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Perceptions regarding generic medicine prescriptions among physicians at tertiary care hospital, Islamabad, Pakistan: A Mixed method study

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Abstract
In Pakistan, less than 3% of GDP is assigned for healthcare spending and healthcare is generally funded out of patient’s pocket. Recommending generic medicines can be a solution in order to lower the increasing costs of medicines. To explore knowledge, attitude, and perception of Physicians regarding generic prescription and to determine the barriers faced by them in Islamabad, Pakistan. Mixed methods used for this study. For quantitative part, a random sample of 106 Physicians was taken from a tertiary care hospital, Islamabad. Qualitative part was done by thematic content analysis where four physicians were interviewed. Out of 106 respondents, Close to three quarters of respondents (n= 73; 68.9%) agreed that generic medicines are the duplicate of the brand name medicines and they are exchangeable (n= 69; 65.1%). Majority agreed that generic medicines are less expensive (n=78; 73.6%). More than half agreed that brand medicines have similar efficacy (n=62; 58.5%). Almost half agreed that generic medicines produce more side effects than brand medicines (n=49; 46.2%). More than half of respondents supposed that their prescribing choice is predisposed by medical representatives (n=66; 62.3%). 64 (64%) physicians agreed that the local companies in Pakistan are not following good manufacturing practices (GMP) rules as multinationals. In qualitative portion, varying attitudes were found among physicians regarding generic medicine prescriptions. There is a need of improving knowledge of physicians and public regarding generic medicines by different modes of communication. There should be strict legislation before proposing and implementing guidelines regarding generic medicines in general practice.

Keywords: Generic medicines, Dispensing Physicians, knowledge, Attitude and perception, Pakistan.

Introduction
A generic medication is defined as “a pharmaceutical product which has the same characteristics as the reference medicinal product (innovators product) regarding the quality and composition of the active ingredients and pharmaceutical form, and also whose bioequivalence with the reference product has been demonstrated by appropriate bioavailability studies” (Toklu et al, 2012; Weekes and Ramzan,2010; Godman et al,2010 and Hassali et al,2009). A trade name refers to pseudonym which is used by companies to perform their business under a name which actually differs from the registered name. It is considered as legal name of business. The company which makes the same generic medicine gives it its own brand name (Henderson, 2008). WHO reported that in many developing states out of pocket expenses may drive up to as high as 80% of total health-care costs (Jamshed et al, 2011). Pakistan is spending only 1.2% of GDP on medicines and despite the existence of more than 40000 registered brands in the country, essential and life-saving medicines are still absent from the market. Most of (77%) of medicine expenditures are out of pocket due to unavailability of medications in the public hospitals, and thus, access and affordability of medicines is an important issue to deal in Pakistan (Jamshed et al, 2011). Recommending generic medicines can be a solution in order to lower the increasing costs of medicines in Pakistan so that one third of the population, living below the poverty line, can access and afford life-saving medicines. Since generics are generally cheaper than brands. On average, the cost of a generic medicine is 80 to 85 percent lower than the brand name product (Shafi & Hassali, 2008; King & Kanavos,202; Hassali et al,2011; Simoens & Carter, 2006). Generic formulations provide the same therapeutic effect active ingredient, strength, medicinal form, and way of administration as branded medicines at a much more economical and affordable price (Alrasheedy,2014). By improving doctor’s understandings and perceptions about generic medicines may help patients in identifying possible obstacles to greater generic medicine usage (Gebrekirstos et al,2016). The objectives of the study is to explore knowledge, attitude, and perception of Physicians regarding generic prescription and to determine the barriers faced by them in Islamabad, Pakistan.

Materials and methods
Mixed method study design was adopted for conducting this study. In which in-depth interviews were taken and a self-administer questionnaire was used for data collection by trained data collector. This study was conducted in between October 2016 to December 2016 The Physicians at Tertiary care Hospital, Islamabad

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(both male and female will be included) and PMDC registered practitioners i.e. Post graduate trainees were selected as sample by simple random sampling technique. Total 106 physicians were included in this study. The data was analyzed through SPSS version 20 while in-depth interviews were taken by Researcher himself. The in-depth interviews were conducted from two physicians, two post graduate trainees so total four in-depth interviews were conducted. Written consent was obtained before enrolment in the study.

Results

Out of 106 respondents, 76 (71.7%) were male while 30 (28.3%) respondents were female. The majority of respondents (n=80) were in the age range of 30-40 (75.5%) and only 02 (1.9%) respondents were more than 40yrs of age. Most of the respondents did their graduation in the period of 2001-2010 (n= 77; 72.6%). The detailed demographic characteristics and practice information are shown in Table 1.

Table 1. Demographic characteristics of respondents

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;30</td>
<td>24</td>
<td>22.6%</td>
</tr>
<tr>
<td>30-40</td>
<td>80</td>
<td>75.5%</td>
</tr>
<tr>
<td>&gt;40</td>
<td>02</td>
<td>1.9%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>76</td>
<td>71.7%</td>
</tr>
<tr>
<td>Female</td>
<td>30</td>
<td>28.3%</td>
</tr>
<tr>
<td>Qualification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physicians</td>
<td>105</td>
<td>99.1%</td>
</tr>
<tr>
<td>M.D</td>
<td>1</td>
<td>0.9%</td>
</tr>
<tr>
<td>Year of graduation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990-2000</td>
<td>2</td>
<td>1.9%</td>
</tr>
<tr>
<td>2001-2010</td>
<td>77</td>
<td>72.6%</td>
</tr>
<tr>
<td>2011-onwards</td>
<td>27</td>
<td>25.5%</td>
</tr>
<tr>
<td>Post-graduation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; M.B.B.S</td>
<td>106</td>
<td>100%</td>
</tr>
</tbody>
</table>

Knowledge of Generic Medicines

Most physicians considered the generic medicines as a copy of brand name medicines. Out of 106 physicians, 73 (68.9%) have such beliefs, while 22 (20.8%) physicians did not think like that. Research has shown that mostly physicians consider that generic medicines are interchangeable with brand name. 69 (65.1%) doctors think that both are interchangeable while 29 (27.4%) didn’t considered them as alternate and 8 (7.5%) doctors had no idea about their use as alternate. Out of 106 physicians 71 (67.0%) doctors considered generic medicines as therapeutic equivalent of brand medicines, 31 (29.2%) doctors consider them as changed medicines while 4 (3.8%) physicians did not had any idea about their similarity. Evaluations showed that mostly physicians consider brand name medicines better in quality than generic medicines, 63 (59.4%) considered brand medicines having good quality, 28 (26.4%) physicians considered that generic medicines have good quality while 15 (14.2%) physicians were oblivious that wheth-

Figure 1. Knowledge of Physicians regarding Generic Medicines
er brand name or generic medicines are of good quality. Maximum physicians considered that brand name medicines yield lesser side effects than generic medicines such physicians were 53 (50%) out total participants, 42 (39.6%) didn’t assured on the occurrence of more side effects associated with generic medicines than brand named medicines while 11 (10.4%) physicians had no information concerning their side effects.

**Perception towards Generic Medicine:**
While evaluating the perception of physicians towards locally manufactured medicines 93 (87.8%) physicians agreed that locally manufactured medicines are more affordable than brand name medicines, 9 (8.5%) did not comment and 4 (3.7%) physicians were not agreed with their affordability. Regarding efficacy of locally manufactured medicines in comparison to multinational medicines showed that 75 (70.8%) physicians agreed with the same effectiveness, 25 (23.6%) showed neutral response while 6 (5.6%) physicians disagreed. By evaluating the perception of physicians towards the side effects of the both generic and brand name medicines showed that 13 (12.2%) physicians agreed that generic medicines produce more side effects than brand name medicines, 29 (27.4%) physicians showed neutral response and 64 (60.4%) physicians did not agreed with it. By comparing the safety of low-cost and high priced medicines 68 (64.1%) physicians strongly agreed that low-cost medicines are as safe as high-priced medicines, 31 (29.2%) physicians respond neutral while 7 (6.7%) physicians disagreed. Accordingly, most of the physicians were agreed with same safety of both low-cost medicines and high-priced medicines. Questioning physicians that international products are of good quality than local company medicines, 3 (2.8%) were agreed with it, 19 (17.9%) were neutral toward their quality, 82 (79.3%) physicians were disagreed. Thus, it shows that most of the physicians consider that international medicines are not of good quality than locally manufactured medicines. Most of physician, when they were asked about the local firms in Pakistan do not follow Good manufac-

**Figure 2. Perception of Physicians regarding Generic Medicines**

**Figure 3. Attitude of Physicians regarding Generic Medicines**
Physicians were when asked about the influence of the socioeconomic conditions of their patient while prescribing medicines, then 71 (67%) physicians were agreeing while 35 (33%) physicians didn’t react whether their prescribing behavior is influenced by patient economic status or not. When asked, no physician agreed that their personal experience with medicines influence their prescribing decisions, 30 (28.3%) physicians were neutral, 76 (71.7%) disagreed. Thus, mostly physicians were disagreeing with this and none of the physician approving it. Out of all physicians, 71 (66.9%) agreed that their prescribing behavior is influenced by patient’s demand, and 31 (29.2%) physicians were neutral in their response while 4 (3.8%) physicians were not supportive with this statement. Study showed that most physician’s prescribing medicines actions is influenced by companies premium offers as 8 (7.5%) agreed, 31 (29.2%) physicians, 67 (63.2%) disagreed that their prescribing behavior is being effected by companies finest offers. While asking about the lack of quality check of the locally manufactured products 1 (0.9%) physicians was agreeing that there is lack in the quality check of the locally manufactured products while 31 (29.2%) physicians were neutral to this. 74 (69.9%) physician disagreed and 10 (9.4%) strongly disagreed with absence of merit check in the locally manufactured medicines. Thus, most of the physicians did not believe in absence of merit check in the local firm medicines.

Discussion

In order to gain greater Physician’s support, we need to understand the issues and problems that surround the prescription of generic medicines. This study was conducted to explore the knowledge, perception and attitude of Physicians regarding the generic medicines. Response rate of this study was 100% in contrast to the study done in South India where response rate was 73% (Gupta et al, 2014). Majority of the participants were male while one quarter respondents were female. A similar study was conducted in Armenia in which all the participants were female (Gevorgyan, 2011). Large number
of respondents were in the age range of 30-40 while age range of respondents was 20-30 in other study on same topic conducted in Pakistan (Jamshed et al, 2011). Results of this study showed that Physicians have a very good knowledge about generic medicines. A similar study held in Pakistan found gaps in knowledge regarding generic medicines in Physicians of Karachi (Godman et al, 2010). Three quarters of respondents viewed that generic medicines are the copy of the brand name medicines and they are interchangeable with brand name medicines. In a study conducted in Saudi Arabia participants have opposite opinion, most of the Physicians thought that generic medicines are not comparable to branded medicines and can’t be used interchangeably (Salhia et al, 2015). Some misunderstandings in this research about the quality and safety of the generic medicines among Physicians were indicated. Almost same findings were mentioned in a study held in Iraq (Sharrad et al, 2009). More than half of the respondents had doubts about the quality of generic medicines and they stated that brand name medicines are of better quality than generic medicines and said that brand name medicines produce lesser side effects than generic medicines. Same quality concerns were found in a study conducted in the UK (Workneh et al, 2017). However, various studies stated that switching on brand medicines from generic medicines is not due to their safety or efficacy (Amit et al, 2004; Araszkiewicz et al, 2008). But there was also half of the percentage who had confidence on the effects of generic medicines and viewed that these medicines are as effective as high-priced medicines.

Same findings were found in an Indian study (Lopes, 2013). In this study, more than half of the respondents agreed that locally manufactured medicines are of the same effectiveness and are safe as brand name medicines and they were found comfortable in prescribing these medicines expect in some specific therapeutic classes while a few studies mentioned a significant proportion of physicians expressed a preference for brand name medications both generally and in the case of some specific medications (Periera et al, 2005; Dunne et al, 2014). Similarly, in another study mostly participants were highly concerned about the effectiveness and safety of the generic medicines and they preferred to use brand medicines for themselves and for their families (Wekes & Ramzan, 2010). Three quarter of the respondents viewed multinational products of better quality than local company products, generic medicines are of low quality than brand name medicines and Physicians agreed that the local companies in Pakistan are not following good Manufacturing practices (GMP) guidelines as multinationals. Moreover, more than half of respondents believed that their prescribing decision is influenced by medical representatives, the socioeconomic condition of the patients and their demands. Almost same results were concluded in a study conducted in Pakistan (Godman et al, 2010).

Conclusion & Recommendation

There is a great need of improving knowledge of physicians and public regarding generic medicines by mass media, informative sessions, policy guidelines and using other sources of communication. There should be strict legislation before proposing and implementing guide-lines regarding generic medicines in general practice. It is recommended to disseminate information regarding generic medicine prescriptions to the physicians in the start of their career. There is a need of proper legislation in the authorities regulating physician license in Pakistan and there is also a great need of implementation of generic medicine prescription in teaching hospitals from where physicians get trained in their house job and post graduate residencies.

Competing interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References


