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ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE OF PHARMACISTS AND PHYSICIANS TOWARD GENERIC MEDICINE USE IN PRIVATE CLINICS AND DISPENSARY OF MEKELLE CITY, NORTHERN ETHIOPIA

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Abstract

Background: The use of generic drugs has increased significantly in recent years. Since generic drugs are available at a lower cost, they provide an opportunity for saving in drug expenditure. Thus, use of generic drugs is encouraged especially in developing countries. There are only a few studies concerning the perceptions and attitudes of the healthcare providers towards generic drug use in Ethiopia and study area, Mekelle.

Objective: To assess knowledge, attitude and practice of health professionals towards generic medicines Mekelle city.

Method and Material: A descriptive cross sectional study was conducted between May –June 2015 in private Pharmacy and Hospitals of Mekelle City. Data was collected using a structured questionnaire by pharmacy professional, one pharmacist and physician from all in private dispensary and clinic were included in the study (49 pharmacy and physicians). Data was described using frequency, percentage and graphs. Association was examined between Socio-demographic variables with knowledge and perception of professionals.

Result: Of all the participants 31(63.3%) were male and majority, 38(77.6%) were graduated within the range of 2000-2006 year. From all the pharmacists and physicians 17(34.7%) strongly disagree, 12(24.5) disagree, 10(20.40%) agree with the generic drugs have more side effects than brand drugs. Regarding substitution of generic drugs, 28.6% participants had no idea about the issue. Of all respondents 51.10% believe as generic and brand drugs are totally similar. On non- parametric examination having a postgraduate physicians had significantly associated with strongly agreeing on the issue of generic has less effect than brands (P=0.018).In addition, postgraduate physicians and a strongly agree with patients prefer original brands than generics (p=0.023)

Conclusion: our study revealed as there were gap on knowledge and perception of pharmacists and physicians towards generic and brand drugs. Especially postgraduate physicians have an effect on influencing patient's preference, achieving quality use of medicines by working together with pharmacists and negative perception on the effect of generics. Hence developing a clear standard guideline on generics and brand substitution and Awareness creating activities and routine training seemed to be necessary to fill the gap in knowledge and perception of physicians and pharmacy so as to reduce unnecessary expenditure.

Key words: knowledge, attitude, practice, health professionals, Generic medicines, Mekelle city

1. INTRODUCTION

A generic drug 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**"**.[1-4]

Generic drugs are identical or within an acceptable bioequivalent range to the brand-name counterpart with respect to pharmacokinetic and pharmacodynamic properties. Many generic drugs as well as their brand-name counterparts are available in all countries. Since innovator drugs are no longer protected by patents; and since generic drug manufacturers do not have to spend extra money for drug discovery, pre-clinical and clinical trials, as well as for some other reasons, generics are generally cheaper than brands. In all countries, the use of generic drugs has increased significantly in recent years. Since generics are available at a lower cost, they provide an opportunity for savings in drug expenditure without reducing the quality.[2-11] Both in developed and developing countries, health insurance agencies, health

authorities and governments have suffered from pharmaceutical expenditures that has risen rapidly especially in the last two decades.[2-5,10-11]

Substitution of generics for brand-name might be an alternative way to reduce drug expenditure. Ethiopia has announced a long term policy and plan to support the growth manufacturing pharmaceutical industry which aimed at increasing its generic drug coverage by its own national pharmaceutical industry and policies supporting the growth of generic drug and is supposed to increase export of medicines to Eastern Africa.

Generic medicines are commonly used in New Zealand; however, Pharmaceutical Management Agency of New Zealand has indicated a need for better information to the public. Studies on consumers' perceptions suggest that pharmacists play an important role in consumers' choice; hence, "quality use of generic medicines" can be promoted with a better understanding of pharmacists' views, knowledge and perception.[14]

The practice of generic medicines prescribing, dispensing and substitution in developing countries has been controversial among healthcare professionals, particularly due to issues on quality, safety and efficacy. These controversies are as a result of inter-country differences in policies and laws as well as individualized knowledge and attitudes of health professionals pertaining to generic medicines.[15]

There are many factors that can influence choosing, prescribing, and dispensing of generic medications. Inaccurate or insufficient knowledge of healthcare providers about generics causes' hesitation on the use of these drugs and especially about their efficacies and this is becoming a major barrier to a wider use of these products.[17] Moreover, misinformation and some habits of healthcare providers are challenging to the rising of pharmaceutical costs. Both in developed and developing countries, health insurance agencies, health authorities and governments have suffered from pharmaceutical expenditures that has risen rapidly especially in the last two decades.[18,19] In the study region, Tigray there is one pharmaceutical industry which produces generic medicines but in the private pharmacies patients seen to prefer brands other than this. Existing negative perceptions surrounding the quality of generic medicines must be addressed to ensure that people use them with confidence.[20-22]

Previously, no studies were conducted regarding this; the aim of this study is to assess the knowledge, attitude and practice of health professionals towards generic medicines among pharmacist and physicians in private clinics and dispensaries by using cross sectional study so as to point out the reasons for the low utilization and preference of generic medicines.

This study will have a significant input in changing the trend of using costly brand medications as long as they are as effective as generics. Moreover, this study will also be a baseline for other similar researchers to further investigate on it. It will also have an impact on creating awareness for health professionals, policy makers and stakeholders to develop measures that can improve the attitude of health professionals towards generic medications, so that customers receive the affordable medications.

2. METHOD AND MATERIAL

The Study was conducted in private hospitals and dispensaries in Mekelle, the capital city of Tigray and located 783km away from Addis Ababa, Capital city of Ethiopia. The city contains 68 private dispensaries (pharmacy) and hospitals and clinics which provide services for peoples come from the whole region and some neighboring regions of Ethiopia. Mekelle city has a population around 300,000 peoples and also contains 3 governmental hospitals in which the one is a referral hospital for the entire people of the region.

A cross-sectional study design among pharmacists and physicians of private dispensary and clinics was conducted from May 2015 up to June 2015.

The data collectors were graduating degree pharmacy student and short training was also given for those data collectors on how to collect the data. Data's was collected using a validated self administered questionnaires consisted of structured and open questions which is developed referring previous literatures. The questionnaire was checked for consistency and reliability daily by supervisor. The supervisor 5% of the collected was double entered to check for validity. 5% of the questionnaire was pretested at Wukro private pharmacy to asses some defects on the questionnaire.

Data was entered and cleared in Epi-info version 3.5 and transferred to SPSS version 20 for analysis. Data was analyzed using the descriptive statistics for the tables of frequency and its associated percentage and graph was used. All variables were categorized for the purpose of analysis. The survey questionnaire was categorized in to five responses (Strongly Agree=5, Agree=4, Neutral=3, Disagree=2, and Strongly Disagree=1).

To determine the association between the demographic backgrounds with the knowledge and perception of participants we used the Mann Whitney and Kruskal Wallis tests (non-parametric tests).

3. RESULT

In this study there were a 49(72%) response rate. Of all the participants 31(63.3%) were male and 38(77.6%) were graduated within the range of 2000-2006 year. In addition, 20(40.8%) of pharmacists serve 10-30 prescriptions per day (**Table 1).**

Table 1: Socio-demographic and general characteristics of pharmacists and physicians in private dispensary and hospitals of Mekelle city northern Ethiopia from May-June 2015

Variable	freq.	Percent
Sex		
Female	18	36.7
Male	31	63.3
Age		
Under 30	24	49
30-40	20	40.8
41-50	4	8.2
51-60	1	2
Graduation year		
Before 2000	11	22.4
2000-2006	38	77.6
Place of graduation		
Ethiopia	48	98
Other	1	2
post graduation		
Yes	13	26.5
No	36	73.4
Experience		
<5 year	21	42.9
5-10 year	18	36.7
>10 year	10	20.4
Percept generic stock		
Below 50	17	34.7
>=50	18	36.7
Don't know	14	28.6
Number of prescription		
<=10	3	6.1
11-30	20	40.8
30-60	8	16.3
>60	18	36.7

In our study from all the pharmacists and physicians 17(34.7%) strongly disagree, 12(24.5) disagree, 10(20.40%) agree, 3(6.1%) strongly agree and 5(10.2%) were neutral with the generic drugs have more side effects than brand drugs **(Table 2).**

Table 2: Knowledge of pharmacists and physicians towards generic and brand medicines in Mekelle city, Northern Ethiopia, May-June 2015

	N=49				
Question description	**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**strongly Agree**
Generics are bioequivalent to brands	2(8.2)	8(16.3)	4	23(46.9)	12(24.5)
Generics contains same dose as of brands	1(2)	3(6.1)	3(6.1)	24(49)	18(36.7)
Generics has less effect than brands	20(40.8)	15(30.6)	1(2)	10(20.4)	3(6.1)
Generics has more side effect than brands	17(34.7)	12(24.5)	5(10.2)	10(20.40)	4(8.2)
Generics required to meet higher standards	11(22.4)	14(28.6)	4(8.2)	16(32.7)	4(8.2)
there are too many generics available	3(6.1)	8(16.3)	6(12.2)	20(40.8)	11(22.4)
Generics are cheaper for patients than brands	5(10.2)	2(4.1)	5(10.2)	18(36.7)	19(38.8)
It is easier to remember brand names than generics	10(20.4)	14(28.6)	6(12.2)	9(18.4)	8(16.3)
Patients prefer original brands than generics	4(8.2)	9(18.4)	10(20.4)	17(34.70	4(8.2)
pharmacists should dispense generics if patient agree	2(4.10	7(14.3)	6(12.20	18(36.7)	15(30.6)

Regarding attitude and practice of pharmacists and physicians 14(28.6%) were strongly agree on the beliefs that standard guideline is needed on generic substitution and similarly 29(59.2%) agree on that. But small 2(4.1) and 1(2%) strongly disagree and disagree on the need of standard guideline for brand substitution process **(Table3).**

Table 3: Attitude and practice of pharmacists and physicians towards generic and brand medicines in Mekelle city, Northern Ethiopia, May-June 2015

	N=49				
Question description	**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**strongly Agree**
Standard guideline need on brand substitution process	2(4.1)	1(2)	3(6.1)	29(59.20	14(28.6)
Quality use of brand medicine achieved pharmacy and physician work together	2(4.1)	1(2)	1(2)	27(55.1)	18(36.7)
Patient should be given enough information on generic medicines	4(8.2)	2(4.1)	4(8.2)	21(42.9)	18(36.7)
I believe advertisement by the drug companies influence dispensing and prescribing pattern	2(4.1)	3(6.1)	13(26.5)	17(34.7)	9(18.40
I need more information on the safety and efficacy of Generic medicines	3(6.1)	2(4.1)	8(16.3)	23(46.9)	12(24.5)

The figure below showed comparison of generic and brand medicine with regard to efficacy. This means of all participants 8.2% had not idea about the generic and brand difference, 28.6% they believe as they have some difference, 8.2% for sure they believe as they have complete difference and the rest 51.10% believe as they are totally similar**(Fig2).**

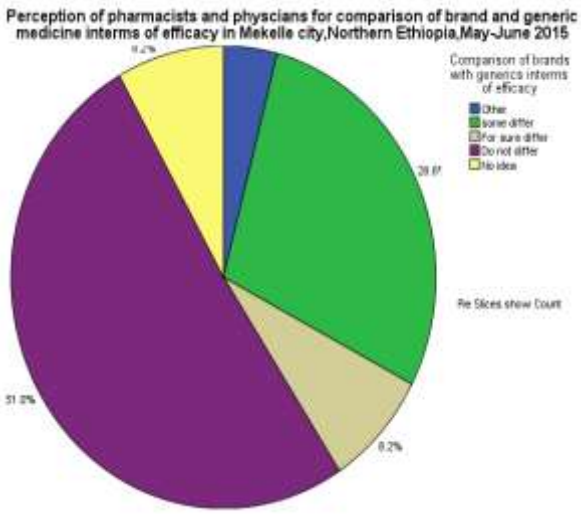

Figure 2: Comparison of generic and brand drug by pharmacists and physicians in Mekelle city, Northern Ethiopia, May –June 205

In this study of all the pharmacists included 17(34.7%) have claimed that as there was difficulty in contacting the prescriber to discuss about generic substitution, 10(20.4%) do not feel contacting prescriber (**Fig 3).**

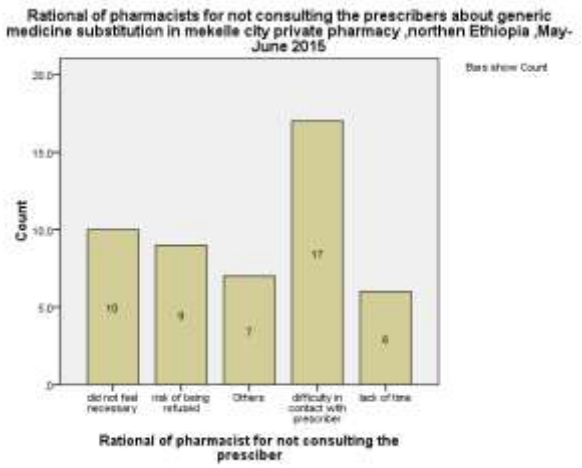

Figure 3: Rational of pharmacists for not consulting the prescriber about generic medicine substitution in Mekelle city, Northern Ethiopia, May 2015-June 2015

Our study also showed the main problems for switching (substitution of generic medicines for brands), among the participants stated that 28.6% had not idea about the issue, 26.5% considered as it needs too much effort to convince patients about the switching and 30.6% had doubts about generic switching **(Fig 3).**

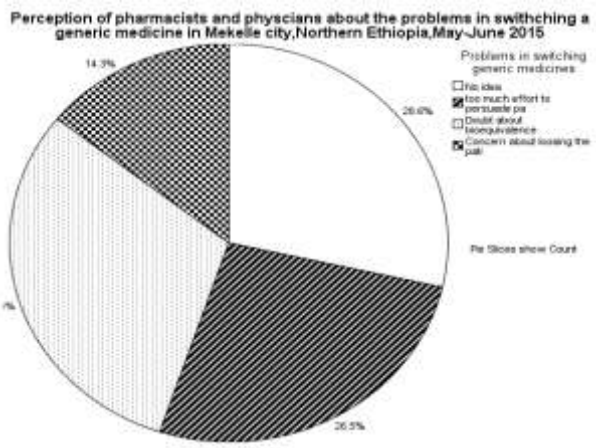

Fig 3: Rational of physicians and pharmacists about the problems in switching a generic medicine in Mekelle city Northern Ethiopia, May-June 2015

On non-parametric examination of demographic variables with knowledge related variables revealed as most of the variables were not significantly associated but having a postgraduate degree for physicians have been significantly associated with strongly agreeing on the issue of generic has less effect than brands (P=0.018). In addition, our study also indicates a difference on having a postgraduate degree of physicians and a strong agreement with patients prefer original brands than generics. Specialist physician agree with issue that patients prefer brands than generics (p=0.023) (**Table 4**).

Table 4: Comparison of Socio-demographic characteristics with knowledge questions using non-parametric tests in private hospitals and dispensaries of Mekelle city, Northern Ethiopia, May-June, 2015(n=49)

	N=49					
Question description	**Age**	**Sex**	**Post graduation**	**year of graduation**	**Experience**	**percentage of stock**
Generics are bioequivalent to brands	0.625	0.483	0.596	0.365	0.219	0.722
Generics contains same dose as of brands	0.882	0.271	0.482	0.151	0.941	0.551
Generics has less effect than brands	0.525	0.615	**0.018**	0.485	0.359	0.429
Generics has more side effect than brands	0.273	0.438	0.342	0.921	0.624	0.164
Generics required to meet higher standards	0.16	0.632	0.445	0.194	0.418	0.308
there are too many generics available	0.21	0.372	0.228	0.341	0.343	0.641
Generics are cheaper for patients than brands	0.446	0.888	0.066	0.807	0.279	0.402
It is easier to remember brand names than generics	0.87	0.288	0.807	0.874	0.275	0.311
Patients prefer original brands than generics	0.266	0.941	**0.023**	0.531	0.914	0.308
pharmacists should dispense generics if patient agree	0.44	0.402	0.109	0.498	0.65	0.378

Significance was declared at **p-value** less than 0.05, for sex, year of graduation and postgraduate degree we analyzed using Man-Whitney test. For the rest variables we use kurssual wallis test.

On non-parametric comparison of socio-demographic variables with perception of physicians indicates that as there was no significant association between demographic variables and perception of physicians and pharmacists to ward generic prescription. But exceptionally having post graduate degree was significantly associated with strong disagreement of physicians on the issue of team work of physicians and pharmacists (p=0.04) (Table 5).

Table 5: Comparison of Socio-demographic characteristics with perception of physicians and pharmacists using non-parametric tests in private hospitals and dispensaries of Mekelle city, Northern Ethiopia, May-June, 2015(n=49)

	N=49						
Question description	**sex***	**age****	**year of graduation***	**post gra***	**experience****	**percentage of generic****	**Number of prescrption****
Standard guideline need on brand substitution process	0.717	0.501	0.859	0.29	0.331	0.28	0.301
Quality use of brand medicine achieved pharmacy and physician work together	0.107	0.856	0.645	**0.04**	0.797	0.523	0.597
Patient should be given enough information on generic	0.921	0.33	0.369	0.332	0.195	0.486	0.13
medicines							
I believe advertisement by the drug companies influence	0.84	0.191	0.949	0.201	0.402	0.074	0.289
dispensing and prescribing pattern							
I need more information on the safety and efficacy of	0.384	0.519	0.453	0.852	0.33	0.211	0.407
Generic medicines							

***Indicates man Whitney test, ** indicates for Kurshall wallis test, significance declared at p-value <0.05, Bold value indicates for significant association**

4. DISCUSSION

In this study, we obtained relatively high response rate (72%) from physicians and pharmacy which was the main obstacle in other previous study (12, 24) and generally it is tough to get high response rate from physicians as compared to the general population.[25] Although some of the studies collected their data using postal mail ours was collected using interview which would basically have high response rate.

This finding showed as there are gaps in knowledge, attitude and practice professional towards generic medicines. This seemed to be similar with some previous studies which indicated practice of generic medicines prescribing, dispensing and substitution in developing countries has been controversial among healthcare professionals, particularly due to issues on quality, safety and efficacy. These controversies are as a result of inter-country differences in policies and laws as well as individualized knowledge and attitudes of health professionals pertaining to generic medicines.[4]

In contrast, other previous studies in Europe and Asia which had the knowledge gap in clinical bioequivalence.[12, 24, 26] our study revealed as most physicians and pharmacists (70.4%) agree with the bioequivalence of generics. This may be because of the nature of the study other previous study concerned mainly on physicians and conducted using postal mail but ours included pharmacists and is conducted using interview and structured questionnaire and may also because of less expansion of brand drug promotion in this area in contrast to Europe and Asia.[12,24,25] Hence this study indicates as the reason for brand prescription in the study area is not related with bioequivalence issue. Bioequivalence issue was not varied with Socio-demographic characteristics of participants on non-parametric test.

This study also showed that as most physicians and pharmacists disagree concerning the issue, generics have less effect with their counterparts brand medicines, (71.4%) in contrast to this a study in Malaysian showed as 51.7% of physicians agree with this question. But in this study most physicians who have a postgraduate degree agree with this question however other previous studies contradict this issue.[12] In our study the possible reason for this may be because of the focus of promoters and other drug companies which insists in those specialist physicians due to the trust that they may have a good reputation and skill in influencing future prescribing habit of brand medicines. Besides this issue indicated as a little has been done in our study area regarding this topic but in other previous study in Europe and Asia they showed as much has been doing.[12,24] In addition the other reason could be owing to the small sample size and most physicians in the city were postgraduates.

This finding also assessed the preference of patients for brands and their counter parts generics and the result revealed as there is a gap in preference. A Turkey study which included patients in the study showed the view of patients with regard to generics and brands, most answered as they have no idea and respond other too many reasons.[12] A Malaysian study also showed as there is knowledge difference with the percentage of generics present in their stock. But our study showed as there a difference in preference of patients with the postgraduate physicians. Even though our study did not collect data from patients due to time and cost limitation, the reason for preference could be owing to educated and affluent patients may have high probability of visiting postgraduate physicians and these patients could relatively have a little knowledge concerning brand and generics. This little knowledge and high cost of brand medicines may make them perceive brands are preferable than generics. Previous study also showed educated patients better prefer brands than generics.[12]

Our study also pointed out the claims of pharmacist for not consulting prescribers about generic medicine substitution the main reason were difficulty in contacting prescriber, do not feeling necessary, risk of being refused by the physician and lack of time were the main rationale. This finding is similar with the Turkey study.[12] This showed as there are gap in working together for the wellbeing of patients and this may have a consequence for the patients of in appropriate and unnecessary expenditure of money for the costly brand medications which have a similar effect with their counterpart generics.[26]

5. CONCLUSION

Generally our study revealed gap on knowledge and perception of pharmacists and physicians towards generic and brand drugs. There were gaps on the effect of generics, side effects of generics, safety of generics and patients preference. In addition there were gap on difference of generics and brands. Especially postgraduate physicians have an effect on influencing patient's preference, achieving quality use of medicines by working together with pharmacists and negative perception on the effect of generics. Hence developing a clear standard guideline on generics and brand substitution seemed to be compulsory to develop same consensus on physicians, pharmacy and patients to reduce unnecessary expenditure. Awareness creating activities and routine training seemed to be necessary to fill the gap in knowledge and perception of physicians and pharmacy.

Based on this study finding we recommend to each concerned bodies as follow

- Standard guideline should be developed by FMHACA on generic and brand dispensing and prescribing
- Continuous training should be given by health bureau and other stakeholders to fill the gap in

knowledge and perception of the pharmacological properties and differences

- Awareness creating activities should be undertaken by Tigray health bureau and other stakeholders to eliminate the gap in perception about brand medicines
- Researchers should conduct further study using qualitative and quantitative study in the whole Tigray including patients, physicians and pharmacists

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REFERENCES

1. Ministry of Health of Turkey, General Directorate of Pharmaceuticals and Pharmacy. Regulation on the Registration of Medicinal Products for Human Use. Official Gazette #25705 of 19.01.2005 and last amended published by Official Gazette # 27208 of 22.04.2009.
2. Weekes L, Ramzan I. Generic medicines--how confident should we be? Pac Health Dialog. 2010; 16(2): 109-111.
3. Godman B, Shrank W, Andersen M, Berg C, Bishop I, Burkhardt T, etal. Comparing policies to enhance prescribing efficiency in Europe through increasing generic utilization: changes seen and global implications. Expert Rev Pharmacoecon Outcomes Res., 2010; 10(6): 707-722.
4. Hassali MA, Shafie AA, Jamshed S, Ibrahim MI, Awaisu A. Consumers' views on generic medicines: a review of the literature. Int J Pharm Pract., 2009; 17(2): 79-88.
5. García Rada A. Mandatory generic prescribing is expected to save Spain €2bn a year. BMJ, 2011; 343: d4803.
6. Tsiantou V, Zavras D, Kousoulakou H, Geitona M, Kyriopoulos J. Generic medicines: Greek physicians' perceptions and prescribing practices. J Clin Pharm Ther., 2009; 34(5): 547-554.
7. Kersnik J, Peklar J. Attitudes of Slovene general practitioners towards generic drug prescribing and comparison with international studies. J Clin Pharm Ther., 2006; 31(6): 577-583.
8. Kjoenniksen I, Lindbaek M, Granas AG. Patients' attitudes towards and experiences of generic drug substitution in Norway. Pharm World Sci., 2006; 28(5): 284-289.
9. Suh DC. Trends of generic substitution in community pharmacies. Pharm World Sci., 1999; 21(6): 260-265.
10. Spiegel W, Mlczoch-Czerny MT, Jens R, Dowrick C. Quality circles for pharmacotherapy to modify general practitioners' prescribing behaviour for generic drugs. J Eval Clin Pract., 2012; 18(4): 828-834.
11. Decollogny A, Eggli Y, Halfon P, Lufkin TM. Determinants of generic drug substitution in Switzerland. BMC Health Serv Res., 2011; 11: 17.
12. Knowledge and attitudes of the pharmacists, prescribers and patients towards generic drug use in Istanbul – *Turkey. Pharm Pract* (Granada). 2012 Oct-Dec; 10(4): 199–206.
13. Generics: keep a balanced view. *Prescrire Int*. 2014 Feb; 23(146): 52-5.
14. Evaluating pharmacists' views, knowledge and perception regarding generic medicines in New Zealand. *Res Social Adm Pharm*., 2011 Sep; 7(3): 294-305.
15. Knowledge, attitudes, and practices of community pharmacists on generic medicines in Qatar. *Int J Clin Pharm*., 2014 Apr; 36(2): 394-404.
16. Beliefs, perceptions and behaviours of GPs towards generic medicines. *Fam Pract*., 2014 Aug; 31(4): 467-74.
17. Generic medicine substitution: a cross-sectional survey of the perception of pharmacists in North-Central, Nigeria. *Med Princ Pract*., 2014; 23(1): 53-8.
18. Quality of generic medicines in South Africa: perceptions versus reality - a qualitative study. *BMC Health Serv Res*., 2012 Sep 3; 12: 297. doi: 10.1186/1472-6963-12-297.
19. Physician and pharmacist perceptions of generic medicines: what they think and how they differ. *Health Policy*., 2014 Jun; 116(2-3): 214-23.
20. Underuse of generic medicines in Portugal: an empirical study on the perceptions and attitudes of patients and pharmacists. *Health Policy*., 2012 Jan; 104(1): 61-8.
21. Brand loyalty, patients and limited generic medicines uptake. *Health Policy*., 2014 Jun; 116(2-3): 224-33.
22. Exploring knowledge and perceptions of generic medicines among drug retailers and community pharmacists. Indian J Pharm Sci., 2012 Nov; 74(6): 571-5.
23. Kumar etal. Knowledge and perceptions of physicians from private medical centers towards generic medicines: a nationwide survey from Malaysia. Journal of Pharmaceutical Policy and Practice, 2015; 8: 11. DOI10.1186/s40545-015-0031-9.
24. Parsons J, Warnecke R, Czaja R, etal. Factors associated with response rates in a national survey of primary care physicians. Eval Rev., 2011; 18: 756–66.

25. Gossell-Williams M. Generic Substitutions: A 2005 Survey of the Acceptance and Perceptions of Physicians in Jamaica. West Indian Med J., 2007; 56(5): 458-463.