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Evaluation of Community Pharmacy Practices in Pakistan: Insights into Asthma, Diabetes, HCV and Tuberculosis Management

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ABSTRACT

Patient counseling is an integral part of pharmaceutical services at community pharmacies as community pharmacists are health care professionals most accessible to general public. In this cross sectional qualitative study counseling quality of pharmacists and senior pharmacy technician was evaluated by using pseudo patient method. The study was conducted for 12 weeks at 35 community pharmacies randomly selected from various areas of Lahore. Four diseases which are most prevalent in developing countries were selected for this study. This study revealed that pharmacists were present at 52% of pharmacies visited. Counseling was offered hundred per cent on demand. On 6% pharmacies pharmacy technician refused to counsel

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on demand. Frequency, administration and storage of drugs were counseled frequently. Parameters like drug's side effects, disease complications, drug interactions and contraindications were rarely addressed. Quality of counseling was much better in pharmacies where pharmacists were present, pharmacists counseled effectively about dose, frequency, administration, storage, side effects, drug interactions and complications. In order to improve quality of counseling at community pharmacies presence of pharmacist designated for patient counseling should be mandatory and continuing education programs should be run to update pharmacist and pharmacy technician knowledge.

Keywords: Patient counseling, pseudo patient study, community pharmacies, Continuing education program.

INTRODUCTION

A community Pharmacy is a place where community pharmacist directly deals with people and performs compounding, checks and dispenses prescription with care, accuracy and legality, and counsels the patient. Community pharmacists are the health care professionals most accessible to public. [1] Community pharmacy is a main area where proper counseling of patients could bring revolution in pharmacy profession but to our dismay, this practice is rare in Pakistan. As pharmaceutical care related activities are not much implemented in our community therefore, studies like this may inspire pharmacists towards improvement. In Pakistan, It is Ministry of Health duty to plan and coordinate among health sector. Estimation shows that out of 8102 qualified pharmacists in Pakistan, 2836 are working in public sector while 5023 in private sector

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and 243 in private not-for-profit organizations. Due to progression in pharmaceutical industry and education, community pharmacy has grown as well. But the ratio to which pharmacists are involved in community pharmacies is only 10%. Resultantly it has failed to provide pharmaceutical care, promotion of health and counseling up to an optimal level. [2]

Asthma, diabetes mellitus, hepatitis C and tuberculosis are the most prevalent diseases in Pakistan. In order to effectively manage these diseases effective counseling is important. Asthma is a complex disease, caused by multi factors and characterized by chronic airway inflammation, mucous secretion, airway remodeling and airway obstruction, which is exacerbated by both genetic and environmental factors. [3]Approximately 300 million people globally are asthmatic, with 50% rise every decade. Two countries with most prevalence are The United Kingdom (>15%) and Newzealand (15.1%). In Pakistan, over six million people, are the victims of asthma. Pakistan's largest city Karachi constituting about 8-10% population, which suffers from chronic asthma and every 250th individual dies due to severe asthma exacerbations [4]. Diabetes is a metabolic disease characterized by elevated blood glucose level due to defects in either insulin secretion, insulin action or both. [5] It is the major leading cause of death in most of the countries. Pakistan is at 7th position among such countries with a burden of diabetes mellitus. And it will not take long to jump up to 4^{rth} position.[6]Hepatitis C infection is a contagious liver disease caused by the hepatitis C virus (HCV). The virus is endemic throughout the world and it currently infects an estimated 175 million people worldwide. The distribution of HCV infection shows greater geographic variation, with a higher prevalence in countries in East Asia, Latin

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America, the Mediterranean, and certain areas in Africa and Eastern Europe. [7]Tuberculosis is an infectious disease, caused by mycobacterium tuberculosis, and is a major threat to public health due to new epidemiological changes. [8]TB occurs in every part of the world. In 2012, the largest number of new TB cases occurred in Asia, accounting for 60% of new cases globally. However, sub-Saharan Africa carried the greatest proportion of new cases per population with over 255 cases per 100 000 population in 2012. In 2012, about 80% of reported TB cases occurred in 22 countries. Some countries are experiencing a major decline in cases, while cases are dropping very slowly in others. Brazil and China for example, are among the 22 countries that showed a sustained decline in TB cases over the past 20 years. In the last decade, the TB prevalence in Cambodia fell by almost 45%. [9]

Pseudo patient methodology includes a person, medical sociologist or anthropologist, who behaves as a patient, enters a medical setting and analyzes the treatment processes. Counseling quality can be evaluated through different techniques; pseudo patient methodology is the best way to evaluate it because it provides information that is otherwise not available. [10] The results proved the utility of visits of pseudo patients followed by feedback sessions, and were further used as a base to creating continuous education programs focused on counseling(and implemented the “pseudo- customer” methodology as a standard of evaluating community pharmacists as the Federal Chamber of Pharmacists did in Germany. [11]

This study has therefore been conducted to evaluate counseling quality of pharmacists and to compare the counseling knowledge of pharmacists and senior pharmacy technicians.

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METHODOLOGY

Study design: It was cross sectional, questionnaire based observational study utilizing pseudo patient methodology.

Sample size and sampling technique: People selected to be "pseudo patients" followed standard questionnaires, visited 35 pharmacies located at different areas of Lahore in 12 weeks and asked questions from counselor either pharmacist or senior pharmacy technician regarding asthma, diabetes mellitus, HCV infection and tuberculosis.

Data collection: Researchers filled questionnaires at the end of every visit to pharmacy. The questionnaires had questions according to guidelines of The National Asthma Education Prevention Program (asthma), American Diabetes Association (Diabetes), Handbook of Clinical drug data, A to Z drug facts and British National Formulary 64 (Hepatitis C), World health organization and National health services, UK (Tuberculosis).Data was collected from category A pharmacies (Lahore, Pakistan) and quality of counseling knowledge of pharmacists and senior pharmacy technicians was evaluated. Senior technicians are those who have passed Matriculation Examination (Secondary School Certificate Examination) with Science, from a Pakistani university or an equivalent examination of a Board of Intermediate and Secondary Education in Pakistan and Examination for Registration in Register "B"

Data analysis: Collected data was processed statistically to observe the differences among the counseling of the predefined criteria, using MICROSOFT WORD EXCEL. Monthly reports concerning the study progress were prepared and internally discussed. All calculations were

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performed using excel software. Different graphs were made regarding provision of services for all four diseases. Separate graphs were made to evaluate the parameters of counseling selected for each disease and to compare the knowledge of pharmacist and senior technician.

RESULTS AND DISCUSSION

During the study period, 35 pharmacies, randomly selected from different areas of Lahore, were evaluated by pseudo patient methodology regarding counseling practices on asthma, diabetes mellitus, hepatitis C and tuberculosis. While evaluating counseling quality for asthma, it was observed that pharmacists were present at 18 out of the 35 pharmacies (51%), all of them provided counseling on demand. On rest of the 17 pharmacies (49%) senior pharmacy technicians were present, who counseled only on request. Counseling of both pharmacists and senior pharmacy technicians was evaluated on different parameters where 83% of the counselors counseled effectively about importance of short acting medication as well as demonstrated well about use of inhaler and 80% of them had adequate knowledge about the purpose of medication. 74% of counselors guided about importance of triggers, 60% paid stress on adherence to the asthma action plan and only 23% of them counseled about side effects of medicines. Least counseled parameters were patient's knowledge about using inhalers (9%) and their triggers (3%). Then a comparison was made on quality of counseling between pharmacist and senior pharmacy technician. Upon this comparison, we found out that quality of counseling provided by pharmacist was much better as compared to that provided by senior pharmacy technician. The side effects of medicine and importance of adherence to action plan were well counseled by

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pharmacists. Purpose of medication, importance of use of short acting medicines and the demonstration of use of inhalers were those points about which both the senior pharmacy technician and pharmacist guided. In majority of the pharmacies, both the pharmacist as well as senior pharmacy technician did not ask patient about their asthma triggers and the use of inhaler.

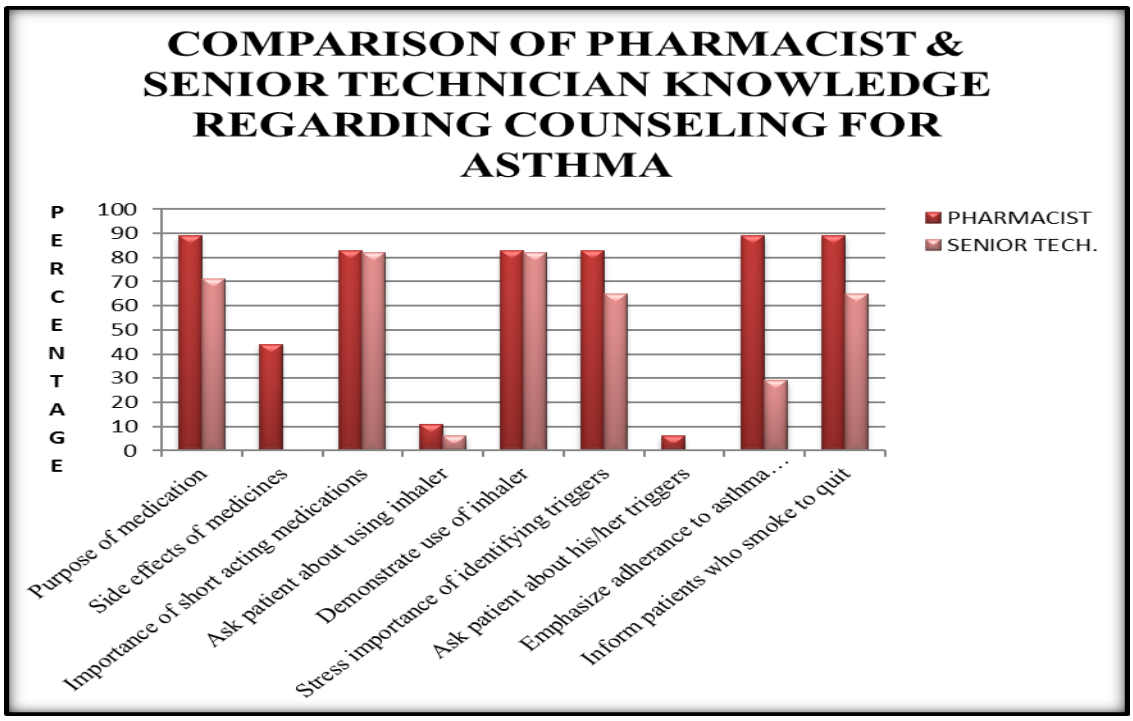

Figure 1: Comparison of pharmacist and senior technician knowledge regarding counseling of asthma

In case of diabetes mellitus it was observed that pharmacists were present at 19 (54%) of pharmacies, all of them provided counseling on demand, no one refused to counsel. On rest of 16 (46%) pharmacies senior pharmacy technicians were present and all counseled on request. Counseling of both pharmacists and senior pharmacy technicians was evaluated on different

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parameters where 97% of the counselors counseled effectively about insulin storage, 94% about syringe disposal and use of glucometer, 83% about site for injection, 80% about importance of glucometer, 74% about syringe reuse, 63% of the counselors guided about symptoms of hypoglycemia, pre-prandial, postprandial and blood pressure values. 57% of them provided information about time for injection, 49% about complications of diabetes and only 37% discussed about weight gain and steps to reduce it. Least counseled parameters were adverse drug reactions for insulin 29%, HBA1C 23%; value of HBA1C 14%, examination tests to be performed yearly 11% and every 3-6 months 9%. At the end we compared quality of counseling between pharmacist and senior pharmacy technician and it was observed that quality of counseling provided by pharmacist was much better as compared to that provided by senior pharmacy technician. Site and time for injection, syringe reuse, importance and use of glucometer, symptoms of hypoglycemia, pre-prandial, postprandial, blood pressure values and complications of diabetes mellitus were well counseled by pharmacists. Adverse drug reactions of insulin, weight gain and steps to reduce it, HBA1C and its value, tests to be performed yearly and every 3-6 months were not effectively counseled by both pharmacists and senior pharmacy technician, however percentages regarding counseling of these parameters provided by pharmacist were better than senior pharmacy technician's. Both pharmacist and senior pharmacy technician provided effective counseling about syringe disposal. However, only one parameter

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.e. insulin storage was well counseled by senior pharmacy technician rather than pharmacist.

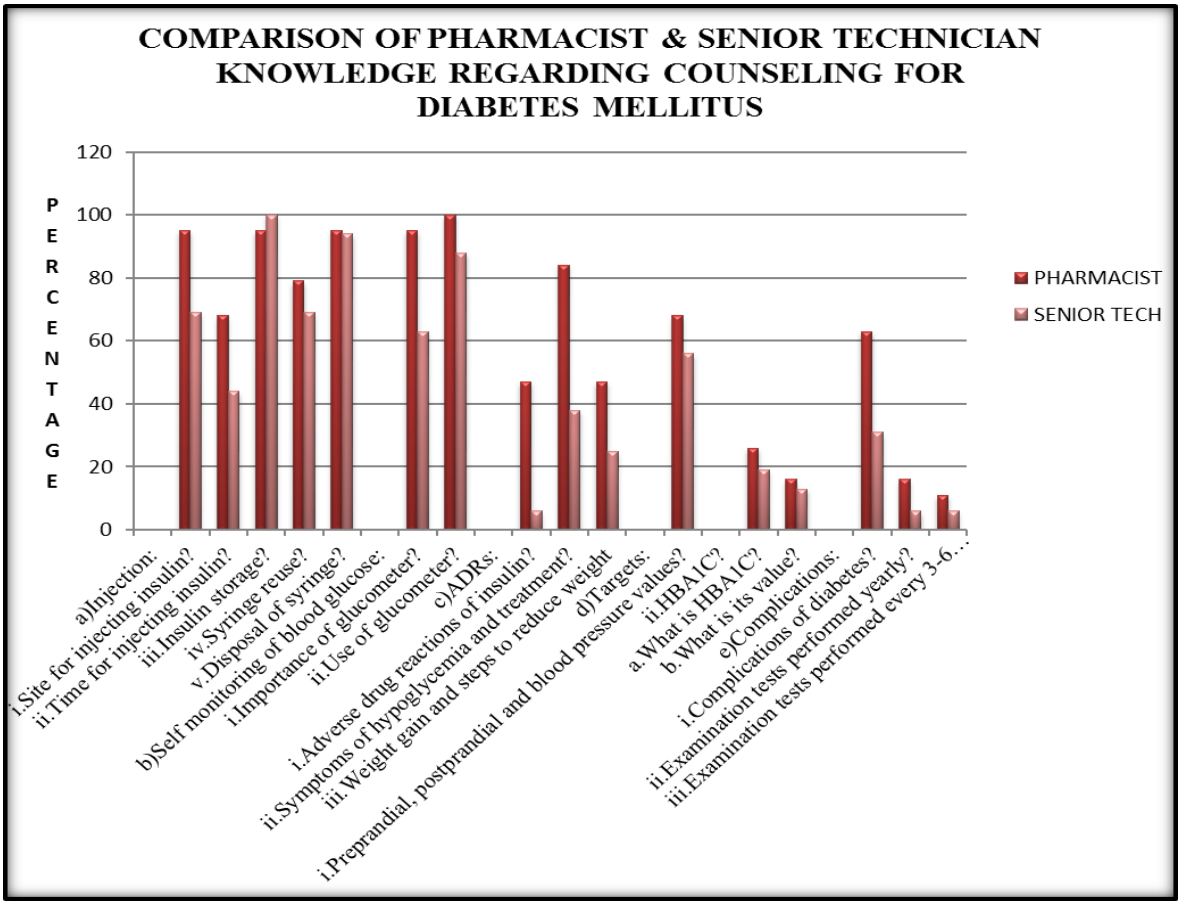

Figure 2: Comparison of pharmacist and senior technician knowledge regarding counseling for Diabetes Mellitus

In case of HCV infection, it was observed that pharmacists were present at 18 (51%) of the pharmacies, and all counseled on demand. On rest of 17(49%) pharmacies, senior pharmacy technicians were present, out of which 16 (94%) provided counseling on demand and 1(6%) refused to counsel on demand. Both pharmacists and senior pharmacy technicians had more knowledge about storage (83%), administration (71%), dose (63%), frequency (57%), prevention and control of HCV infection (46%). Least percentages were found in the area of counseling of

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contraindications (20%), side effects (23%) and allergy (31%). On comparing quality of counseling between pharmacist and senior technician, it was observed in our study that counseling provided by pharmacist was much better as compared to that provided by senior pharmacy technician. Pharmacist counseled well about dose, frequency, administration of antiviral therapy and storage of the medicine. Prevention and control, allergy, side effects and contraindications were rarely counseled by both pharmacists as well as senior pharmacy technician, however, pharmacist's percentages regarding counseling of these parameters were found to be greater than that of senior pharmacy technician's.

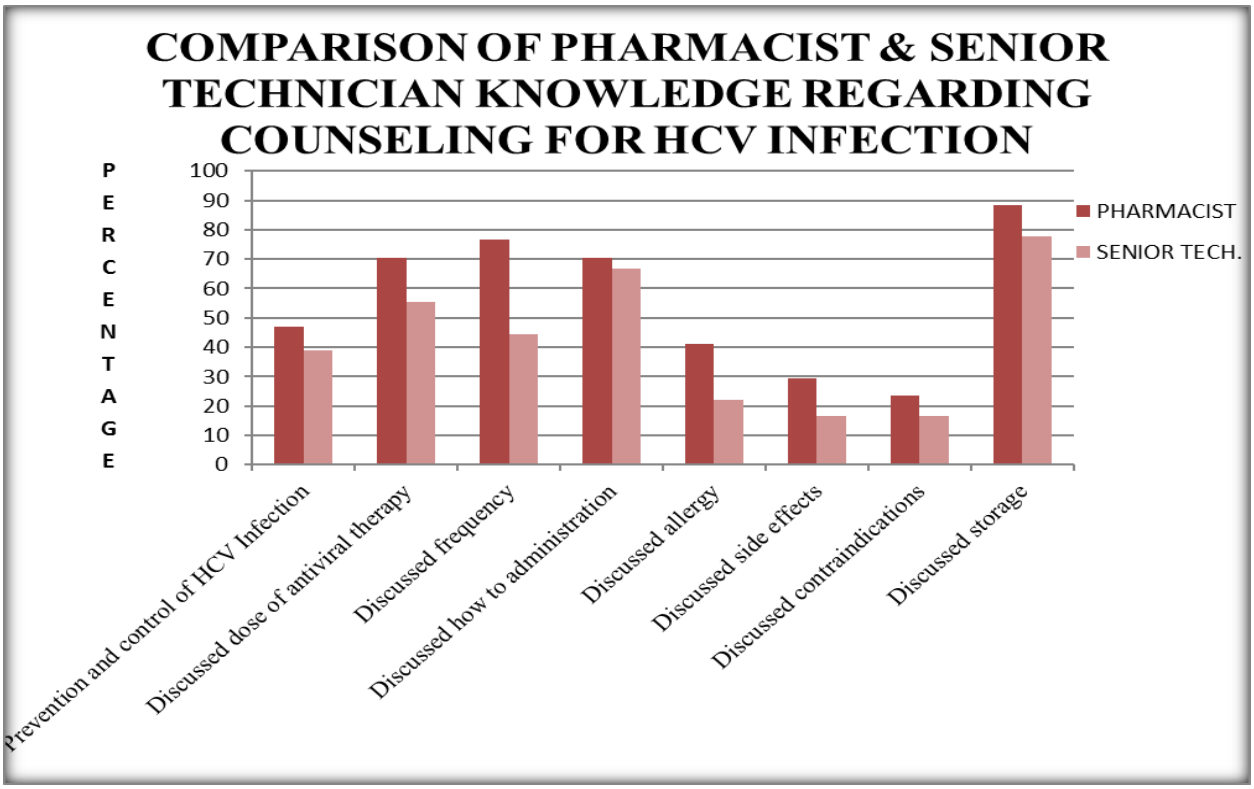

Figure 3: Comparison of pharmacist and senior technician knowledge regarding counseling for HCV-Infection

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In case of tuberculosis, it was observed that pharmacists were present at 18 (51%) of the pharmacies, and all counseled on demand. On rest of 17 (49%) pharmacies, senior pharmacy technicians were present, out of which 15(88.2%) provided counseling on demand and refusal was observed at 2(12%) of pharmacies . Counseling of both pharmacists and senior pharmacy technician was evaluated on different parameters where the counselors counseled effectively about dose, duration of therapy and prevention of disease spread (86% each). 66% and 60% were found in areas where they counseled about skipping of dose and covering their mouths respectively. Least percentages were found in the area of counseling of interactions 37%, adverse drug reactions 23% and complications 3%. On comparing quality of counseling between pharmacist and senior pharmacy technician, it was observed in our study that counseling provided by pharmacist was much better as compared to that provided by senior pharmacy technician. Counseling about necessary drugs to be taken, skipping of dose and prevention of the disease were well counseled by pharmacist, whereas time of drug and disposal of tissue were best counseled by senior pharmacy technician. Senior pharmacy technician had low knowledge regarding adverse drug reactions and interactions of drugs, and no response was seen when they were asked about multiple drug resistance and extensive drug resistance. However it should be noted here that the pharmacist's percentages of counseling regarding these parameters were also not enough to meet the needs of the patients.

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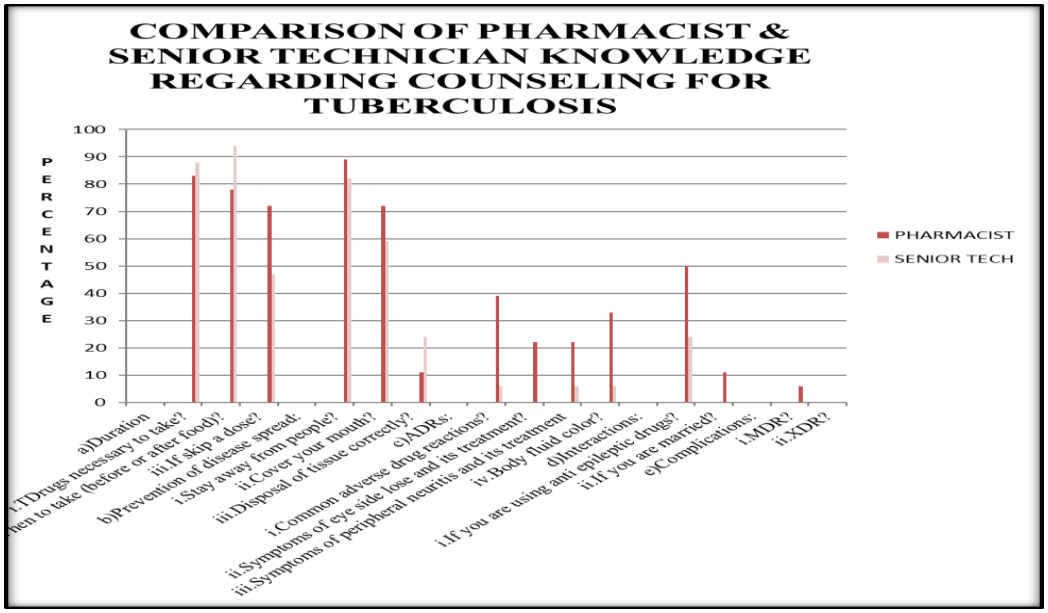

Figure 4: Comparison of pharmacist and senior technician knowledge regarding counseling for tuberculosis

The results clearly showed that quality of counseling was much better in pharmacies where pharmacists were present but the quality was not up to the mark; therefore there is need of continuing education programs regarding patient counseling to both pharmacists and pharmacy technicians.

CONCLUSION

This study reported some issues that had not been previously discussed. This qualitative study showed that pharmacists are not present at all of the pharmacies holding category A license. We targeted 35 pharmacies of different areas of Lahore and pharmacists are present at 52% of pharmacies. None of the pharmacists provided counseling as his professional role. All of them counseled on demand. Where pharmacists were not present, we asked questions regarding

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prescriptions from senior pharmacy technicians, 94% of them provided counseling on demand and 6% refused to counsel. Upon comparison of counseling quality between pharmacists and senior pharmacy technicians, we concluded that pharmacists have more knowledge of disease related questions than senior pharmacy technicians so presence of pharmacists should be ensured at all of the pharmacies. We also observed that pharmacist's knowledge regarding diseases is although better than senior pharmacy technician but it is not up to the mark and there is a need for their training.

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Appendix

Table 1: Parameters evaluated at community pharmacies

Parameters regarding provision of Services
Presence of pharmacist
Counseled by pharmacist or senior pharmacy technician
Counseling by will, on demand or refusal
Parameters evaluated for asthma
Purpose and side effects of medication
Importance of short acting medications
Ask patient about using inhaler and demonstrate
Stress importance of identifying triggers and ask about his/her triggers
Emphasize adherence to asthma action plan
Inform patients who smoke to quit

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Parameters evaluated for diabetes mellitus

Injection

Site and time for injecting insulin

Insulin storage

Syringe reuse and its disposal

Self monitoring of blood glucose

Importance of glucometer and its use

ADRs

Adverse drug reactions of insulin

Symptoms of hypoglycemia and treatment

Weight gain and steps to reduce weight

Targets

Preprandial, postprandial and blood pressure values

HBA1C and its value

Complications

Complications of diabetes

Examination tests performed yearly and every 3-6 months

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Parameters evaluated for hepatitis C Prevention and control of HCV Infection Discussed dose of antiviral therapy and frequency Discussed administration and storage Discussed allergy Discussed side effects and contraindications
Parameters evaluated for tuberculosis Duration When to take (before or after food) If skip a dose? Prevention of disease spread Stay away from people Cover your mouth Disposal of tissue correctly ADRs Common adverse drug reactions Symptoms of eye side lose and its treatment Symptoms of peripheral neuritis and its treatment Body fluid color

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Interactions

If you are using anti epileptic drugs

If you are married

Complications

MDR and XDR