Preferred Sources of Information, Factors Influencing the Attitudes and Prescribing Behaviour of Medical Doctors in the Western Suburbs of Harare, Zimbabwe

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ABSTRACT

This study adopts the survey research design. The objectives were to understand doctors' attitudes towards drug cost, incentives, medical sales representatives and to identify the preferred information sources and factors that affect their medication choices. Participants of the study were randomly selected and they consisted of medical doctors both in the government and private hospitals with medicine prescribing authority regardless of specialization. Questionnaire was the major source of data collection. Statistical Package for the Social Sciences was used for data analysis. Results of the study indicate among others, absolute influence from colleagues and the majority in this category were 30-44 and <30 years age groups. Doctors supported the use of pharmaceutical sales representatives arguing that they provide information on new drug launches, events in the pharmaceutical industry and on drug availability and cost. Hence the majority of doctors were absolutely willing to interact with medical sales representatives. Among the suggestions made is the provision of free samples from pharmaceutical companies to help patients in need and also to help hospitals with their material needs particularly in the wards.
Keywords: Prescription Behavior, Incentives, Attitudes, Dosage, Clinical effectiveness, Medical sales Representatives, Medical doctor, Pharmaceutical marketing.

INTRODUCTION

Medical doctors are the primary decision makers in determining the type of medicine for use by patients. This is a major requirement particularly for prescribing drugs and hence in pharmaceutical industry medical doctors are the prime targeted clients. The pharmaceutical marketing techniques used in this industry include advertising, public relations, sales promotion, sponsorship meetings and personal selling. However, most pharmaceutical companies are heavily relying on medical sales representatives and some with no adequate knowledge on pharmaceutical products. Recruitment of pharmaceutical sales representatives with insufficient knowledge of the products that they market will put the public at risk. In addition, a rise in the

proportion of sales force team is directly proportional to an increase in marketing expenditure. The majority of patients particularly in developing countries do not afford the cost of drugs. Patients may develop severe disease complications as a result of failure to purchase the prescribed drugs. There is need to understand the prescribing behaviour of the target customers in-order to formulate low cost sales and marketing strategies as well as formulating policies that prohibits unethical marketing strategies for the benefit of all parties involved in the use of medicaments.

In addition, the intense competition involved in the pharmaceutical industry may force other players to engage in unethical promotional strategies through the use of incentives and gifts to gain market share. These incentives create conflicts of interests to medical doctors and that is the desire to cure the patient and the unintentional need to satisfy the desires of the drug supplier. Drug samples although they help to serve other purposes, they contribute to the sales and marketing expenditure which in turn increases the cost of drugs on the market. This huge expenditure reduces the budgets for other functional departments that would otherwise help in the development of more effective drugs. Both patients and the health care profession can be negatively affected by some of the marketing practices.

Some of the marketing practices may mislead doctors and put the lives of patients at risk. Masood, Ibrahim, Hassali and Ahmed (2009) have stated that pharmaceutical marketing are activities that are tailored to make medical doctors and patients aware of new and existing pharmaceutical products. According to Masood, Ibrahim, Hassali and Ahmed (2009), such activities include giveaway samples, product details and disease management programs. Olszewska (2006) defines pharmaceutical marketing as 'a management process that serves to identify and meet patients' needs in a profitable way and this mainly involves personal selling, promotions and sponsorships'.

Sales promotion: According to Koekemoer, *et al.* (1998), 'sales promotion are activities that offers incentives for a limited time period to induce a desired response.' The expected responses may be product purchase or trial. Burnett (2008), concurs adding that 'sales promotion are those marketing activities that add to the basic value of the product for a limited time period and to directly stimulate consumer purchasing and dealer effectiveness and these include displays, trade shows, exhibitions and demonstrations'. The definitions revolve around creating stimuli on targeted customers in order to encourage purchase. In support of this, Kotler and Armstrong (1989), also highlights that, sales promotions makes use of various strategies that include premiums, coupons and contests and all these are designed to attract attention and stimulating quick response. According to Koekemoer et al (1998), in sales promotion, the first groups to be targeted are wholesalers and retailers and finally consumers. However, according to Kotler, Ang , Leong and Tan (1999), sales promotions are not effective at building long-term brand preferences.

Personal Selling and Pharmaceutical Sales Representatives: Personal interaction allows for feedback and adjustments. However, according to Koekemoer et al, 1998; Kotler and Armstrong (2005), personal selling is the most expensive promotional tool. Burnett (2008) defines personal selling as an 'oral presentation to one or more prospective customers in a bid to encourage product purchase.' Koekemoer et al (1998), add that 'personal selling is a person to person process by which the seller learns about the prospective buyer's wants and seeks to satisfy them by offering suitable goods or services and making a sale'.

According to Burnett (2008), the activities involved in personal selling include field selling and retail selling through sales representatives and sales clerks respectively. Consumer International (2007) highlights that sales representatives spend most of their business time in the field interacting with clients. In the pharmaceutical industry such clients are pharmacists, hospital personnel, medical doctors, patient advocacy groups and even retirement homes (Consumer International, 2007). Sales persons' performance can be measured by gathering information from different sources and these include sales reports, personal observation, customer survey, and talks with other sales people (Kotler and Armstrong, 2005). Sales persons are expected to perform well if appropriate training that include drug details and information on diseases was offered.

According to Masood, Ibrahim, Hassali and Ahmed (2009), personal selling is considered the most important technique in pharmaceutical marketing and it employs detailing in combination with other tools. 'Detailing is a promotional strategy that is done in order to secure goodwill with the ultimate aim of increasing product usage' (Masood, Ibrahim, Hassali and Ahmed, 2009). In addition McNeill et al (2006), state that the relationship between doctors and medical representatives is supported by various gifts and materials. In this regard, several tools are used as promotion under personal selling and these include drug information brochures, drug samples, personalized gifts, sweepstakes in conferences and workshops (McNeill et al, 2006; Nobhojit, Neha and Sanjay, 2007).

Advertising and Sponsorships: According to Koekemoer et al (1998), 'sponsorship is the marketing communications activity whereby a sponsor contractually provides financial or other support to an organisation or individual in return for rights to use the sponsor's name (company, product, brand) and logo in connection with the sponsored event or activity'. On the other hand, 'advertising is defined as any paid form of non-personal presentation of ideas, goods, or services by an identified sponsor' (Burnett, 2008). Rajasekara (2008), state that advertising has the potential to inform large masses about the goods and services offered by the company. This can be done at a low cost and for further information prospective customers can visit the company's various centres. Koekemoer et al (1998), agree adding that advertising is done with the aim of achieving four main objectives which are to attract attention, inform, persuade and remind.

Pharmaceutical Advertising: In the pharmaceutical industry, advertising is also employed as a way of reaching to the targeted customers. According to Masood, Ibrahim, Hassali and Ahmed, (2009), pharmaceutical advertising include direct to consumer advertising (DTCA) and this will depend on country. Direct to prescribers advertisement is enhanced through professional publications, books, journals, conferences and electronic media (Buckley, 2005). However, the majority of medical doctors believe information through such sources is biased (Consumer International, 2007). Lexchin and Mintzes (2002) argue that most new drugs offer limited, if any, benefits over existing medications. They further highlight that many direct-to-consumer advertisements put more emphasis on exaggerated product benefits leaving out other crucial aspects on drug safety. However, quality of advertisements may depend on country because according to Nobhojit and Neha (2004), drug advertisements in Indian medical journals contain less information on safety and clinical pharmacology compared to the United States and United Kingdom pharmaceutical companies.

Pharmaceutical Sponsorships: Pharmaceutical companies also benefit through sponsoring professional events and these include continuous medical education (CME) (Vassilas and Mathews, 2006). Masood et al (2009), state that educational events are used for marketing purposes and this is enhanced through making use of paid opinion leaders to participate in conferences/seminars. This promotes the image of an organization as being responsible to the society and this will be in line with the corporate social responsibility concept. Vassilas and Mathews (2006), state that in the UK, postgraduate medical educational events are commonly sponsored by pharmaceutical companies.

Pharmaceutical Marketing Expenditure: Pauline, Andrew, Joel and Mansfield (2004), state that pharmaceutical manufacturers incur huge expenditure on promotion through sales representatives, samples, advertisements in broadcast and print media, and on sponsorship of educational events and conferences. According to Barfett et al (2004), annual drug promotion expenditure to medical doctors in Canada and the United States of America has been estimated at $1.7 billion and $21 billion respectively. In addition, Hensley and Scott (2003) and Dana, Arthur, Caplan and Merz (2003) state that of the $16 billion used on promotion to medical doctors and patients, $897 million is spent on successful drug development annually.

Nearly half of this drug promotional expenditure, approximately $7.2 billion is channeled towards production of drug samples (Dana, Arthur, Caplan and Merz 2003). According to Adriane and Shahram (2007), sales representatives use samples to influence and getting access into the doctor's office. Barfett et al (2004), state that pharmaceutical marketing campaigns are primarily directed to practising doctors and residents and also medical students. Wazana (2000) and Cullinae (2002) also indicate that huge expenses are spent per doctor yearly on gifts and other forms of

promotion. According to Chimonas, Brennan and Rothman (2007), 'pharmaceutical companies employ about 90,000 detailers and spend over $7 billion annually to market their products to doctors, averaging $15,000 yearly per doctor'. Consumer international (2007), states that it is difficult to establish the actual expenditure on gifts to doctors because it may be hidden in official company reports of spending under budget lines for seminars and events.

Sources of information for medical doctors

The main sources of information for doctors include peer-reviewed medical journals, medical textbooks, proceedings of conferences and pharmaceutical sales representatives (Theodorou et al, 2009; Ghia et al, 2011). According Pauline, Andrew, Joel and Mansfield (2004), promotion is used as a source of information by medical doctors particularly on new drugs. Othman, Vitry and Roughead (2009), also argue adding that journal advertising has the potential to change doctors' prescribing behaviour and has even suggested the need to improve the quality of this promotion technique. Oshikoya, Oreagba and Adeyemi (2011) also state that medical doctors obtain information about drugs from several sources which include colleagues, medical sales representatives and journals articles. McGettigan, Golden, Fryer, Chan and Feely (2001) add that the most frequently used sources of information for both old and new drugs are medical journal articles and therapeutic bulletins, however sales representatives are considered more important on information concerning new pharmaceutical products. In support of this, Layton, Sritanyarat, Chadbunchachai and Wertheimer (2007) further highlight that for initial sources of information on new drugs, medical doctors consider conferences, medical journals, and medical sales representatives as more useful.

Ethical Concerns: According to Ahmad and Marylyn (2001), in the exchange process marketers make a reasonable profit and the consumers get the product they desired and everyone is expected to be happy. However, according to Kotler (1972), consumers may purchase goods that they may not necessarily desire. Ahmad and Marylyn (2001), argue that 'marketers may create a happy customer in the short term, but in the long run both customer and society suffer as a direct result of the marketer's actions in satisfying the customer'. According to Hioman Chiu (2005), strong promotions directed to medical doctors may influence them to make more prescriptions, however the new drugs being promoted may not be in the best interests of patients. Hioman Chiu (2005) further argues that the pharmaceutical industry's public relation firms unethically recruit medical doctors to endorse their companies' clinical studies. This would definitely put the lives of patients at risk. Pharmaceutical products need to be fully assessed before put on trial to avoid unnecessary dangers to patients. In the marketing discipline, it is important for marketers to understand principles underlying social responsibility and societal marketing. Laczniak (1993) states that ethical guidelines and practice is necessary to enhance marketers adhere

to social responsibility principles. To support this statement, Mascarenhas (1995) says that information about a firm's ethical behaviour have a bearing or influence on the sales of products and company image. Respectable ethical behaviour has a favorable publicity to the company and this influences awareness, attitudes and demand for the product in a positive way (Laczniak and Udell, 1981). It is therefore necessary to consider organizational ethics when developing sales and marketing strategies. In view of the pharmaceutical industry, this will help to recognize and acknowledge the need to act responsibly towards society and the communities in which it operates.

PARTICIPANTS AND PROCEDURE

This study adopts the survey research design. The study sample consisted of medical doctors both in the government and private hospitals with medicine prescribing authority regardless of specialisation. Data were collected using questionnaire. The questionnaire together with the letter of consent that also summarized the purpose of the study were delivered by the researchers to the randomly selected participants. Medical doctors were selected through a simple random procedure at each hospital using doctor's registers that were available from the matron or sister in charge. Statistical Package for Social Sciences (SPSS) was applied for data analysis.

RESULTS AND DISCUSSION

In this research 110 copies of questionnaire were distributed and the response rate was 62.7% higher than 49% and 40,8% by Anderson et al (2009) and Kazeem, Ibrahim and Olayinka (2011) respectively. However, the response rate was lower than the 71% of Reichert, Simon and Ethan (2000). The low response rate was attributed to time constraints experienced by medical doctors. They have been showing willingness to participate in the study, however due to their busy schedules it has been difficult for some to complete the questionnaire on schedule.

Sources of information considered on the launch of new drugs: In this survey a list of information sources were listed and the participants were assigned to indicate their most preferred source of information. It was determined that most medical doctors relied on more than one source of information (Figure 1). A small proportion highlighted other sources of information which were excluded on the question list and this included the British national formulary and colleagues. The internet was the least preferred source of information. Results show that a greater majority of medical doctors preferred several sources of information and this was indicated as multiple (Figure 1). The compiled data overwhelmingly reflect that a significant proportion of doctors preferred conferences/seminars/CME, medical journals, medical sales representatives and the internet as their multiple sources of information. This is in

agreement with findings by Theodorou et al, (2009) where it was indicated that doctors rely on proceedings from conferences and medical text books. Layton, Sritanyarat, Chadbunchachai and Wertheimer (2007) also indicate that for initial sources of information medical doctors rely on conferences, medical journals and sales representatives.

All age groups preferred multiple sources (Figure 1 and 2), however the 45-54 and 30-44 age groups dominated in this category. Also a significant number of the <30 and >54 age groups relied on multiple sources. The <30 years age group indicated more preference on medical journals and those above >54 years of age dominated on medical sales representatives on new drug launches (Figure 1). Seminars/conferences/CMEs were significantly preferred by the 45-54 age group on new medicines. Promotional material is also considered and not as frequent as other sources of information (Figure 1). However, literature also reveals that therapeutic bulletins (Mcgettigan et al, 2001) and drug reference books (Theodorou et al, 2009) are also used as information sources.

Sources considered on drug features: Majority of medical doctors indicated preference from multiple sources concerning information on drug safety, clinical effectiveness, dosage and side effects and the 45-54 age group dominated in this category (Table 2). On single sources a significant proportion indicated that they use medical journals and seminars/conferences/CME for drug efficacy, safety and side effects (Table 2). However, medical sales representatives recorded the least preference for the same drug details (Figure 2).

Degree of influence of each of the sources of information regarding drug features: Participants were assigned to rate the degree of influence of each of the highlighted sources of information in their medication choices concerning drug features. The information relate how each factor was rated by the different age groups of doctors who participated in the study. Medical doctors rated sources of information differently with regards to how they are influenced in their prescription behaviour. The majority of doctors rated internet as having a moderate influence and these were mainly in the 30-44, 45-54 and >54 years age groups . However the majority of 43.5% participants who indicated a strong to very strong influence from internet in their medication choices where less than <30 years of age. Medical journals, previous experience with the drug and conferences/seminars/CME greatly influences medical doctors. A significant proportion rated these sources in the strong to very strong influence category. Medical journals, previous experience with the drug and conferences/seminars/CME constituted 80.9%, 75% and 78.3% respectively in this rating (Table 1). The majority of all age groups indicated that these were the most influential information sources in their prescription behaviour. However, medical sales representatives were shown to have a minor to moderate influence (Table 1) mainly to the 45-54 and 30-44 age groups. In contrary, medical

doctors above >54 years of age indicated significant influence from medical sales representatives. Promotional material have moderate to minor influence (Table 1) and mainly to doctors in the age groups <30 and 30-44. However, it showed a minor or no influence to the 45-54 age group and doctors above 54 years of age. Research carried out by Pauline, Andrew, Joel and Mansfield (2009) indicate that promotion is used as source of information for new drugs, however the study lacked details on the degree of influence and age groups relying on the source.

Promotional material cannot be rated as more influential to all age groups in their medication choices. However, it can be used to remind and persuade and not to the same level of effectiveness as medical journals and conferences/CMEs. Previous experience with the drug shows significant influence on the prescribing behaviour of medical doctors in all age groups. If the drug has been effective with other patients, then this would be probably used as practical evidence to continuously use the same medicine.

Factors considered in medicine prescription: In this study medical doctors were required to indicate factors which they consider in prescribing medicines. They were expected to select and highlight on the list provided on the question. An option was also provided to indicate if they were any other factors that they considered besides those on the provided list. Results indicate that majority made use of multiple factors when prescribing drugs (Table 2).

However, the researcher made further investigations to determine the degree of influence of each of these factors on the prescribing behaviour of medical doctors. Among the factors listed were clinical effectiveness, dosage, side effects, safety, drug cost, product reminders and whether the drug is on medical scheme. Medical doctors were of the view that clinical effectiveness has a very strong influence in their medication choices. Dosage, drug cost, side effects and safety were shown to exert a strong to very strong influence. This is in agreement with the research by Ghia et al (2011) and Klein, MacDonald, Drummond and Cave (2006) which in addition to other factors also indicate that safety, dosage and clinical effectiveness have a strong influence on doctors' medication choices.

Klein MacDonald, Drummond and Cave (2006) further submit that the drug supplier's marketing practices also have an influence on medical doctors. All age groups further supported this finding by individually rating side effects, dosage, drug cost, safety and clinical effectiveness at 87%, 72,1%, 52, 2%, 85,5%, and 95,6% respectively at a scale of strong to very strong influence (Table 2). The >54 age group dominated in endorsing these factors as having a strong to very strong influence. Product reminders and whether the drug is on medical scheme were overall rated at 77.3% and 61,7% respectively in the category of minor or no influence by all age groups (Table 2). However, 22,1% indicated a moderate influence on whether the drug is on medical scheme (Table 2).

In this study the researcher wanted to determine the influence of incentives in addition to other factors already discussed. Hence these were also included in the list of factors being investigated. Figure 13 indicated a minor or no influence on incentives in the prescribing behaviour of medical doctors. On overall 61.8% (Table 2) of all the participants denied influence from incentives particularly the 45-54 and the >54 age groups. However, a small proportion of medical doctors rated incentives at the moderate or minor influence category (Table 2). Literature reveals that the culture of gifting may force doctors to prescribe inappropriately by ignoring the important aspects of the drug (Norbhojit, Neha and Sanjay, 2003). However, in this study results indicate that the majority of medical doctors are not influenced by these incentives.

Medical doctors were asked to indicate how they are influenced by colleagues in their medication choices. The majority of doctors agreed to absolute influence from colleagues. In this category the <30 and 30-44 age groups indicated to be significantly influenced by colleagues and approximately 4.4% of the same age group showed no influence at all from colleagues. However, 41.2% of the participants agreed that there is not really great influence from colleagues and in this category doctors above 54 years of age dominated followed by the 45-54 years age group (and Table 9). One can however deduce that colleagues play an important role in the prescription behaviour of medical doctors. According to Adriane and Shahram (2007), colleagues have an influence on medication choices to doctors.

Attitudes to medical sales representatives, incentives and medical aid: With regards to medical sales representatives results from Figure 9 indicate that they had a minor to moderate influence to medical doctors. All age groups rated sales representatives in this category on the five point Likert scale. However, a significant proportion of medical doctors above 54 years of age rated medical sales representatives in the strong to very strong influence. The researcher made further investigations to determine medical doctors' views on the use of medical sales representatives and the type of information that they provide. Participants were requested to give their views on the use of sales representatives and to give a reason (optional) on their views. The majority highlighted that they supported the use of sales representatives. A significant proportion in all age groups were of that same view. They indicated that sales representatives provide:

i   Information on the launch of new drugs.
ii   Remind doctors on product lists offered on the market.
iii   Highlight discontinued products.
iv   They keep them up to date with new pharmaceutical products and events in the industry.
v   Provide relevant information on the availability of drugs and their cost.
vi   Remind on value for money or cost effective alternatives.

vii   Knowledge on new products is good through word of mouth especially from sales representatives.

However, other medical doctors were not prepared to interact with medical sales representatives. The reason being product information pamphlets were equally useful since the majority of them would have limited information about the products and they argued that in most cases they give one sided stories. Ziegler, Lew and Singer (1995) and Lexchin (1997) also argue that sales representatives provide biased information which only mentions the advantages of the drug. The degree of satisfaction to doctors regarding the information that they receive from pharmaceutical representatives was investigated. In this regard, medical doctors were asked to select one option from the provided scenarios which were satisfactory, biased and excellent. The majority of doctors (60.3%) responded to information provided as biased and 35.3% showed satisfaction. This is in agreement with the findings by Othman, Vitry and Roughead (2009) which indicate that sales representatives omit aspects on side effects and contraindication. The majority of >54 years age group regarded information from sales representatives as biased and few doctors indicated satisfaction.

An equal proportion of the <30 years age group indicated both bias and satisfaction on the information disseminated by representatives from pharmaceutical companies. At this point it was ideal to determine the type of information provided by medical sales representatives. Participants were assigned to identify from a list the type of information provided by sales representatives from pharmaceutical companies. An option to indicate other extra details on information disseminated was provided. A small proportion of medical sales representatives gave information on one aspect alone such as clinical effectiveness and drug cost. They indicated that sales representatives provide more information about the drug and not just one aspect alone and this was represented as multiple.

Medical doctors indicate that sales representatives only provide information on side effects after questioning and for drug cost one have to probe further. This indicate that they present positive aspects of the medicine and not the negatives. This is however against the findings by Abdelaziz et al (2003) which indicate that sales representatives provide reliable and efficient information. The researcher was interested in understanding medical doctors' willingness to interact with medical sales representatives. The results show that the majority of doctors particularly the <30, 30-44 and 45-54 age groups were absolutely willing to interact with medical sales representatives. However, most of the >54 years age group were not that really willing to interact with sales representatives. The reasons highlighted for willingness to interact with medical sales representatives were as follows:

i   Questions on drug issues will be clarified.
i   Sometimes they give information not available

iii   Provide information on new drugs on the market and new methods of disease management

iv   They are useful because doctors cannot have all the information on every drug.

v   They highlight new effective drugs on the market

However, other medical doctors showed no interest. They indicated that sometimes they are a bother when you have patients to see. Some would insist to be given access even when the doctor is busy attending to patients. Hence other doctors indicated that they are not keen to meet sales representatives unless if they make proper appointments. This suggests the need for pharmaceutical companies to make use of well organized appointments for clinical visits by their medical representatives. This also calls for proper training on sales representatives for them to understand the important of medical doctor's responsibilities that if they are occupied then interruption is not allowed.

Influence of medical aid: Medical doctors were asked to indicate whether medical aid has an influence in their medication choices. They were expected to select one of the three options and these were namely very much, moderately and not at all. Results indicate that medical aid introduces some degree of influence on the prescribing behaviour of medical doctors. Table 3 shows that the majority of doctors 76.8% in all age groups were moderately to very much influenced by presence of medical aid while only 23.2% indicated no influence from its existence. However, the majority of doctors above 30 years of age indicated moderate influence while those in the <30 years age group extremely dominated in the very much degree of influence.

Views on incentives: The survey also aimed at understanding the view of medical doctors on the use of incentives and how they are influenced in the choice of their medicaments. Incentives have some degree of influence, however the majority of medical doctors in all age groups denied being influenced by incentives from pharmaceutical companies. A greater proportion were either not really or not at all influenced by incentives (Table 7) and 66.7% indicated no support on the use of incentives (Table 8). Medical doctors who supported the use of incentives arguing that this serves the purpose of reminding them of the company products since they are many other companies making the same products (Table 8). Others indicate that only simple promotional material is acceptable such as pens and calendars and that in other parts of the world incentives are offered and hence pharmaceutical companies in Zimbabwe should also provide them. They further argue that if they give their time to pharmaceutical companies, then the information must be of value. They indicated that their relationship with pharmaceutical companies is improved through incentives but they do not influence their prescribing behaviour. Others indicated that incentives will encourage doctors to compete through attending

seminars where new products are introduced. Research by Kevin (2009) indicates that other doctors openly request for incentives from pharmaceutical companies. However, for those not supporting the use of incentives they believed it is unprofessional. They indicated that it is pointless because a medical doctor will prescribe what is best for the patient. Medical doctors believed that incentives are associated with a push to prescribe drugs from pharmaceutical companies. It was highlighted that incentives tend to mask prescription features and with doctors tending to overprescribe. Doctors indicated their fear on the bias associated with incentives which they argue eliminates professionalism and go against ethics of practice. They argue that if offered then they should be of low monetary value.

Medical doctors' attitudes to drug cost and generic drugs: As part of the research objectives, the researcher intended to investigate the views of medical doctors on the quality of generic drugs and their opinions on safety and effectiveness. Regarding their views on the quality of generic drugs in comparison to branded drugs, the majority in all age groups indicated either satisfaction or excellence (Table 6).

Views and opinions on cost of medicine: Medical doctors were further assigned to indicate their views on the cost of medicines. Results indicate that in all age groups, the majority of medical doctors showed disagreement on the linkage between cost of medicine and effectiveness (Table 5). They linked cost to other hidden variable factors and these were provided as reasons to their selected views. However, 14.7% agreed cost is related to effectiveness of the medicament (Table 5). Hence, on the cost of drugs they were varied views. They were some who indicated that expensive medicines are equally effective and with less side effects. However, the majority of medical doctors indicated that drug cost is not always related to clinical effectiveness. They attributed the cost to the production process and in transportation costs in the case of imported drugs. It was highlighted that drug effectiveness is always dependent on the active ingredient and not the cost.

They view that cost does not reflect safety or effectiveness but is a result of marketing and other factors. Medical doctors believe that it does not always follow as some expensive drugs may not be effective. The cost is depended on other factors. The drug could have incurred large manufacturing and importation costs but this will not necessarily indicate its effectiveness. Doctors indicated that they have noticed different manufacturers supplying the same drug at different costs but with the same active ingredient and clinical effect. This cost of medicine was considered by the majority of medical doctors in all age groups as important (Table 4). Medical doctors indicated a moderate to very strong influence on the effect of cost in their medication choices. They argued that its pointless to prescribe expensive medicines to their patients when the majority will not afford. Findings by Smith et al (2006) also indicate that doctors are largely influenced by the cost of medicines.

Medical doctors' suggestions to cement constructive relations with drug suppliers: Medical doctors were asked to provide information on how their relations with pharmaceutical companies could be improved. They indicated willingness to interact with pharmaceutical firms. They highlighted the need to consider provision of free samples to help patients who cannot afford the cost of drugs. Medical doctors also indicated willingness to interact with companies that also help with some of the hospital needs particularly in wards. On the other hand, medical doctors emphasized the need for regular interactions with pharmaceutical companies at seminars and conferences more often. They indicated their desire to see them participate to show their presence in the industry. They believed that at such meetings, that is where more evidence based discussions are done and updates on recent developments. Medical doctors were of the view that presentations should be done by experienced professionals in the medical field. They also requested pharmaceutical companies to channel funds or sponsor Continual Medical Education (CME) events for the purpose of upgrading medical doctors. However, medical doctors are worried about companies that are biased. They indicated the need for companies to provide non-biased written information with details on drug cost, their availability, side effects and to train their sales representatives. They also welcome monthly newsletters and interaction through internet for preclinical support services when queries arise.

CONCLUSION AND RECOMMENDATIONS

Medical doctors indicated preference on more than one source of information on the launch of new drugs and on details concerning medicine safety, dosage, side effects and clinical effectiveness. However they considered medical journals, seminars/conferences/CMEs, internet and medical sales representatives to be more influential and reliable. Also highlighted was the British national formulary. Clinical effectiveness, safety, side effects and dosage have a strong to very strong influence in selecting the best medication. The majority of medical doctors denied influence from incentives and they indicated no support on the use of incentives. They argued it is unprofessional, associated with bias and against ethics of practice.

However, those who supported incentives believed they improve relations with pharmaceutical companies. The majority of medical doctors disagreed on existence of linkage between drug cost and effectiveness, however they considered cost as important on their medication choices. They argued that drug effectiveness is linked to the active ingredient. They believed drug cost is associated with other hidden costs that include marketing and production. However, a small proportion of doctors were of the view that expensive medicines are effective with less side effects and low dosage frequency. Medical doctors supported the use of medical sales representatives and they classified them in the minor to moderate influence on medication choices. They believed sales representatives provide information on drug availability, cost, discontinued products, clinical effectiveness and events on

the pharmaceutical industry. In addition they argued that sales representatives sometimes provide information not available. However, some reported bias on the information from medical sales representatives. Although the majority of doctors indicated willingness to interact with medical sales representatives, others showed no interest and believed pamphlets were as equally useful. Pharmaceutical companies are encouraged to consider low price strategies in a bid to make prices affordable to the majority. For the purpose of helping patients in need medical doctors are encouraging pharmaceutical companies to offer free samples generously without the intention of increasing prices. They also indicated serious consideration on clinical effectiveness, safety, side effects and dosage frequency. Medical doctors should not be influenced by incentives in their medication choices but to consider best medicines for their patients.

Relations between pharmaceutical companies and medical doctors can be largely improved through regular interactions at seminars/conferences/CMEs. Medical doctors substantially supported such interactions since they believe that more evidence based discussions will be presented. Drug suppliers are advised to involve individuals who are well knowledgeable in the medical field to present on these workshops. It is wise to reduce marketing expenditure by employing few strategies that are considered more influential and effective such as seminars/ conferences/CMEs and medical journals. Drug suppliers should consider the views of medical doctors when selecting their choices of marketing strategies particularly the use of incentives. They have a bearing on the pricing of drugs and they are questionable on ethical practice. Hence pharmaceutical companies are therefore advised to value their products mainly on clinical effectiveness or efficacy. Medical doctors are of the view that pharmaceutical companies should offer appropriate training to medical sales representatives and that they should provide non-biased written information about their products.
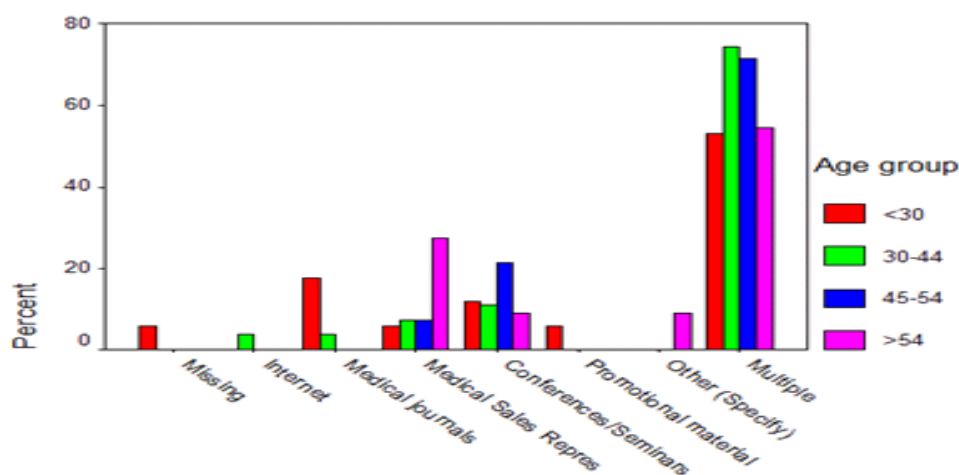
Fig. 1: Sources preferred on the launch of new drugs by age. *Source:* Survey by Researcher/ February 2013
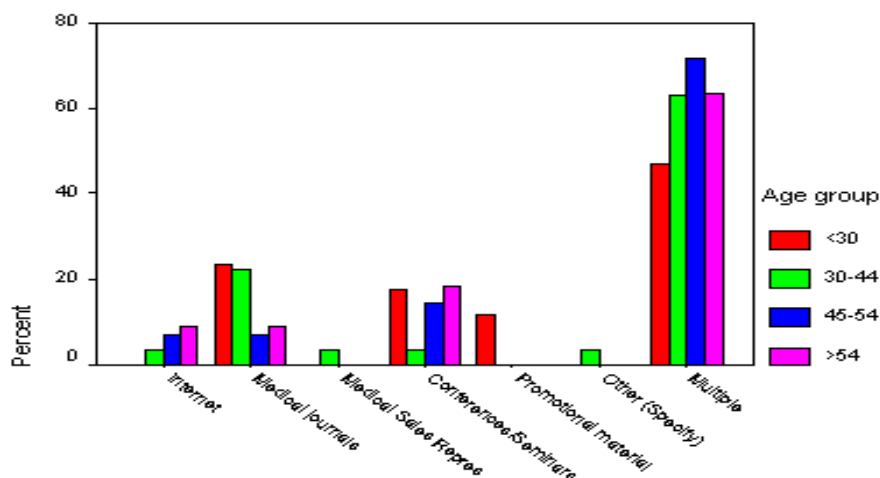
Figure 2: Main sources considered for drug safety, clinical effectiveness, dosage and side effects by age group. *Source:* Survey, 2013

Table 1: Relative influence of the selected sources of information on new drug launch

Information Source	Rating				
	No influence	Minor influence	Moderate influence	Strong influence	Very strong influence
Internet	11.6	11.6	33.3	23.2	20.3
Medical Journals	4.4	7.4	7.4	35.3	45.6
Medical Sales Representatives	10.3	35.3	27.9	13.2	13.2
Seminars/Conferences/CME	1.4	4.3	15.9	37.7	40.6
promotional material	23.9	34.3	25.4	10.4	6
Previous experience with the drug	4.5	4.5	16.4	37.7	37.7

Source: Survey, 2013

Table 2: Relative influence of the selected factors considered in medication choice

Factor	Rating				
	No influence	Minor influence	Moderate influence	Strong influence	Very strong influence
Dosage	5.9	13.2	8.8	41.2	30.9
Clinical effectiveness	0	0	2.9	21.7	73.9
Drug cost	0	8.7	39.1	23.2	29
Side effects	0	0	13	43.5	43.5
Safety	2.9	2.9	8.7	34.8	50.7
Product reminders (Flyers, pens etc	50	27.3	18.2	3	1.5
Whether the drug is on medical aid	33.8	27.9	22.1	13.2	2.9
Incentives	61.8	17.6	14.7	4.4	1.5

Source: Survey, 2013

Table 3: Degree of influence of medical aid influence your medication choice

Description	Response (%)
Very much	26.1
Moderately	50.7
Not at all	23.2

Source: Survey, 2013

Table 4: Views on the important of medicine cost on medication choice

View	Percentage
Important	67.1
Not important	26.9
Not very Important	6

Source: Survey, 2013

Table 5: Views on linkage between effectiveness and cost of medicine

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	10	14.5	14.7	14.7
	No	58	84.1	85.3	100.0
	Total	68	98.6	100.0	
Missing	System	1	1.4		
Total		69	100.0		

Source: Survey, 2013

Table 6: Opinions on the quality of generic drugs in comparison to their branded ones

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	21	30.4	30.9	30.9
	Satisfactory	38	55.1	55.9	86.8
	Average	9	13.0	13.2	100.0
	Total	68	98.6	100.0	
Missing	System	1	1.4		
Total		69	100.0		

Source: Survey, 2013

Table 7: Views on incentives effect

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Absolutely	5	7.2	7.5	7.5
	Not really	34	49.3	50.7	58.2
	Not at all	28	40.6	41.8	100.0
	Total	67	97.1	100.0	
Missing	System	2	2.9		
Total		69	100.0		

Source: Survey, 2013

Table 8: Views on the use of incentives by pharmaceutical companies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	22	31.9	33.3	33.3
	No	44	63.8	66.7	100.0
	Total	66	95.7	100.0	
Missing	System	3	4.3		
Total		69	100.0		

Source: Survey, 2013

Table 9: Influence of colleagues on medication choice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Absolutely	37	53.6	54.4	54.4
	Not really	28	40.6	41.2	95.6
	Not at all	3	4.3	4.4	100.0
	Total	68	98.6	100.0	
Missing	System	1	1.4		
Total		69		100.0	

Source: Survey, 2013

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