Communication and Generics Uptake in Retail Pharmacies in Njiru Sub-County, Nairobi

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Abstract

The adoption rate of generics remains low in Kenya (30%) despite well-demonstrated cost-saving benefits to the healthcare system amid pervasive perceptions of low quality, thus impeding access to affordable medication. The effect of communication on generics uptake in retail pharmacies in Njiru Sub-County, Nairobi is established, against a backdrop of implied conceptual link but lack of empirical evidence thereof in existing literature. This study was a cross-sectional descriptive survey using data from a random sample of retail pharmacies in Njiru Sub-County (N = 121). A corresponding number of pharmacy personnel were sampled. It sought to establish the effect of communication on generics uptake in retail pharmacies in Njiru Sub-County, Nairobi; and a null hypothesis was formulated: H0: Communication has no statistically significant relationship with generics uptake in retail pharmacies in Njiru Sub-County, Nairobi. Descriptive statistics (mean, standard deviation, range) and ANOVA were used to analyse the data. The results show a statistically significant relationship between communication and generics uptake ($\eta2=.16$; $p<.01$). The variable accounted for 16.0% variation in generics uptake. The study concludes that communication is a focal predictor of generics uptake; thus there is need to apply communication to effectively communicate with the consumers for greater generics adoption.

Keywords: **Communication, Bioequivalence, Generics Uptake, Retail Pharmacies, Njiru Sub-County**

Introduction

Studies linking quality communication in its various dimensions to improved health outcomes exist, not least because any information that seeks to promote health and wellbeing must be well-communicated (Corcoran, 2007; Skarbaliene, Gedrime & Skarbalius, 2019). Some of the granular facets of such communication include objective-based action, conciseness, correctness, relevance and feedback.

More general dimensions communication are quality, frequency (Zizka, 2014), and multimodality (O'Sullivan et al., 2003: PwC, 2009; Mintzes, 2012; Fill & Jamieson, 2014; Tachi et al., 2018), which individually and on aggregate are significant for improved outcomes in healthcare contexts (Oh et al., 2001; Laidlaw et al., 2001; Choudhary and Gupta, 2015; Alotaibi, 2018; Corcoran, 2007; Skarbaliene, Gedrime & Skarbalius, 2019). Frequency of communication has a significant effect on the person who receives the message, especially in terms of gratification received (Zizka,2014); while the idea of multimodality, the use of multiple channels to communicate health related information, holds effective of messages increases in proportion to the number of media channels in use (O'Sullivan et al., 2003: Fill and Jamieson (2014) (Tachi et al., 2018; PwC (2009; Mintzes, 2012), although availability of such media, however, does not automatically translate to good prospects for generic advertising.

Access to quality healthcare is a challenge many countries grapple with, and the cost of medication constitutes an integral part of it, the concern being more acute in low-and middle-income countries (LMICs), where medicines cost 20-60% of total healthcare cost (Ongarora et al., 2019).

High cost of medication, particularly innovator brands, means that generics, now occupy the centre stage in primary-healthcare as a viable low-cost option (Bateman, 2014; WHO, 2016; McKinsey, 2018; Ongarora et al., 2019). By 2017, adoption of generics in developed countries such as the US stood at 84% of all prescriptions (WHO, 2011; Wouters, Kanavos & McKee, 2017), up from 65% in 2008 (PwC, 2009). In Eastern and Central Europe, it stood at 70% in 2008 (PwC, 2009). In Western Europe, specifically Germany and the United Kingdom (UK), the adoption rate was 80% and 83%, respectively (Wouters, et al., 2017). India, the hub of generic medicines manufacture, however, has a relatively low adoption rate at less than 50% (Roy & Rana, 2018). Generally, such global trends in acceptability of generics are possible because the medicines substantially reduce the cost of medication without compromising the quality (Shanks et al., 2009). Similar rate of adoption would best serve the interest of developing nations. However, as WHO (2011) statistics indicate, adoption of generic medicines is less than 60% across the regions where the organisation has a presence, including Sub-Saharan Africa at 62%.

The value of generics as a cost-saving alternative in access to medication is not in doubt though; which fact continues to spur the adoption of generics, with global statistics showing it ranged from 60% to 90% by 2015 (Tachi et al., 2018). Statistics on the adoption of these medicines vary from place to place, as it were, with persistent concerns over perceived and real quality. These concerns arise mainly from inadequate communication, which affects both the supply- and demand-side of generics thus posing a challenge to greater adoption. LMICs, including Kenya, which struggle to meet the cost of healthcare for their populations thus warrant attention in respect of generics adoption and the possible challenges.

At 32%, about one-third of all health expenditure, OOP remains high in Kenya, pushing many below the poverty line and impeding access to

healthcare (Njuguna & Wanjala; 2019; Karen, Stephan, Asta, Steven & Tigere, 2019). Consequently, about 6.7% of Kenyans are victims of catastrophic expenditure (about 40% of their non-food expenditure goes to health). Thus, healthcare remains a major concern in the country today, and availability of medicine is one of the key things that contribute to that concern (Ongarora et al., 2019).

Statistics indicate that "even when medicines are available, the cost is up to 60% of health care expenditure" (Cameron et al.,2011 cited in Ongarora et al., 2019, p. 2). Currently, millions of Kenyans who are in need of treatment do not seek it, partly due to the cost of drugs. Generic medicines are, therefore, a remedy to the cost of medicine and their increased uptake holds part of the solution to the problem of lack of access to healthcare (Karen et al., 2019). They not only mean a drastic reduction in the cost of medication but can be just as effective as their branded counterparts as well (PwC, 2009; WHO, 2011; Patel et al., 2012; Bateman, 2014).

While problems explored in extant literature imply a relationship between communication and healthcare outcomes, none to my knowledge has gone to the extent of conceptualizing the variables in way that makes it possible to measure a direct causal relationship. For the most part, the studies have had an inherent methodological weakness in being purely qualitative.

Accordingly, none of the studies reviewed attempts to test inferentially the statistical significance and effect size attributable to a given factor or combination of factor(s) on the uptake of generics. They also fail conceptually for not showing the predictive value of salient communication variables (communication quality, frequency and multimodality) in health communication contexts.

There is need therefore for a purposeful empirical analysis of how communication affects generics uptake in retail pharmacies.

The need to have sufficient information on and understanding of the interplay and implications of these communication-related concerns therefore warrants and forms the basis of this study.

The study tested the following hypothesis (providing for its alternate too):

> H_0: *Communication has no statistically significant relationship with the generics uptake in retail pharmacies in Njiru Sub-County, Nairobi*
>
> H_1: *Communication has a statistically significant relationship with generics medicines in retail pharmacies in Njiru Sub-County, Nairobi.*

Methodology

This study was a cross-sectional descriptive survey through which quantitative data were randomly collected from retail pharmacies in Njiru Sub-County using Daniel (1999) formula to calculate the sample size, taking into consideration Finite Population Correction (FPC).

The above formula yielded 121 out of 175 retail pharmacies registered by the Pharmacy and Poisons Board (PPB) and which had operated for at least two years. A proportionate stratified random sample was calculated using the formula:

$$\left(\frac{S_1}{P}\right) S_2$$

Where S_1 = Sample Size (no. of pharmacies sampled = 121); P = Population (no. of pharmacies in Njiru Sub-County = 175); S_2 = Stratum Size (pharmacies in each location

Accordingly, eight locations of Njiru Sub-County: Civo (5)), Dandora (18), Saika (28), Umoja (21), Kariobangi North (10), Kariobangi South (12), Kayole Junction (18) and Mowlem (9) contributed to the sample of 121.

The study objective was to establish the relationship between communication and the uptake of generic medicines in retail pharmacies in Njiru Sub-County, Nairobi.

The study utilised a self-administered structured questionnaire to obtain data from 121 pharmacists, pharmacy technologists/technicians, or pharmacy assistants. The predictor variable, communication comprised 19 indicators (Likert-type items) measured in terms of quality, frequency and multimodality of communication. Generics uptake was a ratio/scale variable indicated by proportion/ratio of sales by percentage of generic medicines in the pharmacy in the last one year (calculated vis-à-vis innovator brands sold). Descriptive (frequencies, percentages, mean, standard deviation, and range; and correlation) and inferential statistics (one-way [Welch] and factorial ANOVA) were used to analyse the data. The Likert-type items were reduced into composite scores and correlated with uptake of generics. Six assumptions were tested: interval/ratio measurement of the dependent variable, two/more groups/levels of the independent variable, outliers, independence of observations, normality of the dependent variable, and homogeneity (equality) of variance. Games-Howell post hoc test was applied for pairwise comparisons. Eta^2(η^2) was used to check the effect size of the predictor variables on the dependent variable. F-Statistic was used to determine the overall level of significance (p-value) of each of the relationships stated in the hypothesis. The level of precision or sampling error for this study was ±5; and the confidence or risk level 95%.

The study tested face and content validity, by subjecting the instrument to expert analysis (supervisor and peers). Construct validity—convergent—was assessed using bivariate correlation technique. Intra-construct correlation coefficient (R) for the pairings of the indicators of communication was checked against a .3 - .7 limit.

The reliability of the survey instrument was determined by pilot-testing it on a sample of five private pharmacies drawn from Ruaraka Constituency, Nairobi County. The study adopted the necessary corrective measures based on the feedback. The suitability of the scale items (inter-item correlation) was determined on the basis of Cronbach's Alpha coefficient, a range of .7-.8 being considered for reliable scale items (Nunnally, 1978; Osborne & Christensen, 2001).

Results and Discussion

The objective of this study was to establish the relationship between communication and generics uptake in retail pharmacies in Njiru Sub-County, Nairobi. The basic assumption was there was no difference in the means of uptake of generics for differing levels of communication (its perceived value). Composite scores were used to derive aggregate levels of communication forming a five-point Likert scale apposite for one-way ANOVA. The criterion was a ratio/scale variable. Table 1 displays the descriptive statistics, range (R), mean (M) and standard deviation (SD), computed for the composite scores of communication and uptake of generics.

Table 1: Descriptive Statistics for Communication and Generics Uptake

Variable	R	M	SD
Communication	1.00	4.71	0.26
Uptake of Generics	1.00	3.98	0.16
Overall Mean Score		4.50	0.244

Source: Primary Data (2021)

The results in Table 1 indicate that the highest mean for the composite scores of the variables is for communication, 4.71, $SD = 0.26$, followed by generics uptake, 3.98, $SD = 0.16$. On variability, the scores of communication and generics uptake had the same (1.00), implying that the data did not have outliers. The standard deviation of the scores of communication (0.26), was higher than those of uptake of generics (0.16). From the results, it can be inferred that communication was an important factor in the uptake of generic medicines in pharmacies. Besides, there was less variation in the data; they did not deviate too much from the mean. They were also generally well spread.

Bivariate Correlation (Spearman's *Rho*) was computed for communication, pharmacy personnel knowledge, consumer preference and uptake of generics to test if there were any significant correlations that could reveal any associations between the three predictors and the criterion. Table 3 shows the results of the correlation test.

Table 2: Correlation Analysis of Communication, Pharmacy Personnel Knowledge, Consumer Preference and Uptake of Generics

Variable	N	1	2
Communication[a]	121	-	
Uptake of Generics	121	.19*	-
		.038	-

[a]Composite scores of Communication
[b]Uptake of Generics, 1 = 1-20%; 2 = 21-40%; 3 = 41-60%; 4 = 61-80%; 5 = 80-100% (mean proportion of sales of generics for 2019-2020)
*$p<.05$
**$p<.01$
Source: Primary Data (2021)

The correlation results in Table 2 indicate a small, positive statistically significant correlation between communication and uptake of generics (Rho = .19, $p<.05$). There was a small, positive statistically significant correlation between pharmacy personnel knowledge and uptake of generics (*Rho* = .20, $p<.05$). The positive and statistically significant association between communication and uptake of generics suggests that increase in the value of this variable affects the extent to which pharmacy personnel prescribes generics. The relationship is not very strong, though.

The positive correlation between communication and generics uptake is also borne out by other studies that found communication to be important

factors for adoption of generics (Gaither et al., 2001; PwC, 2012; Mukherji, 2012; Patel et al., 2012; Bateman, 2014; PwC 2017; McKinsey, 2018).

No study has tested the connection between communication and uptake of generics. The results to a certain extent, however, corroborate findings by Fill and Jamieson (2014) that the right mix of communication strategies is needed to deal with the lingering societal perceptions of generic medicines being of low quality in many places on the African continent (WHO, 2011).

ANOVA and Hypothesis Testing

The study aimed to establish the effect of communication on the uptake of generics in retail pharmacies in Njiru Sub-County, Nairobi. One-way [Welch] ANOVA was used to test the hypothesis, with the relevant post-hoc test, Games-Howell. F-Statistic computed was based on the assumption that there was no difference in the means of uptake of generics for differing levels of communication, with the significance checked at .05 alpha level. The effect size was tested through η^2 function. Table 3 and Figure 1 present the results.

Table 3: ANOVA Test Results for Communication and Uptake of Generics

ANOVA

	SS	Df	MS	F	p	η2
Between Groups	.48	2	0.24	11.43	<.01	.16
Within Groups	2.45	118	0.02			
Total	2.93	120				

Multiple Comparisons[1]

(I) Communication	(J) Communication	MD (I-J)	SE	p
Neutral	Agree	-.46	.50	.719
	Strongly Agree	-.49	.50	.698
Agree	Neutral	.46	.50	.719
	Strongly Agree	-.03	.04	.769
Strongly Agree	Neutral	.49	.50	.698
	Agree	.03	.04	.769

Note: Table combines descriptive statistics, and one-way ANOVA and post hoc test results

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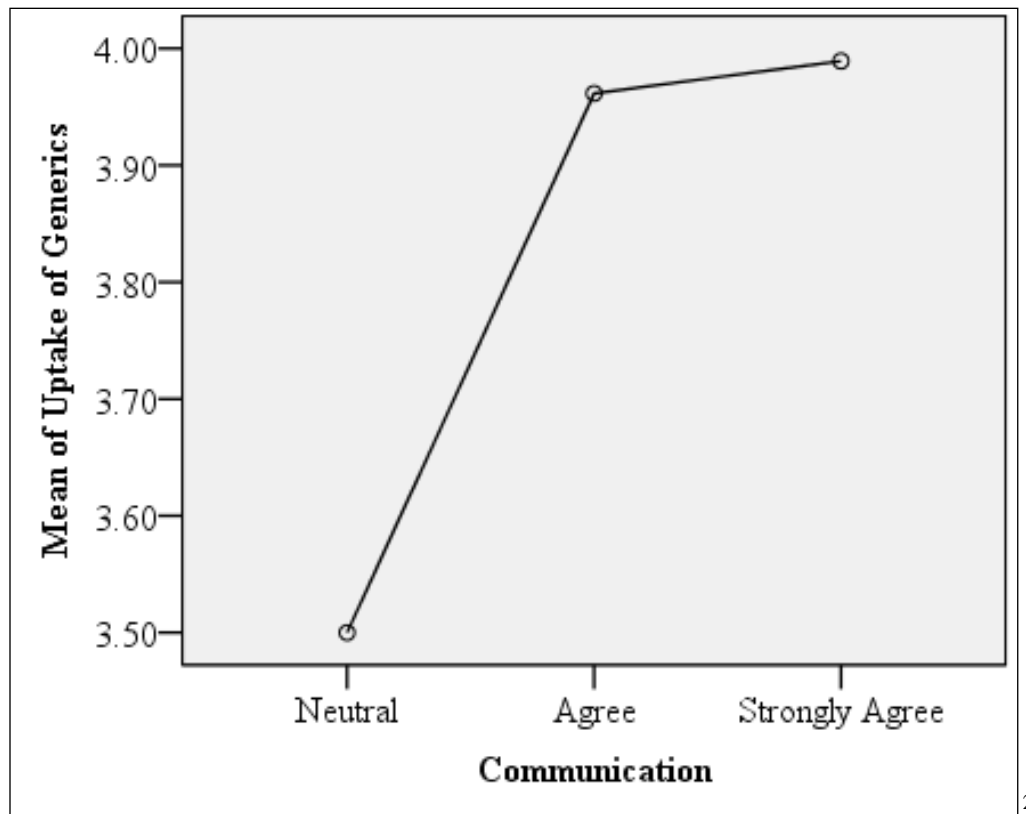[1]Post hoc test results for communication and uptake of generics

Figure 1: Means Plot of Communication and Uptake of Generics

Source: Primary Data (2021)

Note: Communication refers to aggregate of the scores of quality communication, communication frequency and multimodal communication measured on a 5-point likert scale.

The results in Table 3 reveal a statistically significant relationship between communication and uptake of generics, determined by ANOVA (F 2, 118) = 11.43; $p<.01$). The category Strongly Agree had the highest mean uptake of generic sales at 3.99 (79.8%). Neutral had the least mean at 3.50 (70.0%), but much higher standard deviation (0.71). The mean uptake of generics for the Agree category is 3.96 (79.2%). From the results, it is evident that different categories of communication correspond to different proportions of generics uptake of generics. The differences in the mean uptake of generics ranging from 3.50 to 3.99 are statistically significant.

Looking at the differences in the means of the proportion of the four communication categories, none of the differences in the category pairings is statistically significant, revealed by a Games-Howell post hoc test. Neutral and Agree ($p = .719$), Neutral and Strongly Agree ($p = .698$), Agree and Strongly Agree ($p = .769$). The effect of communication on the uptake of generics is large ($\eta^2 = .16$), equaling 16.0%.

Figure 1 indicates that the categories of the respondents who agreed or strongly agreed with

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[2]Uptake of generics = mean proportion of generic sales for the period 2019-2020

attitudinal statements relating to communication had higher proportion of generic medicines sold than the other categories.

Discussions

The objective of the study was to establish the effect of communication on generics uptake in retail pharmacies in Njiru Sub-County, Nairobi.

The positive and statistically significant correlation between communication and uptake of generics suggests that an increase in the value of this variable affects the extent to which pharmacy personnel prescribes generics. The relationship is not very strong, though.

The results are borne out by other studies that found communication to be important factors for adoption of generics (Gaither et al., 2001; PwC, 2012; Mukherji, 2012; Patel et al., 2012; Bateman, 2014; PwC 2017; McKinsey, 2018).

No study has tested the connection between communication and the uptake of generics in a conceptual way. To an extent, however, corroborate findings by Fill and Jamieson (2014) that the right mix of communication strategies is needed to deal with the lingering societal perceptions of generic medicines being of low quality in many places on the African continent (WHO, 2011).

The results revealed a statistically significant relationship between communication and generics uptake in the surveyed pharmacies in Njiru Sub-County. This implies the need to apply quality multimodal and frequent communication to shore up adoption of generics in the retail pharmacies. Quality of communication considered in terms of dimensions such as objective-based action, conciseness, correctness, relevance and feedback, conceptualized in subjective statements, is significant for improved adoption of generics. This finding is consistent with studies which found a positive correlation between effective communication of healthcare professionals and better, improved health outcomes for patients (Oh et al., 2001; Centre for Rural Health [CRH]; 2018; Skarbaliene, Gedrime & Skarbalius, 2019; Laidlaw et al., 2001; Alotaibi, 2018). That frequency of communication plays a role in generics uptake validates other studies that indicated a proportional effectiveness of messages in respect of the number of media channels in use (O'Sullivan et al., 2003; by Zizka 2014), especially in view of communication significantly affecting the person who receives the message, in terms of the gratification he or she receives. The application of various modes of communication, social media networks, interpersonal communication (face-to-face interaction, focus groups), brochures and pamphlets and cross-selling options (specific information on specific generic alternatives on receipts and invoices) validates other studies which indicated looked at various ways of promoting medicines (Choudhary & Gupta, 2015; Tachi et al., 2018).

Theoretically, the findings support the main idea in Diffusion of Innovations—innovation as an idea, practice, or object that is perceived to be new by an individual or other unit of adoption, which is also communicated through certain channels over time among the members of a social system (Rogers,1995; Rogers, 2003). To the extent then that multichannel advertising/promotion and messaging frequency have parallels in channel and time, the data collected on these variables and significant findings derived support the theory.

Conclusions

The study rejects the null hypothesis that *there is no statistically significant relationship between communication and generics uptake in retail pharmacies in Njiru Sub-County, Nairobi*, is therefore rejected. Conversely, the alternate hypothesis that *there is a statistically significant relationship between communication and generics uptake in retail pharmacies in Njiru Sub-County, Nairobi,* is supported.

There is a strong indication that communication (quality communication, multimodal communication and frequency of communication) is very closely associated with uptake of generics (proportion of generic sales vis-à-vis innovator brands), and thus a very strong predictor of the same.

Pharmacies recognize the import of deliberate efforts to communicate with consumers through different channels, and frequently. Such communication would reinforce or reaffirm their belief in communication as a necessary means of creating consumer interest in generics, and the motivation to purchase; and hence enhancing their willingness and ability to prescribe them. Thus communication is a focal factor in the improvement of healthcare in Kenya to the extent that it improves significantly the adoption prospects of generics as a viable cost-saving alternative to innovator brands, which are often costlier by comparison. Theoretically, diffusion of innovations has proved its value in providing a lens through which to consider communication variables in healthcare contexts.

Implications of the Results

Effective communication is based on a number of essentials, which can be subsumed under quality communication, multimodal communication and frequent communication.

This study has demonstrated that quality communication measured in terms of planned, relevant, concise, comprehensive, communication can lead to increased adoption of generics. Communication tools such as providing specific information on invoices about generics, and interpersonal communication (e.g., face-to-face interaction, focus group discussions), issuance of brochures and pamphlets, and increasing the frequency of such communication can lead to increased uptake of generics. Putting considerable effort in the use of social media platforms to promote generics is also potentially beneficial, since the mode remains largely underutilised.

Lack of communication on generics, on the contrary, drives the negative perception that they are of poor quality and less efficacious than innovator brands (Mukherji, 2012; PwC, 2012; PwC, 2017). Although such literature does not look at communication specifically as having a direct link to the uptake of the medicines, lack of it or its underutilisation is implied through the predominantly negative perception of these medicines, despite their biosimilarity to innovator brands. Previous studies have considered dimensions of multi-channel advertising and promotion and messaging frequency as critical to effective communication (Mukherji, 2012; PwC, 2012; Zizka, 2014; Fill & Jamieson, 2014; PwC, 2017).

The findings of the study thus create new information on the direct effect of communication on the adoption of generics.

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