Factors influencing the influx of counterfeit medicines in Kenya: A survey of pharmaceutical importing small and medium enterprises within Nairobi

Kenneth Wanjau1, Muli Muthiani2
1Jomo Kenyatta University of Agriculture and Technology, P.O. Box 62000-00200, Nairobi, Kenya.
2Jomo Kenyatta University of Agriculture and Technology, P.O. Box 62000-00200, Nairobi, Kenya.

Corresponding Author: Kenneth Wanjau

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INTRODUCTION
Counterfeiting is defined as the manufacture, production, packaging, re-packaging, labeling or making, whether in Kenya or elsewhere, of any goods whereby those protected goods are imitated in such manner and to such a degree that those other goods are identical or substantially similar copies of the protected goods (GOK, 2010). It is an infringement upon protected intellectual property rights or imitation thereof so that the other goods are calculated to be confused with the original one (Otieno-Odek, 2010).

Counterfeits of almost anything can be found, from apparels to pharmaceuticals, electrical goods, bleach and dyes, books, food etc. Counterfeiting can apply to both branded and generic products. Counterfeit products may include products with the correct ingredients or with the wrong ingredients, without active ingredients, with insufficient active ingredients or with fake packaging. According to the World Health Organization (WHO) definition, what makes a medicine counterfeit is the deliberate or intentional (criminal) nature of the mislabeling of a product.

Counterfeiting of drugs as a ‘problem’ was first mentioned at the WHO conference of experts on the ‘Rational use of the drugs’ held in Nairobi in1985 (WHO, 2005).The Federal Bureau of Investigation(FBI) calls counterfeiting the crime of the 21st century (United Nations Interregional Crime and Justice Research Institute [UNICIRI], 2003). Trafficking of counterfeit goods has become one of the world’s largest and most rapidly growing criminal enterprises, with the International Anti-Counterfeiting Coalition (IACC) estimating a value of more than US$ 600 billion annually (IACC, 2009).

The Center for Medicines in the United States projected illegal medicine sales to reach USD 75 billion in 2010, a 92% increase from 2005. The World Health Organization (WHO) estimates that of the 1 million malaria deaths that occur in Africa each year, 200,000 are the result of counterfeit anti-malarial drugs (WHO, 2003). Harris, Stevens and Morris (2009) state that counterfeit drugs for tuberculosis and malaria kill 700,000 people every year in Africa.

In Kenya, the most common products counterfeit are dry primary cells, Bic Ball Point Pens, cosmetics, pharmaceutical
products, toothpaste products, and certain brands of cooking oils, mobile phones, electronic equipment, juices and detergents (GOK, 2010). Kenya Association of Manufacturers [KAM] (2008) estimated that the counterfeit penetration ranges up to 40 percent for some items. The association claims that counterfeits cost Kenyan Small and Medium Enterprises (SMEs) 50 billion shillings ($650 million) and the government 19 billion shillings ($250 million) in taxes in 2008. KAM (2010) estimates that the Kenyan manufactures in general lose up to 30 per cent in revenue and 27 per cent jobs.

The earliest counterfeit medicines encountered in Kenya were skin preparations (GOK, 2008). Newer cases of counterfeit medicines were those of anti-malarial drugs including Duo-Cotexin (dihydroartemisinin-piperazine tablets that lacked piperazine). Others included common antibiotics and fast moving analgesics. Kibwage (2008) observes that the most frequently counterfeited medicines in Kenya are expensive life style medicines such as hormones, analgesics, antibiotics, steroids and antihistamines. Anti-malarial drugs, anti HIV/AIDS, anti-cancer and anti-viral, antibiotics are among the most counterfeited drugs found in developing countries, (Dahiya, 2008). Medicines that are easily counterfeited include, fast moving and well known brands, easily manufactured drugs, those available over the counter (OTC), supplies to Government institutions and products for exports (Mehta, 2006).

Kenyan pharmaceutical SMEs continue to face several challenges from illegal trade in pharmaceutical products. There are incalculable financial costs to the reputation of these pharmaceutical importing SMEs and the public health systems as a result of counterfeits. The SMEs lose revenues and profits, with consequences for their shareholders (as stock values are curtailed), their employees (as jobs are lost), and their customers (on to whom the financial losses will be passed in the form of increased prices); states loose valuable tax revenues, as counterfeit goods move through informal markets where taxes and duties are seldom paid; and both public and private actors have to bear the costs of policing, crime prevention, detection and law enforcement (Opiyo, 2006). Counterfeit drugs are a global public health problem causing death, disability and injury affecting adults and children (Kibwage, 2008). Additionally, patients may lose confidence in health care professionals including their physician and pharmacist, and potentially modern medicine or the pharmaceutical industry in general (Opiyo, 2006).

Although there are limited researches that have been conducted to measure the increase in cases of counterfeiting in Kenya, the magnitude and effects of counterfeiting are of such significance that they compel strong and sustained action from the government, businesses and consumers, (GOK, 2010). While most studies have focused on how to control the supply side of counterfeits, few studies have investigated the influencing factors of increased influx in counterfeited medicines, (Albers, 1999). Opiyo, (2006), identified three of such factors as weak legal framework, consumers’ attitude towards counterfeit medicines and higher prices charged on imported drugs. This still leaves a wide gap of researchable area and it is in view of this gap, that this study was constructed to explore other factors that influence the influx of counterfeit medicines in Kenya. The study sought to meet the following research objectives: To investigate how legislation influences influx of counterfeit medicines in the Kenya’s pharmaceutical SMEs; To determine the extent to which genuine medicines’ brand equity influences influx of counterfeits into the pharmaceutical SMEs; To investigate whether the pricing strategy of medicines influences the influx of counterfeit medicines in pharmaceutical SMEs and; To establish to what extent perceived risks of counterfeit medicines influences their influx into the pharmaceutical SMEs.

LITERATURE REVIEW

The Theory of reasoned action (TRA) was proposed by Ajzen and Fishbein (1980). It is made up of three constructs namely behavioral intention (BI), attitude (A), and subjective norm (SN). The theory suggests that an individual’s BI is a function of the individual’s attitude about the behavior and SNs (BI = A × SN). BI is defined as the individual’s relative strength of intention to perform a behavior. Attitude comprises of the various beliefs about the outcomes of performing the behavior multiplied by the assessments of these outcomes. SN comprises of the perceived expectations from the individuals and the intentions to comply with these expectations. In short, an individual’s volitional (voluntary) behavior is predicted by the attitude toward the behavior in question and how it is assumed that other people would view them if the behavior is performed.

The Theory of planned behavior (TPB) was created to account for the weakness in the TRA. With the addition of the perceived behavioral control (PBC) construct (Notani, 1998), PBC is defined by Ajzen and Madden (1986) as a “persons beliefs as to how easy or difficult performance of the behaviour is likely to be”. Beliefs about resources and opportunities are often viewed as underlying factors influencing PBC. Therefore, as well as having positive attitudes toward purchasing a product and having social reasons to do so (SN), PBC should be able to additionally predict intentions of knowingly purchasing counterfeit luxury brands based on the perceived ease or difficulty associated with this behaviour. If an individual perceives he or she has control over performing behaviour, the individual is more likely to form strong intentions to perform the behaviour and vice versa (Notani, 1998; Rivis and Sheeran, 2003; Armitage and Christian, 2003; Armitage and Conner, 2001; Ajzen, 2002).

According to the theory of moral reasoning and competency, moral reasoning comes into play when an individual is faced with an ethical dilemma. Kohlberg (1976) categorized three stages which an individual encounters when faced with ethical dilemmas. At the pre-conventional level (Stages 1 and 2) an
individual’s reasoning is based on expected personal consequences such as reward and punishment. Stages 3 and 4 focus on maintaining and adhering to the expectations of reference groups and societal values. At the post-conventional level (Stages 5 and 6), there is a clear effort to define moral principles and values, whilst still maintaining and adhering to the values of one’s reference group and society (Nill and Scultz, 1996). This stage is about finding a balance between what is morally acceptable to the individual and which fits in with his/her social environment. Consumer choices are generally influenced by behaviours considered appropriate and therefore normatively approved, whilst others are seen as inappropriate and hence restricted (Gupta, 2004).

About forty years ago the first cases of brand counterfeiting emerged. At that time, only a few manufacturers of very highly priced and very prestigious products like textiles, jewelry and accessories were affected and it was assumed that this phenomenon would be of minor significance. Since then, however, counterfeiting has become widespread and has developed into an economic problem of international significance, (Nordin, 2009).

As counterfeiting is illegal and is generally viewed as unfavourable by the media and general public, it is reasonable to assume a person who is more susceptible to social influence (both normative and informative) will express negative attitudes towards counterfeiting (Wang, 2005; Thurasamy, 2002; Matos, 2007). To date, several primary dimensions among them innovativeness, pricing, legislation and consumers attitude have been found useful in determining demand for counterfeits and in turn influencing their influx (Cordell, 2006; Ang, 2007; Gupta, 2007). Of these, price as the economic factor has been noted to play an influential role in determining influx of counterfeit products. In order to develop appropriate countermeasures it becomes necessary to understand the phenomenon of counterfeiting as a whole and, in particular, the reasons why people buy counterfeit goods.

In international markets, four broad categories of products are more vulnerable to counterfeiting: (1) highly visible, high volume, low-tech products with well-known brand names, (2) high-priced, high-tech products (3) exclusive, prestige products and (4) intensive Research and Development, high-tech products (e.g., pharmaceuticals) (Jacobs, 2001). Despite the paucity of theoretical guidance, literature in the field and recent empirical studies seem to suggest that various individual characteristics and situational factors motivate people to engage in purchasing of fake branded products (Al-Khatib, 2004; Dubinsky, 2005).

Price advantages of counterfeits relative to genuine products play a major factor in consumer continuing demand for counterfeit products (Bloch, 2004; Schlegelmilch, 2005; Stoettinger & Penz, 2005). Other factors underlying consumer counterfeiting behavior suggested in the literature include the penalty and sanctions associated with criminal behavior, direct or indirect social pressure, personality traits and characteristics of individuals, and the ability of participants to rationalize the behavior (Albers-Miller, 2004; Ang, 2005; Simpson, 2005; Strutton, 2007).

**METHODOLOGY**

The study adopted descriptive survey research design that tried to explore the factors that influence the influx of counterfeit medicines. Phau and Teah (2009), in their study on antecedents and outcomes of attitudes towards counterfeits of luxury brands, asserted that this type of research design is appropriate in getting answers from respondents who participate through answering questions that are asked. The design was selected for this study because it provided numeric descriptions of the population and described events as they are, as they were or as they will be (Oso & Onen, 2009).

The target population was the pharmaceutical importing SMEs in Kenya and was provided by PPB. The population of study was the 61 pharmaceutical importing SMEs located in the city of Nairobi and having been in existence for over seven years, (GOK, 2010). The target respondents were the pharmacists or marketing managers running these firms because they were assumed to possess past and present knowledge of counterfeit medicines and therefore best placed to offer valuable information to the study.

Questionnaires, interviews and document analysis were used for collecting data in this study. The primary data was obtained from the data collected through the questionnaires and the interview schedules. The secondary data was collected from past document reviews and relevant articles. The questionnaires contained both open and close-ended questions and also structured and unstructured questions. Nordin (2009), in his study on consumer attitude towards counterfeit products in Malaysia recommends use of questionnaires because of time saving and confidentiality.

Pilot test was conducted to test validity and reliability of research instruments using five pharmaceutical importing SMEs that were randomly selected. For this study, both qualitative and quantitative data analysis techniques were used with assistance of Statistical Packages for Social Sciences (SPSS). These offered extensive data handling capabilities and numerous statistical analysis routines that analyzed small to very large data statistics (Kuhn, 1996). The data was presented in form of frequency tables, statistical tables, charts, and bar graphs (Chambers & Skinner, 2003).

Qualitative analysis involved coding and organizing collected data into themes and concepts that address the research questions, (Mugenda & Mugenda, 2003). Quantitative data analysis consisted of measuring values which were analyzed using descriptive analysis such as central tendencies like mean, median and mode and measures of dispersion such as range,
standard deviation and variance (Kothari, 2004). To test the relationships that presuppose a relationship between criterion and response variables, data coded was extracted using factor analysis method, a statistical approach that involves finding a way of condensing the information contained in a number of original variables into a smaller set of dimensions (factors) with a minimum loss of information (Hair, 1992).

RESEARCH FINDINGS AND DISCUSSIONS
In the study, a total of 61 questionnaires were administered to the marketing managers or the company pharmacists or their equivalents of each pharmaceutical importing SMEs in Kenya. 49 questionnaires were successfully filled, returned and taken as a sample. This gave a response rate of 80.3%. This response rate was favorable according to Mugenda and Mugenda (2003) in which they assert that a 50% response rate is adequate, 60% good and above 70% rated very well. Further, Nordin (2009) in his study on consumers’ attitude towards counterfeit products in Malaysia stated that, a response rate of above 70% is adequate for satisfactory research findings. The findings of the pilot test showed that the calculated Cronbach’s reliability alpha was 0.785 which implied that the questionnaire was reliable.

Table 1.0 illustrates the results of correlation analysis that determined the strength of relationship between the independent variables and the influx of counterfeit medicines. The findings indicate very weak (.049) relationship between the influx of counterfeit medicines and legislation, a weak positive (.286) relationship between influx and branding equity, weak positive (0.093) relationship between influx and pricing, while influx had a weak positive (.026) relationship between influx and penalty influence.

Table 1.0 Correlation Analysis Results

<table>
<thead>
<tr>
<th>Influx of counterfeit medicine</th>
<th>Legislation</th>
<th>branding</th>
<th>pricings</th>
<th>Penalty Influence</th>
<th>Perceived Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influx of counterfeit medicine</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legislation</td>
<td>0.049</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>branding</td>
<td>.286</td>
<td>.370</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pricings</td>
<td>0.093</td>
<td>0.128</td>
<td>0.113</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Penalty Influence</td>
<td>0.026</td>
<td>.477</td>
<td>0.214</td>
<td>0.135</td>
<td>1</td>
</tr>
<tr>
<td>Perceived Risk</td>
<td>0.002</td>
<td>.428</td>
<td>.459</td>
<td>.346</td>
<td>0.23</td>
</tr>
</tbody>
</table>

Further, logit regression analysis was done because the dependent variable was dichotomous to determine the linear relationship between the influx of counterfeits and legislation, brand equity, pricing strategy and perceived risk. The findings are tabulated in tables 2 and 3.

**Model summary**- The -2 log likelihood statistic is 47.509 it measures how poorly the model predicts the factors leading to the influx of counterfeit medicines Kenyan pharmaceuticals SMEs- the smaller the statistics the better the model.

Table 2: Model Summary Results

<table>
<thead>
<tr>
<th>-2 Log likelihood</th>
<th>Cox &amp; Snell R Square</th>
<th>Nagelkerke R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>47.509a</td>
<td>0.134</td>
<td>0.199</td>
</tr>
</tbody>
</table>

Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.
**Variables in the Equation** shows the out of the regression is

\[
\ln(\text{Odds}) = 3.804 + 0.088 \text{ Perceived Risk} + 0.059 \text{ Pricing Strategy} - 0.227 \text{ Brand equity} + 0.044 \text{ Legislation}.
\]

The model can be used to predict the odds that the factors under investigation influence the influx of counterfeit medicines in Kenyan pharmaceuticals. The odd for the prediction is \( \text{ODDS} = e^{3.804 + 0.088 + 0.059 - 0.227 + 0.044} = 3.8953 \). This shows that the perceived risk, pricing strategy, brand equity and legislation are 3.8953 times likely to influence the influx of counterfeits medicines in the Kenyan pharmaceuticals SMEs. Further, the beta coefficients among legislation (.044), brand equity (.227), pricing strategy (.059) and perceived risk (.088) were all positive.

**Table 3: Variables in the Equation Results**

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legislation</td>
<td>0.044</td>
<td>0.112</td>
<td>0.156</td>
<td>0.693</td>
<td>1.045</td>
</tr>
<tr>
<td>Brand equity</td>
<td>-0.227</td>
<td>0.105</td>
<td>4.647</td>
<td>0.031</td>
<td>0.797</td>
</tr>
<tr>
<td>Pricing Strategy</td>
<td>0.059</td>
<td>0.073</td>
<td>0.645</td>
<td>0.422</td>
<td>1.06</td>
</tr>
<tr>
<td>Perceived risk</td>
<td>0.088</td>
<td>0.139</td>
<td>0.403</td>
<td>0.525</td>
<td>1.092</td>
</tr>
<tr>
<td>Constant</td>
<td>3.804</td>
<td>5.19</td>
<td>0.537</td>
<td>0.464</td>
<td>44.887</td>
</tr>
</tbody>
</table>

**CONCLUSIONS**

From the findings of the study, data analysis and interpretation of interview and questionnaire responses from the 49 pharmaceutical importing SMEs based in Nairobi revealed other 13 key components that were found to have influence on the four variables. These were: Pricing, Risk, Perception, Legislation, Brand, Value, Quality, Complaints, Damage, Consumer Ignorance, Tactics, Protection and Penalties. The various factors studied showed to differ in extent to which they influenced the influx of counterfeit medicines.

The findings above support that legislation has an effect on the influx of counterfeit in Kenyan pharmaceutical SMEs. The correlation analysis however indicates very weak positive relationship (0.049). The findings also show that brand equity influences the influx of counterfeit medicine in Kenyan pharmaceuticals SMEs. A weak positive relationship (0.286) was noted. Never the less, it was suffice to say a relationship existed. This implied that brand equity of medicines could positively influence the influx of counterfeit medicines in the Kenyan Pharmaceuticals and as such the importance of popular brands to be protected against infringement.

The study further showed that pricing strategy influences the influx of counterfeit medicine in Kenyan pharmaceuticals SMEs. A weak positive relationship existed (0.093). Further, the findings above also show that consumers buy counterfeit medicine over genuine ones if there is a price advantage, discounted prices of genuine brands reduces counterfeiting and counterfeit medicines are usually not sold at the same prices as the genuine ones. This implies high prices of medicines may prompt the consumers to purchase counterfeit medicines.

The findings also show that perceived risks influences the influx of counterfeit medicine in Kenyan pharmaceuticals SMEs. The relationship analysed was however very weak (0.002). Overall, the findings above show that there is a high probability that the counterfeit medicines do not work and that the risk undertaken when counterfeits are purchased is very high.

In view of the findings of the study, the following recommendations are made to the SMEs: In order to develop appropriate countermeasures it becomes necessary to understand the phenomenon of counterfeiting as a whole and, in particular, the reasons why people buy counterfeit goods. Pharmaceutical companies should protect all their products with Kenya Intellectual Property Institute to avoid IPR infringement by the counterfeiters. Further, all cases of counterfeiting should be reported to the regulatory authorities for action.

SMEs importing genuine branded products should develop better marketing strategies to entice the consumers to purchase genuine products and not the counterfeit version. By knowing that attitude plays a role in determining the purchase intention of a customer, marketers can work on finding ways to change consumers’ attitudes and beliefs.

The importers should charge affordable prices so as to reduce the market for counterfeit commodities. Over-pricing thus
creates potential for hyper-profits for counterfeiters. In this regard, leading brands should consider their pricing strategy very carefully to avoid from being taken advantage of by counterfeiters.

The SMEs may further consider educating general public on the effects of counterfeit products and what they need to check before purchasing any medicines. They also need to be informed of the risks associated with counterfeit medicines as well. This will create awareness among the general public and may positively help address this menace.

Further research may be carried out to investigate the influencers of influx of counterfeit medicines among all the pharmaceutical importing companies including the multinationals as well as those located in other parts of the country. The result will be more representative and convincing. The extent to which the counterfeit medicines have affected the performance of the pharmaceutical importing companies may also be investigated because there is very limited literature on this. This would be important in highlighting the factors that the firms would consider in order to deal with the vice.

REFERENCES


International Anti-Counterfeiting Coalition, (2009), The Impact of Counterfeit Products on the performance of Pharmaceutical Companies, New York, USA.


