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Abstract

The Kenyan private health sector is one of the most developed in Sub-Saharan Africa and is highly critical in healthcare delivery. It is estimated 47 percent of the first quintile of income earners utilize the private facility for healthcare needs and 33 percent of women seek family planning (FP) services in this sector. However, the cost of healthcare services has been a great impediment to service utilization. To improve service quality and increase access, social franchising, interventions on the demand side such as the use of insurance and vouchers, and supply of subsidized medical products on the supply side are intended to reduce the cost of services. This study sought to investigate the impact of interventions of social franchisors on the cost of healthcare in private facilities in Kenya. The study used primary data collected from 215 individuals living within catchment areas with private health facilities using researcher-administered questionnaire. The main franchisors included in this study were Sustainable Health Foundation (CFW) and Population Services Kenya (Tunza). Results revealed that women whose primary motivation to visit private facilities included FP services, need of a lower cost of treatments, and quality services had higher odds of choosing franchised health facilities. Propensity score matching (PSM) using three matching criteria—nearest neighbor, kernel matching, and radius matching of 0.01—indicated that individuals seeking children's health services and 3-month FP methods paid similar amounts in either franchised or nonfranchised health facilities. However, there was a huge cost variance for long-term FP methods where women paid significantly less, implying that social franchisors' main impact is on long-term FP methods. The cost variance was due to vouchers utilized by some respondents hence, incurring zero cost in franchised facilities. Therefore, the study recommends the expansion of social franchising membership and the use of the voucher system for financially incapable consumers.

Keywords: Social franchising; propensity score matching; cost of healthcare; family planning.

1. INTRODUCTION

The Sustainable Development Goal 3: Good Health and Well-Being is driven by the need for improved access to safe, effective, quality, and affordable healthcare for all. The government of Kenya has put in place measures such as pooling of mandatory contributions to social health insurance known as National Hospital Insurance Fund [NHIF] among formal employees and increased national budget allocation for healthcare at the county level as a way of increasing universal healthcare (MoH, 2014). Pooling of social insurance is termed as the most efficient and equitable financing system for Universal Health Coverage (UHC) (WHO, 2010).

The Kenyan government is committed to delivering UHC, which ensures all Kenyans have access to needed healthcare services without being impoverished. This has been done through elimination of user fees for primary healthcare services in public facilities, free maternity services, and mandatory contributions to social insurance (NHIF). However, available data shows that the Kenyan UHC index is 56 percent

which means that 44 percent are not protected from catastrophic and impoverishing healthcare costs, and 39 percent are impoverished each year as a result of out-of-pocket payments for healthcare (MoH, 2017). The national government budget allocation for healthcare (7.1 percent of GDP on average, which is below Abuja Declaration of 15 percent), mandatory enrolment to NHIF, and interventions by nongovernmental organizations through the social franchising model have all contributed to bridge the gap and increase access to quality healthcare. The social franchisors' intervention is through directly supplying subsidized medical supplies to reduce the cost burden of medical products and services and accepting the use of vouchers as a method of payment, especially, among the poor in the society (PSK, 2017).

Health facilities that are part of social franchise enjoy professional training and receive subsidized medical supplies and equipment, and often franchisors advertise franchise brand for the benefit of franchisees (Montagu, 2002). PSI (2017) asserts that franchising health facilities has been found effective in increasing the range of services, improving service delivery, and increasing access to quality services. In Kenya, there are five social franchisors: Population Services Kenya (PSK), under the brand Tunza; Marie Stopes Kenya (MSK), under the brand Amua; Gold Star Kenya (GSK); Kisumu Medical and Education Trust (KMET), under the brand Huduma Poa; and Sustainable Healthcare Foundation, under the brand CFW (ASFH, 2018). These five social franchisors support provision of affordable family planning (FP) services and support treatment of childhood illnesses with the core mandate of increasing access, improving quality services through regular training, improving equity through provision of vouchers and lower-priced medical supplies, and enhancing cost-effectiveness of healthcare services (ASFH, 2018). According to Chakraborty and Mbondo (2015), social franchisors in Kenya are supposed to maximize FP uptake, offer training to service providers, and oversee activities of franchisees.

According to the United States Agency for International Development (USAID, 2014), due to unmet demand for healthcare in the public sector, 37 percent of health spending occurs in private facilities, 47 percent of Kenyans use private facility when sick, and 33 percent of women obtain FP services in the private sector. Data from the Kenya National Bureau of Statistics (KNBS, 2014) reveals that the private sector is very important in the provision of FP services in Kenya. It indicates that 21.4 percent of women seek permanent FP services, 57 percent seek pills, 33.6 percent seek intrauterine devices (IUDs), 36.4 percent seek injectables, and 18.2 percent seek implants in the private sector.

Since UHC covers only 56 percent of Kenyans, the remaining 44 percent are exposed to catastrophic and impoverishing healthcare costs. It is also estimated that access barriers due to treatment costs affect 37 percent of Kenyans and quality is adhered to by only 43.7 percent of providers (World Bank, 2018). In public health facilities, which has the lowest cost, there are frequent stock-outs (WHO, 2012), pushing customers to private health facilities, which expose them to financial difficulties. It is estimated that the average annual outpatient healthcare cost in Kenya is Ksh 5,325.12, which remains unaffordable to 36 percent of Kenyans living below USD 1.9 per day. The main objective of social franchisors in Kenya is to increase demand for and access to quality and affordable healthcare products and services (PSK, 2018; CFW, 2018), which means that these health facilities may have lower healthcare expenditure and higher quality. Despite the presence of social franchisors in Kenya, there is a dearth of empirical literature on the impact of social franchisors on the cost of healthcare, which is a major barrier to access quality services in the private sector. Studies evaluating the impact of social franchising focused on quality, equity, and customer increase (Chakraborty *et al.* 2016) with a narrow focus on cost, which influences demand for healthcare services. Studies from other countries show mixed results on the impact of social franchising. These studies also neglected a very important economic concept in their analyses: ability to pay affects demand. Hence, the present study contributed to the discussion by investigating how social franchising increases access to quality services in the private sector through competitive pricing of services, thus lowering the healthcare budget line in Kenya.

2. LITERATURE REVIEW

Consumer theory explains that individuals purchase goods and services to satisfy their needs, given a budget constraint. The consumer utility function for consuming two units of goods can be represented as $U(Z) = U(Z_1, Z_2)$. The consumer has a fixed amount of money to spend (M), and each unit of good purchased

has some cost attached to it, referred to as price (P ; Varian, 2010). Therefore, a consumer budget constraint for the set of choices can be presented mathematically as $P_1Z_1 + P_2Z_2 \leq M$, and the consumer optimization problem can be defined as follows:

$$\begin{aligned} \text{Max } U(Z) &= U(Z_1, Z_2) \\ \text{st} \\ P_1Z_1 + P_2Z_2 &\leq M \end{aligned} \quad (1)$$

where $U = U(Z_1, Z_2)$ is the utility derived by consumption of healthcare services Z_1 and other products and services Z_2 . P_1 is the cost of healthcare services, P_2 is the cost of other goods and services, and M is the individual income. Solving the utility maximization problem and deriving an inverse demand function, we find the cost of healthcare is a function of healthcare services sought and the individual's ability to pay:

$$P_1 = F(M, Z_1) \quad (2)$$

Any program that would affect the cost of healthcare services P_1 directly influences demand for such services. Therefore, reduction in cost of healthcare services shifts the budget line outward, increasing the consumption of other goods and services.

Mhlanga and Suleman (2014) investigated "prices, availability, and affordability of medicines" in the urban areas of Swaziland. Data was collected among private health facilities and public health facilities and were analyzed descriptively. The study found medical commodities prices in the public sector were very competitive, while services were very expensive in the private sector. The study concluded that the lack of affordability of essential medical commodities is associated with their high prices, as most healthcare seekers lack social insurance and therefore use out-of-pocket payment methods. It was also found high prices limit demand in the private sector, where the price markup was 31–53 percent higher than in the public sector, making such prices seven times higher.

Abiye *et al.* (2013) studied barriers to access to essential medical services in Ethiopia's public health sector. Data was collected from patients seeking medical treatment. Comparing prices of essential medical supplies between public facilities, pharmacies, and the private sector, the study revealed that the private sector was 32 percent more expensive than the public sector and services were not affordable. Public hospitals were also found to have regular stock-out problems, pushing patients to the private sector.

Bellows *et al.* (2017) studied how to improve contraceptive access for hard-to-reach populations in Uganda through a social franchising model. The study employed pricing strategies where prices were lowered using a voucher program. At the beginning of the program, only 18 percent of the women used long-acting reversible contraceptives (LARCs) and permanent methods (PMs), and unmet demand stood at 34 percent. After the implementation of the program, it was established that lowering prices increased modern contraceptive prevalence by 8 percent. Therefore, lowering the cost through vouchers and social franchising is effective in expanding FP access among private sector franchises. Also, lowering prices surged demand for LARCs and PMs.

Gold *et al.* (2017) studied "increasing access to FP choices through public-sector social franchising in Mali" between 2012 and 2015 among franchised and nonfranchised health facilities. The study analyzed data collected from MSI Mali Bluestar franchise networks that franchise health facilities to deliver affordable FP services. The study found among franchised health facilities, prices were 13 times less compared to nonfranchised facilities and the number of clients seeking LARC expanded four times. The study concluded lowering LARC services is likely to improve service utilization as rational customers seek pocket-friendly services.

Azmat *et al.* (2014) studied the impact of social franchising on contraceptive use when completed by vouchers using a quasi-experimental study in rural Pakistan between 2009 and 2010. The target population involved married women within reproductive age living within franchised or nonfranchised health facilities. The study established among franchised health facilities, LARC customers were provided with vouchers that reduced the prices of FP services significantly compared to nonfranchised health facilities. The reduction of prices for LARC customers increased demand by 28.5 percent while contraceptive prevalence increased by 19.6 percent.

Huntington *et al.* (2012) studied factors influencing demand for a social franchise membership in Myanmar among physicians. The physician joins the franchise network for free and is required to adhere to price capitation specified by the franchisor on the various medical products. The physician enjoys signage and in-service training and receives medical products at highly subsidized prices and up-to-date continuous medical information. The study found the impact of joining a franchise network was unclear even though there were increased client volumes. The surge in membership incomes was not only attributed to increased client volumes but also to the fact that due to agency problems, franchised physicians are likely to have charged higher prices to customers.

Shah *et al.* (2011) compared FP services provided by the private sector to government and nongovernmental organization (NGO) facilities in Ethiopia and Pakistan across cost, quality, and equity. Data was collected from independent private sector providers, NGO providers, government providers, and social franchises of private providers. Wilcoxon rank-sum tests were used to compare equal medians due to the problem of skewed data, especially on the cost that was calculated in the form of currency. The results revealed higher clinical costs per client among franchised private health facilities in Ethiopia and no statistically different costs in Pakistan. Access to franchised private health facilities was lower in Ethiopia due to cost implication. However, total quality of care was statistically significantly higher among private franchised clinics in both Ethiopia and Pakistan. Hence, to improve access among franchised health facilities, there is a need to lower prices either through vouchers, insurance, or fee waiver programs.

Patouillard *et al.* (2007) conducted a systematic review of the literature, seeking to establish whether “working with the private for-profit sector improve utilization of quality health services by the poor.” Results from 52 empirical studies found working with the private sector to improve the utilization of healthcare services was successful among poor countries, as it increased utilization. However, the utilization was mainly attributed to the use of vouchers among poor individuals from Zambia and Nicaragua. The use of vouchers reduced the price of services among franchised health facilities by 17 percent, which increased demand.

Beyeler *et al.* (2013) did a systematic review to “determine the impact of clinical social franchising on health services in low-and middle-income countries.” The study covered countries such as Pakistan, Nepal, and Kenya. The use of a voucher system increased use of contraceptives by 2.29 percent in Nepal and 23 percent in Pakistan. However, there was no statistically significant difference between demands for services in either franchised or nonfranchised health facilities in Kenya.

Chakraborty *et al.* (2016) evaluated the impact of social franchising on FP in Kenya among Tunza-franchised clinics. The study utilized a quasi-experimental study design, in which data was collected from catchment areas where Tunza-franchised clinics were present and compared to catchment areas where no franchised facility was present. The target population was women of reproductive age sampled using a systematic sampling technique. Binary multivariate logistic regression was used to calculate the adjusted odds ratio (AOR). The results showed that the presence of franchised health facilities did not attract new users of modern FP methods even though the study did not explore the cost of services between franchised and nonfranchised services.

3. METHOD(S)

3.1. Study Area, Target Population, Sampling Technique, and Data Type

The study was conducted in Embu County with data collected from communities surrounding two PSK facilities and two Sustainable Healthcare Foundation clinics in the month of October 2019. The study pre-screened respondents and only interviewed individuals who had sought services in a private facility. The study investigated the cost of children’s healthcare services, 3-month FP methods (mainly Depo-Provera), and FP methods whose year of service was 3 years and above (mainly implants and IUDs). Cross-sectional data was collected from 215 respondents sampled purposively.

3.2. Model Estimation Procedure

The study adopted a two-stage estimation procedure to achieve its objectives. The first stage predicted the propensity scores using binary logistic regression, and in the second stage, the researcher conducted

propensity score matching to establish average treatment effects of the treated (ATET) of social franchising on the cost of healthcare services. The logistic regression estimated the participation model and predicted the propensity scores, which reflected the probability of seeking services in a franchised health facility given the observable exogenous variables. The matching procedure fulfilled the overlap and balanced assumptions.

$$e_i = \Lambda(Z_i) = \frac{\exp(\omega_0 + \omega_1 Z_1 + \dots + \omega_{10} Z_{10})}{1 + \exp(\omega_0 + \omega_1 Z_1 + \dots + \omega_{10} Z_{10})} \quad (3)$$

where Z_1 to Z_{10} are exogenous variables: number of children, Household (HH) size, education, marital status, sought FP services, cost consideration, quality consideration, distance, job type, and wealth status.

After estimation of propensity score and verification of propensity score matching assumptions, the estimation of ATET using kernel matching, nearest neighbor, and radius matching followed. The final equation that estimated the impact of social franchising is as follows:

$$ATET = E(\Delta P) = \frac{1}{\phi - \tau} \left[\sum_{i=1}^{\phi - \tau} P_{1i} \right] - \frac{1}{\tau} \left[\sum_{i=1}^{\tau} \hat{P}_{0j(i)} \right] \quad (4)$$

P_{1i} is the cost of health services for individuals who seek services in franchised clinics, and $\hat{P}_{0j(i)}$ is the average cost of services for all comparison individuals seeking FP services in nonfranchised private facilities matched with treatment individuals indexed by i . τ is the individuals seeking services in nonfranchised clinics successfully matched with $\phi - \tau$ individuals seeking services in franchised facilities. ϕ is the total number of individuals seeking services in franchised health facilities who were successfully matched.

4. RESULTS AND DISCUSSION

4.1. Factors Influencing the Choice of Franchised Health Facilities

Data was collected among communities living near franchised and nonfranchised health facilities. The study wanted to understand the factors that were more associated with the choice of franchised facilities. The findings showed educated respondents (those with a secondary level of education) had higher odds of seeking services in a franchised health facility than those with a lower level of education (AOR 2.8; CI: 1.4-5.6, $p=0.004$). Women whose primary motive was to seek FP services were twice likely to visit franchised health facilities (AOR 1.998; CI: 1.02-3.91, $p=0.043$), those whose primary consideration was cost were eight times more likely to seek services in franchised health facilities (AOR 8.213; CI: 3.00-22.48, $p=0.000$), and those who considers distance were two times likely visit franchised facility (AOR 2.19; CI: 1.05-4.56, $p=0.036$).

4.2. The Impact of Franchising on the Cost of Children's Services

The study wanted to establish the cost of children's services between franchised and nonfranchised health facilities. The study found that respondents paid on average Ksh 339.49 for the overall visit to franchised facilities and Ksh 359.20 in nonfranchised facilities. Table 2 estimates the impact of social franchising on the cost of children's services. In general, the results obtained by the nearest neighbor, radius, and kernel matching reveal franchising does not have a significant effect on the cost of children's services.

4.3. The Impact of Franchising on the Cost of Short-Term FP Methods

The study used 3-month FP services and found the mean of this service was Ksh 83.59 in franchised facilities and Ksh 97.07 in nonfranchised facilities. The minimum cost of this service was Ksh 50, and the maximum cost was Ksh 200. The results obtained by the nearest neighbor and kernel matching reveal franchising does not have a significant effect on the cost of short-term FP services. The summary is presented in Table 3.

4.4. The Impact of Franchising on the Cost of Longer-Term FP Services

The longer-term FP services were methods longer than 3 years, such as implants and IUDs. The average cost of 3-year FP method was Ksh 440 for franchised clinics compared to Ksh 889.36 from nonfranchised

Table 1. Logit Estimates for Individuals Seeking Services in Franchised Health Facilities.

Number of observations	=	215
LR chi2(10)	=	56.18
Prob > chi2	=	0.000
Pseudo R2	=	0.1995

Log likelihood = -112.737

Dependent variable = 1 if an individual sought service in a franchised facility						
Treatment	Odds Ratio	Std. Err.	Z	P > z	[95% Conf. Interval]	
Number of children	1.253	0.383	0.73	0.462	0.687	2.284
Household size	0.771	0.229	-0.88	0.381	0.431	1.379
Secondary education level	2.802	0.991	2.91	0.004	1.401	5.602
Marital status (married)	0.633	0.366	-0.79	0.429	0.203	1.969
Sought FP services	1.998	0.684	2.02	0.043	1.021	3.909
Cost consideration	4.785	1.777	4.22	0.000	2.311	9.907
Quality consideration	8.213	4.220	4.10	0.000	3.000	22.483
Distance	2.190	0.819	2.09	0.036	1.051	4.558
Job type (contract or permanent)	1.766	0.746	1.35	0.178	0.772	4.041
Wealth status (well-up)	0.712	0.284	-0.85	0.395	0.326	1.557
Constant	0.151	0.143	-2.00	0.046	0.024	0.966

Table 2. Impact of Franchising on the Cost of Children's Services.

Dependent variable: Cost of children's services					
Matching Algorithm	N		ATET	Std. Err.	t-value
	Franchised	Nonfranchised			
Nearest neighbor	78	64	-86.17	90.80	-0.949
Radius matching with a radius of 0.01	58	120	-27.769	65.23	0.426
Kernel method	78	137	-54.683	60.255	-0.908

Table 3. Impact of Franchising on the Cost of Short-Term FP Services.

Dependent variable: Cost of Depo-Provera					
Matching Algorithm	N		ATET	Std. Err.	t-value
	Franchised	Nonfranchised			
Nearest neighbor	78	24	-22.50	15.67	-1.436
Kernel method	78	137	-19.597	16.086	-1.218

Table 4. Impact of Franchising on the Cost of Longer-Term FP Methods.

Dependent variable: Cost of longer-term FP services					
Matching Algorithm	N		ATET	Std. Err.	t-value
	Franchised	Nonfranchised			
Nearest neighbor	78	59	-459.945	85.603	-5.373
Kernel method	78	137	-462.59	70.812	-6.533

healthcare facilities. The huge variance on the cost is best explained by the fact that some women reported zero cost due to vouchers provided among the poor in the society. The cost of IUD was Ksh 307.89 for franchised and Ksh 759.38 for nonfranchised facilities. Some clients reported zero cost due to vouchers utilized in franchised facilities. The results obtained by the nearest neighbor and kernel matching reveal that franchising significantly lowers the cost of longer-term FP services between Ksh 459.95 and Ksh 462.59. A computed *t*-value of 5.573 corresponding to nearest neighbor matching estimation implies that the null hypothesis is rejected at 5 percent level of significance.

5. CONCLUSION

The findings of this study indicated that the choice of a franchised health facility is pegged on the perceived quality of the services provided, the reputation of low cost, and available, low-cost, and quality FP, and being the first point of contact among respondents. These results imply the need for private facilities to assure clients on quality services and price competitively to attract customers. The fact that these attributes were singled out by those seeking services in franchised facilities mean that franchised health facilities are perceived to be of higher quality and lower cost.

The ATET findings revealed individuals seeking services in franchised health facilities paid less for longer-term FP services relative to those seeking services in nonfranchised health facilities. However, children's treatment services and short-term services were not significantly different in terms of costs even though the costs were lower. This means social franchising is benefiting its franchisees through training, which improves the quality of services, and offering competitively priced medical supplies, especially for long-term FP services.

In light of the study findings, it is evident that private healthcare consumers demand quality services at an affordable cost. This means service providers need to ensure services provided are of high quality and delivered at affordable costs. It is therefore necessary healthcare providers attend continuous medical education programs organized by the Ministry of Health and social franchisors. Private healthcare providers also need to ensure medical staffs working in the health facilities are qualified, well trained on their roles, and receive continuing medical education to adhere to quality guidelines. Lastly, private healthcare providers should consider joining a franchise network since providers benefit from continuous medical education, regular medial updates, specialized training, and support, and the findings revealed these members price competitively than nonmembers.

Author Contributions

Both authors contributed equally to this original research work.

Conflict of Interest

None.

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