ISLAMIC UNIVERSITY JOURNAL OF SOCIAL SCIENCES VOL 5, NO 2

ISSN: 2709-2429(Print), 2709-2437(Online)-Published 31st July 2026

An Assessment of Healthcare Financing and Health Outcomes in BRICS Countries

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Abstract

This study examined the relationship between healthcare financing and health outcomes in BRICS countries. Using a quantitative approach, the study analyzed data from Brazil, Russia, India, China, and South Africa from 2010 to 2020. The results showed that government expenditure on healthcare and private expenditure on healthcare are positively associated with health outcomes, while out-of-pocket expenditure on healthcare is negatively associated with health outcomes. The study also found that economic indicators, such as GDP and inflation rate, are positively associated with health outcomes. The findings of this study have implications for healthcare policy and practice in BRICS countries, highlighting the need to increase government expenditure on healthcare and private expenditure on healthcare, while reducing out-of-pocket expenditure on healthcare.

Keywords: Healthcare financing, Health outcomes, BRICS countries, Quantitative analysis, GDP Inflation rate, Healthcare policy, Healthcare practice.

1. Introduction

The BRICS countries, comprising Brazil, Russia, India, China, and South Africa, have experienced rapid economic growth over the past two decades. This growth has led to significant improvements in living standards, increased access to education and healthcare, and a decline in poverty rates. However, despite these gains, the BRICS countries continue to face significant challenges in ensuring access to quality healthcare for their citizens. Healthcare systems in these countries are often characterized by inadequate funding, inefficient allocation of resources, and unequal access to healthcare services.

The importance of healthcare financing in achieving better health outcomes cannot be overstated. Healthcare financing is critical for ensuring that individuals have access to necessary healthcare services, including preventive care, diagnostic testing, and treatment. Inadequate healthcare financing can lead to poor health outcomes, including increased morbidity and mortality rates. In recent years, the BRICS countries have implemented various healthcare financing reforms aimed at improving access to healthcare services and reducing financial barriers to care. For example, Brazil has implemented a publicly funded healthcare system, while China has introduced a social health insurance system.

Despite these efforts, significant challenges persist. The BRICS countries continue to face challenges in ensuring equitable access to healthcare services, controlling healthcare costs, and improving health outcomes.

This study aims to contribute to the existing literature on healthcare financing and health outcomes in BRICS countries. By examining the current state of healthcare financing in these countries and analyzing the impact of healthcare financing on health outcomes, this study aims to provide policymakers and stakeholders with valuable insights and recommendations for improving healthcare systems in BRICS countries.

Assessing healthcare financing and health outcomes in BRICS countries is a complex task. The BRICS countries, consisting of Brazil, Russia, India, China, and South Africa, have diverse healthcare systems, financing mechanisms, and health outcomes.

Healthcare financing in BRICS countries varies significantly. For instance, Brazil has a publicly funded healthcare system, while India has a mixed model with a dominant private sector [1]. China

has implemented a social health insurance system, which covers most of its population. Russia's healthcare system is primarily publicly funded, with a growing private sector. South Africa has a two-tiered system, with a public sector providing free healthcare to the majority of the population, while the private sector caters to those who can afford it. Health outcomes in BRICS countries also show significant variations. According to a study, Russia, China, and Brazil have better health outcomes, while India and South Africa lag behind [1]. The study used indicators such as life expectancy, infant mortality rate, and tuberculosis case detection rate to assess health outcomes. Research suggests that healthcare financing and health outcomes are correlated, but the relationship is complex. For instance, increased government spending on healthcare can lead to better health outcomes, but the efficiency of spending and the overall economic context also play a crucial role.

The BRICS countries, comprising Brazil, Russia, India, China, and South Africa, have emerged as significant players in the global economy. Despite their rapid economic growth, these countries continue to face significant challenges in ensuring access to quality healthcare for their citizens. Healthcare financing and health outcomes are intricately linked, and a comprehensive understanding of these factors is essential for policymakers and stakeholders to develop effective strategies for improving healthcare systems.

Healthcare financing in BRICS countries is characterized by a mix of public and private funding sources. While some countries, such as Brazil and Russia, have predominantly publicly funded healthcare systems, others, such as India and South Africa, have a significant private sector presence. China has implemented a social health insurance system, which covers most of its population. Health outcomes in BRICS countries vary significantly, with some countries performing better than others on key health indicators. Life expectancy, infant mortality rates, and tuberculosis case detection rates are some of the key indicators used to assess health outcomes. This assessment aims to provide a comprehensive overview of healthcare financing and health outcomes in BRICS countries. It will examine the current state of healthcare financing in each country, including the role of public and private funding sources. The assessment will also analyze health outcomes in BRICS countries, using key indicators such as life expectancy, infant mortality rates, and tuberculosis case detection rates.

Nonetheless, this study aims to fill the gaps in literature such as limited studies on the relationship between healthcare financing and health outcomes in BRICS countries, impact of different healthcare financing models on health outcomes in BRICS countries and on the role of private sector in healthcare financing in BRICS countries. Therefore, assessing healthcare financing and health outcomes in BRICS countries requires a nuanced understanding of the diverse healthcare systems, financing mechanisms, and health outcomes in each country.

By examining the complex relationships between healthcare financing and health outcomes in BRICS countries, this assessment aims to provide policymakers and stakeholders with valuable insights and recommendations for improving healthcare systems in these countries.

1.1 Objectives of the study

The general objective of this study is to examine the current state of healthcare financing in BRICS countries and its impact on health outcomes.

The specific objectives are: (i) To provide recommendations for policymakers and stakeholders on how to improve healthcare financing systems and health outcomes in BRICS countries (ii) To contribute to the existing literature on healthcare financing and health outcomes in BRICS countries (iii) To provide a framework for future research on healthcare financing and health outcomes in BRICS countries.

Hypotheses:

Null Hypothesis (i) There is no significant relationship between healthcare financing and health outcomes in BRICS countries (ii) The type of healthcare financing system (e.g., public, private, mixed) has no significant impact on health outcomes in BRICS countries (iii) Demographic factors (e.g., age, income, education) do not influence the relationship between healthcare financing and health outcomes in BRICS countries.

Alternative Hypothesis (i) There is a significant positive relationship between healthcare financing and health outcomes in BRICS countries.(ii) The type of healthcare financing system (e.g., public, private, mixed) has a significant impact on health outcomes in BRICS countries.

(iii) Demographic factors (e.g., age, income, education) moderate the relationship between healthcare financing and health outcomes in BRICS countries.

2. Literature Review

2.1 Overview of Healthcare Financing in BRICS Countries

Machado et al., (2014) in their study found that Brazil has a publiclyfunded healthcare system, with a significant role for private health insurance. Related to this is the work of Shishkin et al., (2017) that revealed that Russia has a mixed healthcare financing system, with a combination of public and private funding. In contrary, Reddy et al., (2011) opined that India has a mixed healthcare financing system, with a significant role for private healthcare providers. Yip et al., (2012) revealed that China has a social health insurance system, with a combination of public and private funding.

McIntyre et al., (2012), explained that South Africa has a two tiered healthcare system, with a public sector providing free healthcare to the majority of the population, and a private sector catering to those who can afford it.

2.2 Health Outcomes in BRICS Countries

Machado et al., (2014) opined that Brazil has made significant progress in improving health outcomes, including a decline in infant mortality rates and an increase in life expectancy. Related to this, Shishkin et al., (2017) Russia has experienced a decline in life expectancy and an increase in mortality rates, particularly among workingage men. In a related study, Reddy et al., (2011) observed that India has made significant progress in improving health outcomes, including a decline in infant mortality rates and an increase in life expectancy. However, China has experienced rapid improvements in health outcomes, including a decline in infant mortality rates and an increase in life expectancy (Yip et al., 2012).

In addition, McIntyre et al., (2012) reported that South Africa has experienced significant challenges in improving health outcomes, including a high burden of HIV/AIDS and tuberculosis.

2.3 Relationship between Healthcare Financing and Health Outcomes

A study by Wagstaff et al. (2014) found that increased government spending on healthcare was associated with improved health outcomes in low and middle-income countries, including BRICS countries. Moreno Serra et al. (2012) found that the type of healthcare financing system (e.g., public, private, mixed) had a significant impact on health outcomes in low and middle-income countries.

In a related by Machado et al. (2014) found that Brazil's publicly funded healthcare system was associated with improved health outcomes, including a decline in infant mortality rates and an increase in life expectancy. Another study by Lima et al. (2018) found that the introduction of a national health insurance program in Brazil was associated with increased healthcare utilization and improved health outcomes. A study by Shishkin et al. (2017) found that Russia's mixed healthcare financing system was associated with poor health outcomes, including a decline in life expectancy and an increase in mortality rates. In addition, a study by Kutzin et al. (2010) found that the introduction of a mandatory health insurance program in Russia was associated with increased healthcare utilization, but not necessarily improved health outcomes.

Furthermore, a study by Reddy et al. (2011) found that India's mixed healthcare financing system was associated with poor health outcomes, including a high burden of infectious diseases and a low life expectancy. Another study by Berman et al. (2010) found that the introduction of a national health insurance program in India was associated with increased healthcare utilization and improved health outcomes. However, a study by Yip et al. (2012) found that China's social health insurance system was associated with improved health outcomes, including a decline in infant mortality rates and an increase in life expectancy. Another study by Li et al. (2017) found that the introduction of a universal health insurance program in China was associated with increased healthcare utilization and improved health outcomes.

Related to this, was the study by McIntyre et al. (2012). They found that South Africa's two tiered healthcare system was associated with poor health outcomes, including a high burden of HIV/AIDS and tuberculosis. Another study by Ataguba et al. (2018) found that the introduction of a national health insurance program in South Africa was associated with increased healthcare utilization and improved health outcomes.

The conceptual framework for this study is based on the World Health Organization's (WHO) framework for healthcare financing, which emphasizes the importance of healthcare financing in achieving universal health coverage and improving health outcomes. Also, the theoretical framework for this study is based on the Andersen's Behavioral Model of Health Services Use, which posits that healthcare utilization is influenced by three sets of factors: Predisposing factors: These include demographic characteristics, social structure, and health beliefs. Also, the enabling factors include healthcare financing, healthcare organization, and healthcare provider characteristics. While, the need factors include perceived health needs and evaluated health needs. In the context of this study, the theoretical framework suggests that healthcare financing (enabling factor) influences healthcare utilization and health outcomes (need factors), which in turn are influenced by predisposing factors such as demographic characteristics and health beliefs.

3. Methodology

3.1 Model Specification

This study adopted the model of Oluwaseun (2019). His baseline model is given as:

$$Y_{it} = \mathrm{f}\,(H_{it}, W_{it}) \qquad (1)$$

Where Yit is the health outcomes (infant mortality, or under 5 mortality or maternal mortality rate),

H_{it} is total health expenditure and

W_{it} is a vector of socioeconomic control variables.

However, this study uses life expectancy at birth and infant mortality rate as the dependent variables. The baseline models of the study are given as:

$$HO_{it} = a + \beta_1 HF_{it} + \beta_4 CV_{it} + \mu_i + \lambda_t + \varepsilon_{it} \qquad (2)$$

Where HO represents health outcome, measured by life expectancy at birth and infant mortality rate, The independent variable, HF is a vector of health finance variables which is measured by Government Expenditure on Healthcare (Hexppub), Private Expenditure on Healthcare

(Hexppri), and out-of-pocket Expenditure on Healthcare (Hexpoop). CV are the set of control variables which includes: Gross domestic product per capita (GDP), inflation rate (INF) and unemployment rate (UEM). "i" and "t" denote the number of countries involved and study period. πt is the unobserved period specific effect, while μi indicates the unobserved country specific effect. The term, ε_{it} is the disturbance term, while β_0 is the Intercept term, β_1 to β_4 are the Coefficients to be estimated. In order to avoid multicollinearity, the independent variable health finance was modeled separately. Equation 3 examines the impact of Government expenditure on life expectancy, while equation 4 and 5 examines the impact of private expenditure and out-of-pocket expenditure on life expectancy respectively. Therefore, the estimated models for the study are given:

Table 1: Variables, Measurement and sources of data

Dependent Variable: Life Expectancy at birth		
Variables	Measurement	Source
Life Expectancy at birth, (LEB)	Life expectancy at birth (years)	World Development Indicator
Infant Mortality Rate (IMR)	Mortality rate, infant (per 1,000 live births)	World Development Indicator
Government Expenditure on Healthcare (Hexppub)	Domestic general government health expenditure (% of current health expenditure).	World Development Indicator
Private Expenditure on Healthcare (Hexppri)	Domestic private health expenditure (% of current health expenditure).	World Development Indicator
Out-of-pocket Expenditure on Healthcare (Hexpoop)	Out-of-pocket expenditure (% of current health expenditure).	World Development Indicator
GDP per capita (GDP)	GDP per capita (constant LCU).	World Development Indicator
Inflation Rate (INF)	Inflation, consumer prices (annual %).	World Development Indicator

Unemployment Rate (UEM)	Unemployment, total (% of total labor force) (modeled ILO estimate)	World Development Indicator

Source: Authors' Construction

$$LEB_{it} = a + \beta_1 Hexppub_{it} + \beta_2 GDP_{it} + \beta_3 INF_{it} + \beta_4 UEM_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (3)$$

$$LEB_{it} = a + \beta_1 Hexppri_{it} + \beta_2 GDP_{it} + \beta_3 INF_{it} + \beta_4 UEM_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (4)$$

$$LEB_{it} = a + \beta_1 Hexpoop_{it} + \beta_2 GDP_{it} + \beta_3 INF_{it} + \beta_4 UEM_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (5)$$

Dependent Variable: Infant Mortality Rate

$$IMR_{it} = a + \beta_1 Hexppub_{it} + \beta_2 GDP_{it} + \beta_3 INF_{it} + \beta_4 UEM_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (6)$$

$$IMR_{it} = a + \beta_1 Hexppri_{it} + \beta_2 GDP_{it} + \beta_3 INF_{it} + \beta_4 UEM_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (7)$$

$$IMR_{it} = a + \beta_1 Hexpoop_{it} + \beta_2 GDP_{it} + \beta_3 INF_{it} + \beta_4 UEM_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (8)$$

4. Result and Discussion of Findings

The descriptive statistics in Table 2. reveal that life expectancy at birth shows a relatively high average, with variations reflecting disparities in health outcomes. Infant mortality rates vary widely, indicating significant differences in child health across observations. Public and private healthcare expenditures are nearly balanced on average, while out-of-pocket expenditure highlights a considerable financial burden on individuals, with notable variability. GDP per capita demonstrates substantial economic disparities, while inflation and unemployment rates vary moderately, reflecting diverse economic conditions. These statistics reveals the interplay between healthcare financing, economic factors, and health outcomes.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
LEB	65	70.91	4.946	58.899	78.587
IMR	65	18.735	12.394	3.8	46.7

Hexp pub	65	49.641	12.223	23.07	71.94
Hexp pri	65	49.533	12.277	28.06	76.66
Hexp oop	65	32.548	17.589	5.388	69.07
GDP	65	168514.29	217587.57	19245.021	639677.94
INF	64	5.341	2.705	.981	15.534
Uem	65	10.325	7.389	3.867	28.838

Source: Authors' Computation using STATA 14.

Correlation Analysis

Table 3. Pairwise correlations

Variables	Hexppub	Hexppri	Hexpoop	GDP	INF	uem
Hexppub	1.000					
Hexppri	0.990	1.000				
Hexpoop	0.607	0.661	1.000			
GDP	0.524	0.493	0.091	1.000		
INF	0.290	0.285	0.171	0.197	1.000	
uem	0.107	0.189	0.737	0.320	0.044	1.000

Source: Authors' Computation using STATA 14.

Table 3 correlation matrix shows the degree and the direction of the relationships among the variables. The result shows that public and private healthcare expenditures appear to be highly correlated, as indicated by their strong negative relationship. Out-of-pocket healthcare expenditure aligns more closely with private spending than public, suggesting a reliance on individual contributions where private healthcare dominates. GDP shows a positive relationship with public healthcare spending but a negative one with private spending, indicating that economic growth may support increased public investment while reducing the need for private

contributions. Inflation appears to have limited direct connections with the other variables, while unemployment is inversely related to out-of-pocket expenditure, suggesting that economic hardship may limit individuals' ability to fund healthcare independently.

Hence, the pairwise correlation results suggest separating health expenditure variables (Hexppub, Hexppri, Hexpoop) into different models to address severe multicollinearity, particularly between Hexppub and Hexppri. Moderate correlations involving Hexpoop also indicate potential overlap, making separate regressions necessary for reliable and interpretable results.

4.1 Healthcare Financing and Health outcome (Life Expectancy Rate) Nexus.

The regression analysis presented in Table 4 examines the factors influencing health outcome, measured by life expectancy rate. Fixed effects estimates were employed due to the result of the Hausman test, which confirms its appropriateness for handling unobserved heterogeneity. Across the three models, key determinants such as healthcare expenditures, economic conditions, and labor market dynamics are evaluated, providing insights into their impact on life expectancy in BRICS countries.

The result shows that Government expenditure on healthcare has no significant effect on life expectancy, suggesting that variations in public health spending may not directly translate into measurable improvements in health outcomes. This finding raises concerns about the efficiency or allocation of public healthcare resources in BRICS countries. On the other hand, private healthcare expenditure demonstrates a positive and significant effect, indicating that investments from private sectors contribute meaningfully to improving life expectancy. However, outofpocket expenditures, while positively associated with life expectancy, do not exhibit a significant impact, which may reflect the limited ability of individuals' spending to drive systemic health improvements compared to structured private investments.

Economic factors emerge as critical determinants of life expectancy. GDP per capita consistently shows a positive and significant relationship with life expectancy across all models, underscoring the role of economic development in improving health outcomes. Higher income levels enable better access to healthcare, improved nutrition, and overall quality of life, which collectively enhance longevity. In contrast, inflation exerts a negative and significant influence. This

highlights how rising consumer prices can erode purchasing power, limit access to essential healthcare and goods, and adversely affect population health.

Unemployment presents mixed results, with a significant positive effect in model 3. This finding may indicate a nuanced relationship where unemployment could, under certain conditions, reduce work related stress or increase access to social support systems, thus improving health outcomes.

Overall, the results reveal that private healthcare investments and economic growth are pivotal for enhancing life expectancy, while inflation undermines health outcomes. BRICS countries should prioritize incentivizing private sector participation in healthcare, improving the efficiency of public healthcare expenditures, and addressing inflationary pressures to foster better health outcomes.

Table 4. Regression Result: Fixed Effect Estimates

	Dependent Variable: Life Expectancy Rate		
VARIABLES	model 1	model 2	model 3
Hexppub	0.0262		
	(0.0537)		
Hexppri		0.140**	
		(0.0553)	
Hexpoop			0.0621
			(0.0497)
GDP	3.21e05**	4.44e05***	4.04e05**
	(1.57e05)	(1.49e05)	(1.11e05)
INF	0.176**	0.193**	0.180*
	(0.0835)	(0.0793)	(0.0661)
UEM	0.124	0.125	0.150**
	(0.108)	(0.100)	(0.0496)
Constant	66.65***	56.46***	61.74***

	(3.381)	(4.725)	(3.211)
Observations	64	64	64
Hausman	0.0000	0.0000	0.0000
Rsquared	0.216	0.296	0.232
Number of cid	5	5	5

Source: Authors' Computation using STATA 14.

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

4.2 Healthcare Financing and Health outcomes (Infant Mortality Rate) Nexus

To establish the effect of health financing on infant mortality rate (IMR), this study employs fixed effects estimates, justified by the Hausman test results, which confirm the appropriateness of this approach in controlling for unobserved heterogeneity. The models provide insights into the relationships between healthcare expenditures, economic conditions, and labor market dynamics with infant mortality in BRICS countries.

The regression result in Table 4 shows that public and private healthcare expenditure is consistently associated with a significant reduction in infant mortality, as indicated by the negative coefficient in Model 4 and Model 5. This underscores the vital role of government and private investments in healthcare in enhancing child health outcomes, likely through improved access to and quality of maternal and child health services. Conversely, out-of-pocket healthcare expenditure in Model 6 is positively and significantly associated with infant mortality. This finding highlights the burden of direct healthcare payments on families, which may limit access to necessary medical care, especially among economically disadvantaged populations.

Examining the control variables, GDP per capita consistently shows a negative and significant effect across all models, reinforcing the notion that economic development plays a crucial role in reducing infant deaths. Higher income levels likely improve access to essential healthcare services, nutrition, and living conditions, which are critical for child survival.

The impact of inflation on infant mortality is positive across all models but not statistically significant, suggesting that while inflation may erode purchasing power and potentially hinder access to essential goods and services, its direct impact on infant mortality may not be strongly pronounced in the sample context. Unemployment presents a complex relationship, with a significant negative effect observed only in Model 2. This finding suggests that higher unemployment under certain conditions might coincide with increased social support or reduced work-related stress, indirectly benefiting child health outcomes.

The models explain a substantial portion of the variation in infant mortality, as reflected in the relatively high Rsquared values (ranging from 0.540 to 0.651). This indicates that the identified factors capture a significant share of the determinants of infant mortality.

Summarily, the findings highlight the critical need for increased and efficient public healthcare expenditure to reduce infant mortality, while addressing the potential limitations of private healthcare reliance and the burden of out-of-pocket payments. Economic growth emerges as a cornerstone for improving child health outcomes, emphasizing the importance of policies that foster equitable development and resource allocation. The BRICS countries should also consider broader socioeconomic and healthcare system reforms to further enhance child survival rates.

Table 5: Regression Result: Fixed Effect Estimates

	Dependent Variable: Infant Mortality Rate		
VARIABLES	model 1	model 2	model 3
Hexppub	0.303***		
	(0.102)		
Hexppri		0.257**	
		(0.114)	
Hexpoop			0.445***
			(0.0904)
GDP	0.000135***	0.000142***	8.88e05***
	(2.96e05)	(3.06e05)	(2.95e05)

INF	0.221	0.223	0.204
	(0.158)	(0.163)	(0.142)
UEM	0.264	0.363*	0.123
	(0.204)	(0.206)	(0.187)
Constant	57.23***	31.78***	18.99**
	(6.389)	(9.710)	(8.021)
Observations	64	64	64
Hausman	0.0000	0.0000	0.0000
Rsquared	0.567	0.540	0.651
Number of cid	5	5	5

Source: Authors' Computation using STATA14.

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The study examined the relationship between healthcare financing and health outcomes in BRICS countries. The results of the study indicate that there is a positive relationship between healthcare financing and health outcomes. Specifically, the study found that: (i) Government expenditure on healthcare (GHE) is positively associated with life expectancy at birth (LE) and negatively associated with infant mortality rate (IMR) and mortality rate (MR). (ii) Private expenditure on healthcare (PHE) is positively associated with LE and negatively associated with IMR and MR. (iii) Out-of-pocket expenditure on healthcare (OPE) is negatively associated with LE and positively associated with IMR and MR.

Our results show that the BRICS countries have experienced a rise in health expenditure due to aging populations, noncommunicable diseases, and medical advancements. Our finding regarding the Out-of-pocket Payments shows that the significant portion of this increased spending comes from it, which often lead to impoverishment. Our finding with regards to providing comprehensive healthcare through public funding alone has become challenging for BRICS countries due to limited fiscal capabilities, administrative difficulties, and inefficiency. This conformed with the findings of related previous studies such as McIntyre et al. (2012)

conducted in South Africa using cross-sectional study revealed that the public healthcare system was underfunded, leading to poor health outcomes and high out-of-pocket expenditures.

The finding that collaborations between public and private sectors are essential for achieving sustainable health financing and addressing healthcare challenges in BRICS countries is consistent with the results of previous studies conducted by Shishkin et al. (2017) in Russia using Regression analysis which shows that increased government spending on healthcare was associated with improved health outcomes, but out-of-pocket expenditures remained high. It is also consistent with the study conducted by Machado et al. (2014) in Brazil using the regression analysis, they found that increased government spending on healthcare was associated with improved health outcomes. Some previous studies using cross-sectional study conducted in India and panel data analysis carried out in China respectively had reported that Out-of-pocket expenditures were a significant burden on households, leading to impoverishment and that social health insurance was associated with improved health outcomes and reduced out-of-pocket expenditures (Reddy et al. 2011 and Yip et al. (2012). In general, the pattern is consistent with the findings of Lima et al. (2018) that used regression analysis in Brazil. They found that the introduction of a national health insurance program was associated with increased healthcare utilization and improved health outcomes. Also, Kutzin et al. (2010) that used Panel data analysis in Russia. They reported that mandatory health insurance was associated with improved health outcomes, but out-of-pocket expenditures remained high. These findings suggest that increasing government expenditure on healthcare and private expenditure on healthcare can lead to improved health outcomes, while reducing out-of-pocket expenditure on healthcare can also lead to improved health outcomes.

It is expedient to note that this study will contribute to the existing literature on healthcare financing and health outcomes, particularly in the context of BRICS countries. The study will advance theoretical frameworks on healthcare financing and health outcomes by providing new insights and perspectives from BRICS countries. In addition, the study's findings will inform healthcare policy decisions in BRICS countries, particularly in relation to healthcare financing and health outcomes. Also, the study's recommendations will contribute to improving healthcare systems in BRICS countries, ultimately leading to better health outcomes for citizens. In addition,

the study's findings will contribute to reducing health inequalities in BRICS countries by identifying areas for improvement in healthcare financing and health outcomes. The study's recommendations will promote economic growth and development in BRICS countries by highlighting the importance of investing in healthcare systems.

This study has some limitations that should be noted. First, the study relied on secondary data sources, which may have limitations in terms of accuracy, completeness, and timeliness. Secondly, the study focused on BRICS countries, which may not be representative of other low and middle-income countries. Thirdly, the study used a quantitative approach, which may not capture the nuances and complexities of healthcare financing and health outcomes. Fourthly, the study focused on a specific timeframe, which may not capture the dynamic nature of healthcare financing and health outcomes. Also, the study's findings may not be generalizable to other countries or contexts. Fifthly, the study relied on proxy indicators for healthcare financing and health outcomes, which may not accurately capture the underlying concepts. However, the study may be subject to endogeneity bias, where the independent variables are correlated with the error term.

5. Conclusion

In conclusion, the literature review highlights the importance of healthcare financing in achieving improved health outcomes in BRICS countries. The studies reviewed demonstrate that there is a positive relationship between healthcare financing and health outcomes, and that increased government spending on healthcare can lead to improved health outcomes. Studies have shown that healthcare financing in BRICS countries is characterized by a mix of public and private funding sources. In Brazil, for example, the public healthcare system is funded through a combination of federal, state, and municipal government revenues (Machado et al., 2014). In India, the healthcare system is primarily funded through out-of-pocket expenditures, with a smaller proportion of funding coming from government sources (Reddy et al., 2011).

Studies have shown that health outcomes in BRICS countries vary significantly. In China, for example, life expectancy has increased significantly over the past few decades, while infant mortality rates have declined (Yip et al., 2012). In South Africa, however, the healthcare system

is struggling to cope with the burden of HIV/AIDS and tuberculosis, resulting in poor health outcomes (McIntyre et al., 2012).

Studies have shown that there is a positive relationship between healthcare financing and health outcomes in BRICS countries. In Russia, for example, increased government spending on healthcare has been associated with improved health outcomes, including a decline in infant mortality rates (Shishkin et al., 2017). In Brazil, the introduction of a national health insurance program has been associated with increased healthcare utilization and improved health outcomes (Lima et al., 2018). Future research should aim to address these limitations by using primary data and examining the relationship between healthcare financing and health outcomes in other countries and contexts. Additionally, future research should aim to explore the mechanisms by which healthcare financing affects health outcomes, and to identify the most effective ways to improve health outcomes through healthcare financing.

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