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Research Article

**ASSESSMENT OF DISPENSING PRACTICE AND ASSOCIATED FACTORS
TOWARDS PATIENT MEDICATION COUNSELING IN DESSIE TOWN, NORTH
EAST ETHIOPIA**

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ABSTRACT

This study is designed to assess the patient medication counselling practice in Dessie town and the factors that can affect patient medication counselling practice. A cross sectional study was conducted from January to June, 2014. 106 dispensers were included in the study. Data was collected using self-administered questionnaire and analyzed using SPSS 16. Out of 106 dispensers, 32 (30.2%) were pharmacists, 66 (62.3%) were druggists and 8 (7.5%) were pharmacy technicians. Out of 106 respondents, only less than half of them (33.0%) rated as having good patient counseling practice. The rest 67.0% of the dispensers rated as having poor practice. Lack of time (47.2%) and unavailability of area for counseling (43.4%) were the leading barriers that prohibit dispensers from counseling. Increase in dispensers' educational qualification ($p=0.000$), decreased average number of patients attended per day, experience ($p=0.000$), those dispensers working in governmental health institutions ($P=0.025$), being owner of a pharmacy ($p=0.025$) and working in hospital pharmacy ($P=0.003$) were significantly associated with good patient counseling practice. But the remaining independent variables like sex, age group, average working hour per day, average patient attendance per day, continuous pharmaceutical education (CPE) attendance and experience had no significant effect ($p>0.05$). Although the dispensers surveyed in this study demonstrated poor patient medication counseling, some exhibited a good practice. Despite all these evidences of poor medication counseling in Dessie town, the standards underline that the pharmacy professional's responsibility is to support the patient's efforts to develop rational drug use.

Key words: Practice, factors, medication counseling, Dessie.

INTRODUCTION

According to the patient counseling standards in the Omnibus Budget Reconciliation Act of 1990, pharmacists are expected to offer an explanation of the purpose of the prescribed drug; proper administration, including length of therapy, special directions for use, proper storage, and refill instructions; information on common adverse effects, potential interactions, and contraindications to the use of the drug; and guidance on steps to take given specific outcomes (OBRA, 1990).

The need of community pharmacist has been identified by World health organization (WHO) in developing countries where general public cannot afford the high fee of physicians (WHO, 1988; WHO, 1996). The role of community pharmacies and community pharmacists in the health care sector has been accepted worldwide. Pharmacists are working in different practicing areas to ensure the patient care (Elliott, 1950).

The scope of pharmacy practice was expanded throughout the world. The case of Ethiopia is not different. Hence after initiating the new clinically oriented pharmacy programme, special concern is given to proper patient counseling (Dugan, 2006; McGivney, 2007). The most important factors driving this shift include increasing health demands associated with more complex ranges of chronic medicines, poor adherence to prescribed medicines, the recognition of drug-related morbidity and mortality leading to an increase in hospital admissions (Azhar, 2009). Pharmaceutical care as “a patient-centered, outcomes oriented pharmacy practice that requires the

pharmacist to work together with the patient and the patient’s other healthcare providers to promote health, to prevent disease, and to assess, monitor, initiate, and modify medication use to assure that drug therapy regimens are safe and effective” (APHA,1995).

Studies show that better medication knowledge is associated with previous counseling by a pharmacist. So proper patient medication counseling should be practiced for the better outcome of the pharmaceutical care (Alkatheri, 2013). Patient counseling is defined as “providing information orally or written form to the patient or his/her representative on direction of use, advice on side effect, precaution, storage, diet, and life style modification” (ASH, 1997).

Pharmacists are placed at the first point of contact in the healthcare system due to their easy accessibility. Patients mostly rely on counseling by community pharmacists because they are the most available and trusted healthcare providers (Somayeh, 2013). The way drugs are taken by patient is often influenced by the way drugs are dispensed and the type of information given during dispensing (Nasir and Mulugeta, 2011).

Patient medication counseling is an integral part of pharmaceutical care. However, several practice barriers have prohibited the proper application of patient medication counseling practice in the community. These barriers include the pharmacy infrastructure and work flow of community pharmacies, the lack of imbursement for additional patient care services, lack of specific pharmacist-

medication counseling training and some inter-individual variation among pharmacy professionals (PEIPD, 2005). Despite there are efforts made to show poor counseling practice among dispensers in different parts of Ethiopia, there was no research done to assess the factors that contribute for poor counseling practice among dispensers so far. This research tries to assess the patient medication counseling practice in Dessie town and the factors that can affect patient medication counseling practice.

MATERIALS & METHODS

The study was conducted in Dessie town, located 401 km North East of Addis Ababa, South Wollo Zone. Dessie town has 2 governmental hospitals, 3 private hospitals, 20 private clinics and 7 health centers. There are 16 pharmacies, 23 drug stores and 1 rural drug vendor in 2014. The study area Dessie town was selected conventionally due to high number of health institutions. The study design was a prospective cross sectional study conducted using self administered questionnaire among drug dispensers in Dessie town. The sources of population for this study were all dispensers who work at drug retail outlets in Dessie town. Target populations for this study were all dispensers at drug retail outlets present during data collection period. No sampling technique was used. In order to assure the quality of data, the collected data was closely evaluated by supervisors. The questionnaire was written and conducted in English, which is the primary work language of pharmacy colleges in Ethiopia. The questionnaire form was divided into three sections: (a) demographic data (e.g. age,

gender, education level, and years of practice.....); (b) practice related questions (c) professional practice behavior. The questionnaire was distributed to the pharmacies after validating the questionnaire by a pilot study on 5 dispensers. Responses to each question were coded individually and the data collected using quantitative method was analyzed using SPSS v16.0. The responses of the dispensers to each questionnaire item were expressed as frequencies and their corresponding percentages. The overall practice score greater than or equal to 6 (median) was rated as Good and less than 6 was rated as poor. The research was done after getting written ethical clearance from college of medicine and health sciences, Wollo University. The respondents were informed of their right to refuse to participate in the study.

RESULTS

A total of 106 dispensers were included in the study of which 32 (30.2%) were pharmacists, 66(62.3%) were druggists and 8(7.5%) were pharmacy technicians. 76.4% of them were working as employees and only 23.6% were owners. Majority of the dispensers were males (60.4%), between 21 and 30 years (49.1%), have experience of greater than 5 years (39.6%), working in private sector (73.6) and have an average patient attendance of greater than 20 patients/caregivers per day (53.8%) (Table1).

More than half of the dispensers (53.8%) spend 6-10 minutes in average to dispense a drug to a patient. As part of the dispensing, almost half of the pharmacy professionals (50.9%) spend 1-5 minutes to

counsel a patient. Thirty eight (35.8%) dispensers have less than 1 minute and only

one professional had greater than 15 minutes of average counseling time (Fig. 1).

Table 1. Socio-demographic characteristics of dispensers in Dessie town, January-June 2014.

Socio-demographic parameters		Frequency	Percentage
Age group	21-30	52	49.1
	31-40	37	34.9
	41-50	11	10.4
	51-60	6	5.7
Educational Qualification	Pharmacist	32	30.2
	Druggist	66	62.3
	Pharmacy technician	8	7.5
Experience	<1 year	7	6.6
	1-2 years	35	33.0
	3-5 years	22	20.8
	>5 years	42	39.6
Average working hour per day	<6	2	1.9
	6-10	71	67.0
	11-15	29	27.4
	16-20	4	3.8
Average patient attendance per day	1-5	1	0.9
	6-10	8	7.5
	11-15	18	17.0
	16-20	22	20.8
	>20	57	53.8
CPE Attendance	Yes	49	46.2
	No	57	53.8
Sex	Male	64	60.4
	Female	42	39.6
Working sector	Governmental	28	26.4
	Private	78	73.6
Type of pharmacy	Hospital pharmacy	24	22.6
	Community pharmacy	82	77.4
Ownership status	Owner	25	23.6
	Employee	81	76.4

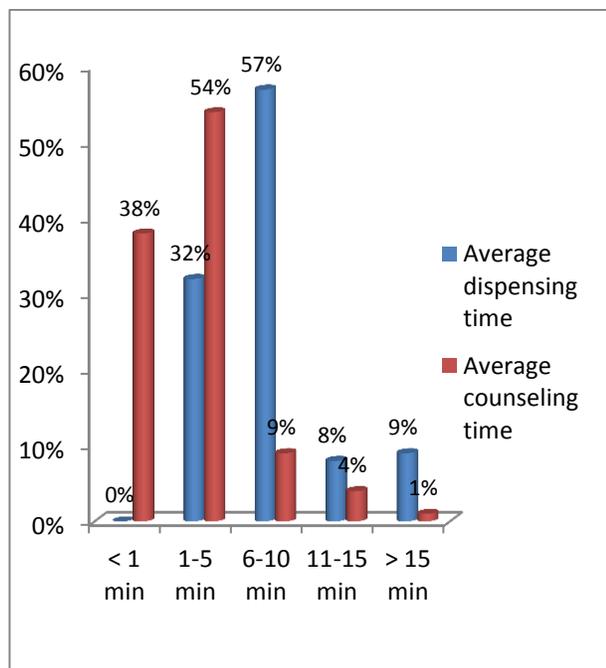


Fig.1. Average dispensing and counseling time (in minutes) of drug dispensers in Dessie town, North East Ethiopia, 2014.

Fifteen (14.1%) of the dispensers introduce themselves (name & qualification) to the patient before medication counseling. 28(26.4%) of respondents greet and/or extend hand to patient/caregiver before starting to counsel the patient/caregiver. Dispensers' frequency of asking for a feedback to evaluate patients understanding is only in 18.8% at every prescription, and the rest 23.6% sometimes request for feedback. More than half of the dispensers (54.3%) preferred counseling only to the patient, 48 (45.3%) of them counsel to either the patient or the care giver. Sixty seven (63.2%) respond that they give additional counseling about symptoms of the disease during OTC (over the counter) drug dispensing. The rest (36.8%) do not practice additional counseling for OTC drugs. The most common barriers that prohibit dispensers from counseling their patients were lack of time (47.2%) and

unavailability of area (43.4%) followed by lack of motivation (28.3%)(Table 2).

Table 2. Practice of drug dispensers in Dessie town, January-June 2014.

Practice Parameters	Frequency	Percentage
Self-introduction		
Yes	15	14.1
No	91	85.8
Hand greeting		
Yes	28	26.4
No	78	73.6
Additional OTC Counseling		
Yes	67	63.2
No	39	36.8
Preference to whom to counsel		
Patients only	58	54.7
No difference patient/care giver	48	45.3
Barriers to counseling		
Absence of separate room	46	43.4
Time consuming	50	47.2
Lack of motivation	30	28.3
Inadequate knowledge	5	4.7
Asking for feedback		
At every prescription	20	18.8
Sometimes	25	23.6
Rarely	55	51.9
Never	6	5.6

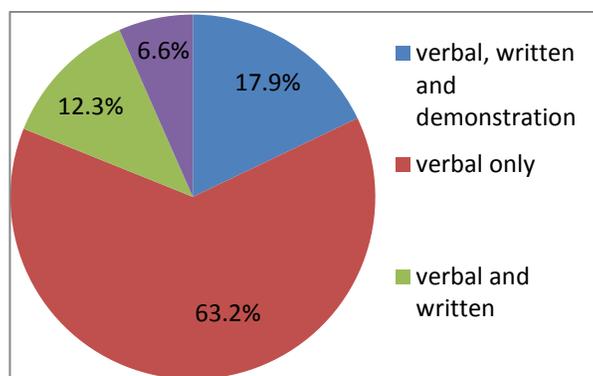


Fig. 2. Medication uses instruction delivery methods of drug dispensers in Dessie town, June 2014.

From methods that dispensers employ to present drug use instructions, majority of the respondents (63.2%) used verbal method whereas the rest 37% of the respondents used mixed method of medication use instruction delivery for patients. Among these, 18% used all the three methods, 12.3% use verbal & written, and the rest 6.6% use verbal & demonstration methods (Fig. 2). About 102(96.2%) dispensers responded that they give information regarding the proper administration and length of therapy. Only 4(3.8%) gave information about proper administration, length of therapy, purpose of the prescribed drug, special directions for use, proper storage, and refill instructions; information on common adverse effects, potential interactions,

contraindications to the use of the drug and the consequence of sharing medication with someone else for the patient during medication dispensing. This implies the patient medication counseling delivered by professionals was not complete. Eighty four (79.2%) of the dispensers responded that they give special concern to pregnant women. 57.5% of the dispensers give special attention for pediatrics, 12.3% for adults and 8.5% for other conditions. Generally, dispensers give more concern for pregnant and least concern for adults while dispensing. All the dispensers in the study were asked 11 questions regarding their practice. Out of 106 respondents, only less than half of them (33.0%) rated as having good patient counseling practice. The rest 67.0% of the dispensers rated as having poor practice. All independent variables were retained in chi square analysis and there was strong association between patients counseling practice and educational qualification ($p=0.000$), average patient attendance per day ($p=0.000$), ownership status ($p=0.025$), type of pharmacy ($P=0.003$) and working sector ($p=0.025$) variables. But the remaining independent variables like sex, age group, average working hour per day, continuous pharmaceutical education(CPE) attendance and experience had no significant association with counseling practice ($p>0.05$) (Table 3).

Table 3. Association of independent variables associated with practice of drug dispensers in Dessie town, January-June 2014.

Factors that affect practice		Practice level		Total	Stat calculated value
		Good	Poor		
Age group	21-30	16	40	52	$\chi^2=3.24$, Df=3, $p=0.356$
	31-40	14	19	37	
	41-50	4	7	11	

	51-60	1	5	6	
Educational Qualification	Pharmacist	24	8	32	$\chi^2=36.54,$ Df=2, p=0.000
	Druggist	10	56	66	
	Pharmacy technician	1	7	8	
Experience	<1 year	1	6	7	$\chi^2=4.88,$ Df=3, p=0.18
	1-2 years	12	23	35	
	3-5 years	11	11	22	
	>5 years	11	31	42	
Average working hour per day	<6	1	1	2	$\chi^2=7.46,$ Df=3, P=0.06
	6-10	29	42	71	
	11-15	5	24	29	
	16-20	0	4	4	
Average patient attendance per day	1-5	0	1	1	$\chi^2=26.69,$ Df=4, p=0.000
	6-10	6	2	8	
	11-15	10	8	18	
	16-20	12	10	22	
	>20	7	50	57	
CPE Attendance	Yes	19	30	49	$\chi^2=1.36,$ Df=1, p=0.24
	No	16	41	57	
Sex	Male	19	37	64	$\chi^2=2.57,$ Df=1, p=0.11
	Female	16	34	42	
Working sector	Governmental	14	14	28	$\chi^2=4.96,$ Df=1, P=0.025
	private	21	57	78	
Type of pharmacy	Hospital pharmacy	14	10	24	$\chi^2=8.87,$ Df=1, P=0.003
	Community pharmacy	21	61	82	
Ownership status	Owner	15	10	25	$\chi^2=10.77,$ Df=1, P=0.001
	Employee	20	61	81	

DISCUSSION

Fortunately, the current survey data indicated that dispensers' in Dessie town (>95%) were conscious of their professional role in patient counseling, namely proper administration and length of therapy. However, this was far from the standards for dispensing. This was also reported in Mekelle town (Ayalew *et al.*, 2014) where dispensers less likely to provide advice on purpose of the prescribed drug, special directions for use, proper storage, and refill instructions; information on common adverse effects, potential interactions, and contraindications to the use of the drug (OBRA, 1990). Similar findings were obtained in previous studies in North West Ethiopia where only 18.8% pharmacy professionals reported that they counsel their patients about side effect and in Ghana as well (SEAM, 1993). However, this is not in agreement with several other studies done in USA and Europe (Kerzaman and Oran, 2004; Perri *et al.*, 1995). Patient medication counseling is increasing in hospital setting as part of the clinical pharmacy programme which is started after graduation of pharmacy students by the new curriculum in 2014 in Ethiopia. But patient medication counseling is not yet legalized and there is no special consideration for those pharmacy professionals that properly counsel patients. These equal treatments of professionals demotivate the pharmacy professionals. Similar studies in Northern Ethiopia and Nepal reported barriers for proper patient medication counseling as lack of time, inadequate knowledge and no legalization of the patient medication counseling. In India, reported barriers to counseling were lack of knowledge, no legalization of patient counseling and doctor dispensing (DACA, 2007). In another study conducted in USA, busyness reduced the odds of any pharmacist talk, oral information given and assessment of understanding (SEAM, 1993; Poundel *et al.*, 1999; Adep *et al.*, 2004). Absence of legal frame

work to monitor and evaluate patient counseling practice at the time of dispensing and patient factors (patients do not need much talk, patients have low attitude towards pharmacy) were also other barriers assessed (Demilew, 2014). Factors in this study were lack of time and unavailability of area for counseling (47.2% & 43.4% respectively), lack of motivation (28.3%) and lack of knowledge (4.2%) on the side of pharmacy professionals. This might be due to less development of pharmacy practice in Ethiopia in which the community does not understand the need for drug information and dispensers ignore it as it is not their professional role.

According to a research conducted in Nigeria, about 75% of dispensers have good practice of patient counseling (Oparah and Eferakeya, 2005) which is relatively the comparable to our finding; that is 76.4%. To improve efforts that assist patients in making informed decisions regarding medications, discussing side effects and management strategies with patient is crucial (WHO, 2003).

This study found that majority of the respondents attended greater than 20 patients per day which is comparable to the study done in Nepal. In contrast, most of the dispensers (57%) took 6-10 minutes for dispensing a prescription in Dessie, North East Ethiopia which is better than Nepal, in which majority of the dispensers spend 1-5 minutes. The most relevant parameter to determine is dispensing practice was average counseling time, in which 92% of the dispensers in Dessie town spent less than 5 minutes for patient counseling purpose (Poundel *et al.*, 1999).

In this study, around 54.7% of dispensers counsel only patients without considering the patient condition. In a similar study done in Gondar and Bahirdar town, 75% of dispensers do not make difference in counseling directly to the patient and counseling to care giver (Nasir and Mulugeta, 2011). According to Prince Edward

Island pharmacy board guideline on counseling, the dispenser must counsel both the patient and the care giver depending on the patient condition. Especially if the patient is a child, being cared for by an agent, psychotic or had hearing loss, the guideline recommend counseling the care giver (PEIPD, 2005). Patient information is of vital importance in the correct use of medications. Patient counseling without considering the patient condition may result in misunderstanding hence may contribute to the failure of the therapy, thus wasting resources and adding to the costs of care. All drugs should be dispensed with adequate and appropriate information. Information must be structured to meet the needs of individual patient and question and answer should be used to check patients' understanding (FDRE MOH, 2010). But in our study, only 20(18.8%) of dispensers ask feedback at every prescription which is below the standard. Many studies have shown that providing written materials to patients post consultation can have a significant, positive influence upon their recall of drug information and advice. Written information should be provided to supplement the verbal communication. If necessary a demonstration such as opening and closing of containers or using an aerosol may be used (FDRE MOH, 2010). According to our finding, only 36.8% dispensers employed mixed method of presenting drug use instructions to patients. The remaining 63.2% of dispenser use verbal method to present information for patients.

In this study, 67 (63.2%) responded that they give additional counseling during OTC drug dispensing. The rest 39(36.8%) did not give special concern for OTC drug dispensing. There is increasing use of non-prescription medicines in the treatment of common ailments and the range of effective available drugs without medical prescription is also increasing. Here the role of the pharmacist is to ensure that all necessary information and advice is given to

encourage safe and effective use of medicines. When non-prescription drugs are indicated, the dispenser must be able to give information to the patient about symptoms of the disease, directions for use, expected outcomes of therapy, including a time-frame for a response, common adverse effects and precautions, correct storage and when to seek medical attention so products are used both safely and effectively (PEIPD, 2005). Considering symptoms for OTC self medication was reported by 42% of the dispensers in central Sweden and 47% in Mekele town (Erickso, 2002; Ayalew *et al.*, 2014).

Even though there is no report in Ethiopia that show the prevalence of dispensing errors in community pharmacies, there is 51.8% of medication administration errors in referral hospital settings (Agalu *et al.*, 2012). To minimize dispensing errors and to promote good counseling practice, pharmacists should be deployed in to dispensary sites or CPE specific to medication counseling should be given.

In this study, decreased average number of patients attended per day was found to have statistically significant association with good patient medication counseling practice, which is also reported in Bahirdar City, North West Ethiopia and Pakistan (Hussain and Ibrahim, 2011; Nasir and Mulugeta, 2011; Demilew, 2014). In contrast to above studies and study done in Botswana (Boonstra *et al.*, 2003), experienced dispensers didn't have any association with good medication counseling practice and good counseling practice was reported in governmental health institution pharmacies than private retail outlets. This variation might be due to the incorporation of large number of pharmacy professionals from the two government hospitals, Dessie referral and Borumeda hospitals, in this study. In these hospitals, patient counseling is newly integrated as part of the pharmaceutical care programme initiated by Ethiopian government. This programme is not practiced in private hospitals

and drug retail outlets in Dessie town. But the Ethiopian government initiates the programme without proper CPE related to patient medication counseling.

CONCLUSION

Although the dispensers surveyed in this study demonstrated poor patient medication counseling, some exhibited a good practice. Despite all these evidences of poor medication counseling in Dessie town, the standards underline that the pharmacy professional's responsibility is to support the patient's efforts to develop rational drug use. Increase in dispensers' educational qualification, decreased average number of patients attended per day no of pharmacy practice experience, those dispensers working in governmental health institutions, being owner of a pharmacy and working in hospital pharmacy are associated with good counseling practice.

REFERENCES

- Adep J, Nagari B, Kumar M (2004). Patient counseling practicing community pharmacists' perception from two South Indian states, *Indian journal of pharmaceutical science*. 66(1):44-48.
- Agalu A, Ayele Y, Bedada W, and Woldie M (2012). Medication administration errors in an intensive care unit in Ethiopia. *International Archives of Medicine*. 5: 1-6.
- Alkatheri A, Albekairy A (2013). Does the patients' educational level and previous counseling affect their medication knowledge. *Annals of Thoracic Medicine*. 8:105-8.
- American society of health system-pharmacist, ASH (1997). Guideline on pharmacist conducted patient education and counseling. *American Journal of health system pharmacy*. 54:431-4.
- Ayalew E, Seid Y, Agalu A (2014). Knowledge, attitude and practice of patient medication counseling among drug dispensers in Mekele town, Northern Ethiopia. 4, 28-34.
- Azhar S, Hassali M, Ibrahim M, Ahmad M, Masood I, Shafie A (2009). The role of pharmacists in developing countries: The current scenario in Pakistan. *Human Resource for Health*. 7:1-6.
- Boonstra E, Lindbaek M, Ngome E (2003). Labeling and patient knowledge of dispensed drugs as quality indicators in primary care in Botswana. *Quality and Safety in Health Care*, 12:168-175.
- Demilew W (2014). Patient counseling at dispensing of medicines in health care facility outpatient pharmacies of Bahir Dar city, North West Ethiopia. *Science Journal of public health*. 2:126-134.
- Drug administration and control authority of Ethiopia (2007). Manual for good dispensing practice. 1-27.
- Dugan BD. (2006). Enhancing community pharmacy through advanced pharmacy practice experiences. *American journal of pharmacy education*. 70:1-4.
- Elliott EC (1950). The general report of the pharmaceutical survey, 1946 - 49. Washington, DC: American Council on Education. 3-5.
- Erickso AK (2002). Prescription-to-OTC switches offer golden counseling opportunities. *Pharmacy Today*. 8 (6):1-35
- Federal Democratic Republic of Ethiopia Ministry of Health (2010). Ethiopian Hospital Reform Implementation Guideline. 1:13-14.
- Hussain A, Ibrahim MI (2011). Medication counseling and dispensing practices at community pharmacies: a comparative cross sectional study from Pakistan. *International Journal of Clinical Pharmacy*. 33:859-67.
- Kerzaman H, Oran B (2004). Assessment of patient knowledge about their long term

- therapy. *European Journal of Nursing*. 5:311-316.
- McGivney M, Meyer S, Duncan-Hewitt W, Hall D, Goode J, Smith R.(2007) Medication therapy management: Its relationship to patient counseling, disease management, and pharmaceutical care. *Journal of American pharmacy association*. 47:620-628.
- Nassir T, Mulugeta T (2011). Knowledge, attitude and practice of patient medication counseling among drug dispensers in North West Ethiopia, *Journal of applied pharmaceutical science*.1:85-90.
- Oparah A, Eferakeya A. (2005). Attitudes of Nigerian pharmacists towards pharmaceutical care. *Pharmacy world and science*. 27:208-214.
- Perri M, Kotzan J, Pritchard L, et al. (1995) OBRA '90: the impact on pharmacists and patients. *Am Pharm*. 35:24-28.
- Poundel A, Khanal S, Alamkadir, Palaians. (1999). Department of Hospital and clinical pharmacy manual college of medical sciences. 3:1-10.
- Prince Edward Island Pharmacy Board (2005), guideline on counseling.1-7.
- Center for Pharmaceutical Management (2003). Access to Essential Medicines: Ghana. Prepared for the Strategies for Enhancing Access to Medicines Program. Arlington, VA: Management Sciences for Health. 13-19.
- Somayeh H (2013). Evaluation of community pharmacist's knowledge, attitude and practice towards good pharmacy practice in Iran, *Journal of pharmaceutical care*.1: 19-24.
- The APHA Pharmaceutical Care Guidelines Advisory Committee, approved by the APhA Board of Trustees. (1995) Principles of Practice for Pharmaceutical Care. In: American Pharmacists Association. <http://www.pharmacist.com> (Accessed on 27 June, 2015)
- The omnibus Budget Reconciliation Act of 1990. Pub.L.no.101-508, 104 Stat 1388, 4401-9.
- WHO (2003). Adherence to long term therapies; evidence for action.10-12.
- WHO (1988). The role of the pharmacist in the health care system: Geneva. World Health Organization. 23-32.
- WHO (1996). Good pharmacy practice: guidelines in community and hospital pharmacy settings. Geneva: World Health Organization.1:11.