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Corruption & Healthcare in Africa: A Comparative Assessment of the Effect of Paying of Bribe on Access to Medical Care and the Quality of Healthcare in Africa

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ABSTRACT The primary purpose of the present study is to examine the predictors of access to medical care and the quality of healthcare in Africa. Specifically, this study assesses the effect of corruption – the paying of bribes and other factors – on access to medical care and the quality of healthcare on the continent. Responses from 45,823 respondents from 34 countries across the continent were analyzed using ordinary least squares regression. The results reveal that corruption influences both access to medical care and the quality of healthcare on the continent. Additionally, several sociodemographic variables such as religion, age, region, rural-urban residency, gender, and others also influence access to medical care and the quality of healthcare in Africa. Theoretically, the present study fills a void and augments the existing literature. Policy-wise, the results serve as a guide to formulating and implementing realistic measures to address healthcare corruption and its negative impact on access to medical care and the quality of healthcare on the continent.

KEY WORDS medical care, quality, healthcare, Africa, corruption

INTRODUCTION

Corruption is rampant in most low- and middle-income countries, including those of African countries, and affects all sectors including healthcare (Kamorudeen & Bidemi, 2012; Onwujekwe et al., 2019). Corruption in Africa affects healthcare in various ways such as deepening existing inequalities in access to healthcare and leading to poor quality healthcare, poor delivery of healthcare, lack of trust in healthcare professionals and institutions, increase in wrong diagnosis and prescription etcetera (Akokuwebe & Adekanbi, 2017; Dovlo, 1998). Furthermore, corruption in the healthcare sector on the continent continues to serve as an obstacle to accomplishing health related sustainable development goals, and understanding the problem can lead to the

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formulation and implementation of effective solutions to combat healthcare related corruption (Holeman et al., 2016; Onwujekwe et al., 2019).

Defining and measuring healthcare related corruption continues to be a challenge. However, the extant literature provides some definitions. For instance, “healthcare corruption is the difference between the actual behavior of healthcare professionals and prescribed rules and regulations of the healthcare system” (de Sardan, 2013), and “healthcare corruption refers to rule-breaking behaviors and practices that negatively impact access, delivery, and quality of healthcare received by consumers” (Vian, 2008). However, some studies argue that a distinction must be made between rule-breaking behaviors that have positive, negative, and neutral effects on healthcare for patients and consumers (Khan et al., 2016). In some countries and cultures, corruption in healthcare is often normalized and accepted by stakeholders within the healthcare system once it has a net positive effect on healthcare (Nordberg & Vian, 2008).

Although numerous empirical studies exist in regards to corruption in Africa (Onwujekwe et al., 2019), the majority of studies focus on country-specific healthcare related corruption (Agbenorku, 2012; Onwujekwe et al., 2020; Rispel et al., 2016), and regional based healthcare corruption (Durojaye & Mirugi-Mukundi, 2012; Hsiao et al., 2019; Mackintosh et al., 2018; Matallah, 2020; Onwujekwe et al., 2019; Popoola, 2018). Despite the wealth of knowledge provided by the current studies on healthcare corruption in Africa, there is a dearth of scientific enquiry about healthcare corruption in Africa that examines the issue across different countries and regions.

Against this background, the present study seeks to address the lack of scientific enquiry that examines healthcare corruption from a comparative perspective, looking at multiple individual countries and regions on the continent. Specifically, the current study examines the effect of corruption: the paying of bribes on access to medical care and quality of healthcare for 34 African countries grouped into 5 regions on the continent. Therefore, the present study answers two main research questions, namely:

Research Question 1 (RQ1): What is the influence of corruption, specifically, the payment of bribes on access to medical care in Africa?

Research Question 2 (RQ2): What is the influence of corruption, specifically, the payment of bribes on the quality of healthcare in Africa?

To answer the research questions, the present study obtained and analyzed responses from 45,823 Africans from 34 countries grouped into 5 regions. The data was obtained from the Afro-barometer round 7 survey. Afro-barometer uses a national probability sample to ensure the sampled population reflects the entire population. Specifically, two techniques are utilized namely: (i) random sampling, and (ii) sampling with probability proportionate to the population size. We analyzed the data using a multivariate ordinal least square regression. Answering the aforementioned research questions makes several exploratory contributions to the existing literature. First, the present study addresses the gap in the literature regarding the lack of comparative studies that investigates healthcare corruption in Africa. Previous studies are criticized for homogeneity issues (Matallah, 2020; Onwujekwe et al., 2020), hence comparative studies across different countries and regions on the continent are needed to properly address this concern. Second, the present study seeks to provide answers to the effect of corruption on access to medical care and also most importantly, the quality of healthcare provided. There is a myth in some countries on the continent that paying of bribes improves access and the quality of healthcare and this study addresses this myth. Lastly, the study also provides policymakers with empirical evidence to understand the effect of paying bribes on access to medical care and the quality of healthcare in Africa, which can aid the formulation and implementation of practical policies that are specific to the individual countries and regions on the continent.

LITERATURE REVIEW

Corruption: the general literature

Although corruption is globally viewed as a problem, there is no universally accepted definition of corruption (Atuobi, 2007; Onwujekwe et al., 2019). Corruption can be viewed from different perspectives (Atuobi, 2007). Among the most common definitions of corruption include the following: “the abuse of entrusted power for private gain” (Transparency International, 2019), “corruption is an abuse of (public) power for private gain that hampers the public interest” (United Nations, 2001), and “corruption as the abuse of public or private office for personal gain. This means any behavior in which people in the public or private sectors improperly and unlawfully enrich themselves or those close to them, or induce others to do so, by misusing their position” (Asian Development Bank, 2001).

Conceptually, corruption can be understood from four main perspectives: the moralist perspective, the functionalist perspective, the social censure perspective, and the social constructionist realist perspective (Atuobi, 2007; Friedrich, 2017; Gould, 1991). First, the moralist perspective contends that corruption is an immoral and unethical endeavor. Thus, corruption is a set of moral aberrations from the specified moral values of a specific profession or society. Corruption, according to the moralist, leads to negative consequences such as loss of respect and confidence in existing leadership and institutions, loss of life, underdevelopment etcetera (Caiden & Caiden, 2018; Gould, 1991; Jiang et al., 2013; Nye, 1967; Walton, 2013; Yeboah-Assiamah et al., 2014). A common definition of corruption by the moralist suggests that corruption is “a behavior that deviates from the formal duties of a public role (elective or appointive) because of private-regarding (personal, close family, private clique) wealth or status gains, or violates rules against the exercise of certain types of private-regarding influence” (Nye, 1967). Despite the arguments of the moralists, they are criticized for viewing corruption as a dichotomous problem of morality and immorality. Critics argue that corruption is bigger than a two-fold issue as suggested by moralists (Fendt, 1994; Johnston, 1986).

Second, the functionalist perspective argues that corruption has inherent benefits. Functionalists argue that because the focus has always been on the negative consequences of corruption, there is the likelihood of overlooking some potential benefits of corruption. Functionalists posit that corruption may help speed up cumbersome bureaucratic processes, allow access to services and goods, and lead to the creation of de facto policies that are more efficient than policies made through legitimate channels (Ayee, 2002; Friedrich, 2017; Michael et al., 2006; Walton, 2013). Critics of this perspective suggest that disregarding the deviant behavior of corruption because it provides some positive benefits creates a challenge regarding law enforcement and justice administration in other domains of society. Additionally, because functionalists are focused on the benefits of corruption, they also fail to address the relevant question of the origin of corruption (Cartier-Bresson, 2004; Hock, 2015; Lo, 1993).

Social censure and social constructionist realist perspectives add to the understanding of corruption. Social censure suggests that understanding formal and informal relationships and structures within the society helps to better understand corruption. Thus, social censure suggests that corruption is the outcome of the interplay of various aspects of society (Jiang et al., 2013; Li, 2016). Social constructionist realist perspectives suggest that corruption can be understood by studying the actors involved in corruption. In essence, actors in the system can vary by social position, the context of their society, responsibilities, interests, political, economic, social conditions, and stakes within the system (Katzarova, 2015, 2018; Pavarala, 1996).

Corruption: the healthcare literature

Healthcare corruption like any other type of corruption is difficult to define. However, some of the common definitions of healthcare corruption include the following, “healthcare corruption is the difference between actual behavior of healthcare professionals and prescribed rules and regulations of the healthcare system” (de Sardan, 2013) and “healthcare corruption refers to rule-making behaviors and practices that negatively impact the access, delivery, and quality of healthcare received by consumers” (Vian, 2008). The former definition suggests that healthcare corruption is created and continued by major actors who are opportunist, pressured, or good at rationalizing corrupt practices in the healthcare system (Gaitonde et al., 2016; Vian, 2008). The latter definition suggests that healthcare corruption occurs because of social norms, reciprocal relationships, and other types of relationships in the healthcare system (Gaal & McKee, 2004; Nordberg & Vian, 2008).

In Africa, the paying of bribes to access medical care continues to be a common form of healthcare corruption (Agbenorku, 2012). Bribes – giving or taking money or something else of value to influence a decision for private gain –influence access to medical care and the quality of healthcare (Onwujekwe et al., 2019). Bribes in the healthcare system can exist between various actors such as government regulators, suppliers, providers, health professionals, and consumers. However, bribes given by patients or consumers to providers and suppliers in the healthcare system seek to increase patient access and quality to healthcare (Gaitonde et al., 2016; Nordberg & Vian, 2008; Onwujekwe et al., 2019; Vian, 2008). For the present study we focus on bribes given by patients or consumers to help improve access and the quality of care they receive.

Access and quality of healthcare: a review

The extant literature on access to medical care is dominated by three main themes – equating access to the characteristics of the population, equating access to the delivery system, and equating access to the outcome indicators of individuals’ use of the medical care (Aday & Andersen, 1974; Levesque et al., 2013; Peters et al., 2008). First, equating access to the characteristics of the population includes considering factors such as family

income, insurance coverage, attitude towards medical care, age, gender, education, religion, rural-urban residency, region, and political party affiliation among others (Aday & Andersen, 1974; Dzordzormenyoh et al., 2020; Levesque et al., 2013; Luo & Qi, 2009; Peters et al., 2008). Second, equating access to the delivery system considers issues such as the distribution and organization of manpower and facilities within the healthcare system (Aday & Andersen, 1974; Levesque et al., 2013; Peters et al., 2008). Third, equating access in relation to the outcome indicators of individuals' use of the medical care considers issues such as satisfaction scores and utilization rates (Aday & Andersen, 1974; Babitsch et al., 2012; Dzordzormenyoh, 2019; Phillips et al., 1998). Thus, access is synonymous to the availability of financial and health system resources for the public within a specific geographical area. Access can also mean the availability of services when and where patients need it and the point of entry to access that is well defined for patients (Aday & Andersen, 1974; Gibson et al., 1970; Levesque et al., 2013). Based on the above perspectives on access to healthcare, a basic framework of access can be developed as proceeding from health policy goals through to the characteristics of the healthcare system, and of the population at risk to the outcomes or outputs (Aday & Andersen, 1974; Andersen et al., 2007).

On the other hand, quality of healthcare is a difficult notion to define. The definition of quality healthcare in the existing literature focuses on the process of care or the objectives of care (Campbell et al., 2000; Donabedian, 1966). Also, the definition of quality of healthcare can be viewed in terms of a generic or disaggregated concept (Crosby, 1980; Juran, 1988). The generic definitions include excellency, fulfilment of expectations, zero deficiency, fitness of use, and "degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (Campbell et al., 2000; Dzordzormenyoh, 2019; Ellis & Whittington, 1993; Lohr, 1990). Generic definitions of quality of healthcare are criticized for the difficulty of operationalizing the definitions. Also, generic definitions focus on generalizability and neglects sensitivity and specificity (Campbell et al., 2000). In contrast, the disaggregated definitions of quality of healthcare define quality in relation to individual parts of the healthcare system. In essence, the disaggregated definition acknowledges that quality of healthcare is complex and multidimensional (Alkhenizan & Shaw, 2011; Mosadeghrad, 2014; Winefield et al., 1995). Finally, quality of healthcare has been defined as, "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes (quality principles), are consistent with current professional knowledge (professional practitioner skill), and meet the expectations of healthcare users (the marketplace)" (Buttall et al., 2008).

METHODS

Data

The data utilized for the present analysis was the Afrobarometer Round 7 Survey data for 34 African countries.¹ Using random sampling techniques, the responses of 45,823 respondents were collected. The survey collected data on diverse issues, namely: public attitude towards democracy, markets, civil society, crime, security, immigration, local governance, healthcare quality, access to medical, and other issues on the continent. Additionally, information about some sociodemographic characteristics of respondents were collected.

Study Variables

Dependent Variables

The present study utilizes two dependent variables: *access to medical care* and *quality of healthcare* in Africa. *Access to medical care* captures the view of respondents about how difficult or easy it is to access healthcare as at the time of the survey compared to some few years prior to the survey.² This variable was measured and coded as 1 = very easy, 2 = easy, 3 = difficult, 4 = very difficult. Access to medical care here represents delivery of medical care for consumers and how the characteristics of consumers influence how to utilize medical care (Babitsch et al., 2012; Levesque et al., 2013; Peters et al., 2008). *Quality of healthcare* captures the view of respondents in regard to the quality of healthcare they are receiving.³ The variable was measured on a 5-point scale as 1 = much worse, 2 = worse, 3 = same, 4 = better, 5 = much better. Quality of healthcare includes the process of healthcare, professional skills of healthcare providers, and the outcome of healthcare (Buttall et al., 2008).

Independent Variable

The effect of one independent variable – the paying of bribes to access medical care was assessed on both dependent variables. The independent variables gauge respondents' views about the impact of paying bribes on both access to medical care and quality of healthcare. The variable was measured and coded as 0 = never, 1 = once or twice, 2 = a few times, 3 = often.³

Control variables

In addition to examining the effect of the independent variable on the dependent variables, several variables were

included and controlled for in the analysis. The variables include and controlled for were, employment status (0 = unemployed, 1 = employed), access to news (0 = no access, 1 = yes, access), educational attainment (0 = no education, 1 = primary, 2 = secondary, 3 = post-secondary), religious affiliation (1 = Christian, 2 = Muslim, 3 = others), crime victimization (0 = experience no crime, 1 = experienced theft, 3 = experienced physical attack), political party affiliation (0 = no party affiliation, 1 = yes, party affiliation), region (1 = West Africa, 2 = East Africa, 3 = Southern Africa, 4 = North Africa, 5 = Central Africa), access to services (0 = no access, 1 = electricity, 2 = clean water, 3 = sewage system), access to facilities (0 = no access, 1 = post office, 2 = schools, 3 = police stations, 4 = markets and stores, 5 = banks and financial institutions), access to healthcare centers and hospitals (0 = no, 1 = yes), access to road and transportation (0 = no, 1 = yes), gender (0 = male, 1 = female), age (1 = 18 to 25 years, 2 = 26 to 35 years, 3 = 36 to 45 years, 4 = 46 to 55 years, 5 = 56 to 65 years, 6 = 66+ years), discrimination (0 = no discrimination, 1 = gender, 2 = religious, 3 = ethnic), economic and living condition (1 = very bad, 2 = fairly bad, 3 = neither bad nor good, 4 = fairly good, 5 = very good), being without medical care (1 = just once or twice, 2 = several times, 3 = many times, 4 = always, 5 = never), problems and challenges facing Africa (0 = no problems, 1 = crime, 2 = unemployment, 3 = others), and level of poverty (0 = no poverty, 1 = low lived poverty, 2 = moderate lived poverty, 3 = high lived poverty). Overall, we control for about 19 variables that can influence both access to medical care and the quality of healthcare. The control variables cover a broad range of measures such as sociodemographic characteristics of respondents, poverty, healthcare, geographical location, and others.

Plan of analysis

To answer the research questions of the present study – the effect of paying of bribes on access to medical care and the effect of paying bribes on quality of care – several analyses were conducted. First, a descriptive analysis was conducted to examine the distribution of scores for the variables utilized in the present study. Second, bivariate correlation analysis was conducted to determine the relationship between two independent variables utilized in the study and also to examine whether there are issues of high correlation between two independent variables. Third, a multicollinearity test was conducted to ascertain the existence of collinearity issues and to augment the bivariate correlation test. Conclusively, both the correlation and collinearity test results reveal no concerns for multicollinearity, since two independent variables were not highly correlated. Fourth, a regression analysis, specifically a multivariate ordinal least square regression, was conducted to assess the effect of paying bribes on both access to medical care and quality of healthcare while controlling for other variables.

RESULTS

Descriptive results

Table 1 provides a detailed description of the distribution of scores for the variables used in this study. Based on the results in Table 1, the distribution of scores for each variable is as follows; quality healthcare (10.3% = much worse, 19% = worse, 31.4% = same, 33% = better, 6.3% = much better) with an average score of 3.06 and a standard deviation of 1.08; access to medical care (14% = very easy, 41% = easy, 28% = difficult, 16% = very difficult) with an average score of 2.46 and a standard deviation of .92; paying bribes to access medical care (86% = never, 7% = once or twice, 4% = a few times, 3% = often) with an average score of .22 and a standard deviation of .64; regarding geographical residency (43.3% = urban, 55.2% = rural, 1.5% = peri urban) with an average score of 1.58 and a standard deviation of .52; employment status (64.4% = unemployed, 35.6% = employed) with an average score of .35 and a standard deviation of .47; access to news (5.4% = no, 94.6% = yes, access) with an average score of .94 and a standard deviation of .22; educational attainment (19.6% = no education, 28.4% = primary, 37.1% = secondary, 14.9% = post-secondary) with an average score of 1.47 and a standard deviation of .96; religious affiliation (56% = Christian, 33% = Muslim, 11% = others) with an average score of 1.54 and a standard deviation of .68; crime victimization (81% = experience no crime, 13% = experienced theft, 6% = experienced physical attack) with an average score of .24 and standard deviation of .55; political party affiliation (52% = no party affiliation, 48% = yes, party affiliation) with an average score of .48 and standard deviation of .49. We acknowledge that some of the descriptive statistics of the respondents does not represent the actual statistics for the continent. For example, the unemployment percentage. Therefore, readers are cautioned from further interpretation of the results beyond this study.

Variables				
	N	Min.	Max.	M(SD)
Dependent Variable				
Quality of healthcare	45,137	1	5	3.06(1.08)
Access to medical care	27,922	1	4	2.46(.92)
Independent Variable				
Pay bribe to access medical care	27,886	0	3	.22(.64)
Control Variables				
Employment status	45,616	0	1	.35(.47)
Educational status	45,544	0	3	1.47(.96)
Access to news	45,821	0	1	.94(.22)
Religion	45,569	1	3	1.54(.68)
Crime victimization	45,769	0	3	.53(.93)
Political party affiliation	43,207	0	1	.48(.49)
Region	45,823	1	5	2.31(1.28)
Access service	35,059	0	3	1.99(.92)
Access to facilities	45,823	0	6	4.27(1.80)
Access to healthcare centers	45,202	0	1	.57(.49)
Access to transportation & road	45,576	0	1	.76(.42)
Gender	45,816	0	1	.50(.50)
Age	45,777	18	106	37.14(14.93)
Discrimination	45,761	0	3	.50(1.05)
Economic/living condition	45,687	1	5	2.74(1.24)
Being without medical care	45,637	0	4	1.12(1.26)
Urban-Rural-Peri-Urban residency	45,823	1	3	1.58(.52)
Problem facing the continent	45,324	0	3	2.52(.70)
Level of poverty	45,352	0	3	1.53(.93)

a. Notes(s): N = number of observations, Min. = minimum value, Max. = maximum value, M = average score or mean, and SD = Standard deviation

TABLE I: DESCRIPTIVE STATISTICS OF THE STUDY VARIABLES (N = 45,823)

Furthermore, the region (40% = West Africa, 11% = East Africa, 33% = Southern Africa, 8% = North Africa, 8% = Central Africa) with an average score of 2.31 and standard deviation of 1.28; access to services (8% = no access, 19% = electricity, 38% = clean water, 35% = sewage system) with an average score of 1.99 and a standard deviation of .92; access to facilities (9% = no access, 1% = post office, 20% = schools, 2% = police stations, 46% = markets and stores, 23% = banks and financial institutions) with an average score of 3.43 and a standard deviation of 1.49; access to healthcare centers and hospitals (43% = no, 57% = yes) with an average score of .57 and a standard deviation of .49; access to road and transportation (23% = no, 77% = yes) with an average score of .76 and a standard deviation of .42; gender (50% = male, 50% = female) with an average score of .50 and a standard deviation of .50; age (27% = 18 to 25 years, 28% = 26 to 35 years, 19% = 36 to 45 years, 12% = 46 to 55 years, 8% = 56 to 65 years, 5% = 66+ years) with an average score of 2.63 and a standard deviation of 1.46; discrimination (79% = no discrimination, 4% = gender, 4% = religious, 13% = ethnic) with an average score of .50 and a standard deviation of 1.05; economic and living condition (21% = very bad, 25% = fairly bad, 20% = neither bad nor good, 27% = fairly good, 7% = very good) with an average score of 2.74 and a standard deviation of 1.24; being without medical care (47% = just once or twice, 15% = several times, 20% = many times, 12% = always, 5% = never) with an average score of 1.12 and a standard deviation of 1.26; problems and challenges facing Africa (0.4% = no problems, 11% = crime, 24% = unemployment, 64.7% = others) with an average score of 2.52 and a standard deviation of .70; level of poverty (14% = no poverty, 37% = low lived poverty, 31% = moderate lived poverty, 18% = high lived poverty) with an average score of 1.53 and a standard deviation of .93. Overall, the descriptive analysis revealed that the majority of the respondents were young Africans, rural dwellers,

Christians, with secondary education, have affiliation to a political party, have access to news and are unemployed.

The effect of paying of bribes on access to medical care

To assess the effect of the paying of bribes on access to medical care in Africa, while controlling for other variables, a multivariate ordinary least square regression was conducted (see Model I in Table 2). Regarding access to medical care, the distribution of scores was (14% = very easy, 41% = easy, 28% = difficult, 16% = very difficult). Model 1 was significant (F = 115.72, p<0.001), and explains about 17% of the variance in explaining the predictors of access to medical care. After controlling for other variables in Model I, paying of bribes was a predictor of access to medical care (t = 17.46, p<0.001). The paying of bribes positively influences access to medical care in Africa. This finding is consistent with the functionalist’s argument that corruption can have positive impact on the delivery of public goods and services such as healthcare (Ayee, 2002; Friedrich, 2017; Michael et al., 2006; Walton, 2013).

Additionally, rural residency was observed to be statistically significant with access to medical care (t = -5.49, p<0.001). Previous studies allude the disparities in access to medical care in Africa, especially for rural residents (Dzordzormenyoh et al., 2020; Harris et al., 2011; Yaya et al., 2019). Thus, it was not surprising to observe the variable being a significant predictor of access to medical care. In regard to the regional differences in Africa, the present analysis showed that all the regions were significant predictors of access to medical care. Specifically, each of the regions was significant with access to medical care as follows, West Africa (t = -9.10, p<0.001), Southern Africa (t = -10.31, p<0.001), East Africa (t = -5.90, p<0.001), Central Africa (t = -7.76, p<0.001). Previous studies contend that access to medical care in Africa is strongly influenced by the country and the region of the continent under review (Durojaye & Mirugi-Mukundi, 2012; Hsiao et al., 2019; Mackintosh et al., 2018; Matallah, 2020; Onwujekwe et al., 2019).

Furthermore, the results from Table 2 also show that some sociodemographic characteristics of the respondents influence access to medical care in Africa. Specifically, respondents aged 36 to 45 years (t = -2.41, p<0.05), respondents aged 66 years and above (t = -3.38, p<0.001), crime victimization (t = 3.67, p<0.001), access to services (t = 2.33, p<0.05), access to healthcare centers (t = -3.06, p<0.01), gender (t = -1.96, p<0.05), discrimination (t = 8.14, p<0.001), economic/living condition (t = -6.22, p<0.001), being without medical care (t = 13.60, p<0.001), and the quality of healthcare (t = 1.43, p<0.001). Numerous studies have found correlation between the sociodemographic characteristics of the public and their access to medical care (Fowles et al., 2004; Kon & Lackan, 2008; Scorgie et al., 2012).

Variables	MODEL I – Medical Care			MODEL II – Quality of Healthcare		
	<i>b</i> (SE)	Beta	<i>t</i> /F	<i>b</i> (SE)	Beta	<i>t</i> /F
Independent variable						
Paying bribes	.17(.01)	.12	17.46***	-.10(.01)	-.05	-8.60***
Control variables						
<i>Rural-urban-peri urban</i> ¹						
Rural	-.08(.01)	-.04	-5.49***	.07(.01)	.03	4.32***
Peri-urban	-.00(.04)	-.00	-0.22	.31(.04)	.04	6.47***
Employment	-.01(.01)	-.00	-1.13	.01(.01)	.00	1.08
<i>Educational status</i> ²						
No education	-.01(.02)	-.00	-0.46	-.00(.02)	-.00	-0.32
Primary education	.00(.02)	.00	0.09	-.02(.02)	-.00	-1.00
Secondary education	.02(.01)	.01	1.38	-.03(.02)	-.01	-1.75
<i>Religion</i> ³						
Christian	.00(.02)	.00	0.15	-.01(.02)	-.00	-0.60
Muslim	-.00(.02)	-.00	-0.23	-.07(.02)	-.03	-2.63**

<i>Region^a</i>						
West Africa	- .24(.02)	-13	-9.10***	.45(.03)	.20	14.26***
Southern Africa	- .31(.03)	-16	- 10.31***	.46(.03)	.19	12.83***
East Africa	- .19(.03)	-07	-5.90***	.63(.03)	.19	16.6***
Central Africa	- .27(.03)	-08	-7.76***	.40(.04)	.10	9.88***
<i>Age^a</i>						
26 – 35 years	- .01(.01)	-00	-0.87	-.02(.02)	-00	-1.02
36 – 45 years	- .04(.01)	-02	-2.41*	.00(.02)	.00	0.17
46 – 55 years	- .03(.02)	-01	-1.65	-.00(.02)	-00	-0.06
56 – 65 years	- .04(.02)	-01	-1.80	-.05(.03)	-01	-1.70
66+ years	- .10(.03)	-02	-3.38***	.01(.03)	.00	0.37
Crime victimization	.04(.01)	.02	3.67***	-.02(.01)	-.01	-2.02*
Political party affiliation	.00(.01)	.00	0.06	.07(.01)	.03	5.09***
Access service	.01(.00)	.01	2.33*	.01(.00)	.01	1.30
Access to facilities	.00(.00)	.00	0.02	-.00(.00)	-.01	-1.41
Access to healthcare centers	- .04(.01)	-02	-3.06**	.00(.01)	.00	0.13
Access to transportation & road	.02(.01)	.01	1.40	-.01(.02)	-00	-0.86
Gender	- .02(.01)	-01	-1.96*	-.00(.01)	-00	-0.04
Access to news	- .04(.03)	-00	-1.32	.04(.03)	.00	1.16
Discrimination	.04(.00)	.05	8.14***	-.03(.00)	-.03	-4.53***
Economic/living condition	- .03(.00)	-04	-6.22***	.08(.00)	.09	13.63***
Being without medical care	.09(.00)	.13	13.60***	-.13(.00)	-.15	- 15.88***
Access to medical care				-.29(.00)	-.24	- 34.56***
Quality of care	.01(.00)	-.25	1.43***			
Problem facing the continent	- .21(.00)	.00	-34.56	-.00(.01)	-00	-0.01
Level poverty	.01(.01)	.01	1.69	-.00(.01)	-00	-0.41
Constant	3.32(.06)		50.04	3.30(.07)		41.42
Model Fit			115.72** *			124.46** *
R-Square			0.1694			0.1799
Adjusted R-Square			0.1679			0.1785

a. Notes(s): 1 = urban, 2 = post-secondary, 3 = others, 4 = North Africa, 5 = 18 – 25 years

b = Unstandardized Coefficients, SE = Standard Error, Beta = Standardized Coefficient.

* p<0.05, ** p<0.01, *** p<0.001

TABLE II: PREDICTORS OF ACCESS TO MEDICAL AND QUALITY OF HEALTHCARE IN AFRICA (N = 45,823)

The effect of paying of bribes on quality of healthcare

To assess the effect of paying of bribes on the quality of healthcare in Africa, while controlling for other variables, a multivariate ordinary least square regression was conducted (see Model II in Table 2). The distribution of scores regarding quality of healthcare was, 10.3% = much worse, 19% = worse, 31.4% = same, 33% = better, 6.3% = much better. Model II was significant (F = 124.46, p<0.001), and explains about 18% of the variance in the data. Paying bribes negatively influences the quality of healthcare in Africa (t = -8.60, p<0.001). As argued by moralists, corruption can have negative consequences especially negatively influence on the quality of healthcare provided

to consumers (Atuobi, 2007; Gould, 1991; Nye, 1967).

Additionally, rural residency was observed to be statistically significant with quality of healthcare ($t = 4.32$, $p < 0.001$), and peri-urban residency was also statistically significant with quality of healthcare ($t = 6.47$, $p < 0.001$). The existing literature contends that access to healthcare for both rural and peri-urban residents is worse compared to urban residents. Often lack of access to healthcare affects quality of healthcare (Afulani, 2015; Oloyede, 2017). Regionally, the analysis shows that all the regions on the continent are positively significant with quality of healthcare. Specifically, West Africa ($t = 14.26$, $p < 0.001$), Southern Africa ($t = 12.83$, $p < 0.001$), East Africa ($t = 16.6$, $p < 0.001$), Central Africa ($t = 9.88$, $p < 0.001$). Previous studies contend that geography determines the type of disease experienced by the public and the distribution of medical centers and professionals which influence the quality of healthcare (Liu et al., 2010; Onwujekwe et al., 2019). Furthermore, the analysis shows several sociodemographic variables that influence the quality of healthcare in Africa. These are Muslims ($t = -2.63$, $p < 0.001$), crime victimization ($t = -2.02$, $p < 0.05$), political party affiliation ($t = 5.09$, $p < 0.001$), discrimination ($t = -4.53$, $p < 0.001$), economic/living condition ($t = 13.63$, $p < 0.001$), being without medical care ($t = -15.88$, $p < 0.001$), and access to medical care ($t = -34.56$, $p < 0.001$). The present results are consistent with empirical evidence from previous studies (Mwangama et al., 2020; Sorkin et al., 2010; Yennurajalingam et al., 2019).

DISCUSSION & CONCLUSION

The current research assesses the factors that influence access to medical care and quality of care in Africa. Specifically, the study sought to ascertain and compare the effect of paying bribes on access to medical care and quality of healthcare across 34 African countries grouped in 5 regions. These questions were fully and successfully explored in this investigation, and the descriptive and multivariate analyses of the data were able to determine the factors and characteristics of the surveyed population that predict access to medical care and the quality of healthcare comparatively for the countries under inquiry. In an effort to determine the predictors of public access to medical care and quality of healthcare in Africa, a plethora of individual, social, communal, political, financial, and health related variables were examined. Individual characteristics such as age, gender, employment, education, religion, and rural-urban residency were explored in relation to access to medical care and quality of healthcare in Africa. Furthermore, crime victimization, economic/living condition, political party affiliation, access to services and facilities etcetera were also used to determine possible predictors of access to medical care and quality of healthcare.

Overall, regarding access to medical care, 14% of the respondents expressed access as very easy, 41% of the respondents expressed access as easy, 28% of the respondents expressed access as difficult, and 16% of the respondents expressed access as very difficult. The functionalists' perspective of corruption – the paying of bribes – contend that there are benefits to corruption (Ayee, 2002; Michael et al., 2006). Paying bribes in Africa allows individuals who cannot access medical care through the formal healthcare infrastructures to use informal methods to gain access to medical care (Onwujekwe et al., 2019). With only few nations having functional health insurance systems on the continent, access to medical care follows the cash-and-carry system which favors the wealthy (Afulani, 2015; Oloyede, 2017). However, corruption allows the less privileged to access medical care by translating non-financial materials into financial ones. This allows healthcare to be evenly distributed between the rich and the poor. Also, the lack of professionalism among healthcare workers leads to delays in access and delivery of healthcare. However, corruption can serve as a catalyst that motivates health workers to improve access and delivery of healthcare (Onwujekwe et al., 2019).

While these can have a positive effect on the healthcare system, there are negative consequences such as completely abandoning the existing formal structures to accessing medical care. This can create inequalities in access to medical care and impact the quality of healthcare (Atuobi, 2007; Gould, 1991; Nye, 1967). Respondents who reside in rural Africa have been observed to pay bribes more often than urban dwellers. The paying of bribes, specifically in-kind payments and non-monetary favors, are more common in rural Africa when accessing medical care (Afulani, 2015; Oloyede, 2017). It has been argued that disparities regarding access to national health insurance schemes for rural and urban dwellers and other factors account for the difficulty of rural dwellers accessing medical care (Onwujekwe et al., 2020). This argument strongly explains why the economic and living conditions of Africans influence access to medical care. Discrimination on the continent continues to influence access to healthcare in diverse ways. Specifically, ethnic, religious, and gender-based discrimination continues to pose a major challenge to access to medical care (Button et al., 2020). Power and resource distribution on the continent is centered around ethnic, religious, and gender cleavages. The tendency to help individuals with close

ethnic and religious ties is ubiquitous in the public and private sector. Although these have some benefits, the consequences outweigh them due to the grave inequalities regarding access to medical care on the continent (Onwujekwe et al., 2019).

Furthermore, access to medical care for the elderly on the continent needs much attention. Africa as a continent, compared to more developed regions, needs new infrastructures and systems to accommodate its elderly population due to the changing nature of the culture on the continent (Frost et al., 2015; Peil, 1995). In years past, staying at home to take care of the elderly was a viable proposal for other family members. However, the growing economy, modernization, and the drift from rural areas to urban areas continues to pose a challenge to finding relatives to look after elderly family members (Adamek et al., 2020). This implies a gradual shift to institutionalized care for the elderly on the continent. Paying bribes can be a hindrance for many elderly folks accessing medical care in Africa. Finally, it is a well-documented fact that access to healthcare centers such as hospitals and clinics, continues to be a challenge on the continent. Although efforts have been made at various levels – country, regional and continental – to address the issue over the years, the problem still persists (Adair-Rohani et al., 2013; Ouma et al., 2018). Dilapidated healthcare centers with poorly staffed equipment and healthcare professionals creates the environment for both healthcare professionals and the public to find informal corrupt ways to provide healthcare services and meet their needs (Manyisa & van Aswegen, 2017). In essence, the failures of the formal healthcare structures and systems on the continent leads to the normalization of informal practices that are often corrupt in nature.

Concomitantly, regarding the quality of healthcare, 10.3% of the respondents suggest that quality of healthcare is much worse, 19% of the respondents suggest that quality of healthcare is worse, 31.4% of the respondent suggest that quality of healthcare is the same, 33% of the respondents suggest that quality of healthcare is better, and 6.3% of the respondents suggest that quality of healthcare is much better. Political party affiliation determines who holds political power on the continent and how resources are distributed on the continent. Connected to power and resources is the issue of corruption that determines access to healthcare and quality of care. Inequalities in access to economic resources determines the standard of living and the ability to access healthcare and the quality of care. Altogether, party affiliation and economic/living conditions determine access to medical care in addition to the quality of care (Chukwuma et al., 2019; Herman, 2012; Schmidt, 2009).

Like most studies that relied on the use of a secondary dataset, the current study has some limitations that are worth noting. These limitations go beyond the ability of the researchers, and we will therefore caution readers against further interpretation of the findings. The first limitation deals with the possibility of the presence of desirability bias (respondents adjusting their answers to look credible during the interviewing process). Sometimes, respondents believe that interviews have some specific answers for which they are seeking. Thus, they attempt to give such answers instead of being truthful during the survey process. This presents a challenge to the findings of studies that utilized secondary data. The second limitation deals with the data focusing on a single time span as opposed to it being longitudinal in nature. Future studies can consider using longitudinal data which allows researchers to examine the predictors of access to medical care and the quality of healthcare over time making the results more objective. The third limitation deals with the absence of some sociodemographic variables of respondents such as marital status and others. Marital status and family size have been observed to influence access to medical care and the quality of healthcare. The absence of such sociodemographic variables presents a challenge to the findings of the present study. Despite, these limitations the present results are relevant for theory building and for practice.

Conclusively, measuring public attitudes and predictors of access to medical care and the quality of healthcare in Africa is necessary as access to medical care and the quality of healthcare continues to be a challenge in the continent. In many countries on the continent corruption in the healthcare system continues to be a challenge in both access to medical care and the quality of care being delivered (Onwujekwe et al., 2019; Yeboah-Assiamah et al., 2014). Therefore, it is fundamental to scrutinize the effect of corruption on access to medical care and the quality of healthcare. Specifically, the findings have identified the factors that predict access to medical care and the quality of care for respondents from 34 countries on the continent. It was revealed that corruption (paying of bribes) religion, crime, party affiliation, economic/living condition, discrimination, being without medical care, age, gender, access to service, and healthcare centers are factors that influence both access to medical care and the quality of healthcare. The analysis of the data presents some interesting results regarding predictor variables of access to medical care and the quality of care in Africa. Additionally, the findings of the present study cut across multiple countries and regions on the continent.

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