Nigerian Journal of Pharmaceutical and Applied Science Research, 5(2):25-33, August 2016

WEBSITE: www.nijophasr.com *ISSN 1485-8059*

The Knowledge, Practices and Attitude of Community Pharmacists and Patent Medicine Vendors towards Use and Sales of Dexamethasone in Southwest Nigeria

*Saka, S. Ajibola,[1] Odusanya, O. Olalekan[2] and Ojieabu, A. Winifred[2]

1. Discipline of Pharmaceutical Sciences, School of Health Sciences, University of KwaZulu- Natal, Westville Campus, Durban, South Africa.

2. Department of Clinical pharmacy & Bio-pharmacy, Olabisi, Onabanjo University, Sagamu Campus, Ogun State, Nigeria. .

3. Department of Clinical pharmacy & Bio-pharmacy, Olabisi Onabanjo University, Sagamu Campus, Ogun State, Nigeria.

ABSTRACT

There has been an increased Dexamethasone consumption among Nigerians in recent times, little is however known about the potential contribution of Community Pharmacists (CPs) and Patent Medicine Vendors (PMVs) to this phenomenon. A cross sectional study to assess the knowledge and sales practice of Dexamethasone was carried out among 36 conveniently sampled CPs and 108 PMVs in Sagamu, Nigeria, between January and April 2015, using a pretested 28-item questionnaire. Ethical approval was obtained from the Ogun State Ministry of Health Ethical Review Board. Descriptive statistics were used to summarize the data while Chi -square was used for test of proportions. P values < 0.05 were considered significant. The response rate was 133(92.4%). The total mean scores for CPs and PMVs on the knowledge score rating were 9.8 and 5.7 respectively; 42 (31.6%) and 57(42.9%) respondents sold and recommended Dexamethasone respectively for fattening. The study concluded that the PMVs had poor knowledge of Dexamethasone. The sales practices of both the CPs and the PMVs could contribute to inappropriate use of Dexamethasone in the community. Training of PMVs and CPs on drug policy guidelines and ethics is recommended

Keywords: Knowledge, Practice, community Pharmacist, Vendors, Dexamethasone

INTRODUCTION

The World Health Organization (WHO) estimated that more than half of all medicines are used inappropriately (WHO, 2009). Inappropriate use of medicine, though a global public health problem, is more pronounced in the developing world than the developed nations. Many factors including healthcare providers' behaviour, inadequate practice regulation, and chaotic drug supply system in many of these nations largely contributed to the observation (Ambwani and Mathew, 2008; Hamilton et al., 2011; Akinyandenu and Akinyandenu, 2014). Apart from wastage of scarce resources, inappropriate use of medicines contributes to stock-outs, health hazards, and death. (Aina et al., 2008; Uzochukwu et al., 2014). Efforts at identifying the causes and providing intervention towards creating an enabling policy environment that favours appropriate use of medicine are therefore of utmost necessity (Kathleen, 2011).

In many African nations, drug stores or PMVs (in Nigeria), have gone beyond selling over the counter medicines (OTC) for which they are licensed, and have become the first source of medicines and health care services for the majority of the childhood and adult acute diseases (Beyeler et al., 2015). Due to their ubiquity, PMVs are considered as untapped informal healthcare resources that could be deployed to improve healthcare delivery, and researchers have therefore argued for their formal inclusion in primary health care system of developing nations (Akuse et al., 2010; Onyeneho and Chukwu, 2015; Liu et al., 2016).

***Corresponding author:** Email: sulsak01@yahoo.com Phone Number: +27626930104

.

Others have suggested licensing of PMVs to sell medicines of public health importance such as contraceptives which hitherto were classified as prescription- only medicines (POM) (Akuse et al., 2010; Okonkwo and Okonkwo, 2010). However, recent reports of PMVs activities showed that many of their practices are substandard and inimical to the health of the citizenry (Berendes et al., 2012; Beyeler et al., 2015). Adequacy of the PMVs knowledge of medicine gained through apprenticeship is also a source of concern to many researchers (Akuse et al., 2010; Berendes et al., 2012; Auta et al., 2012). While the debate on PMVs inclusion in National healthcare delivery system rages, there is the need for informed discussion on their knowledge of medicines, practices, and interventions that will be needed to improve their practices

Community Pharmacists (CPs) by their formal training in the university and licensure by the regulatory authority are legally allowed to dispense ethical drugs on valid doctors' prescriptions. They are however required to participate in mandatory continuing professional development (MCPD) every year in order to improve their knowledge, and be in tune with current trends in best global pharmacy practice (PCN, 2014). Community Pharmacists have evolved from being mere dispensers of medicines to public health providers in many developing nations, and now enjoy the trust of the majority of the populace (Hussain et al., 2012; Adje and Oli, 2013). Many researchers have proposed extension of independent prescribing role to CPs in resource-limited nations based on their knowledge, and with the believe that it will improve accessibility and promote affordability of health care treatment (Gilbert, 1998; Erhun et al., 2013). In addition, the knowledge, accessibility, and trust enjoyed by CPs could be harnessed to promote medication use appropriateness among the populace (Hussain et al., 2012). However, the societal trust enjoys by CPs also makes it important that their activities be properly monitored, as their practices could have a profound impact on the health of the public. Interestingly, studies have shown that CPs sometimes engage in unethical practices, such as dispensing without valid prescriptions and providing illegal services such as abortion (Okonkwo and Okonkwo, 2010; Akinyandenu and Akinyandenu, 2014).

The National Drug Policy was an effort by the Nigerian government to promote appropriate use of medicine in the country. The policy classifies medicines into categories and stipulates guidelines for the sales and use of each category in Nigeria (FMOH, 2005). Despite these guidelines, however, inappropriate use of medicine has continued unabated (Okonkwo and Okonkwo, 2010). Dexamethasone is prescription only medicine in Nigeria, which is used for the management of acute asthma, palliative care in cancers and prevention of pre-term delivery in pregnant women (Shefrin and Goldman, 2009; Kalra et al., 2014). The drug is however associated with weight gain, hypertension, hyperglycaemia, psychiatric side effects and osteoporosis on prolonged usage, in addition to life-threatening thromboembolism and gastrointestinal bleeding (Vyvey, 2010; Kalra et al., 2014). In recent times, there has been an observed increase in Dexamethasone consumption among the Nigerian populace, but little is known about the potential contribution of CPs and PMVs to this phenomenon. This study therefore aimed at evaluating knowledge, sales practices and attitude of CPs and PMVs towards Dexamethasone use and sale with a view to determining their potential contribution to the inappropriate use of the medicines in Sagamu, Southwest Nigeria.

METHODS

The study was a cross-sectional survey utilizing a pretested 28 item self- administered questionnaire to 36 CPs and 108 PMVs in Sagamu between January and April 2015. Superintendent Pharmacists and Locum Pharmacists in 22 community pharmacies located in various areas of Sagamu, a cosmopolitan city in the southwest, Nigeria were conveniently sampled. Locum and Internee pharmacists and PMVs with less than 6 months of practice were excluded. The licensure status of the participants and their premises could not be determined as at the time of the study. This is because, majority of the participants were not ready to divulge the required information probably for fear of sanction by the regulatory authority.

The protocol for the study was approved by the Ogun State Ministry of Health Ethical Review Board, and informed consent of the participants was also obtained. The questionnaire was pre-tested in a community pharmacy and two patent medicine shops in Ijebu-Ode, a nearby city to Sagamu. The questionnaire which was sectioned into three parts evaluated respondents' socio-demographics, their opinions on the frequency of Dexamethasone consumption, respondents' attitude towards Dexamethasone use, purposes for Dexamethasone

requests by clients, precautionary measures taken before sales, side effects reporting among others. Eleven closed-ended questions were used to assess knowledge of the respondents about available brands, indications, side effects and pharmacy regulation concerning sales of Dexamethasone. Each correct answer on knowledge scale was scored 1 while a false answer was scored 0. The mean score of the class participants for each correct answer was determined, and the total mean score of knowledge was calculated by adding up the mean scores for all the questions. A total mean score of below 6 was considered poor, a score of 6- 8 was considered moderate while a score of 9 and above was considered good (Shrestha et al., 2015). A total of 144 copies of the questionnaire were distributed to CPs in their pharmacies and PMVs at their weekly cooperative society meetings. The properly filled copies of the questionnaire were collected, coded and analyzed using SPSS version 17. Descriptive statistics such as frequencies and percentages were used in the presentation of results. Chi-square was used to compare proportions. The relationship between respondents' socio-demographic and opinions on the questions was explored using cross tabulation. P values < 0.05 were considered significant.

RESULTS

Of the 144 copies of the questionnaire administered, 139 copies were returned but only 133 properly filled copies were analyzed giving a response rate of 92.4%. The majority of the respondents were females 71(53.4%), married 95(71.4%) and aged 16-30 years 56 (42.1%). Thirty-one (23.3%); 1(0.75%) PMVs had post-secondary and postgraduate qualifications respectively. The socio-demographics of the respondents are as shown in Table 1.

Majority 114 (85.7%) respondents claimed to stock Dexamethasone at the time of the study. Six PMVs respondents (4.5%) had stopped selling while 13 PMVs (9.8%) had never stocked Dexamethasone. Out of the 31 CPs surveyed 30 (96.8%), whilst 11out of 102 (10.8%) of PMVs surveyed got at least 9 questions correct; 1 CP (3.2%) and 22 (21.6%) of PMVs got 8 questions correct on knowledge scale rating. Community pharmacists and PMVs had mean scores 0.98(95% CI 0.82, 1.09) and 0.96(95% CI 0.67, 1.03) respectively on the knowledge of the brands; CPs and PMVs had mean score 0.62(95% CI 0.52, 0.69) and 0.46(95% CI 0.38, 0.55) respectively on the use of Dexamethasone in arthritis management. Pharmacists and PMVs respondents had total mean scores of 9.8 and 5.7 respectively on the knowledge score rating. The item analysis of respondents' knowledge about Dexamethasone is as shown in Table 2.

Analysis of responses to questions on practice showed that majority of the respondents; 109 (82.0%) sold tablet form mostly, 38 (28.6%) PMVs claimed to be selling Dexamethasone injections at the time of the study. Majority 113(85.0%) claimed clients initiated the request most times; 92(69.6%) claimed female clients aged 20-35 years constituted the largest buyers of Dexamethasone. Clients' reasons for Dexamethasone requisition include fattening according to 104(78.2%); cough 3(2.3%) and cold 18(13.5%). The indications for which CPs and PMVs sold Dexamethasone in their facilities are as presented in Table 3.

Twenty-nine respondents; 3 CPs (2.3%) and 26(19.5%) PMVs had personally used Dexamethasone for fattening. Twenty (69.0%) of them claimed efficacy of the drug for fattening. Few respondents 57(42.9%) including 6(4.5%) Pharmacists had recommended Dexamethasone for fattening to their clients; majority 114 (85.7%) claimed to inquire about clients' health status before selling Dexamethasone. Respondents recommendation of Dexamethasone to clients was significantly associated with length of practice p=0.03. Majority 99(74.4%) of the respondents claimed not to have seen any side effects of Dexamethasone, 82(61.7%) respondents had however observed upper body weight gain in their customers. There was a significant difference between CPs and PMVs responses on side effects identification p=0.002. Few respondents 13(9.8%) claimed to report the side effects to National Agency for Food Drug Administration and Control (NAFDAC). The length of practice was significantly associated with respondents' opinion on side effects reporting to NAFDAC p=0.004. Table 4 shows factors that have significant association with respondents' sales practices of Dexamethasone.

Table 1: The socio-demographics of the respondents

Variables	Range	Number of respondents	Percentages
Age	0-15 years	2	1.5
	16-30 years	56	42.1
	31-45 years	32	24.1
	>46 years	44	33.1
Gender	Male	62	46.6
	Female	71	53.4
	Single	34	25.6
Marital Status	Married	95	71.4
	Separated	2	1.5
	Widow	2	1.5
Length of Practice	1-4 years	86	64.7
	5-9 years	22	16.5
	10-14years	11	8.3
	>15 years	14	10.5
	Primary	7	5.3
Highest Educational Qualification	Secondary	57	42.9
	Post-secondary	63	47.4
	Postgraduate	6	4.5
	Community pharmacists	31	23.3
Class of Respondents	Patent medicine vendors	102	76.7

Table 2: Item analysis of correct answers to questions on knowledge about dexamethasone

Questions	**CP**	**PMV (31)**	**p-value (102)**
Q1: Dexamethasone exists in tablets, syrups and injection form	0.96	0.73	
Q2: Dexamethasone is used for treatment of arthritis	0.62	0.46	
Q3: Dexamethasone can be used for fattening in thin patients	0.96	0.38	0.03
Q4: Dexamethasone should be sold only on Doctors' prescription	0.94	0.32	
Q5: Menstrual irregularities is a known side effect of Dexamethasone	0.63	0.37	0.000
Q6: Consistent use of Dexamethasone may lead to weight gain	0.92	0.73	0.002
Q7: Dexamethasone is classified as over the counter drug in Nigeria	0.99	0.76	
Q8: Patients with high blood pressure benefit from use of low dose	0.87	0.24	
Q9: It is not necessary to ascertain clients' health condition when low dose dexamethasone is to be sold Dexamethasone	0.94	0.82	
Q10: Only pharmacists are allowed to sell Dexamethasone injection while Patent medicine vendors can sell the tablet form	0.99	0.34	0.03
Q11: "Yodi" is the only Dexamethasone brand registered by NAFDAC in Nigeria	0.98	0.96	

*t-test value $p<0.05$ considered significant

Table 3: Common indications and frequency for which respondents sold Dexamethasone

Indications	**Class of respondents**	
	CPs	**PMVs**
Pain	0(0%)	7(5.3%)
Fattening	3(2.3%)	39(29.3%)
Cough	11(8.3%)	0(0.0%)
Itching	6(4.5%)	14(10.5)
Cold	4(0.03)	12(9.0)
Others	6(4.5%)	5(3.8%)

*Number may not add up to 31 CPs and 102 PMVs as only those with valid responses were considered.

Table 4: Variables of significant association with respondents' sale practice of dexamethasone

Variable	**Dexamethasone sales practice**	**Chi square p value**
Length of practice	Dexamethasone recommendation to customers	0.028
	Reporting of side effect to regulatory agency	0.004
	Selling to different category of health workers	0.018
Educational qualification	Identification of side effects	0.000
	Enquiry about customers' health condition	0.001

$p<0.05$ was considered significant

DISCUSSION

Nigeria drug policy presently allows only licensed Pharmacists to store and dispense Dexamethasone in registered pharmacy premises, and on the presentation of valid doctors' prescriptions. The large number of PMVs who confessed to selling Dexamethasone in this study, despite their knowledge of the drug not being an OTC medicine is a reflection of the chaotic drug distribution and poor regulation of the PMVs activities in Nigeria. Similar observations have been reported in many of the developing nations (Okonkwo and Okonkwo, 2010; Hussain et al., 2012). There seems however to be a discrepancy in the PMVs understanding of what constitutes POM and OTC drugs. Dexamethasone is a medicine that should be dispensed with specific instructions and professional advice which PMVs training may not be adequate for. The sale of Dexamethasone by PMVs may, therefore, have serious implication on the health of the populace considering the side effects of the drug (Vyvey, 2010; Kalra et al., 2014). A substantial number of CPs in this study dispensed Dexamethasone on clients' request without prescription from a physician. This corroborates the result of an earlier study on CPs practices in Nigeria, which concluded that CPs sold ethical drugs without valid physicians' prescriptions (Adje and Oli, 2013). This attitude of CPs, apart from its negative impact on the health of the citizenry, also portends danger to pharmacy practice and its public image, as Pharmacists could be perceived by the populace as business men and not as true health care providers (Al-Hassan, 2009).

In Nigeria as at present, only registered Physicians are legally allowed to prescribe Dexamethasone. Finding from this study, however, revealed that majority of PMVs and CPs recommended Dexamethasone for their clients even for wrong

indications. This observation is not different from findings from similar studies which reported that CPs and PMVs engaged in unwholesome practices in their facilities (Okeke et al., 2006; Okonkwo and Okonkwo, 2010; Adje and Oli, 2013). Prescription of ethical drugs such as Dexamethasone is an act that is outside the scope of CPs and PMVs licensures, and it is an indication of non-adherence to the ethics of the profession by the CPs. Although from this study Pharmacists had good knowledge of Dexamethasone, the need to abide by the extant rules is essential. The PMVs from the finding of this study did not have sufficient knowledge to engage in a technical practice like prescribing.

Community pharmacists possessed more knowledge about the indications and side effects of Dexamethasone than PMVs. Knowledge deficiency was observed from the responses of the PMVs on Dexamethasone indication, as a majority of them wrongly believe that Dexamethasone could be used for fattening. Their sales practices also confirmed their assertion. The weight gain, a side effect of Dexamethasone was being erroneously perceived as growing fatter. The inability of PMVs to identify adverse effects of Dexamethasone when it occurs as observed in this study is also a manifestation of inadequate knowledge of the drug These findings corroborate earlier reports that PMVs most times had poor knowledge of drug indications and side effects (Fajola et al., 2011; Auta et al., 2012). This is a serious public health concern which needs to be addressed by all stakeholders. The sales practice of PMVs essentially points to the fact that knowledge acquired through apprenticeship may not be sufficient in handling some potent drugs, and this justifies the restriction of ethical drugs to those who are educationally qualified, and who also have to be monitored for adherence to the rules guiding the dispensing of such drugs. Although the majority of CPs knew fattening was not an indication for Dexamethasone use, their sales practice contradicted their knowledge. This finding indicates that CPs could respond to commercial instinct in the same manner as the PMVs. The dwindling economic fortune from community pharmacy practice resulting from ineffective drug supply system, and poor regulation of drug market could be part of the factors prompting CPs to engage in unethical practice observed in this study. However, this attitude if not checked could constitute set-back for independent prescribing status being canvassed for Pharmacists in Nigeria (Erhun et al., 2013)

Research has shown that in many cases, clients lack adequate knowledge about adverse effects of medicines. It is, therefore, the duty of CPs and PMVs to adequately and accurately inform their clients about their medicines (Singh et al., 2013; Rubio et al., 2015). CPs also have as part of their extended public health roles to counsel and campaign against drug misuse. In this study, both the CPs and PMVs were lacking in this responsibility. There was an apparent misuse of Dexamethasone by female folk in this study, may be due to their penchant for attractiveness. From African perspectives, slimness is considered unattractive. Despite the CPs knowledge of the side effects of Dexamethasone especially with regard to women they, like the PMVs did not discourage its inappropriate use. It thus appears that economic gain was the main motive of both the CPs and PMVs. The length of practice (experience) has been shown to have an impact on the quality of practice in many professions (Zillich et al., 2004). The finding of this study corroborates this view, as the length of practice was found to have significant effects on knowledge and sales practice of both CPs and PMVs.

Conclusion:

This study concluded that PMVs in Sagamu lacked adequate knowledge of Dexamethasone and there was non-adherence to National drug policy guidelines regarding sales of Dexamethasone by both the CPs and PMVs in Nigeria. The sales practices of both the CPs and PMVs could contribute to inappropriate Dexamethasone use in the community. Training of CPs on professional ethics and PMVs on National drug policy guidelines are advocated. Further studies are needed to elucidate factors responsible for the sales practices of both the CPs and PMVs for meaningful intervention. This study is limited by the use of Sagamu as the only study site. The number of CPs and PMVs surveyed is also relatively small compared with the population of CPs and PMVs in Nigeria, therefore the survey respondents' views might not adequately represent the knowledge and sales practices of CPs and PMVs in the country. Further studies are needed to validate the observation from the study. Lack of disclosure of licensure status by CPs and PMVs made it difficult to determine the legality of their practice.

Conflict of interest

We declare that there is no conflict of interest in this study. This study did not receive fund or support from any source.

Acknowledgements

We acknowledge the efforts of Dr R. Adisa of the department of clinical pharmacy and administrative pharmacy, University of Ibadan for painstakingly reading through the manuscript and offering constructive ideas

REFERENCES

Adje DU, Oli AN (2013). Community pharmacy in Warri, Nigeria – A survey of practice details. Scholar *Academic Journal of Pharmacy*. 2 (5):391-397

Aina BA, Tayo F, Taylor O (2008). Cost implication of irrational prescribing of chloroquine in Lagos state general hospitals. *Journal of infection in Developing countries*. 2 (11): 68-72

Akinyandenu O, Akinyandenu A (2014). Irrational use and non- prescription sale of antibiotics in Nigeria: A need for change. *Journal of science and innovation research*. 3(2):251-257

Akuse RM, Esigbe EE, Ahmed A, Brieger WR. (2010). Patent medicine sellers: How can they help control childhood malaria? *Malaria Research and Treatmen*t. Article ID470754.

Al Hassan MI (2009). A look at community practice in Saudi Arabia, *Research Journal of Medical Sciences*. 3(3):111-114.

Ambwani S, Mathur. A K (2008). Rational Drug Use. *Health Administrator* 19(1) 5-7.

Auta A, Omale S, Folorunsho TJ, David S, Banwat SB (2012). Medicine vendors: self-medication practices and medicine knowledge. *North American Journal of Medical Sciences*. 4: 24 doi:10.4103/1947-2714.92899

Berendes S, Adeyemi O, Oladele EA, Oresanya OB, Okoh F (2012). Are patent medicine vendors effective agents in malaria control? Using Lot Quality Assurance sampling to assess quality of practice in Jigawa, Nigeria. *PLoS ONE*.7(9): e44775 doi:10.1371/journal.pone. 0044775

Beyeler N, Liu J, Sieverding M (2015). A systematic review of the role of proprietary and patent medicine vendors in healthcare provision in Nigeria. *PLoS One*.10:e0117165.doi: 0.1371/journal.pone.0117165.

Erhun WO, Osigbesan T, Awogbemi KJ (2013). Study of pharmacists' and physicians' views on pharmacist prescribing in Nigeria. *West African Journal of Pharmacy*. 24(2):76-82

Fajola A, Asuzu MC, Owoaje ET, Asuzu CC, Ige OK, Oladunjoye OO et al (2011). A rural-urban comparison of client-provider interactions in patent medicine shops in south west Nigeria. *International Quarterly of Community Health Education*.32 (3):195–203. doi: 10.2190/IQ.32.3.c

Federal Ministry of Health (2005). National Drug Policy. Downloaded at http://collections.infocollections.org/whocountry/en/d/js6865/ on 29th December, 2014.

Gilbert L (1998). Pharmacy's attempt to extend its role: A case study in South Africa. *Social Science and Medicine*.47 (2):153-164

Hamilton H, Gallagher P, Ryan C, Bryne S, O' Mahony D (2011). Potential inappropriate medications defined by STOPP criteria and the risk of adverse drugs reactions in older hospitalized patients. Archives of Internal Medicine. 13:171(11):1013-1019

Hussain A, Ibrahim M, Baber Z (2012). Using potentials of community pharmacies to promote rational drug use in Pakistan: an opportunity exists or lost. *Journal of Pakistan Medical Association*. 6(11):1217-1222

Kalra S, Kalra B, Gupta Y (2014). Glycemic management after antenatal corticosteroid therapy. *North American Journal of Medical Sciences*. 6(2): 71-76

Kathleen AH. Combating inappropriate use of medicines (2011). *Expert Review of Clinical Pharmacology*. 4(3):335-348

Liu J, Prach LM, Treleaven E, Hansen M, Anyanti J, Jagha AT,Seaman V, Ajumobi O, Isiguzo C (2016). The role of drug vendors in improving basic health care services in Nigeria. *Bulletin of World Health Organization*. Article ID BLT.15.154666.

Okeke TA, Uzochukwu BSC, Okafor HU (2006). An in-depth study of patent medicine sellers' perspectives on malaria in a rural Nigerian community. *Malaria Journal*. 5:97. doi: 10.1186/1475-2875-5-97.

Okonkwo AD, Okonkwo UP (2010). Patent medicine vendors, community pharmacists and STI

management in Abuja, *Nigeria*. *African Health Sciences*.10: 253-265

Onyeneho NG, Chukwu JN (2010). Is there a role for patent medicine vendors in tuberculosis control in southern Nigeria? *Journal of Health, Population and Nutrition*. 28 (6): 567-577

Pharmacists' Council of Nigeria. Mandatory continuing professional development (MCPD) schedule (2014). Downloaded at http://www.medicalworldnigeria.com/2014/03/pharmacist-council on 26th February,

Rubio J, García-Delgado P, Iglésias-Ferreira P, Mateus-Santos H, Martínez-Martínez F (2015). Measurement of patients' knowledge of their medication in community pharmacies in Portugal. *Ciênc.saúdecoletiva*.20(1) http://dx.doi.org/10.1590/1413-81232014201.20952013

Shefrin AE, Goldman RD (2009). Use of Dexamethasone and Prednisolone in acute asthma excerbations in paediatric patients. *Canadian Family Physician*. 55(7): 704-706

Shrestha M, Maharjan R, Prajapati A (2015). Assessment of knowledge and practice of community pharmacy personnel on diabetes mellitus management in Kathmandu district: a cross sectional descriptive study. *Journal of Diabetes and Metabolic disorders*. 14:71

Singh J, Singh N, Kumar R, Bhandari V, Kaur N, Dureja S (2013). Awareness about prescribed drugs among patients attending outpatient department. *International Journal of Applied Basic Medical Sciences*. 3(1) 48-51

Uzochukwu BSC, Onwujekwe OE, Okwuosa C, Ibe OP (2014). Patent medicine dealers and irrational use of medicines in children: The economic cost and implications for reducing childhood mortality in southeast Nigeria. *PLoS One*.9:e91667. doi: 10.1371/journal.pone.0091667. [PubMed] [Cross Ref]

Vyvey M (2010). Steroids as pain relief adjuvants. *Canadian Family Physician*. 56 (12): 1295-1297

World Health Organization: Medicines use in Primary Care in Developing and Transitional Countries. Fact Book Summarizing Results from Studies Reported Between 1990 and 2006. 2009, Geneva: World Health Organization. Available from: http://apps.who.int/medicinedocs/documents/s16073e/s16073e.pdf. Accessed on 5th September, 2016

Zillich A J, McDonough RP, Carter BL, Doucette WR (2004). Influential characteristics of Physicians/pharmacists collaborative relationship. *Annals of pharmacotherapy*. 38(5):764-770