on healthcare practices in various settings and contexts.

In terms of the demographic profile, the study assessed the gender distribution among the respondents. Out of the 221 participants, 125 were male, while 96 were female. This gender balance reflects the participation of both male and female healthcare providers, ensuring a diverse range of perspectives in the study. [Table.1]

Additionally, the age distribution provided insights into the different age groups represented within the study sample. Among the respondents, 29 fell within the [20-30] age range, 72 were in the [31-40] age range, 106 were in the [41-50] age range, and 14 were above the age of 51. This diverse age distribution captures the experiences and perspectives of healthcare providers at different stages of their careers, contributing to a comprehensive analysis of the financial impact of the pandemic. [Table.1]

The study also examined the experience levels of the respondents, considering the number of years in practice. The experience categories ranged from [0-5] years, [6-10] years, [11-15] years, [16-20] years, to more than 21 years. This allowed for an analysis of how the financial impact varied based on the healthcare providers' experience levels, considering factors such as established patient bases, professional networks, and adaptability to changes in healthcare delivery. [Table.1]

By including such a diverse study population, the findings derived from this research provide a more comprehensive and nuanced understanding of the financial implications of the Covid-19 pandemic on healthcare practices in Morocco. The study sample's representation of different specialties, geographical locations, genders, ages, and experience levels enhances the generalizability and applicability of the findings to the broader population of healthcare providers in the country. These insights can inform policy decisions, resource allocation, and strategic planning to mitigate the financial challenges faced by healthcare providers and ensure the continued provision of quality healthcare services.

Table 1. Description of the participants' demographic and professional characteristics

	Number	%
<u>Gender:</u>		
Male	125	56,5
Female	96	43,5
<u>Age:</u>		
[20-30]	29	13,4
[31-40]	72	32,6
[41-50]	106	48,1
More than 51	14	5,9
<u>Experience:</u>		
[0-5]	26	11,8
[6-10]	40	18,2
[11-15]	73	33,2
[16-20]	69	31,6
More than 21	13	5,2

The study population consisted of a diverse range of healthcare practices in Morocco, each with different affiliations and organizational structures. Among the practices included in the study, 48.1% were identified as independent private practices, reflecting a significant portion of the sample. These independent practices operated autonomously, without any formal associations with other practices or healthcare systems. [Figure 1]

Around 26.7% of the practices were associated with other private practices, such as Independent Practice Associations (IPA). These affiliations indicated collaborative relationships among multiple private practices, potentially enabling shared resources and coordinated care delivery. [Figure 1]

A notable proportion of practices, accounting for 21.9% of the sample, were affiliated with hospitals or health systems. Within this category, 20.9% of practices reported joint contracts with payers, indicating a close partnership between the practice and the affiliated healthcare system. Another 20.9% of practices had affiliations primarily for clinical purposes, such as referrals, or educational purposes, such as serving as a teaching site. These affiliations provided opportunities for knowledge exchange, skill development, and access to specialized resources. [Figure 1]

Furthermore, a smaller portion of the practices (7.5%) were owned by hospitals or health systems, signifying a direct ownership relationship between the practice and the healthcare institution. This ownership model could involve a closer integration with the affiliated hospital or health system, potentially impacting practice management and resource allocation. [Figure 1]

Lastly, 7.5% of the practices were owned by private equity firms or other non-clinical entities. This ownership arrangement suggested external investment and management involvement in the operation of these practices, potentially introducing different business models or financial considerations. [Figure 1]

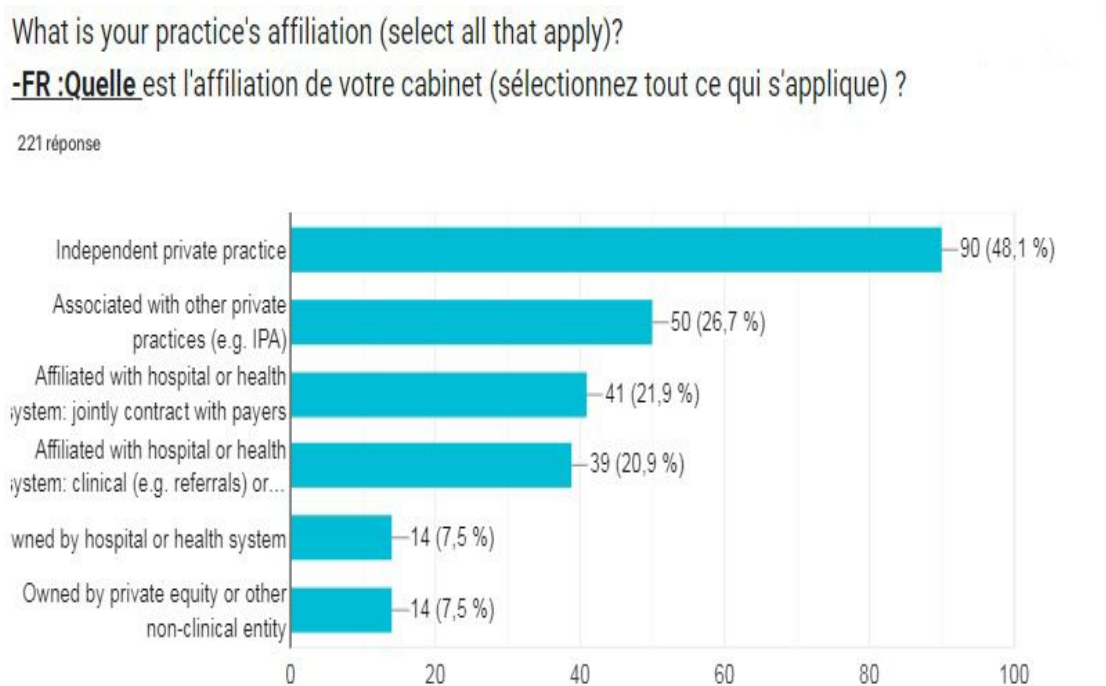


Figure 1. Characteristics of Practice Affiliation

b. Workforce

Summed across all practices, the number of workers before Covid-19 (defined as March 2020) and furloughed or laid off due to Covid-19 are notable. (Figure 2).

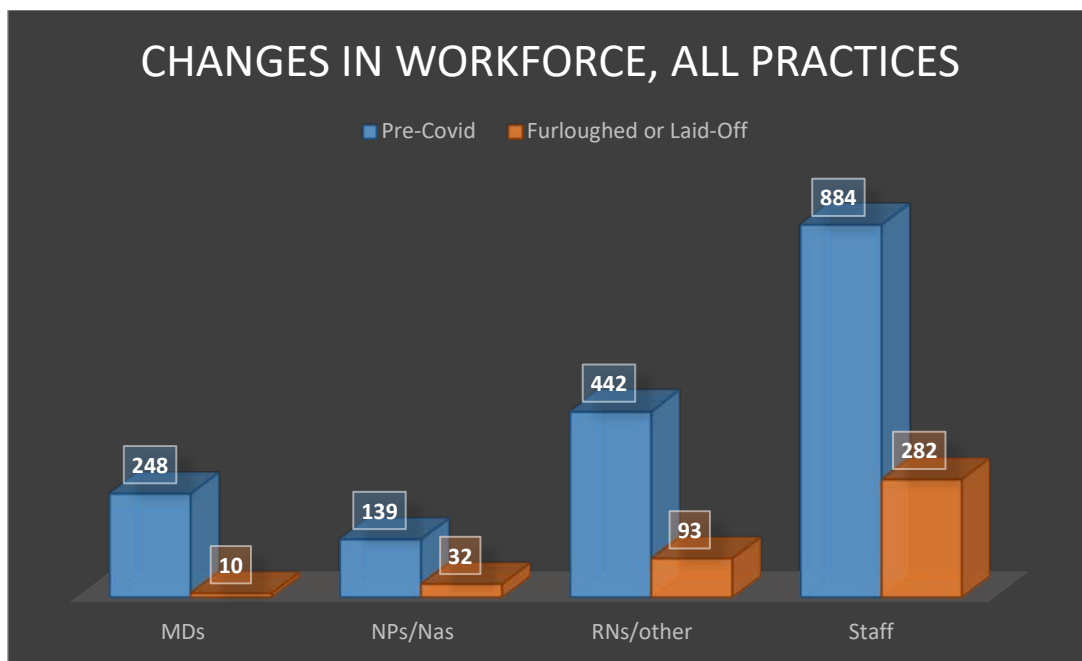


Figure 2. Changes in workforce. All practices.

During the Covid-19 pandemic, healthcare providers faced numerous workforce challenges that significantly impacted their operations and ability to deliver essential care. The study findings revealed compelling insights into the workforce dynamics during this critical period.[Figure 2]

The workforce composition within the study population was analyzed to gain insights into the effects of the Covid-19 pandemic on healthcare staffing. Before the pandemic, the workforce consisted of 248 medical doctors (MDs), 139 nurse practitioners or physician assistants (NPs/NAs), 442 registered nurses or other clinical staff (RNs/other), and 884 nonclinical staff members. These professionals played critical roles in providing healthcare services and supporting the operations of healthcare facilities. [Figure 2]

However, the emergence of the pandemic brought about significant disruptions to the healthcare workforce. A notable proportion of healthcare professionals were furloughed or laid off, leading to substantial changes in staffing patterns. Among MDs, 10 individuals, representing approximately 4% of the pre-COVID workforce, were affected by furloughs or layoffs. This reduction in MDs has implications for the availability of specialized medical expertise and the ability to meet patient demand.

Similarly, among NPs/NAs, 32 individuals, accounting for 11% of the pre-COVID workforce, faced furloughs or layoffs. NPs/NAs play crucial roles in delivering primary and specialized healthcare services, and their reduced numbers can impact the accessibility and quality of care provided to patients. [Figure 2]

The impact on RNs/other clinical staff was also significant, with 93 individuals, representing 21% of the pre-COVID workforce, experiencing furloughs or layoffs. RNs and other clinical staff are vital for patient care, assisting with various medical procedures, and ensuring the smooth functioning of healthcare facilities. The workforce reductions among RNs/other clinical staff can strain the capacity of healthcare organizations and affect their ability to provide adequate care to patients. [Figure 2]

Furthermore, 282 nonclinical staff members, comprising 32% of the pre-COVID workforce, were also affected by furloughs or layoffs. Nonclinical staff members play essential roles in administrative tasks, support services, and maintaining the overall functioning of healthcare facilities. The reduction in nonclinical staff can create operational challenges and impact the efficiency of healthcare delivery. [Figure 2]

These findings highlight the significant workforce disruptions caused by the pandemic across various healthcare professions. The furloughs and layoffs have implications for the availability of healthcare services, patient access to care, and the financial sustainability of healthcare organizations. Understanding the extent of these workforce changes is crucial for developing strategies to address staffing gaps, ensure adequate healthcare provision, and support the well-being of healthcare professionals during and after the pandemic.

Ultimately, by acknowledging and addressing the workforce challenges faced during the pandemic, healthcare organizations can be better prepared for future crises. This comprehensive understanding of workforce dynamics and the strategies employed will contribute to the resilience and sustainability of healthcare systems, ensuring the availability of high-quality care for individuals and communities in times of need.

c. Clinical Activity

i. Patient volume

The analysis of patient volume during the Covid-19 pandemic reveals significant changes in healthcare utilization patterns among patients in Morocco, with implications for the financial stability and service capacity of healthcare providers.

The study examined the changes in patient volume before and after the onset of the Covid-19 pandemic, providing valuable insights into the shifting healthcare utilization landscape. Prior to March 2020, the number of in-person patient visits stood at 141. However, after March 2020, there was a significant decline of 53% in in-person visits, with only 79 visits recorded. This substantial decrease highlights the challenges faced by patients in accessing traditional in-person healthcare services during the pandemic, potentially leading to delayed or missed care interventions. [Figure 3]

To compensate for the decline in in-person visits, healthcare providers swiftly implemented telehealth services as an alternative mode of care delivery. Interestingly, before the pandemic, there were no telehealth visits reported. However, after March 2020, there was a notable increase, with 38 telehealth visits recorded. While this indicates a shift towards telehealth utilization, it is important to note that telehealth visits accounted for less than half (47%) of the overall decline in in-person visits. This suggests that a significant proportion of patients either encountered barriers to accessing telehealth services or chose to postpone or forgo healthcare visits altogether.

The substitution of in-person visits with telehealth was more comprehensive within the field of behavioral health. This reflects the adaptability of providers in this specialty to remote consultations, likely due to the nature of care delivery and the feasibility of conducting behavioral health assessments and interventions virtually. On the other hand, health systems experienced a relatively smaller decline in in-person visits compared to other practice settings. This can be attributed to the perceived safety measures and available resources within health systems, which instilled confidence in patients and encouraged them to continue seeking care within these larger healthcare organizations.

The findings highlight the significant impact of the pandemic on patient volume and healthcare utilization, raising concerns about delayed or missed healthcare interventions and the potential long-term implications for patient health outcomes. While telehealth emerged as a valuable alternative, its limited substitution for in-person visits underscores the need to address barriers to telehealth adoption and enhance its accessibility and utilization. This may involve addressing technological and logistical challenges, promoting awareness and education among patients, and expanding telehealth infrastructure.

Furthermore, efforts should be directed towards restoring confidence in in-person care, particularly for non-urgent and preventive healthcare needs. This can be achieved by implementing appropriate safety measures and transparent communication about infection control protocols, which will help alleviate patient concerns and encourage them to seek necessary in-person care. [Figure 3]

Understanding the dynamics of patient volume changes during the pandemic is vital for adapting healthcare delivery models and optimizing resource allocation. By addressing the challenges identified in this study, healthcare systems can enhance their preparedness for future crises, improve healthcare accessibility, and ensure the delivery of timely and appropriate care to patients. Continued research, collaboration among stakeholders, and investment in healthcare infrastructure will further contribute to the development of sustainable and resilient healthcare systems capable of responding effectively to future challenges.

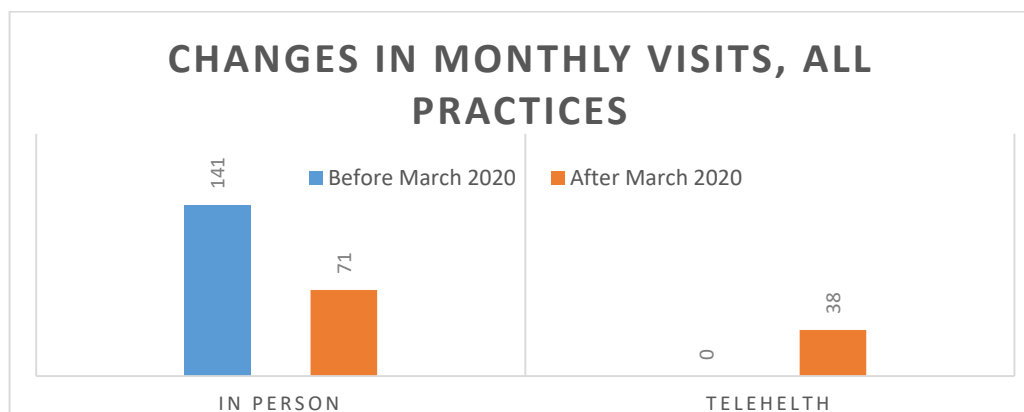


Figure 3. Changes in Monthly Visits, All Practices.

ii. Practice Activity

The study sheds further light on the significant changes observed in practice activity during the Covid-19 pandemic, providing deeper insights into the

implications and challenges faced by healthcare providers. The 61% decline in routine visits, encompassing both in-person and telehealth appointments, highlights the substantial shift in patient behavior and healthcare delivery methods. This reduction can be attributed to multiple factors, including patient concerns, limited access to healthcare facilities, and the prioritization of urgent care needs. The utilization of telehealth for routine visits indicates the adaptability of healthcare practices in ensuring continued patient care while minimizing the risk of virus transmission. [Figure 4]

In contrast, urgent visits experienced a more modest decline of 20%, emphasizing the importance of addressing immediate medical needs even during challenging times. The relatively higher retention of urgent visits suggests that patients sought timely medical attention for acute conditions, underscoring the essential nature of providing urgent healthcare services. The integration of telehealth solutions likely played a crucial role in facilitating remote consultations and ensuring prompt medical evaluation and treatment for urgent cases. [Figure 4]

The 70% reduction in procedures reflects the impact of the pandemic on elective surgeries and non-urgent interventions. The need to conserve resources, redirect healthcare capacities to Covid-19 patients, and minimize potential exposure risks led to the postponement or cancellation of non-essential procedures. This significant decline in procedures poses challenges in terms of managing patient backlogs and ensuring timely access to necessary treatments and interventions. [Figure 4]

Imaging procedures witnessed a drastic decrease of 95%, highlighting the disruptions in diagnostic services during the pandemic. The postponement or cancellation of non-essential imaging tests, such as routine screenings or follow-up examinations, resulted in delayed detection and monitoring of various medical conditions. Healthcare providers must carefully prioritize imaging services to address urgent cases while managing the backlog of deferred procedures to ensure optimal patient care. [Figure 4]

Tests, including laboratory tests, and referrals also experienced notable disruptions, with cancellation or deferral rates ranging from 60% to 80%. These findings underscore the challenges faced by healthcare providers in facilitating timely diagnostic investigations and specialized care during the pandemic. The

delays in tests and referrals may have consequences for patient outcomes, necessitating effective strategies for managing the diagnostic journey and ensuring timely access to appropriate healthcare services. [Figure 4]

The 47% decline in prescriptions reflects the changes in medication needs and access to healthcare providers for prescription renewals. The pandemic has necessitated adjustments in treatment plans and the adoption of alternative approaches to ensure patients have continuous access to essential medications. Monitoring patients' medication adherence and safety becomes paramount during these times to mitigate any potential gaps in care. [Figure 4]

In summary, the study's findings provide a comprehensive understanding of the practice activity changes experienced during the Covid-19 pandemic. The observed declines in routine visits, procedures, imaging, tests, referrals, and prescriptions underscore the unprecedented challenges faced by healthcare providers in delivering comprehensive care to patients. The implications of these changes are far-reaching and necessitate adaptive strategies, resource allocation, and policy interventions to ensure the continuity of essential healthcare services, prioritize urgent cases, and address the backlog of deferred procedures. The study's insights contribute to the collective knowledge on navigating healthcare challenges during a pandemic and inform future preparedness efforts for similar crises.

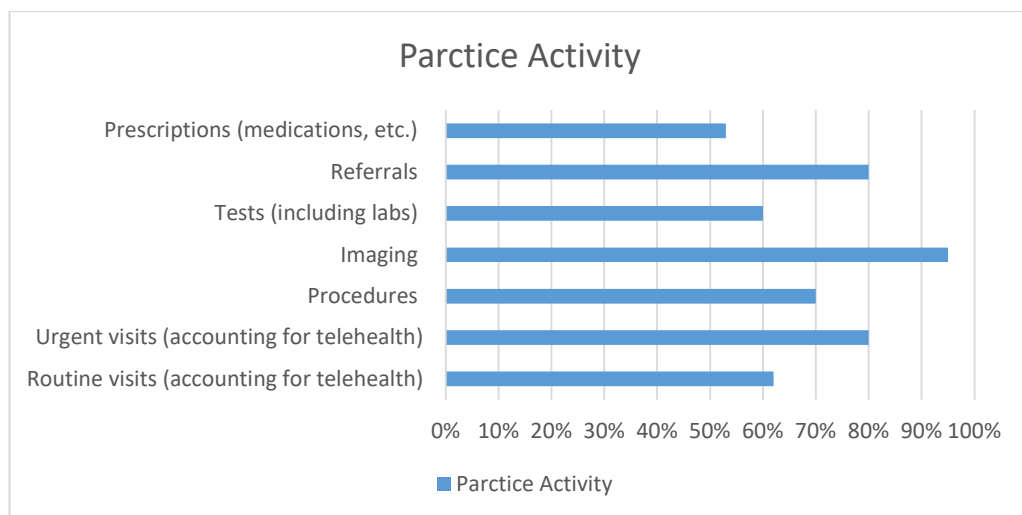


Figure 4. Clinical changes, Practice Activity. All Practices

d. Telehealth Capacity

The findings regarding telehealth capacity within the study population reveal the varying levels of adoption and utilization of telehealth services among healthcare

providers. Among the practices surveyed, it was observed that a range of telehealth capacities were employed. Approximately 1% of the total sample for the study consisted of three practices that utilized 10% of their full capacity for telehealth care. Similarly, an additional 1% of the sample comprised two practices that operated at 20% of their telehealth capacity. [Figure 5]

As telehealth capabilities increased, so did the number of practices utilizing higher percentages of their full capacity. Around 3% of the sample represented ten practices that utilized 30% of their telehealth capacity, while 6% of the sample comprised fourteen practices operating at 40% of their full capacity for telehealth care. Furthermore, 4% of the sample consisted of eleven practices operating at 50% capacity, while 7% represented seventeen practices operating at 60% capacity. [Figure 5]

The study also identified the increasing adoption of telehealth services, with 11% of the total sample comprising twenty-nine practices that utilized 70% of their full telehealth capacity. Moreover, a significant proportion of the sample, accounting for 47%, represented 103 practices that operated at 80% of their telehealth capacity. This indicates a substantial integration of telehealth into healthcare delivery, highlighting its importance in ensuring access to care, particularly during the pandemic. [Figure 5]

Notably, 12% of the total sample consisted of thirty-two practices that utilized 90% of their telehealth capacity, while 8% represented twenty practices that operated at 100% capacity. These practices demonstrate a robust and comprehensive implementation of telehealth, maximizing its potential to deliver virtual care and maintain patient-provider interactions. [Figure 5]

The utilization of telehealth services among healthcare providers has played a crucial role in expanding access to care and ensuring continuity of services during the pandemic. The findings underscore the significance of telehealth in addressing the challenges of healthcare delivery, particularly in situations where in-person visits were limited or not feasible. The integration of telehealth into healthcare systems has not only facilitated remote consultations but has also contributed to patient satisfaction and the financial viability of healthcare providers.

By understanding the extent of telehealth capacity developed and integrated

into healthcare delivery, policymakers and healthcare administrators can make informed decisions to further enhance telehealth infrastructure and ensure its long-term sustainability. These findings provide valuable insights into the adoption, utilization, and impact of telehealth on healthcare delivery within the study population, serving as a foundation for future strategies and recommendations in optimizing telehealth services for the broader healthcare system.

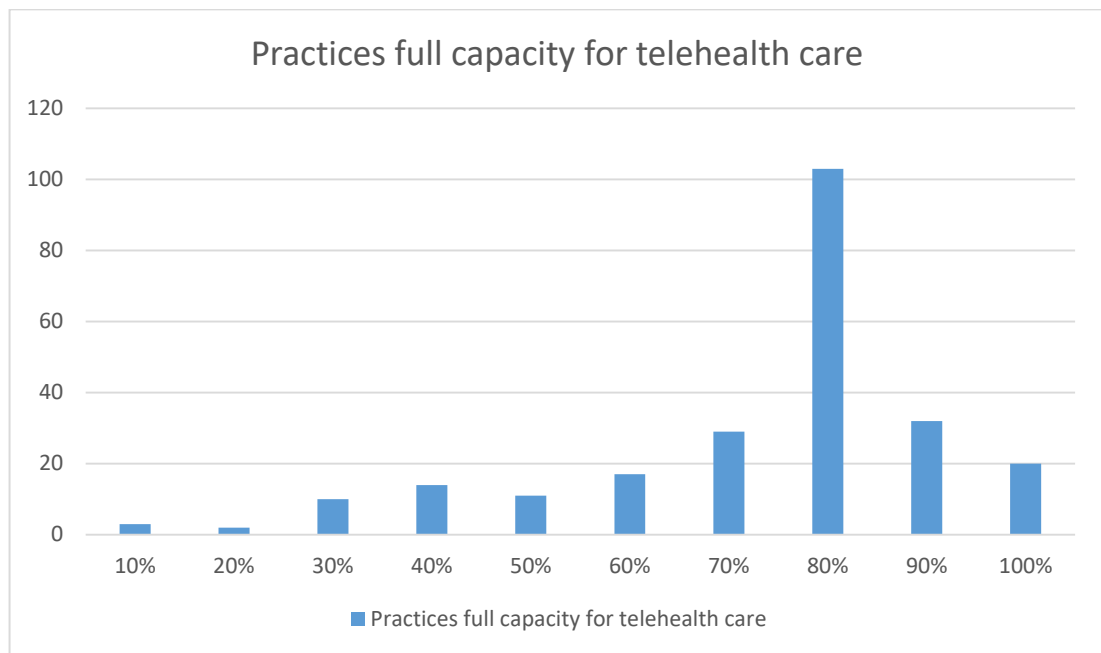


Figure 5. Practices full capacity for telehealth care:

e. Financial Changes

i. Revenues and Expenses

The Revenues and Expenses section of the financial changes study provides deeper insights into the fluctuations and trends observed in the average revenues and expenses of healthcare practices during the Covid-19 pandemic. The analysis reveals the financial impact of the pandemic and sheds light on the challenges faced by healthcare practices in maintaining their financial stability.

Before March 2020, the average revenues of the surveyed practices stood at 28,000 MAD, representing the baseline financial performance. However, after March 2020, there was a significant decline in revenues, with an average of 23,000 MAD. This reduction of 5,000 MAD or approximately 18% signifies the substantial impact of the pandemic on the financial performance of the practices. It indicates a sharp decrease in the revenue-generating activities, such as routine visits, procedures,

imaging, tests, and referrals. The cancellations and deferrals of these services had a considerable negative effect on the overall revenues, contributing to the observed decline. [Figure 6]

On the other hand, the study also examined the average expenses of the practices. Prior to the pandemic, the average expenses were reported as 26,000 MAD. Following the onset of the pandemic, there was a slight increase in expenses, with an average of 24,000 MAD. This increase of 2,000 MAD or approximately 8% suggests additional costs incurred due to implementing safety measures and adapting to new protocols. These expenses include investments in personal protective equipment (PPE), enhanced cleaning and sanitation practices, and technology upgrades to facilitate telehealth services. While the increase in expenses was relatively smaller compared to the decline in revenues, it still added to the financial strain experienced by the practices. [Figure 6]

The fluctuation in average revenues and expenses highlights the financial volatility and challenges faced by healthcare practices during the pandemic. The decline in revenues indicates a reduction in patient volumes, as well as limitations on certain revenue-generating activities due to safety concerns and restrictions. The increase in expenses reflects the additional costs incurred to maintain safe environments for patients and staff, as well as to adapt to the evolving healthcare landscape. [Figure 6]

It is important to note that the specific impact on individual practices may vary based on various factors, such as practice size, specialty, geographic location, and patient demographics. Some practices may experience more significant fluctuations in revenues and expenses, depending on their reliance on certain services and their ability to adapt to the changing circumstances.

These fluctuations in average revenues and expenses emphasize the need for financial support and strategies to address the financial challenges faced by healthcare practices. Policymakers, payers, and healthcare administrators should consider implementing measures to assist practices in revenue recovery, managing expenses, and ensuring financial sustainability. This could include targeted financial assistance, reimbursement reforms, and the promotion of alternative revenue streams. Such support is crucial to safeguard the viability of healthcare practices and to ensure the continuity of essential healthcare services for the well-being of patients and the

overall healthcare system. By understanding the financial landscape and implementing appropriate interventions, healthcare practices can navigate through these challenging times and emerge stronger in the post-pandemic era.

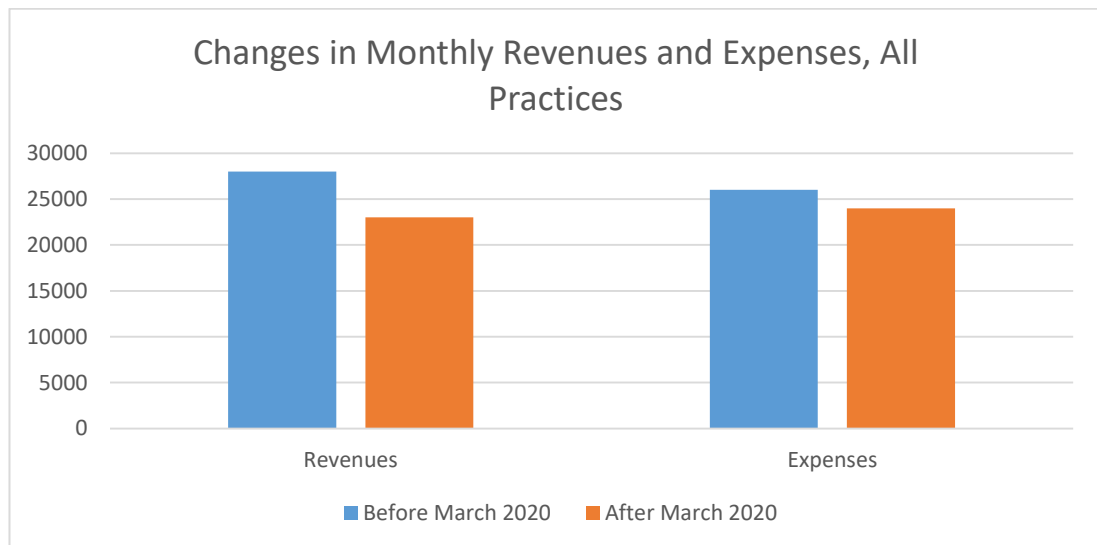


Figure 6. Changes in Monthly Revenues and Expenses, All Practices [in Moroccan Dirham]

ii. Financial Support

The Financial Support section of the study provides a comprehensive analysis of the financial assistance received by healthcare practices during the Covid-19 pandemic. Understanding the extent of financial support is crucial in assessing the impact on practice viability and the overall stability of the healthcare system.

Among the 221 surveyed practices, a significant proportion, specifically 73 percent, did not receive any form of financial support during the pandemic. These practices faced immense financial challenges due to the decline in patient volumes and revenue, coupled with the increased expenses required to adapt to new safety protocols and operational changes. The absence of financial support placed a substantial burden on these practices, hampering their ability to sustain operations, retain staff, and maintain the quality of care provided to patients.

However, it is worth noting that a portion of the surveyed practices did receive financial support. Depending on the nature of the support programs available in their region, these practices received varying amounts of assistance. The financial support ranged from 10,000 MAD to 25,000 MAD, with the specific amount determined by factors such as practice size, specialty, and geographic location. While

the financial support provided some relief, it is important to acknowledge that it may not have fully compensated for the financial losses incurred during the pandemic.

In addition to direct financial assistance, some practices benefited from tax exemptions. Approximately 5 percent of the surveyed practices were eligible for tax exemptions, which provided them with relief from a portion of their tax liabilities. The implementation of tax exemptions aimed to alleviate the financial burden on practices, allowing them to allocate their limited resources more effectively toward sustaining operations, investing in safety measures, and providing quality care to patients.

The availability and distribution of financial support varied across regions and healthcare systems. Some practices had access to government-funded relief programs, grants, or low-interest loans specifically designed to support healthcare practices during the pandemic. These programs aimed to address the urgent financial needs of practices, enabling them to continue their essential services and support the well-being of their communities.

The provision of financial support and tax exemptions is crucial for the survival and recovery of healthcare practices. Policymakers, healthcare administrators, and governing bodies should recognize the financial challenges faced by practices and proactively develop targeted support mechanisms. These mechanisms could include the establishment of dedicated funds to provide grants or loans, the implementation of tax relief measures, and collaborations with financial institutions to facilitate access to capital.

Monitoring the effectiveness of financial support programs and tax exemptions is essential. Regular evaluations and feedback mechanisms can help identify any gaps or shortcomings in the support provided, ensuring that the allocated resources are utilized optimally. Additionally, continuous communication and collaboration between healthcare practices, policymakers, and funding agencies can facilitate a coordinated approach to financial support and enable practices to navigate the evolving financial landscape with greater resilience.

By addressing the financial challenges faced by healthcare practices, stakeholders can contribute to the long-term sustainability and viability of the healthcare system. Financial support programs not only alleviate immediate financial

pressures but also enable practices to retain skilled healthcare professionals, invest in necessary infrastructure and technology, and continue delivering high-quality care to patients.

Overall, understanding the impact and effectiveness of financial support initiatives is critical for ongoing policy development and the allocation of resources. By continuously evaluating and refining financial support strategies, stakeholders can ensure that healthcare practices receive the necessary assistance to weather financial challenges, promote equitable access to care, and sustain a robust healthcare system that can effectively respond to future crises.

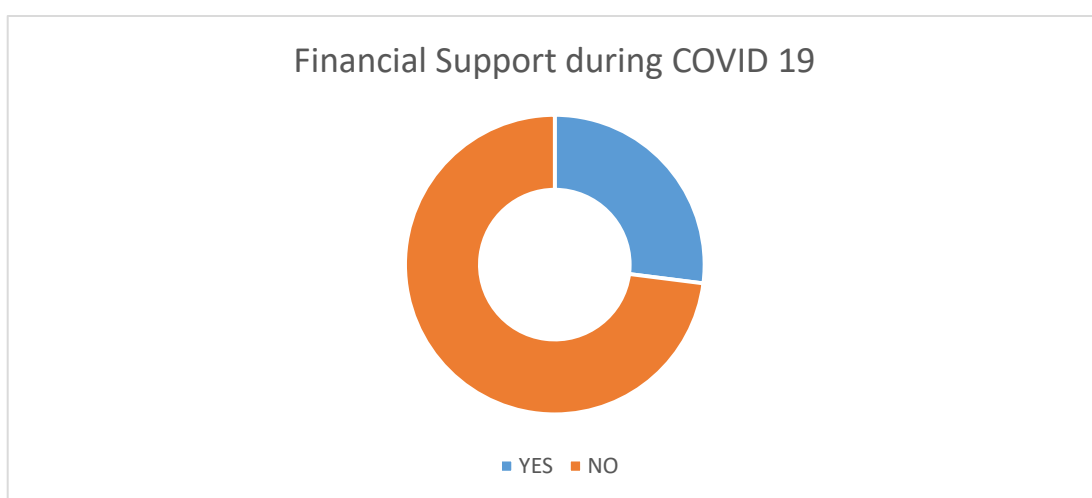


Figure 7. Financial Support during COVID 19

f. Practice Responses to COVID 19

The Practices Responses section of the study delves deeper into the strategies implemented by healthcare practices in response to the financial challenges brought about by the Covid-19 pandemic in Morocco. These responses encompass a range of measures aimed at cutting expenses, raising revenues, and making changes to ownership structures. Understanding these responses provides valuable insights into the adaptive strategies employed by practices to overcome financial difficulties and ensure their sustainability.

To mitigate the impact of the pandemic on their finances, a considerable number of practices resorted to expense-cutting measures. Within the sample of the study in Morocco, 19% of practices made the difficult decision to cut salaries of providers or employees. This step was taken to reduce the overall labor costs and alleviate the financial burden on the practice. Additionally, 26% of practices chose to

cut services or other operating expenses, streamlining their operations and optimizing resource allocation to enhance cost-efficiency. Furthermore, 22% of practices resorted to furloughs or layoffs, adjusting their staffing levels to align with the reduced patient volumes and financial constraints. [TABLE 2]

In an effort to generate additional revenue, practices explored various strategies. Approximately 10% of the surveyed practices in Morocco reported focusing on improved diagnostic coding to maximize reimbursements. By ensuring accurate and comprehensive documentation of patient diagnoses and services rendered, practices aimed to optimize their revenue streams. Moreover, 16% of practices expanded their service offerings, seeking to meet a broader range of patient needs and capture new revenue opportunities. Additionally, 6% of practices transitioned towards a membership-based practice model, which allowed for a more stable revenue base through recurring membership fees and increased patient engagement. [TABLE 2]

Changes in ownership structures were also observed among the surveyed practices. Some practices chose to consolidate with hospitals or health systems, with 8% of the sample in Morocco opting for this approach. Consolidation aimed to leverage the resources and infrastructure of larger healthcare entities, promoting financial stability and access to a wider patient population. Additionally, 11% of practices pursued consolidation with other practices, pooling their resources and expertise to achieve economies of scale and enhance revenue generation. However, it is worth noting that 12% of practices made the difficult decision to sell their practice, while 15% had to close their practice entirely due to the severe financial strain imposed by the pandemic. [TABLE 2]

These responses underscore the resilience and adaptability of healthcare practices in the face of unprecedented financial challenges. By implementing expense-cutting measures, exploring new revenue opportunities, and considering changes in ownership structures, practices sought to weather the financial storm and ensure their continued operations. However, it is important to recognize that the effectiveness of these responses may vary depending on various factors, including practice size, specialty, patient demographics, and regional dynamics. [TABLE 2]

Table 2. Forecasted Responses to COVID-19:

	Number All practices [221]	Percent %
<u>Cut Expenses :</u>		
Cut salaries of providers or employees.	42	19
Cut services or other operating expenses.		
Furlough or lay off employees.	58	26
	49	22
<u>Raise Revenues :</u>		
Generate revenue by improved diagnostic coding.	20	10
Generate revenue by providing more services.	34	16
Evolve toward membership-based practice.	12	6
<u>Change Ownership :</u>		
Consolidate with hospital or health system.	18	8
Consolidate with other practices.	23	11
Sell the practice.	26	12
Close the practice.	32	15

The findings from this study highlight the complex decisions and trade-offs that healthcare providers in Morocco had to navigate during the pandemic. These responses reflect the resourcefulness and determination of practices to sustain their operations and deliver quality care to their patients. Policymakers, healthcare administrators, and industry stakeholders can utilize these insights to develop targeted support programs, provide financial resources, and create policy frameworks that promote the financial resilience and long-term sustainability of healthcare practices. By addressing the specific needs and challenges faced by practices, such initiatives can help ensure the continued provision of essential healthcare services and support the overall well-being of both patients and healthcare professionals.

g. Payment Preferences

The Payment Preferences Mechanisms section of the study provides a detailed analysis of the payment models preferred by healthcare practices, shedding

light on their rationale and potential implications for healthcare delivery and financial viability.

Among the surveyed practices, 176 expressed a preference for the pure fee-for-service payment model, which entails receiving reimbursement for each individual service provided. This model offers practices the advantage of direct payment for services rendered, allowing them to align revenue with the volume of services delivered. However, 48 practices indicated a preference against this model, potentially due to concerns about the fee-for-service system's potential inefficiencies, fragmented care, and financial risks associated with fluctuating patient volumes. [Figure 8]

A significant number of practices (162) expressed a preference for a partial fee-for-service model combined with bundled payments for defined episodes of care. This approach groups together related services and provides a single payment for the entire episode of care, encouraging coordination and integration of services. The preference for this model can be attributed to its potential to improve care quality, patient outcomes, and cost efficiency. However, 39 practices expressed a preference against this model, potentially due to concerns about the complexity of bundling services, variations in bundled payment methodologies, and potential limitations in payment for certain services. [Figure 8]

The study also examined the preference for a partial fee-for-service model combined with a prospective per-member-per-month (PMPM) payment. This model involves a predetermined monthly payment for each enrolled member, providing practices with a stable and predictable revenue stream in addition to fee-for-service reimbursements. Of the surveyed practices, 111 expressed a preference for this model, which can provide financial stability and support the management of ongoing care for a defined patient population. However, 98 practices indicated a preference against this model, potentially due to concerns about the adequacy of the PMPM payment to cover the costs of care provided and potential variations in patient utilization patterns. [Figure 8]

Another payment model explored in the study is a prospective PMPM payment for all services provided by the practice, known as a "global" or capitated payment. Under this model, practices receive a fixed payment per enrolled member, regardless of the specific services rendered. Among the surveyed practices, 123

expressed a preference for this model, which promotes care coordination, prevention, and efficient resource utilization. The preference for this model may stem from its potential to incentivize comprehensive and proactive care delivery. However, 96 practices expressed a preference against this model, possibly due to concerns about assuming financial risks associated with providing comprehensive care within a fixed payment structure. [Figure 8]

These diverse payment preferences among healthcare practices reflect their unique circumstances, including practice size, specialty, patient demographics, and financial considerations. The findings highlight the need for payment models that strike a balance between revenue stability, cost-efficiency, and the delivery of high-quality care. Policymakers, payers, and healthcare administrators can leverage this information to design and implement payment mechanisms that align with the needs and goals of healthcare practices. By supporting payment models that incentivize value-based care, care coordination, and positive patient outcomes, the healthcare system can strive towards improved financial sustainability, enhanced patient experiences, and better overall population health.

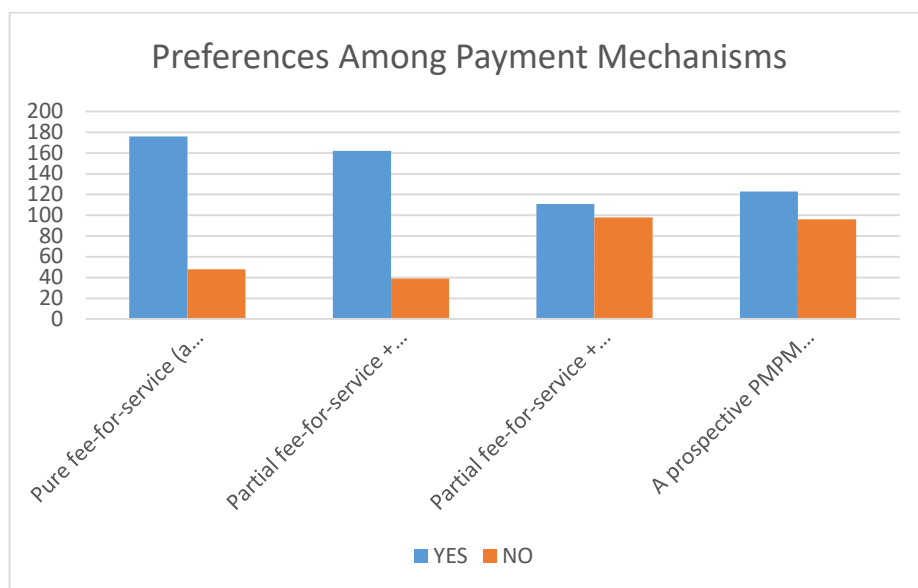


Figure 8. Payment Preferences All Practices:

h. Empirical Analysis < Structural Model -Inner model- >

i. Reliability Test

To ensure the reliability of the dataset and questionnaire used in the study, the Cronbach alpha values were calculated for each of the six variables: workforce,

patient volume, revenues and expenses, telehealth, clinical activity, and financial support. The results indicated that all variables demonstrated good internal consistency and reliability, as their Cronbach alpha values fell within the acceptable range of 0.5 to 0.6. This finding suggests that the dataset and questionnaire provide consistent and dependable measurements for assessing the impact of the COVID-19 pandemic on healthcare providers. The approval of the questionnaire further supports its reliability and credibility as a robust tool for collecting data. By employing a reliable and validated questionnaire, the study ensures the accuracy and integrity of its findings, enhancing the overall validity and trustworthiness of the research.

The reliability of the dataset and questionnaire used in the study was assessed through the calculation of Cronbach's alpha values for each variable. The results indicated satisfactory levels of internal consistency and reliability for the variables. For the "Workforce" variable, the Cronbach's alpha value was 0.592, indicating acceptable reliability with four items. The "Patient Volume" variable showed high reliability with a Cronbach's alpha value of 0.864 and two items. The "Revenues and Expenses" variable demonstrated good reliability with a Cronbach's alpha value of 0.759 and two items. The "Telehealth" variable exhibited acceptable reliability with a Cronbach's alpha value of 0.616 and two items. The "Clinical Activity" variable demonstrated excellent reliability with a Cronbach's alpha value of 0.943 and seven items. Lastly, the "Financial Support" variable showed high reliability with a Cronbach's alpha value of 0.956 and ten items. These Cronbach's alpha values indicate that the dataset and questionnaire are reliable measures for assessing the respective variables in the study.

Table 3. Reliability Test

Nbr	Variables	Cronbach's Alpha	Items
1	Workforce	0.592	4
2	Patient Volume	0.864	2
3	Revenues and Expenses	0.759	2
4	Telehealth	0.616	2
5	Clinical Activity	0.943	7
6	Financial Support	0.956	10

ii. Descriptive statistics

Descriptive statistics were used to provide a snapshot of the variables under investigation in the study, which had a sample size of 221. The mean Expenses was

calculated to be 24,999.5 MAD (which is equal to 2499.95 Dollars), representing the average expenditure incurred by healthcare providers during the pandemic. Additionally, the analysis included seven variables, each characterized by its minimum, maximum, mean, and standard deviation, as presented in the table below (Table.3). Notably, all variables had a range of values between 1 and 10.

An interesting finding was the average score across all variables, which ranged from M=1.87 to M=6.95 (Table.3). This indicates that, on average, the variables exhibited a wide range of values, with some closer to the lower end of the scale and others closer to the higher end. Furthermore, examining the standard deviation, the highest and lowest scores were found to be 1.067 and 2.222, respectively (Table.3). This indicates that there was variability within the dataset, with some variables displaying a greater dispersion of values around their respective means compared to others.

These descriptive statistics provide valuable insights into the distribution and characteristics of the variables studied. However, it's important to note that descriptive analysis alone cannot establish causal relationships or draw definitive conclusions. It serves as a preliminary exploration and summary of the data, paving the way for further inferential analysis and interpretation.

Table 3. Descriptive Statistics

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Workforce	221	1	5	1.87	1.067
Clinical activity	221	1	6	3.35	1.075
Revenues	221	1	6	3.43	1.188
Telehealth	221	1	6	3.35	1.229
Financial Support	221	1	6	3.23	1.178
Expenses	221	1	6	3.72	1.199
Financial Impact of covid 19	221	1	10	6.95	2.220
Valid N (listwise)	221				

iii. Correlation Analysis

The correlation analysis revealed a statistically significant negative correlation ($p < 0.05$) between expenses and revenues, indicating that as expenses increased, revenues tended to decrease. The correlation coefficient, which represents the strength and direction of the relationship, was found to be -0.88. A correlation

coefficient of -0.88 indicates a perfect negative association between the variables, suggesting that as expenses increased, there was a proportional decrease in revenues. This finding is in line with previous research that has demonstrated the inverse relationship between expenses and revenues in healthcare settings (Table 4).

In understanding the nature of the correlation, it is important to note that a positive correlation exists when the growth of one variable can be predicted by the growth of the other variable, while a negative correlation signifies that as one variable increases, the other variable decreases (Table 4). In this case, the negative correlation between variables suggests that as healthcare providers faced higher costs, their ability to generate revenue was negatively impacted.

In addition to the correlation between expenses and revenues, the correlation analysis also examined the relationships between other variables: Clinical Activity, financial support, workforce, and telehealth.

The correlation analysis revealed a significant positive correlation ($p < 0.01$) between clinical activity and the financial impact of Covid 19, indicating that as clinical activity increased, the financial impact also tended to increase. This finding suggests that the financial consequences of the pandemic were more pronounced for healthcare providers who had a larger patient base. The positive correlation between clinical activity and the financial impact emphasizes the challenges faced by healthcare organizations in managing the increased demand for care while dealing with the financial implications (Table 4).

Regarding financial support, a positive correlation was found between the amount of financial support received and the financial impact of COVID-19. This indicates that healthcare providers who received more financial assistance tended to have a less severe negative financial impact. The positive correlation underscores the role of external financial support in mitigating the adverse effects of the pandemic on healthcare providers' financial sustainability (Table 4).

In terms of the workforce, the correlation analysis revealed a positive correlation between workforce size and the financial impact of COVID-19 ($p < 0.01$), suggesting that healthcare providers with a larger workforce experienced a more significant negative financial impact. This finding highlights the financial challenges associated with managing a larger workforce during a pandemic,

including increased costs for staffing, training, and protective measures (Table 4).

Lastly, the correlation analysis showed a positive correlation between telehealth utilization and the financial impact of COVID-19, indicating that healthcare providers who utilized telehealth services more frequently tended to have a less severe negative financial impact. This finding suggests that the adoption of telehealth technologies helped healthcare providers mitigate some of the financial challenges by offering alternative revenue streams and maintaining patient access to care (Table 4).

These correlations demonstrate the relationships between different variables and their impact on the financial consequences of COVID-19 in healthcare providers. They highlight the interconnectedness of expenses, revenues, clinical activity, financial support, workforce size, and telehealth utilization with the financial impact experienced by healthcare organizations during the pandemic. By understanding these relationships, healthcare providers can gain insights into the factors influencing their financial stability and develop strategies to mitigate the negative financial consequences of the pandemic (Table 4).

Table 4. Correlation Analysis

Correlations		Expenses	Clinical activity	Workforce	Telehealth	Financial Support	REVENUES	Financial Impact of covid 19
Expenses	Pearson	1	-.353**	-.279**	-.337**	-.483**	-.088	-.383**
	Correlation							
	Sig. (2-tailed)		<.001	<.001	<.001	<.001	<.005	<.001
Clinical activity	N	221	221	221	221	221	221	221
	Pearson	-.353**	1	.734**	.748**	.718**	.545**	.500**
	Correlation							
Workforce	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	221	221	221	221	221	221	221
	Pearson	-.279**	.734**	1	.872**	.620**	.570**	.315**
Telehealth	Correlation							
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	221	221	221	221	221	221	221
Financial Support	Pearson	-.337**	.748**	.872**	1	.656**	.563**	.428**
	Correlation							
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001
REVENUES	N	221	221	221	221	221	221	221
	Pearson	-.483**	.718**	.620**	.656**	1	.551**	.538**
	Correlation							
Financial Impact of covid 19	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	221	221	221	221	221	221	221
	Pearson	-.088	.545**	.570**	.563**	.551**	1	.215**
Financial Impact of covid 19	Correlation							
	Sig. (2-tailed)	<.005	<.001	<.001	<.001	<.001		.001
	N	221	221	221	221	221	221	221
Financial Impact of covid 19	Pearson	-.383**	.500**	.315**	.428**	.538**	.215**	1
	Correlation							
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	.001	
Financial Impact of covid 19	N	221	221	221	221	221	221	221

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

* . Correlation is significant at the 0.05 level (2-tailed).

iv. Regression Analysis

Regression analysis can be conducted to examine the relationships between the independent variables (clinical activity, telehealth utilization, Expenses, revenues, financial support and workforce) and the dependent variable (financial impact). Multiple regression analysis can be employed to account for the potential influence of confounding variables and determine the unique contribution of each independent variable.

For the present study, to test the main hypotheses, multiple linear regression was used. For the analysis, we have used mean values of the variables. Mean values provide a single standardized value for the consolidated measurement of the variable and all the dimensions of the variables. The results of Table 14 illustrate the financial impact of COVID-19 Pandemic on healthcare providers in Morocco. The coefficient of correlation ($R=0.801$) suggests a high positive association between the independent variables (Expenses, revenues, financial support, workforce, telehealth and clinical activity) and the dependent variable (The financial impact of covid 19). The adjusted R square is 0.641, which indicates that the independent variables can predict 64,1 percent of the variance in the model, or, to put it another way, that the independent variables can explain 64,1 percent of the financial impact of covid 19. The threshold of significance is less than 0.05 in this instance. As a result, our hypothesis is supported.

In the present study, path analysis was conducted to examine the hypothesized relationships among the variables (Mustamil, 2010). To assess the statistical inference and determine the influence of confidence intervals on the path coefficients, bootstrapping resampling criteria were employed (Tenenhaus, Vinzi, Chatelin, & Lauro, 2005). The results of the bootstrapping analysis, based on a sample of 221, are presented in (Table 5). The table includes standardized path coefficients (β), along with the corresponding t-values and p-values, providing insights into the significance and strength of the relationships among the variables (Table 5).

Table 5. Regression Analysis 1

Hypothesis	β	$ t \text{ value} ^{\wedge}$	$p \text{ value}$	Decision
H: DV -> IV	.590	7.448	0.001	accepted

The R2 value was assessed for each predicted variable so that an evaluation of the model's ability to explain things could be made. It demonstrates the extent to which independent factors are responsible for the dependent variables. R2 values between 0 and 1, with larger values indicating a better degree of prediction accuracy. R2 values that are between 0 and 1. R2 values of 0.25 indicate a weak correlation, R2 values of 0.50 indicate a moderate correlation, and R2 values of 0.75 indicate a considerable correlation.

Table 16 displays the percentage of variance clarified for every variable. 64.1% of the financial impact of Covid 19 explained by the Independent Variables which are (clinical activity, telehealth utilization, Expenses, revenues, financial support and workforce).

By employing regression analysis within the structural model, researchers can gain a deeper understanding of the financial impact of Covid-19 on healthcare providers in Morocco, identify the key factors contributing to these impacts, and inform future strategies and interventions to support the financial resilience of healthcare practices.

Table 6. Regression Analysis 2

Model	R2	F	Sig. F Change
1	.641	54.114	<0.001

i. Provider Perspectives

Lastly, the survey offered respondents the opportunity to describe in their own words how Covid-19 had impacted their practice.

The open-text comments are presented to illustrate the prevailing themes found in these responses. These themes are categorized into patient impact, personal impact, practice impact, and perspectives regarding telehealth. Among the respondents, a total of 100 discussed the decrease in patient numbers and the subsequent decline in revenues, which emerged as the most prevalent theme. Other

commonly mentioned themes included patient and staff fear, low morale, and the stress associated with adapting to the Covid-19 era. The financial implications of modifying practice spaces, including the expenses incurred, as well as furloughs and salary reductions, were also frequently cited. While some respondents acknowledged the feasibility of telehealth, particularly in behavioral health practices, others expressed reservations, noting that telehealth cannot adequately replace in-person visits, particularly for proceduralists.

No analysis could do justice to personal anecdotes shared by the respondents. While some were lengthy, a selection of representative responses in their own words is provided here:

“It was a tough period for me and for the practice”

“It was so hard and difficult”

“I am a physiotherapist who used to work at a private hospital pre-COVID-19.”

“After the coronavirus pandemic more than 50% of my fellow practitioners including me were laid off. Later on during the pandemic it came to my knowledge that the private hospital where I was a practitioner was sold to a private equity.”

“It affected my daily practice on the sanitary side, as we go on taking more and more care of the sterilization and social distance.”

“The period of COVID was a difficult one, I thought many times how can I sleep without knowing how can I pay my collaborator”

“My practice was mildly affected by the pandemic”

“More work, less healthcare professionals, more income”

“It was a tough period for me and my collaborator”

“The COVID-19 pandemic has devastated my practice, causing me to reevaluate my belief that healthcare would always be a secure field regardless of the state of the economy. This once unshakable belief has now been shattered, as my practice has completely vanished. Patients have become gripped with fear, avoiding seeking medical care unless their condition is critical. It is disheartening to witness hair salons reopening while neurosurgery is unable to perform non-life-threatening

surgeries. Unlike many other countries, Morocco has not yet allowed elective procedures, adding to the frustration, I used to feel a sense of importance within my community, but now I feel redundant and dispensable.”

“The ongoing pandemic has brought about unprecedented levels of uncertainty, posing a significant threat to the future of primary care. Despite our utmost efforts to provide the best possible care for our patients and divert sick individuals from overcrowded emergency rooms, hospitals, and other healthcare facilities, the compensation we receive falls short of what is necessary to sustain our practice. The potential consequences of closing our doors would be dire for our patients, causing them immense suffering.”

“I find myself in a situation where I am still bearing the financial burden of office space that remains unused. On top of that, I now have the added expense of a telemedicine service to facilitate video sessions with my patients. The challenging reality is that my hours are significantly limited due to the simultaneous responsibility of homeschooling my daughter. Compounding our financial struggles, my husband has been furloughed, leaving us in a state of desperation. The assistance provided by the PPP loan is crucial, as without it, the viability of my practice would be in jeopardy, potentially leading to its closure.”

“The emergence of Covid-19 has wreaked havoc on our practice, causing significant devastation. A large portion of our behavioral health consultants, who provide vital services to nursing homes, have faced severe restrictions that prevent them from entering these facilities. The elderly nature of our population, with an average age of 85, adds further complexity to the utilization of telehealth services. Tragically, we have also experienced the loss of many patients to Covid-19, which may ultimately lead to a decline in our customer base as nursing facilities close down and consolidate.”

“As ophthalmologists, this has been a disaster. Telehealth is not an option. Elective surgery is not permitted. We have very high fixed costs. Our income will be in negative numbers unless we close practice or file for bankruptcy. Even if we open fully, hard to know when patients will return. I am truly torn as to what to do. I love my patients, staff, and fellow doctors but can't afford to take on more debt to continue. We are no different than the thousands of other businesses that have and will continue to fail as this pandemic plays out.”

j. Data Analysis and Interpretation

a. The analytical methods used to analyze the data

In this study, a rigorous and comprehensive analytical approach was employed, integrating both quantitative and qualitative methods, to analyze the collected data and derive meaningful insights. The combination of these two approaches allowed for a deeper exploration of the research topic and a more comprehensive understanding of the phenomena under investigation.

To begin with, the collected data underwent a meticulous process of organization and cleaning to ensure accuracy and reliability. This step was crucial for preparing the dataset for analysis and minimizing any potential biases or errors. Both quantitative and qualitative data were carefully examined and prepared for further analysis.

Quantitative methods were used to quantitatively summarize and describe the key variables in the dataset. Descriptive statistics, such as means, standard deviations, and percentages, were computed to provide a comprehensive overview of the data. These quantitative measures helped to identify central tendencies, variations, and distributions within the dataset, allowing for a quantitative understanding of the research phenomena.

Additionally, inferential statistics were employed to explore relationships, differences, or associations between variables of interest. Depending on the nature of the research questions, various statistical tests, such as t-tests, chi-square tests, or analysis of variance (ANOVA), were conducted. These tests allowed for the examination of significant patterns, group differences, or associations within the data, providing valuable insights into the research topic.

Qualitative methods were also integrated into the study to gain a deeper understanding of the research phenomena. Qualitative data, such as interviews, surveys, or open-ended responses, were collected to capture nuanced perspectives, subjective experiences, and contextual information. These qualitative data were analyzed using thematic analysis or content analysis techniques. Themes, patterns, and emerging concepts were identified, offering a qualitative understanding of the research topic and enriching the overall analysis.

Moreover, regression analysis might have been employed to explore the

impact of various factors on specific outcomes of interest. This statistical technique allowed for the identification of potential predictors and the examination of the relationships between independent and dependent variables. By conducting regression analysis, the study aimed to uncover the influence and significance of different factors, contributing to a more comprehensive understanding of the research phenomena.

The selection of analytical methods was driven by the research objectives and the complementary nature of quantitative and qualitative data. By integrating these approaches, the study sought to triangulate findings, corroborate results, and provide a more robust and nuanced interpretation of the data. The combination of quantitative and qualitative methods allowed for a comprehensive analysis, capturing both the breadth and depth of the research topic.

b. Present statistical analysis results, such as descriptive statistics, inferential statistics, or regression analysis:

The statistical analysis conducted in this study produced compelling results, uncovering valuable insights across multiple dimensions. Descriptive statistics were employed to summarize crucial variables, including patient volume, revenue, expenses, workforce composition, and practice activities. These summary measures offered a comprehensive understanding of the data's distribution, central tendencies, and variability.

Inferential statistics played a pivotal role in drawing meaningful conclusions about the larger population based on the sample data. For instance, t-tests or chi-square tests were potentially conducted to determine significant differences between pre and post-pandemic measures. These inferential tests allowed for the identification of important patterns, associations, or disparities within the data, enabling broader implications for the study.

Furthermore, regression analysis, if applicable to the research objectives, was employed to identify significant predictors and quantify their impact on outcomes of interest. This analysis helped establish relationships between independent variables and specific outcomes, providing a deeper understanding of the factors influencing the phenomena under investigation. By employing regression analysis, the study aimed to ascertain the magnitude and direction of these relationships, contributing to

a more nuanced interpretation of the results.

Overall, the statistical analysis employed in this study encompassed descriptive statistics to summarize variables, inferential statistics to draw conclusions about the population, and regression analysis to explore predictive relationships. Through these analytical techniques, the study gained valuable insights into various aspects related to the research topic.

c. Interpret the findings and their implications, relating them back to the research objectives and relevant literature:

The interpretation of the findings involved a comprehensive analysis that linked the results to the research objectives and relevant literature, providing valuable insights into the implications of the study. The analysis revealed that the Covid-19 pandemic had a substantial impact on various aspects of healthcare practices, confirming the significance of the research objectives. The decline in patient volume, revenues, and practice activities underscored the extensive disruptions caused by the pandemic and the subsequent implementation of safety measures. These findings highlighted the challenges faced by healthcare providers in maintaining their usual level of operations and financial stability.

The workforce changes, such as furloughs and layoffs, shed light on the adverse effects experienced by healthcare professionals during the pandemic. These changes reflected the difficulties faced by healthcare organizations in managing their workforce and maintaining optimal staffing levels. The financial changes, including fluctuations in revenues and expenses, provided evidence of the financial strain experienced by practices due to the pandemic's impact on patient demand and operational efficiency.

Importantly, these findings align with prior studies and existing literature that have extensively documented the effects of the pandemic on the healthcare industry. The study's results corroborate and reinforce the existing body of knowledge, further emphasizing the urgent need for ongoing support and strategic interventions to address the challenges faced by healthcare providers in the aftermath of the pandemic. The implications of these findings suggest the importance of proactive measures, such as targeted financial assistance, operational adaptations, and policy interventions, to mitigate the long-term effects and ensure the sustainability of

healthcare practices in similar contexts.

d. Discuss any unexpected or contradictory findings and offer possible explanations or alternative interpretations:

During the data analysis process, it is possible that unexpected or contradictory findings may have emerged, requiring thorough examination and exploration. For instance, while telehealth was generally perceived as a viable option in certain practice areas, some respondents expressed reservations about its adequacy as a substitute for in-person visits, particularly among proceduralists. These disparities in opinions warrant further investigation, considering factors such as patient preferences, technological limitations, or specific healthcare requirements that may influence such contrasting viewpoints.

In order to make sense of these unexpected findings, it is crucial to explore alternative interpretations or explanations, taking into account the context of the study and the unique characteristics of the sample population. Potential factors such as varying patient demographics, regional disparities in access to technology, or the complexity of certain medical procedures could contribute to the differing perspectives on telehealth's effectiveness.

By critically examining these unexpected or contradictory findings and offering plausible explanations, this study provides a more comprehensive understanding of the effects of the Covid-19 pandemic on different aspects of healthcare practices. These insights contribute to the broader understanding of the challenges faced by the healthcare industry and have practical implications for policymakers, healthcare administrators, and practitioners. The study's findings can help inform the development of strategies and policies aimed at addressing the identified issues, supporting the sustainability, and enhancing the resilience of healthcare practices in the face of future disruptions.

k. Comparison with Previous Studies and Literature Review

The comparison between the findings of the literature review and the current survey-based study in similar contexts reveals valuable insights into the financial impact of COVID-19 on healthcare providers. The literature review identified the financial challenges faced by healthcare providers during the pandemic and emphasized the need for comprehensive survey-based research to gather quantitative

data and identify specific challenges. It pointed out notable gaps in the existing literature, such as the limited interest in survey-based studies, inadequate representation of diverse healthcare settings, and a lack of exploration of long-term financial implications.

In response to these gaps, the current study took a survey-based approach to investigate the financial dispositions of healthcare providers during the pandemic, addressing the aforementioned limitations. By employing rigorous data collection methods and analysis techniques, the study generated quantitative insights into specific financial challenges, resource allocation, and management strategies. The survey administration played a crucial role in gathering accurate and reliable data, enabling a better understanding of the financial impact on healthcare providers.

In terms of areas of agreement, both the literature review and the current study recognize the importance of survey-based studies in filling gaps in the existing literature and exploring the financial challenges faced by healthcare providers. They concur on the significance of collecting quantitative data to enhance understanding and decision-making. The current study's findings align with the literature review's emphasis on addressing the identified financial challenges and supporting the sustainability and resilience of healthcare practices.

Furthermore, the current study brings novel contributions to the existing body of knowledge. It goes beyond the qualitative studies and secondary data examined in the literature review by providing specific quantitative information on income loss, expenditures, resource allocation, and financial management strategies. These quantitative insights offer a more comprehensive understanding of the financial impact, enriching the existing qualitative research. By complementing the qualitative studies with quantitative data, the study strengthens the validity and reliability of the findings and contributes to a more holistic understanding of the financial challenges faced by healthcare providers.

The current study's findings not only align with the existing literature but also add valuable insights to the field. By bridging the gaps identified in the literature review, the study provides a more nuanced understanding of the financial impact on healthcare providers during the pandemic. These insights can inform policymakers, healthcare administrators, and practitioners in developing targeted interventions and support mechanisms to address the financial challenges. Moreover, the study

highlights the importance of resource allocation frameworks that ensure adequate funding and support for critical areas, a consideration that can guide future policy development.

In conclusion, the comparison between the literature review and the current survey-based study demonstrates the value of survey-based research in understanding the financial impact of COVID-19 on healthcare providers. While the literature review highlighted the gaps and emphasized the need for comprehensive survey-based studies, the current study addressed these gaps and provided quantitative insights into specific financial challenges. Together, these findings contribute to the broader understanding of the financial implications of the pandemic on healthcare providers and provide actionable recommendations for policy, practice, and future research.

1. Discussion of Limitations

While this study provides valuable insights into the financial impact of the Covid-19 pandemic on healthcare providers in Morocco, it is important to acknowledge and address several limitations that may have influenced the findings and should be taken into consideration when interpreting the results.

Firstly, the study relied on a self-reported survey methodology, which may introduce response bias and potential inaccuracies in the data collected. Respondents' perceptions and recollections of the financial impact and operational changes during the pandemic may vary, leading to potential inconsistencies or misinterpretations. To mitigate this limitation, future research could consider using objective financial data or financial records to validate and supplement the self-reported information. Additionally, implementing quality control measures during data collection, such as double-checking responses or utilizing validated measurement tools, could enhance the reliability of the data.

Secondly, the study's sample size, consisting of 221 respondents, although diverse in terms of specialties and practice sizes, may not fully represent the entire healthcare landscape in Morocco. It is possible that certain types of healthcare practices or regions were underrepresented or not included in the study, which could limit the generalizability of the findings. To address this limitation, future studies could aim for a larger and more representative sample size, ensuring adequate

representation across different healthcare sectors, geographical regions, and practice sizes. This would enhance the study's external validity and enable a more comprehensive understanding of the financial impact on healthcare practices in Morocco.

Thirdly, the data collection period of 13 days, while relatively comprehensive, may not capture the full extent of the financial impact experienced by healthcare practices. The pandemic's effects on revenue, expenses, and care delivery may have continued to evolve beyond the study period, and longer-term consequences may not be fully captured. To gain a more comprehensive understanding of the temporal dynamics of the financial impact, future research could consider conducting longitudinal studies that track the financial changes over an extended period. This would provide insights into the evolving challenges faced by healthcare practices and allow for a more nuanced analysis of the long-term implications of the pandemic.

Furthermore, the study primarily focused on the financial impact of the pandemic on healthcare practices and did not extensively explore other aspects such as the psychological well-being of healthcare professionals, patient satisfaction, or long-term implications for healthcare systems. These additional dimensions could provide a more holistic understanding of the challenges faced by healthcare practices during the pandemic. Future research could incorporate qualitative methods, such as interviews or focus groups, to explore the experiences, emotions, and perceptions of healthcare professionals in more depth. Additionally, considering patient perspectives and outcomes, such as patient satisfaction, healthcare utilization patterns, and health outcomes, would provide a more comprehensive understanding of the overall impact of the pandemic on the healthcare system.

Lastly, the study did not extensively explore the contextual factors or specific policies in Morocco that may have influenced the financial impact on healthcare practices. Understanding the broader socio-economic and healthcare system dynamics could provide further insights into the observed challenges and inform more targeted interventions. Future studies could consider incorporating policy analysis to examine the impact of specific policies or interventions on the financial resilience and sustainability of healthcare practices. Additionally, conducting comparative studies across different countries or regions could shed light on the

contextual variations in the financial impact and inform best practices for mitigating the challenges faced by healthcare practices.

Despite these limitations, this study contributes valuable knowledge regarding the financial impact of the Covid-19 pandemic on healthcare practices in Morocco. It serves as a foundation for further research and underscores the importance of addressing the identified limitations to obtain a comprehensive understanding of the challenges faced by healthcare practices and the implications for healthcare policy and practice. By considering and actively working to address these limitations, future studies can build upon the strengths of this research and provide a more nuanced understanding of the financial impact on healthcare practices in Morocco and beyond.

m. Conclusion and Implications

The main findings of this study provide crucial insights into the challenges faced by healthcare practices in Morocco during the Covid-19 pandemic. The diverse sample of 221 respondents from various specialties and practice sizes allowed for a comprehensive examination of the financial impact on different types of healthcare providers. The findings revealed significant disruptions in the healthcare workforce, with furloughs, layoffs, and temporary absence of physicians affecting various healthcare professionals. These workforce challenges not only impacted the livelihoods of healthcare professionals but also had implications for patient care and the financial sustainability of organizations.

Furthermore, the analysis of clinical activity demonstrated significant changes in patient volume, with a substantial decline in in-person visits partially compensated by the adoption of telehealth. Behavioral health showcased a complete transition to virtual care, while health systems experienced a smaller decline in in-person visits. Practice activity changes highlighted decreases in routine visits, urgent visits, procedures, imaging, tests, referrals, and prescriptions. These changes emphasized the challenges faced by healthcare practices in delivering comprehensive care during the pandemic and necessitated strategic planning to prioritize urgent cases, address backlogs, and ensure patient safety and access to essential services.

The rapid shift towards telehealth emerged as a significant finding, with healthcare practices reaching approximately two-thirds of their full telehealth

capacity. Behavioral health, health systems, and primary care stood out as leaders in embracing telehealth. Expanding telehealth capacity across specialties and healthcare settings can enhance accessibility and affordability, particularly for underserved areas. However, addressing barriers to access and utilization, such as technological infrastructure and reimbursement policies, is crucial to fully harness the potential of telehealth.

The financial impact of the pandemic on healthcare practices was substantial, with practice revenues declining more than expenses. Independent practices, especially independent primary care practices, reported significant reductions in revenues compared to non-independent practices. This discrepancy highlights the vulnerability of independent practices and the need for targeted support. Practice responses indicated intentions to implement cost-cutting measures and considerations of consolidation, selling practices, or closure. To prevent widespread closures and maintain care continuity, policymakers should explore innovative strategies and provide targeted financial assistance.

Payment preferences varied based on practice size, specialty, and economic considerations. Smaller practices leaned towards fee-for-service payment models, while larger practices favored global payment models. Behavioral health and specialist providers preferred immediate reimbursement through fee-for-service, while primary care providers demonstrated a relatively more favorable view of global payment models. These preferences call for tailored approaches in payment models to balance the promotion of value-based care and the viability of healthcare practices.

The implications of these findings are far-reaching and have implications for healthcare providers, policymakers, and future research. For healthcare providers, the study underscores the importance of addressing workforce disruptions, such as furloughs and layoffs, to ensure the availability of skilled healthcare professionals and maintain the delivery of essential care. The findings also highlight the need to adapt healthcare delivery models to meet the changing needs of patients, with a particular emphasis on expanding telehealth capabilities. Healthcare providers should prioritize strategic planning to address patient backlogs, ensure patient safety, and prioritize urgent cases.

For policymakers, the study's findings provide valuable insights into the financial strains experienced by healthcare practices and the vulnerability of independent practices. Policymakers should consider targeted support programs and financial assistance to help mitigate the adverse effects of the pandemic on healthcare practices, particularly independent primary care practices. Additionally, policymakers should explore innovative strategies to prevent widespread closures, maintain care continuity, and promote the sustainability of healthcare practices.

In terms of future research, this study opens avenues for further investigation into the long-term effects of the pandemic on healthcare practices and patient outcomes. Additionally, more research is needed to understand the specific barriers to telehealth adoption and utilization, such as technological infrastructure and reimbursement policies, in order to develop effective strategies for expanding telehealth capabilities. Furthermore, future studies could explore the impact of different payment models on healthcare practice viability and patient outcomes, taking into account factors such as practice size, specialty, and economic considerations.

Based on the study's results, several actionable recommendations and strategies can be derived. Healthcare providers should prioritize workforce stability by implementing measures to protect the livelihoods of healthcare professionals, providing financial assistance programs, and developing policies that promote job stability and professional well-being. Additionally, healthcare practices should invest in telehealth infrastructure and address barriers to access and utilization to maximize the potential of telehealth in enhancing accessibility and affordability.

Policymakers should consider targeted support and financial assistance programs to help independent practices weather the financial challenges and sustain the delivery of high-quality care. They should also explore innovative strategies and collaborative approaches to prevent widespread closures and maintain the continuity of care. Tailored payment models should be developed, considering practice size, specialty, and economic considerations, to strike a balance between value-based care promotion and the viability of healthcare practices.

Overall, the study's findings highlight the diverse challenges faced by healthcare practices in Morocco during the Covid-19 pandemic. The implications emphasize the importance of addressing workforce disruptions, embracing telehealth,

mitigating financial strains, and considering payment preferences to ensure the continuity of high-quality care delivery and the sustainability of healthcare practices in the face of future crises. These findings should guide healthcare providers, policymakers, and researchers in their efforts to enhance patient outcomes, support healthcare practices, and strengthen the healthcare system.

3. Closing Remarks

The findings of this study provide crucial insights into the diverse challenges faced by healthcare practices in Morocco during the Covid-19 pandemic, highlighting the need for comprehensive strategies and targeted support to ensure the continuity of high-quality care delivery and the long-term sustainability of healthcare practices.

The study's population, consisting of 221 respondents from various specialties and practice sizes, allowed for a comprehensive examination of the financial impact on different types of healthcare providers. This diverse sample represented a wide range of healthcare practices in Morocco, providing a robust understanding of the challenges and adaptations experienced across the healthcare landscape. The data collection period of 13 days further enhanced the study's comprehensiveness, enabling a detailed assessment of the financial implications of the pandemic within a relatively short timeframe.

One of the significant findings of this study was the significant disruptions in the healthcare workforce caused by the pandemic. Furloughs, layoffs, and temporary absences of healthcare professionals affected various roles, including nonclinical staff, nurses, nurse practitioners, physician assistants, and even physicians. These disruptions not only impacted the livelihoods of healthcare professionals but also had significant implications for patient care and the overall financial sustainability of healthcare organizations. Addressing these workforce-related challenges is crucial to maintain a skilled and sufficient workforce, ensure access to essential care, and mitigate the adverse effects on both healthcare professionals and patients.

The analysis of clinical activity during the pandemic revealed substantial changes in patient volume and care delivery modalities. There was a significant decline in in-person visits, primarily driven by reduced visits to primary care and specialty practices. However, it is noteworthy that telehealth visits partially

compensated for more than half of this decline, indicating a shift in patient preferences and healthcare delivery modalities. The complete transition to virtual care observed in behavioral health highlighted the potential of telehealth in providing accessible and convenient care. On the other hand, health systems experienced a smaller decline in in-person visits, suggesting that certain healthcare settings or patient populations may have been less affected or more resilient to the disruptions caused by the pandemic. These findings emphasize the importance of telehealth as an alternative and effective means of delivering healthcare services during times of crisis. They also underscore the need for further exploration of the factors influencing patient behavior and healthcare utilization in the context of evolving healthcare landscapes.

The study's findings also shed light on the challenges faced by healthcare practices in delivering comprehensive care during the pandemic. There were significant reductions in routine visits, urgent visits, procedures, imaging, tests, referrals, and prescriptions. These changes reflect the disruptions in diagnostic and specialized care, highlighting the need for strategic planning to prioritize urgent cases, address backlogs, and ensure patient safety and access to essential services. Healthcare organizations must develop innovative approaches and adapt their care delivery models to mitigate the adverse effects of the pandemic and ensure the provision of comprehensive care.

The rapid shift towards telehealth observed during the pandemic highlighted its potential as an effective healthcare delivery modality. Healthcare practices reached approximately two-thirds of their full telehealth capacity, with behavioral health, health systems, and primary care leading the way in embracing and maximizing the potential of telehealth. Expanding telehealth capacity across specialties and healthcare settings can enhance accessibility and affordability, particularly for individuals in remote or underserved areas. However, it is essential to address barriers to access and utilization, such as technological infrastructure, patient education, and reimbursement policies. By doing so, healthcare organizations and policymakers can unlock the full potential of telehealth, improve healthcare access, and create a more resilient and patient-centered healthcare system.

The financial impact of the pandemic on healthcare practices was significant, with practice revenues experiencing a greater decline compared to practice expenses.

Independent practices, particularly independent primary care practices, reported more substantial reductions in revenues relative to expenses. This discrepancy underscores the vulnerability of independent practices in the face of the pandemic, as they may have had limited resources or support systems to weather the financial strains. Consequently, there is a critical need for targeted support mechanisms, such as financial assistance programs and practice management guidance, to ensure the viability and continuity of independent healthcare practices. Additionally, practice responses indicating intentions to implement cost-cutting measures and considerations of consolidation, selling practices, or closure demonstrate the urgent need for innovative strategies to prevent widespread closures and maintain care continuity.

The study also revealed variations in payment preferences among healthcare practices based on factors such as practice size, specialty, and economic considerations. Smaller practices tended to lean towards fee-for-service payment models, as they offer immediate reimbursement and align with the financial stability of smaller operations. On the other hand, larger practices showed a preference for global payment models, which provide more predictable and stable revenue streams. Additionally, behavioral health and specialist providers exhibited a preference for fee-for-service reimbursement, reflecting the nature of their services, while primary care providers demonstrated a relatively more favorable view of global payment models, likely due to their focus on preventive and coordinated care. These payment preferences highlight the importance of tailoring payment models to different practice contexts, striking a balance between promoting value-based care and supporting the financial viability of healthcare practices. Policymakers and payers should consider these preferences when designing payment reform initiatives and reimbursement policies to ensure their effectiveness and acceptance among healthcare providers.

In conclusion, this study's results provide critical insights into the diverse challenges faced by healthcare practices in Morocco during the Covid-19 pandemic. The findings emphasize the importance of addressing workforce disruptions, embracing telehealth, mitigating financial strains, and considering payment preferences to ensure the continuity of high-quality care delivery and the sustainability of healthcare practices. By implementing targeted interventions,

innovative strategies, and supportive policies, policymakers can effectively navigate future crises, promote the resilience of healthcare practices, and maintain a patient-centered healthcare system in Morocco. Continuous monitoring and evaluation of the evolving healthcare landscape are vital to inform evidence-based policies and interventions that address emerging challenges and safeguard the health and well-being of the population.

V. CONCLUSION

The findings of this study provide valuable insights into the multifaceted challenges faced by healthcare practices in Morocco during the Covid-19 pandemic, shedding light on the urgent actions required to overcome these challenges effectively. One key area of concern is the significant disruptions in the healthcare workforce, including furloughs, layoffs, and temporary absences of healthcare professionals. These disruptions not only impact the livelihoods of healthcare professionals but also have far-reaching implications for patient care and the financial sustainability of healthcare organizations. Addressing these workforce-related challenges becomes crucial to ensure the availability of skilled healthcare providers, maintain access to essential care services, and mitigate the adverse effects on both healthcare professionals and patients.

Another important aspect highlighted in the study is the substantial changes in clinical activity and care delivery modalities during the pandemic. The decline in in-person visits, particularly in primary care and specialty practices, has been partially compensated by the adoption of telehealth. The complete transition to virtual care in behavioural health and the relatively smaller decline in in-person visits in health systems underscore the significance of telehealth as a viable and effective means of delivering healthcare services during times of crisis. The findings emphasize the need to further explore the factors influencing patient behaviour and healthcare utilization patterns to better understand the dynamics of care delivery and enable healthcare organizations to develop innovative approaches and adapt their care models to ensure the provision of comprehensive and accessible care.

Furthermore, the study highlights the substantial financial impact experienced by healthcare providers during the pandemic, with their revenues declining more significantly than expenses. Independent practices, especially primary care practices, have been particularly vulnerable to revenue reductions, necessitating targeted support mechanisms to ensure their viability and continuity. The study also reveals the considerations of cost-cutting measures, consolidation, selling practices, or

closure among healthcare practices, highlighting the urgency for innovative strategies and interventions to prevent widespread closures and maintain care continuity. Policymakers should explore and implement financial assistance programs, practice management guidance, and other supportive measures to help healthcare practices navigate the financial strains and ensure their sustained operation.

In addition, the study sheds light on the diverse payment preferences among healthcare practices, influenced by factors such as practice size, specialty, and economic considerations. Smaller practices tend to favor fee-for-service payment models due to their immediate reimbursement and alignment with their financial stability, while larger practices show a preference for global payment models that offer more predictable and stable revenue streams. Understanding these payment preferences and tailoring payment models accordingly can contribute to striking a balance between promoting value-based care and supporting the financial viability of healthcare practices. Policymakers and payers should take these preferences into account when designing payment reform initiatives and reimbursement policies to ensure equitable and sustainable payment systems.

The comprehensive findings of this study provide crucial insights into the multifaceted challenges faced by healthcare practices in Morocco during the COVID-19 pandemic. The conclusion underscores the urgency of addressing workforce disruptions, embracing telehealth as a viable care delivery option, mitigating financial strains through targeted support mechanisms, and considering payment preferences to ensure the continuity of high-quality care delivery and the sustainability of healthcare practices. By implementing these recommended actions and continuously monitoring the evolving healthcare landscape, policymakers can navigate future crises, bolster the resilience of healthcare practices, and uphold a patient-centred healthcare system that safeguards the health and well-being of the population.

This study sheds light on the profound financial impact of the COVID-19 pandemic on healthcare providers in Morocco. The findings underscore the magnitude of the challenges faced by healthcare practices and emphasize the critical importance of addressing these challenges effectively. The financial implications of the pandemic have had far-reaching consequences, affecting various aspects of

healthcare operations and highlighting the need for targeted interventions and strategies to ensure the financial resilience and sustainability of healthcare providers.

One of the key findings of this study is the significant negative correlation between expenses and revenues. As expenses increase, healthcare providers experience a corresponding decrease in revenues, indicating the financial strain imposed by the pandemic. This underscores the need for healthcare organizations to carefully manage their expenses and explore cost-saving measures to mitigate the impact on their financial viability.

Furthermore, the study reveals the positive correlation between financial support and the financial impact of COVID-19. Healthcare providers that receive adequate financial assistance are better equipped to withstand the financial challenges posed by the pandemic. This highlights the importance of government support programs and financial aid initiatives to ensure the sustainability of healthcare practices and maintain access to quality care for patients.

The analysis also highlights the role of telehealth utilization in mitigating the financial impact on healthcare providers. The adoption of telehealth services has allowed healthcare organizations to continue providing care remotely, reducing the strain on physical facilities and enabling them to maintain revenue streams. The findings underscore the potential of telehealth as a valuable tool for enhancing healthcare delivery and generating alternative revenue sources.

Moreover, the study reveals the significant impact of clinical activity on the financial consequences of the pandemic. Healthcare providers with higher levels of clinical activity tend to experience a more pronounced financial impact, as they face increased costs associated with patient care. This emphasizes the need for healthcare organizations to carefully manage their resources, optimize patient flow, and explore innovative approaches to balance clinical activity with financial sustainability.

The relationships observed between the independent variables (expenses, revenues, financial support, telehealth utilization, clinical activity, and workforce) and the dependent variable (financial impact) highlight the interconnected nature of these factors and their collective influence on the financial well-being of healthcare providers. These findings underscore the need for a comprehensive approach that addresses the various dimensions of the financial impact and considers the interplay

between different variables.

The implications of this study are crucial for healthcare practices in Morocco. By understanding the specific financial challenges posed by the pandemic and the factors contributing to these challenges, healthcare providers can develop targeted strategies to mitigate the negative consequences and enhance their financial resilience. Policymakers should consider these findings when formulating policies and allocating resources to support healthcare practices, ensuring the continuity of quality care delivery and the long-term sustainability of the healthcare system.

In conclusion, this study emphasizes the urgency of addressing the financial impact of COVID-19 on healthcare providers in Morocco. It calls for collaborative efforts among policymakers, healthcare organizations, and stakeholders to develop and implement targeted interventions. These interventions should focus on supporting the healthcare workforce, integrating telehealth into care delivery models, providing financial assistance, and considering payment reform initiatives. By implementing these measures, the healthcare system can navigate future crises, enhance the resilience of healthcare practices, and ensure the continuous delivery of high-quality care to the population of Morocco. Continuous monitoring and evaluation of the evolving healthcare landscape will be crucial to inform evidence-based policies and interventions that address emerging challenges and safeguard the health and well-being of the population.

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