YANGON UNIVERSITY OF ECONOMICS
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A STUDY ON KNOWLEDGE, ATTITUDE AND PRACTICE OF DRUG SELLERS IN SELECTED TOWNSHIPS OF EAST DISTRICT, YANGON REGION

MAY MYAT NOE SWE
MPA-13 (17th Batch)

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A thesis submitted as a partial fulfillment towards the requirement for the degree of Master of Public Administration (MPA)

Supervised by

Daw Marlar Thant
Lecturer
Department of Applied Economics
Yangon University of Economics

Submitted by

May Myat Noe Swe
Roll No. 13
MPA (17th Batch)

MAY, 2019

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This is to certify that this thesis entitled **"A Study on Knowledge, Attitude and Practice of Drug Sellers in Selected Townships of East District, Yangon Region"** submitted as a partial fulfillment towards the requirements for the degree of Master of Public Administration has been accepted by the Board of Examiners.

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   Yangon University of Economics (Examiner)

5. U Thein Naing
   Associate Professor
   Department of Applied Economics
   Yangon University of Economics (Examiner)

May, 2019

ABSTRACT

Drug sellers are often the very first and last connection between the medicine and the patient, so it is important that the drug sellers should have correct and appropriate knowledge and attitude on pharmacy practice in their pharmacies. This study aimed to determine the knowledge, attitude and practices of drug sellers. The survey was conducted in 168 drugs sellers from Pazuntaung, Tharkayta and Tamwe townships by simple random sampling. The drug sellers were interviewed with structured questionnaires and descriptive method is used in this study. The result showed that minority of the drug sellers (10.1%) had low knowledge and majority (89.9%) had high knowledge on pharmacy practice. Number of drug sellers with positive attitude is slightly higher than those with negative attitude, having 55.4% and 44.6% respectively. The result of high knowledge and attitude level is due to their high education status limitation in pharmacies which has minimum of passed high school to sell the drugs. On the other hand, 73.2% of drugs sellers had poor practice and only one fourth (26.8%) had good practice on pharmacy selling. The result of poor practice is due to the weak regulation and control system of pharmacy practice in Myanmar.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

BSc	Bachelor of Science
FDA	Food and Drug Administration
FIP	Federation International Pharmaceutics
GPP	Good Pharmacy Practices
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome
MOPH	Ministry of Public Health
MPF	Myanmar Pharmaceutical Factory
MSc	Master of Science
OOP	Out of Pocket
OTC	Over-the-counter
SOP	Standard Operation Procedure
TB	Tuberculosis
WHO	World Health Organization

CHAPTER I
INTRODUCTION

1.1 Rationale of the Study

Across the world, millions of people visit community pharmacies for their daily health care needs. Pharmacists are placed at the first point of contact in the healthcare system due to the easy accessibility of medicines through them. Patients counsel to community of pharmacists because they are most available and trusted healthcare providers. Therefore, safe medication procurement by patients is a global issue.

Pharmacy is the health profession that has the responsibility for ensuring the safe, effective and rational use of medicines. It plays a vital part in the delivery of health care world-wide. Therefore, it is clear that pharmacy has an important role to play in the health sector reform process. To do so, however, the role of the pharmacist needs to be redefined and reoriented.

In the last century, the pharmacy profession consisted of compounding and dispensing medicines. The role of the today's pharmacist needs to be expanded to include pharmaceutical care concepts, making the pharmacist into a healthcare professional rather than a shopkeeper in a commercial enterprise. In joint FIP/WHO guidelines on Good Pharmacy Practice, Good Pharmacy Practice is the practice of pharmacy that responds to the needs of the people who use the pharmacists' services to provide optimal, evidence-based care. The mission of a pharmacy practice is to provide medications and other health care products and services and to help people and society to make the best use of them.

Effective therapy with prescribed medicines requires a collaborative process that includes physicians and pharmacists. Possible errors about the medication can be detected and reduced by pharmacists' interventions. The pharmacist is often the last member of the health care team to see the patient, before the patient starts using the drug. Therefore, it is the pharmacist's responsibility to ensure the safe and appropriate use of the medication by the patient. In most countries, the function of prescribing

medicine is left to the doctors while dispensing of medicine is a task of the pharmacists. The drug sellers are consulted for health advice on problems of all kinds, and remedies are sold or dispensed with almost every transaction bypassing the doctors. Although some of the drugs are safe and effective when used correctly, others can be dangerous. Others are simply ineffective when used for wrong purpose. Therefore, it is very critical to consider the importance of drug selling without prescriptions.

Moreover, in 1992, the International Pharmaceutical Federation (FIP) presented standards for pharmacy practice under the heading Good Pharmacy Practice (GPP) in community pharmacies and hospitals' inpatient and outpatient pharmacies. GPP obligates all pharmacists to ensure that the provided services possess the proper quality. GPP guidelines have been prepared by World Health Organization (WHO) and FIP to encourage all countries to develop pharmacy practice minimum standards. However, GPP is poorly applied in community pharmacies not only in Asian countries, but even in United States and Europe. In Myanmar, GPP has not been applied yet in pharmacies. The pharmacy practice in the pharmacies were only under the control of National Drugs Law and Notification No. 6/93 announced by Ministry of Health.

Drug dispensing and drug selling in the community pharmacies is often overlooked by health planners in the development of appropriate health care system. It is often considered of least importance to diagnosis, procurement, inventory control and distribution. This oversight is unfortunate, because poor or uncontrolled drug dispensing or drug selling practices can have a detrimental impact on the patient and ultimately on the health care system.

In Myanmar, it can be observed that in almost all the drugstores, the drug sellers are the ones who give treatment recommendation, dispense the drugs and sell it to the customers. Since 2011, there were over 10,000 drug retail pharmacies in Myanmar. However, only (2983) pharmacists were produced from University of Pharmacy, Yangon and University of Pharmacy, Mandalay in 2014. According to WHO GPP guideline, pharmacist: population ratio was 1: 2000 populations. So the numbers of pharmacists were insufficient but also underutilized in basic community health care settings. The lack of human resources can lead to serious consequences in the quality of patient care.

It is not surprising that the pharmaceutical market differs substantially from other markets because pharmaceutical market is important for the public to get correct drug and dosage dispensing. Accordingly, drug sellers should have correct and wide knowledge in every kind of drugs and dispensing with standard facilities. Inappropriate use and over-use of medicines due to incorrect dispensing is a waste of resources often out of-pocket payments by patients. It also results in significant patient harm in terms of poor patient outcomes and in some cases, it can lead to death.

Due to insufficient skilled person in Myanmar, it is important to examine whether drug sellers have appropriate knowledge, attitude and practice or not. This study was therefore conducted to determine the knowledge, attitude and practice of the drug sellers in the selected townships of East District of Yangon Region. In this study, the East District of Yangon Region was chosen as the study area because the population density is high in that district and the pharmaceutical market is also increasing in that district.

1.2 Objective of the Study

The Objective of the study is to explore the level of knowledge, attitude and practice of drug sellers in selected townships of East District in Yangon.

1.3 Method of Study

The descriptive method is mainly used in this paper. The data, information, facts and figure used in this study are based on primary data and secondary data sources. To collect the primary data, the questionnaires are used to conduct survey in pharmacies of selected townships of East District of Yangon by simple random sampling.

1.4 Scope and Limitations of the Study

The study conducted in 168 randomly selected pharmacies out of population size of 300 registered pharmacies in Pazuntaung Township, Tharkayta Township and Tamwe Township which are of east district in Yangon. Three townships were selected from East District by simple random sampling. 56 pharmacies were then selected randomly from each township.

Inclusion criteria for pharmacies is that pharmacies are licensed and retailer pharmacies. Inclusion criteria for drug sellers is that drug sellers should be the one who directly transact with customers.

The survey does not conduct the shops or stores in which the drug is not its main selling good (e.g, betel selling shop) and pharmacies in public and private hospitals and clinics. This survey did not study the drug sellers who are under 18 years old.

1.5 Organization of the Study

The study is organized into five chapters. Chapter 1 deals with introduction part which includes rationale of the study, objectives of the study, method of the study, scope and limitations of the study and organization of the study. Chapter 2 prescribes literature review which shows the definition of Good Pharmacy Practice, pharmacy practice in developed and developing countries, the Quality Standards of Pharmacy, role of pharmacists and drug sellers in pharmacy practice, danger of irrational use of medicines, and review on previous studies. Chapter 3 overviews on the health care system in Myanmar which includes Healthcare Sector and Economy in Myanmar, Myanmar Traditional Healthcare System, National Health Policy and Legislations, Myanmar Pharmaceutical Market ,and Food and Drug Control Center. Chapter 4 is the survey analysis in knowledge, attitude and practice of drug sellers. Chapter 5 attempts to explain not only findings but also some recommendation for further considerations.

CHAPTER II
LITERATURE REVIEW

2.1 Good Pharmacy Practice

GPP is the practice of pharmacy that responds to the needs of the people who use the pharmacists' services to provide optimal, evidence-based care. GPP requires that a pharmacist's first concern in all settings is the welfare of patients. The core of pharmacy activity is to help patients make the best use of medicines.

Fundamental functions of pharmacists should include the supply of medication and other health-care products of assured quality, the provision of appropriate information and advice to the patient, administration of medication, when required, and the monitoring of the effects of medication use. An integral part of the pharmacist's contribution is the promotion of rational and economic prescribing, as well as dispensing to the public. The objective of each element of pharmacy service is relevant to the patient, is clearly defined and is effectively communicated to all those involved. There should be a multidisciplinary collaboration among health-care professionals which is the key factor for successfully improving patient safety. To support this practice, it is essential that there should be an established national framework of quality standards and guidelines. However, pharmacy practice is still varying from country to country.

2.2 Pharmacy Practice in Developed Countries and Developing Countries

In developed countries, Pharmacists are directly integrated into interprofessional medical teams. Pharmacist education, training, and professional practice models closely mirror those of physicians. Pharmacists optimize patient outcomes through a variety of channels, including: providing recommendations for evidence-based medication selection on patient care rounds; offering drug information to other health care providers and patients; monitoring therapeutic responses; and reconciling medications as patients transition across the continuum of care.

In 1992, Good Pharmacy Practice guideline in developing countries by International Pharmaceutical Federation (FIP) was intended to the pharmacist and others in developing countries. Most of the developing countries, there is likely to be significant difference between the health services available in urban and rural areas. Since, there are insufficient numbers of pharmacist; there is a real need and role of health support personnel, such as pharmacy technicians. In developed countries, those people would probably work only under the direct supervision of pharmacists. In developing countries, in most cases they work alone, without any meaningful supervision. They may have duties and responsibilities which are inappropriate to their level of training. (Linda Stone, 2007)

2.2.1 Pharmacy Practice in Europe

Ultimately, European education and legislation supporting pharmacy practice has led to advancements in community, hospital, industry, and research settings. In countries with well-established health care systems such as the UK, France, and Switzerland, community pharmacists play an increasingly important role in providing accessible primary care. Pharmacists are also trained to evaluate vital signs, educate on therapeutic lifestyle modifications, and provide special counseling on smoking cessation and contraceptives. In all community pharmacies, the responsibility of pharmacists checking physician orders and correctly dispensing medications is standard practice.

In UK, OTC and Pharmacist's list medications require different level of pharmacist interaction before sale the product. Similarly, community pharmacists in France are able to spend extensive amounts of time counseling on medications due to the unique aspect that medications in France are packaged and dispensed as unit dose, which eliminates the manual dispensing and double checking by pharmacists. France's strict pharmacy to population ratio and shortage of primary care providers also creates and opportune environment for pharmacists to devote time to clinical services. The intensive practical and clinical training of pharmacists in both UK and France are effectively applied in community setting due to well-structured reimbursement systems and the national shortage of primary care. In Switzerland, specialized pharmacy practice takes place mostly in hospital settings where pharmacists work as members of multidisciplinary teams to care for patients.

In the UK, France, and Switzerland, specialty pharmacists often work directly with physicians and are under institutional protocols that allow them to independently assess and manage patients with specific diseases. Currently in both community and hospital settings, pharmacists are required to contact the prescribing physician in order to approve clinical recommendations or changes to a prescription; however, specialty pharmacists in the UK are able to obtain independent prescribing rights through additional training and secondary prescribing rights in order to write prescriptions for previous diagnose made by the physician. (Hwang, 2014)

2.2.2 Pharmacy Practice in China

In 2009, China launched a new healthcare system, with reform of the primary healthcare system as its foundation and focus, to enable residents to access primary healthcare for simple health problems instead of seeking help at hospitals. Community pharmacies and pharmacists were to have increased responsibility in primary healthcare by delivering pharmaceutical care services in China in addition to their traditional roles of dispensing prescriptions and selling medicines. China community pharmacies have emerged as a source of primary healthcare. The disparity between urban and rural areas and between different regions has increased, and healthcare expenditure has grown. As a result, the healthcare reform plan highlighted the responsibilities of community pharmacies and pharmacists in providing primary healthcare.

There is a shortage of qualified pharmacists to meet increasing patient needs. Shortage of pharmacist training has resulted in pharmaceutical care being a low priority for delivery in routine pharmacy practice. To meet the increasing demand for pharmacists, 25 universities have been allowed to offer BS, MS, and PhD degrees (3-7 years in length) in clinical pharmacy since 2008. The adoption of Good Pharmacy Practice as a recommended standard for community pharmacy practice provides pharmacists with a framework to aid them in service delivery. (Fang, 2013)

2.2.3 Pharmacy Practice in Thailand

In 2001, 15,507 pharmacists were registered with Thailand's Pharmacy Council, all of whom were practicing in modern medicine settings. At that time, the pharmacist: population ratio was 1: 4,004. The Thai FDA and the Pharmacy Council of Thailand, appointed by MOPH, regulate all areas of pharmacy practice. Today,

nine communities of pharmacy practice (under management of The Association of Hospital Pharmacy, Thailand) plus one community in Asia Pacific (Asia Pacific Oncology Pharmacy Society or APOPS) have been established. While decision-making in terms of medical therapy remained the responsibility of physicians, pharmacists in the healthcare team were responsible for appropriate care and use of medications. Nowadays, pharmacists took on additional roles in the management of chronic diseases in the community, prevention in diseases and complications, smoking cessation program and family pharmacy program.

The Principal problem in Thailand for implementation of these new responsibilities is the limited number of pharmacists with relevant experience in pharmacy practice. Despite increased numbers of pharmacy graduates in the last decade, the pharmacist to population ratio in Thailand remains low at four pharmacists for every 10,000 people. This low number of pharmacists means that most of the pharmacy practice in Thailand can only be carried out by pharmacists from large hospitals. Pharmacists in smaller community hospitals have limited time for responsibilities beyond drug distribution and consumer protection for local people. Similarly, most community pharmacies in Thailand are run by a single owner, which makes it difficult for them to provide services to patients beyond the dispensing area.

Pharmacy practice in Thailand has diversified into a number of specialist roles recently; there are still limited numbers of qualified personnel to till these roles. It is up to the relevant authorities, schools of pharmacy and the national pool of practicing pharmacists to cooperate to increase the number of pharmacy graduates with specialized training and provide the Thai people with the best pharmaceutical care available. (Jaisue, 2015)

2.2.4 Pharmacy Practice in Indonesia

In 1995, out of the 7,802 registered pharmacists in Indonesia, 43 percent (3,327) worked in community pharmacy, 10 percent (781) in hospitals and 11 percent (876) in industry. The remainder was employed in academia and in the food and drugs administration (ministry of health). This means a ratio of only one pharmacist per 25,634 people (compared with one pharmacist per 1,730 people in Britain in 1995). The situation is further compounded by overwhelming concentration of pharmacies and pharmacists in the cities. The current situation in pharmacy education and practice is similar to that in Britain in the 1960s when traditional compounding roles

were being superseded by industry. There is still a lot of extemporaneous dispensing. Many community pharmacists, because of their very poor salaries, have to take on two jobs or more. This means that it is unusual to find a pharmacist in the pharmacy shop. (Tang, 2000)

2.3 The Quality Standards of Pharmacy

The pharmacy is played as an important part of public health care system. The pharmacist, pharmacy staff, premises and merchandise reflect and support a professional health care and healthy living environment. The pharmacy gives the public a clear impression that free and confidential health and well-being advice, information and services are readily available.

2.3.1 Premises

The pharmacy complies with all the essential and appropriate desirable standards for registered pharmacy premises are the followings;

(1) Windows reflect a professional image
(2) Front shop area is maintained in a good state of repair and decoration
(3) Stock is effectively managed
(4) Appropriate area for counseling patients
(5) The name (s) of pharmacist (s) who is (are) on duty or their registration certificates, are displayed in the professional area.

Health promotion area is a publicly available area for engaging with patients and delivering public health information. Private consultation area is accessible for private and confidential conservations. The pharmacy promotes messages that support the delivery of public health goals for prevention, self-medication and harm reduction by stocking appropriate products according to national drug laws and health policy.

2.3.2 Pharmacy Staff

Pharmacy staff embraces the healthy living ethos through their training, attitude and competence. All staffs must understand the concepts of health and well-being, the public health needs in their area and impaction the health and health related choices. In recognizing the need for quality and diversity, all staffs are friendly welcoming and sensitive to the need for privacy for different individual seeking advice and health services. The pharmacist and other sell staffs must complete the

health education training. A training programme is in place to train new staff and provide refresher training to existing staffs as needed. Pharmacists should build on existing partnerships and develop new links with other health/community. All staffs must understand and proactively explain the services available in the pharmacy for health and well-being, as appropriate. The pharmacy team is an integral part of local public health delivery and engages with the local Good Pharmacy Practices (GPP), the wider health and social care team and community. Pharmacy should be a Standard Operating Procedure (SOP).

2.4 Role of Pharmacists and Drug Sellers in Pharmacy Practice

The role of pharmacist in the community pharmacy needs to be expanded to include pharmaceutical care concepts, making the pharmacist into a healthcare professional rather than a shopkeeper in a commercial enterprise.

Pharmacists and their assistants have the important function of ensuring that patients understand how their medicines should be taken. It is important that pharmacists reinforce the advice necessary for the proper use of medicines.

The pharmacist is an adviser on everyday health care of public and is a key person in the supply and delivery of medicines to the consumer. People are increasingly managing a large proportion of their ailments without consulting either a doctor or pharmacist. Thus, pharmacists or drug sellers who are the last person to meet the patient in healthcare have to play a key role in helping to make informed medication choices. The pharmacist is no longer just a supplier and a concocter of medicines, but also a team member for the provision of health care whether in the hospital, community pharmacy, the laboratory, the industry or in academic institutions. Pharmaceutical care is growing in importance with the challenge of self-medication. The pharmacist has a greater responsibility to their customers and increased need for accountability for self-medication.

The pharmacist should initiate dialogue with the patient to get an adequately detailed medication history. The pharmacist must support objective information about medicines and able to operate and translate additional sources of information to satisfy the needs of patient. The pharmacist as a drug supplier ensures that the products acquired by patients are from reputable sources and goal quality. The pharmacist must take care of the proper storage of these products.

To give up-to-date service, the pharmacist must be encouraged to participate in continuing professional development activities such as continuing education. The pharmacist must develop to achieve protocols for referral to the pharmacist and protocols for community health workers involved with the handling and distribution of medicines. The pharmacist must also endorse the training and manage the work of non-pharmacist staff. Pharmacists must develop quality collaborative relationships with other healthcare professionals, national professional associations, the pharmaceutical industry, government (Local/national) and patient and the general public. Then, pharmacist will get the resources and expertise, and to share data and experiences, in order to improve proper medication of patients, will be enhanced. Moreover, pharmacist must provide advice to individual to help make informed health choice.

2.5 Danger of Irrational Use of Medicines

It is estimated that 60% of medicines in public health facilities and 70% of medicines in private facilities (pharmacies) were prescribed and sold inappropriately in developing countries, which leads to the decrease in safety and quality of healthcare as well as enormous wastage of health resources. Moreover, about one-third of the world's population lacks access to essential medicines.

Common types of irrational medicine use are (1) the use of too many medicines per patient (poly-pharmacy),(2) inappropriate use of antimicrobials, often in inadequate dosage, for non-bacterial infections; (3) over-use of injections when oral formulations would be more appropriate;(4) failure to prescribe in accordance with clinical guidelines; (5) inappropriate self-medication, often of prescription only medicines. Lack of access to medicines and inappropriate doses result in serious morbidity and mortality, particularly for childhood infections and chronic diseases, such as hypertension, diabetes, epilepsy and mental disorders.

Inappropriate use and over-use of medicines waste resources often out-of-pocket payments by patients and result in significant patient harm in terms of poor patient outcomes and adverse drug reactions. Furthermore, over-use of antimicrobials is leading to increased antimicrobial resistance and non-sterile injections to the transmission of hepatitis, HIV/AIDS and other blood-borne diseases. Finally, irrational over-use of medicines can stimulate inappropriate patient demand, and lead to reduced access and attendance rates due to medicine stock-outs and loss of patient confidence in the health system.

To promote rational use of medicine, there are twelve core interventions by WHO that are (1) A mandated multi-disciplinary national body to coordinate medicine use policies (2) Clinical guidelines (3) Essential medicines list based on treatments of choice (4) Drugs and therapeutics committees in districts and hospitals (5) Problem-based pharmacotherapy training in undergraduate curricula (6) Continuing in-service medical education as a licensure requirement (7) Supervision, audit and feedback (8) Independent information on medicines (9) Public education about medicines (10) Avoidance of perverse financial incentives (11) Appropriate and enforced regulation (12) Sufficient government expenditure to ensure availability of medicines and staff. (WHO, 2002)

2.6 Review on Previous Studies

A study done in Sri Lanka by (Rajakaruna, 2006) entitled "The role of private drug vendors as malaria treatment providers in selected malaria endemic areas of Sri Lanka" found out that vendors' knowledge on antimalarial was poor with 58% of the vendors being unaware of the government malaria drug policy in the country. Also, the advice provided to customers buying antimalarial was limited. The reduction in demand for antimalarial due to low incidence levels might have influenced the knowledge and awareness on antimalarial and government drug policies

(Poe Poe Aung, 2010) described the availability and use of anti-TB drugs among drug shops: knowledge about TB: dispensing anti-TB drugs and opinion on involving TB control activities of drug sellers. By identification of anti-TB drugs by using checklist, validation of dispensing practice of drug sellers by mystery clients and 4 focus group discussions were conducted. About 59% of drug shops had first line drugs and the rest had second line drugs. About 79.4% had low knowledge on sign and symptoms of TB (mean knowledge score = 13.8 for 33 items) and 97.9% had low knowledge on anti-TB treatment (mean knowledge score = 3.8 for 21 items).

Another study (Hanafi et al., 2013) was undertaken to evaluate the knowledge, attitude and practice of the community pharmacists in Iran, regarding GPP. The most important finding in this study was the pharmacists' low knowledge and practice level about GPP, while their attitude towards this subject was at a high level. Increase in their knowledge of good pharmacy practice aligned with an increase in their attitudes towards this issue. Also increase in pharmacists' knowledge and attitude aligned with an increase in quality of their practice.

A study done in South Okkalapa and Kyeemyindaing Townships, Myanmar by (Khin Hnin Pwint, 2016) was entitled “perception and practice of drug sellers on antibiotics sale without prescription”. This study highlighted over-the-counter availability of antibiotics in Yangon Region and insufficient knowledge and malpractice of drug sellers on antibiotics sale.

Another study in Myanmar (Win Lae Phyu, 2016) aimed to determine the knowledge, attitude and pharmacy practice of the drug sellers in selected townships of Nay Pyi Taw Union Territory. In this study, the urban drug sellers had statistically significantly higher knowledge and attitude on pharmacy practice than the rural drug sellers. However, both areas had poor knowledge on control drug selling license, prescription only medicine selling and drug storage condition. In conclusion of this study, it was mentioned that there is a great need for pharmacy related trainings to the drug sellers in the field on pharmacy practice and other related pharmacy training, especially in rural pharmacies.

CHAPTER III
HEALTH CARE SYSTEM IN MYANMAR

3.1 Healthcare Sector and Economy in Myanmar

The Ministry of Health and Sport has a clear role to play in the health sector, even in the most privatized systems that include issues of equity, efficiency, quality and cost control. There is a growing global awareness that when a national health system aims for universal health coverage, the responsibility for service delivery may have to be shared between the public and private sectors. Any public sector could be required to deliver services on a reasonably large scale to provide counterpoise to the private sector and to ensure services for the poor and underserved. Myanmar healthcare system evolves with changing political and administrative system and relative roles played by the key providers. It has a pluralistic mix of public and private system both in the financing and provision. Healthcare is organized and provided by public and private providers.

When Myanmar's economy is growing, one of the areas that have seen a major overhaul is the healthcare industry. The new government has increased healthcare's budget. However, the government spending on healthcare is still one of the lowest in the ASEAN region with a total budget of 3.9% which is approximately $450 million USD of the government's budget in 2013 in comparison to 1.9% in 2012 (Health in Myanmar 2014). The healthcare sector in Myanmar invites foreign investments with 70% of foreign ownership now being allowed in clinics and hospitals. Healthcare spending in Myanmar is primarily being paid for by out of pocket (OOP) cost by the general public. According to the World Bank for 2012, OOP payments accounted for 92.7% of the total healthcare expenditures.

In implementing the objective of uplifting the health status of the entire nation, the Ministry of Health is taking the responsibility of providing the comprehensive healthcare services covering activities for promoting health, preventing diseases, providing effective treatment and rehabilitation to raise the health status of the population. The department of health, one of the seven departments under the Ministry of Health, plays a major role in providing comprehensive healthcare

throughout the country including remote and hard to reach border areas. Besides Ministry of Health, some ministries such as Defense, Railways, Mines, Industry, Energy, Home and Transport are also providing healthcare mainly curative for their employee, and their families. Ministry of Labor has set up three general hospitals, two in Yangon and the other in Mandalay to render services to those entitled under the social security scheme. Moreover, Ministry of Industry is running the Myanmar Pharmaceutical Factory (MPF) to manufacture medicines and other therapeutic agents for domestic needs of the country.

The private sector for profit is providing ambulatory care through some providing institutional care has developed in Nay Pyi Taw, Yangon, Mandalay and some largest cities. They are regulated in conformity with provisions of Myanmar Medical Council Law. General practitioners' sector of the Myanmar Medical Council Association and its branches in townships also provide these practitioners the opportunities to update and exchange their knowledge and experiences by holding seminars and symposia on currently emerging issues and updated diagnostic and therapeutic measures.

Private hospitals and specialist clinics have become a popular alternative venue for seeking immediate medical treatment. Private hospitals generally have better, more modern facilities than the government counterparts. Many Myanmar middle to lower class people mainly choose the small private polyclinic and pharmacies for minor ailments and surgeries. These pharmacies and polyclinics become the frontline of medical care throughout Myanmar.

3.2 National Health Policy and Legislations

3.2.1 National Health Policy

The national health policy was developed with the initiation and guidance of National Health Committee in 1993. The National Health Policy has placed the health for all goal as a prime objective using primary health care approach. The National Health Policy is designated as follows;

1. To raise the level of health of the country and promote the physical and mental well-being of the people with the objective of achieving "Health for All" goal, using primary healthcare approach.
2. To follow the guidelines of the population policy formulated in the country.

3. To produce sufficient as well as efficient resources for health locally in the context of board frame work of long-term health development plan.
4. To strictly abide by the rule and regulations mentioned in the drug laws and by laws which are promulgated in the country.
5. To augment the role of co-operatives, joint ventures, private sectors and non-governmental organizations in delivering of healthcare in view of the changing economic system.
6. To explore and develop alternative healthcare financing system.
7. To implement health activities in close collaboration and also in an integrated manner with related ministries.
8. To promulgate new rules and regulations in accordance with the prevailing health and health related conditions as and when necessary.
9. To intensify and expand environmental health activities including prevention and control of air and water pollution.
10. To promote national physical fitness through the expansion of sports and physical education activities by encouraging community participation supporting outstanding athletes and reviving traditional sports.
11. To encourage conduct of medical research activities not only on prevailing health problems but also giving due attention in conducting health system research.
12. To expand health service activities not only to rural but also to border areas so as to meet the overall health needs of the country.
13. To foresee any emerging health problem that posed a threat to the health and well-being of the people of Myanmar, so that preventive and curative measures can be initiated.
14. To reinforce the service and research activities of indigenous medicine to international level and to involve in community's healthcare activities.
15. To strengthen collaboration with other countries for national health development

3.2.2 Legislations

Legal provision for the investment of public health is accomplished through enacting the following health related laws. The following Laws reflected on public health and pharmaceutical field.

1. **Public Health Law (1972):** It is concerned with protection of people's health by controlling the quality and cleanliness of foods, drugs, environmental sanitation, epidemic diseases and regulation of private clinics.
2. **National Drug Law (1992)**: It is enacted to ensure access the people safe and efficacious drugs. Requirement for licensing in relation to manufacturing, storage, distribution and sales of drugs are also described. It includes provisions on formation and authorization of Myanmar Food and Drug Board of Authority.
3. **Traditional Drug Law (1996)**: It is concerned with labeling, licensing and advertisement of traditional drugs to promote traditional medicine and drugs. It also aims to enable public to consume genuine quality, safe and efficacious drugs. The law also deals with registration and control of traditional drugs and formation of Board of Authority and its functions.

3.3 Myanmar Pharmaceutical Market

The country holds a few local pharmaceutical production units as the domestic industrial production for all the sectors is in its nascent stages. In sharp contrast, there are 100 odd distributors of foreign drug companies, importing over 5000 kind of allopathic formulations. Inevitably local demand for medicines & health supplements is fed by imports. For the country's population of 57 million, per capita expenditure on medical needs is low and access to medical care is difficult in rural/village areas where people have to travel long distances to get treatment and medicines. According to the World Health Organization, 93% of all medical expenses are given by patients themselves since government cover and health insurance have yet to be initiated. Unlike other countries where pharmacies, drug stores and medicine shops are seen around every corner, the number of such medicine outlets in Myanmar is very small. It is customary for all doctors, clinics, polyclinics and hospitals to provide medicines, and they have their own sources of procurement from a network of preferred distributors. Over 60% of drug sales take place in the two big cities, Yangon and Mandalay.

Myanmar has a significant growth in the pharmaceutical market started from the last decade, worth of US$ 160 m in 2010 to US$ 344 m in 2016 and the total pharmaceutical expenditure has been increasing at 11-12% per annum according to "the Trading Economics". The pharmaceutical market in Myanmar is mainly depend

on the foreign imported medicines and drugs as Myanmar's domestic pharmaceutical industry is still small. Most of the pharmaceutical products and drugs are mainly imported from other countries like India, Bangladesh, China, Indonesia, Pakistan, Thailand and Vietnam. The total pharmaceutical imports accounted for 85% of the drug market and India takes the lead with 40-45% of the market share. All imported drugs have to be registered and authorized by the FDA that inspects pharmaceutical plants and importers and also tests the quality of drugs. At present, approximately 5000 drug varieties are imported into Myanmar. Major shares of therapy wise segments in Myanmar are anti-infective, vitamins, and analgesics, with the market share of 27%, 31%, and 13% respectively.

Despite the small size of Myanmar's pharmaceutical market, Myanmar offers the pharmaceutical companies or drug-makers strong revenue-earning opportunities. Generic and over-the-counter drug companies in particular stand to benefit, as the population's per capita expenditure on pharmaceuticals and healthcare remains low but set to rise.

3.3.1 The Myanmar Traditional Healthcare System

Traditional medicine comprises all non-Western or modern medical (Allopathic) knowledge, skills and practices used in the maintenance of health and in the prevention, diagnosis, improvement or treatment of physical and mental illness. Traditional healthcare system is based on theories, beliefs and experiences indigenous to different cultures, whether or not they are explicable in modern "scientific" terms. The Myanmar healthcare system still offers traditional herbal medicines along with allopathic medicines. Traditional medicines have been in existence since time immemorial and except for this warning period during colonial administrative when allopathic medical practices have been introduced and flourishing. There is a total of 14 traditional hospitals, run by the state in the country. Traditional medical practitioners are trained at the University of Traditional Medicines conferring the Bachelor degree more competent practitioners can now be trained and utilized. As in the allopathic medicines, there are quite a number of private traditional practitioners and they are licensed and regulated in accordance with the provision of related laws.

3.3.2 List of Registered Pharmacies in Yangon

According to the statistical report, food and drug administration (FDA) department, Ministry of Health and Sport Yangon, 2016, there are 4622 registered pharmacies in Yangon region. The number of register pharmacies was shown in Table

Table (3.1) List of Registered Pharmacies in Yangon

No	District	Number of Registered pharmacies
1	Yangon East District	2156
2	Yangon West District	1214
3	Yangon South District	308
4	Yangon North District	944
Total		4622

Source: Statistical report, Food and drug administration department, Ministry of Health and Sport, Yangon, 2016

There were 2156 registered pharmacies in Yangon East District, 1214 in Yangon West District, 308 in Yangon South District and 944 in Yangon North District. Yangon East District comprises 14 townships. Selected townships of Tharkayta, Pazuntaung and Tamwe located in Yangon East District. According to statistical report, FDA department, total of registered pharmacies in three townships was 300 pharmacies.

3.4 Food and Drug Control Center

The Food and Drug Administration (FDA) was established in 1995 as one of the divisions under the Department of Health and Sports. FDA Headquarter is located in Nay Pyi Taw, the capital city of Myanmar, with major five divisions: Administrative division, Drug Control division, Food Control division, Cosmetic and Medical Device Control division and Laboratory division while preexisting Yangon and Mandalay branches acting are still as major branches, control activities have greatly expanded with the establishment of new FDA branches in other Regions and State. The Myanmar Food and Drug Board of Authority is formed with the following aims.

i. To enable the public to use genuine quality, safe and effective drugs
ii. To register drugs systematically

iii. To enable the public to consume genuine quality and safe food
iv. To control and regulate systematically manufacture, import, export, storage, distribution and sale of food and drugs.

Functions of FDA include controlling the safety and quality of food, drugs, medical devices and cosmetics issued in the country. FDA is also responsible for issuing GMP certificate for local food manufacturing businesses, import and export recommendation, import and export health certification. Drug control activities of FDA include marketing authorization for new product, variation of existing authorization, quality control laboratory testing, adverse drug reaction monitoring, Good Manufacturing Practice inspection and licensing of manufacturers, wholesalers, enforcement activities, drug promotion and advertisements. FDA issues notification and import recommendation of medical devices and notification of cosmetics. FDA connects and works with the Custom Department, the Directorate of Trade and the Myanmar Police Force.

CHAPTER IV
SURVEY ANALYSIS

4.1 Survey Profile

Yangon Region has four districts, namely East, West, North and South. East District of Yangon Region was selected purposively. The east district contains 14 townships. Three townships were then selected from East District by simple random sampling. The study population was the drug sellers of the pharmacies in three townships. Total population of pharmacies is about 300 pharmacies. Then, total sample size of 168 was calculated. Fifty six pharmacies were selected randomly from each of Pazuntaung Township, Tharkayta Township and Tamwe Township. One drug seller was selected from each pharmacy. If there were two or more drug sellers in a pharmacy during the visit, most experienced drug seller was chosen.

4.2 Survey Design

The study design was a descriptive study designed to access the knowledge, attitude and practice of drug sellers towards pharmacy practice in selected townships of East District in Yangon.

These data collection of the survey is mainly by using structured questionnaire and checklists. The survey of Sociodemographic characteristics of the drug seller and background characteristics of the pharmacies contains 19 questions. For assessment of knowledge, attitude and practice towards pharmacy practice, 54 knowledge questions, 18 attitude questions and 19 checklist items were used respectively.

4.3 Survey Results

4.3.1 Socio-demographic Characteristics of the Drug Sellers

In this study, the age and gender distribution, educational status, working experience, source of drug selling experiences and owner status of the drug sellers were included in the socio-demographic characteristics of the drug sellers.

Table (4.1) Socio-demographic Characteristics of the Drug Sellers

Socio-demographic Characteristics	Frequency	Percentage
Age Groups (years)		
18-25	20	12
26-35	40	24
36-45	83	49
46-60	25	15
Gender		
Male	32	19
Female	136	81
Education Status		
Passed High School	28	16
Graduated	140	83
Working Experience(years)		
0-5	23	14
6-10	35	21
11-15	55	33
16-20	35	21
21-25	20	12
Source of Drug Selling Experience		
Being a nurse	5	3
Being a pharmacist	5	3
Private pharmacy training	54	32.1
Previous experience from other pharmacy	104	61.9
Owner Status		
Owner	128	76.2
Not Owner	40	23.8

Source: Survey Data (2019)

According to table (4.1), drug sellers aged between 36-45 years were most likely to work in the pharmacy which are of (49%) in total population size. The youngest age group of 18-25 is 12% and the working age group of 26-35 occupied 24% of total. Only 15% of the drug sellers are in the age group of 46-60. 81% of the drug sellers were female and 19% were male. All of the drug sellers had the minimum educational level of having passed high school (16%). Among them, majority (83.3%) were graduated.

As regards working experience of the drug sellers, the minimum working experience of the drug sellers was 1 year and the maximum working experience of the drug sellers was 25 years. Among them, one third (33%) of the drug sellers have working experience of between 11-15 years and 12% of drug sellers have the experience between 21-25 years.

Minority of the drug sellers were from medical professions as pharmacists or nurses, each occupying 3% of the study population. Therefore, 6% of the drug sellers had their drug selling experience from their medical professionals as pharmacists or nurses. Nearly two thirds of the drug sellers (61.9%) got the drug selling experience from working in previous pharmacies and one third of them (32.1%) attended the private pharmacy training course to get the drug selling experience. (76.2%) of the respondents themselves in this study were the owners of the pharmacies and the rest (23.8%) were not the owners.

4.3.2 Background Characteristics of the Pharmacies

Background characteristics of the pharmacies in this study included the years of establishment and opening hours of the pharmacies, presence of pharmacist, BP measuring, blood glucose measuring, refrigerator utilization, air-con utilization, control drug selling license application, average daily number of customers of the pharmacies and drugs sold in the pharmacies.

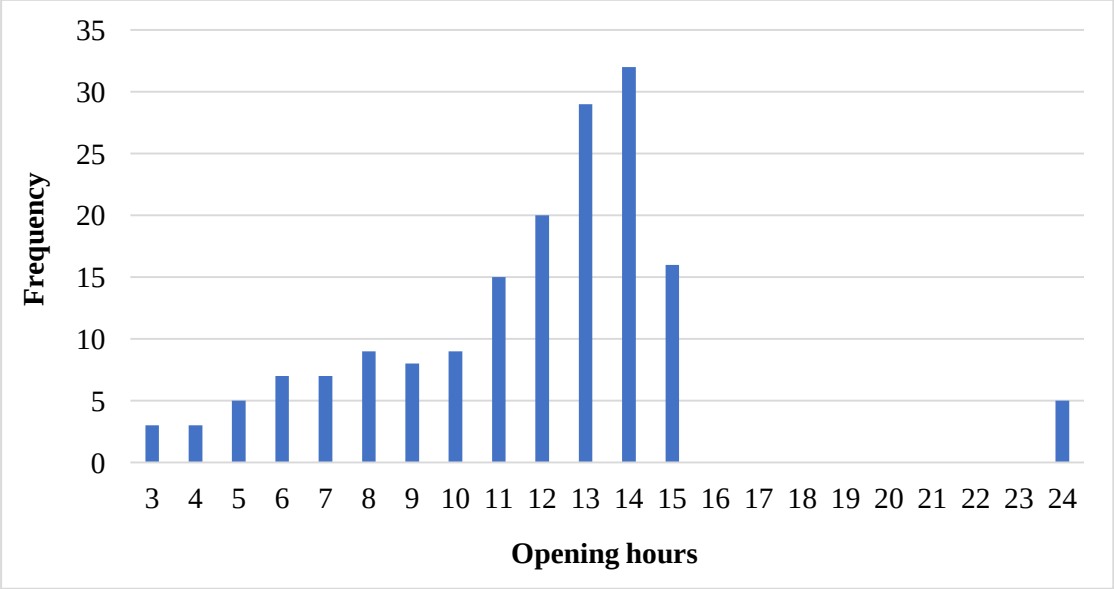
Table (4.2) Years of Establishment of the Pharmacies

Years of Establishment of Pharmacies (Year)	Frequency	Percentage (%)
Less than 1	32	19
2-10	84	50
11-20	43	26
More than 20	9	5
Total	**168**	**100**

Source: Survey Data (2019)

The figure above showed the years of establishment of the pharmacies. The minimum years of establishment was 6 months and the maximum years of establishment was 22 years. The mean years of establishment of the pharmacies was 6.89 years.

Figure (4.1) Opening Hours of the Pharmacies



Source: Survey Data (2019)

Figure (4.1) showed the opening hours of the pharmacies. The majority of the pharmacies (99.97%) had the range of opening hours from 3 to 15 hours while very few pharmacies (0.03%) opened 24 hours.

Table (4.3) Presence of Pharmacists in the Pharmacies

Presence of pharmacists in the pharmacies	Frequency	Percentage (%)
Yes	22	13.1
No	146	86.9
Total	**168**	**100**

Source: Survey Data (2019)

The presence of pharmacists in the pharmacies was illustrated in the table above. Only 13.1% of the pharmacies had a pharmacist in their pharmacies and the majority (86.9%) had no pharmacist in their pharmacies.

Table (4.4) Blood Pressure Measuring in the Pharmacies

Blood Pressure Measuring in the Pharmacies	Frequency	Percentage (%)
Yes	134	79.8
No	34	20.2
Total	**168**	**100**

Source: Survey Data (2019)

The above table described the BP measuring in the pharmacies. Two third of the pharmacies (79.8%) did BP measuring for the patients while the rest of the pharmacies (20.2%) did not.

Table (4.5) Blood Glucose Measuring in the Pharmacies

Blood Glucose Measuring in the pharmacies	Frequency	Percentage (%)
Yes	33	19.6
No	135	80.4
Total	**168**	**100**

Source: Survey Data (2019)

The blood glucose measuring in the pharmacies was shown in the above table. Nearly one fifth of the pharmacies (19.6%) did blood glucose measuring for the patients but four fifth of the pharmacies (80.4%) did not do blood glucose measuring.

Table (4.6) Refrigerator Utilization in the Pharmacies

Refrigerator utilization in the pharmacies	Frequency	Percentage (%)
Yes	71	42.3
No	97	57.7
Total	**168**	**100**

Source: Survey Data (2019)

From the survey data, 42.3% of the pharmacies were using well-functioning refrigerators while 57.7% of the pharmacies did not have refrigerators.

Table (4.7) Air-conditioner Utilization in the Pharmacies

Air-conditioner utilization in the pharmacies	Frequency	Percentage (%)
Yes	16	9.5
No	152	90.5
Total	**168**	**100**

Source: Survey Data (2019)

From the above table, a majority (90.5%) did not have any air-conditioners while a few pharmacies (9.5%) were utilizing well-functioning air-conditioners.

Table (4.8) Control Drug Selling License Application in the Pharmacies

Control drug selling license application in the pharmacies	Frequency	Percentage (%)
Yes	16	9.5
No	152	90.5
Total	**168**	**100**

Source: Survey Data (2019)

According to above table, only 9.5% of the pharmacies applied for control drug selling license and 90.5% did not apply for it.

Table (4.9) Daily Number of Customers of the Pharmacies

Daily number of customers of the pharmacies	Frequency	Percentage (%)
Less than 30	59	35.12
30-59	91	54.17
60 and above	18	10.71
Total	**168**	**100**

Source: Survey Data (2019)

Above table showed that more than half of the pharmacies (54.17%) had 30 to 59 customers in a day. (35%) of the pharmacies had less than 30 customers and only 10.71% had more than 60 customers in a day.

Table (4.10) Drugs Sold in the Pharmacies

Drugs Sold in the Pharmacies	Yes		No	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Multivitamin	168	100	0	0
Analgesic	168	100	0	0
Anti-inflammatory drugs	168	100	0	0
Anti-hypertensive	168	100	0	0
Cardiovascular drugs	162	96.4	6	3.6
Drugs for gastric problems	168	100	0	0
Oral hypoglycaemic agents	168	100	0	0
Oral contraceptives	157	93.5	11	6.5
Injection contraceptives	56	33.3	112	66.7
Oral antibiotics	168	100	0	0
Injection antibiotics	28	16.7	140	83.3
Vaccines	54	32.1	114	67.9
Anti-TB drugs	22	13.1	146	86.9
Controlled drugs	16	9.5	152	90.5
Traditional drugs	147	87.5	21	12.5
Mixed pills ready to use for self-medication	168	100	0	0
Drugs for animal use	0	0	168	100

Source: Survey Data (2019)

The table above illustrated the different drugs sold in the pharmacies. All of the pharmacies sold multivitamin and essential drugs which contains analgesic, anti-inflammatory drugs, anti-hypertensive, drugs for gastric problems, oral antibiotics, oral hypoglycaemic agents. Also, all the pharmacies sell the mixed pills ready to use for self-medication.

However, some pharmacies did not sell some types of drugs such as cardiovascular drugs (3.6%), oral contraceptives (6.5%) and traditional drugs (12.5%). Moreover, most of the pharmacies did not sell some types of drugs such as injection contraceptives (66.7%), injection antibiotics (83.8%), vaccines (67.9%), anti-TB drugs (86.9%) and controlled drugs (90.5%). There was no pharmacy which sold the drugs for animal use.

4.3.3 Knowledge, Attitude and Practice towards Pharmacy Practice

168 drug sellers were interviewed to assess their knowledge, attitude and practice towards pharmacy practice. Their knowledge was assessed by interviewing them with 54 questions. Then, 18 questions were used to assess their attitude. Their practice was then assessed by checklist containing 19 items.

Knowledge towards Pharmacy Practice

54 questions used to assess the knowledge of the drug sellers were categorized into the following four groups.

(a) Knowledge of the drug sellers towards pharmacy license
(b) Knowledge towards pharmacy premise
(c) Knowledge towards pharmacy drug storage, handling and selling practice
(d) Knowledge towards the drugs that should or should not be sold

(a) Knowledge of the Drug Sellers towards Pharmacy License

Among 54 questions used to access the knowledge of the drug sellers, 12 questions were concerned with the pharmacy license. 168 drug sellers were interviewed to get their response on each question such as “Correct knowledge”, “Incorrect knowledge”, and “Don’t know the answer of the question”. Their response to each question were described as frequency and percentage in the following table.

Table (4.11) Knowledge of the Drug Sellers towards Pharmacy License

Knowledge	Correct knowledge		Incorrect knowledge		Don't know	
	No.	%	No.	%	No.	%
The minimum education status of the licensor of the pharmacy which is "graduated"	116	69	41	24.4	11	6.5
Duration of license validity which is "3 years"	125	74.4	26	15.5	17	10.1
Prior application for license extension which is "90 days before expiry"	63	37.5	73	43.5	32	19.0
License is expired on the day of expiry if fail to extend	118	70.2	29	17.3	21	12.5
Keeping the license at the pharmacy	168	100	0	0	0	0
Not keeping the license at home	168	100	0	0	0	0
Keeping the license at the pharmacy preventing from the customers to see	168	100	0	0	0	0
Control drug can be sold after doing "control drug selling license".	152	90.5	6	3.6	10	6.0
The types of control drug selling license includes "ordinary control drug selling license"	81	48.2	12	7.1	75	44.6
The types of control drug selling license includes "special control drug selling license"	81	48.2	12	7.1	75	44.6
The control drug selling license doesn't allow to sell the control drugs without prescription.	122	72.6	0	0	46	27.4
The control drug selling license doesn't allow to sell the control drugs freely to 18-year-old and below.	122	72.6	0	0	46	27.4

Source: Survey Data (2019)

Most of the drug sellers knew correctly about the minimum education status of the licensor of the pharmacy which is any graduate (69%), duration of license validity which is 3 years (74.4%) and that the pharmacy license was expired on the day of expiry if fail to extend (70.2%). However, only 37.5% knew correctly about the prior application for license extension which is 90 days. All of the drug sellers knew how and where the pharmacy license should be kept.

Most of the drug sellers (90.5%) knew correctly that control drug can be sold after doing control drug selling license. However, only nearly half of the drug sellers (48.2%) knew correctly that the types of control drug selling license includes ordinary and special control drug selling licenses. Most of the drug sellers (72.6%) knew correctly that the control drug selling license could not sell the control drugs freely to 18-years-old and below and could not sell them without prescriptions, while the rest (27.4%) didn't know about it.

(b) Knowledge about Pharmacy Premise

Among 54 questions used to assess the knowledge of the drug sellers. Seven questions were concerned with the pharmacy premise. Their responses to each question were described as frequency and percentage in the following table.

Table (4.12) Knowledge of the Drug Sellers towards Pharmacy Premise

Knowledge	Correct knowledge		Incorrect knowledge		Don't know	
	No.	%	No.	%	No.	%
Minimum suitable space of a pharmacy which is 100 square feet	62	36.9	10	6.0	96	57.1
Pharmacy should not be used for other purposes such as selling other goods and living and eating in it.	123	73.2	39	23.2	6	3.6
Keeping the pharmacy to be free from rodents and pests/insects	168	100	0	0	0	0
Keeping the pharmacy to be well-lighted	168	100	0	0	0	0
Keeping the pharmacy to be well-ventilated	168	100	0	0	0	0
Keeping the pharmacy to be protected from sunlight	168	100	0	0	0	0
Keeping the pharmacy to be protected from rain	168	100	0	0	0	0

Source: Survey Data (2019)

More than half of the drug sellers (57.1%) didn't know about the minimum suitable space of a pharmacy which is 100 square feet, while 36.9% knew it correctly and 6% knew it incorrectly.

Nearly one fourth of the drug sellers (23.2%) had the wrong knowledge that the pharmacy could be used for other purposes such as selling foods, beverages and other types of goods and using the pharmacy for eating and living.

However, all the drug sellers knew correctly that the pharmacy should be free from rodents and pests/insects, well-lighted, and protected from sunlight and rain.

(c) Knowledge towards Pharmacy Drug Storage, Handling and Selling Practice

Among 54 questions used to access the knowledge of the drug sellers, 19 questions were concerned with the pharmacy drug storage, handling and selling practice. Their response to each question were described as frequency and percentage in the following table

Table (4.13) Knowledge of the Drug Sellers towards Pharmacy Drug Storage, Handling and Selling Practice

Knowledge	Correct knowledge		Incorrect knowledge		Don't know	
	No.	%	No.	%	No.	%
Separate storage of drugs according to different categories	168	100	0	0	0	0
Separate storage of the western drugs and traditional drugs	116	69.0	47	28.0	5	3.0
Separate storage of the drugs for the human use and animal use	157	93.5	0	0	11	6.5
Not keeping the drugs on the ground	168	100	0	0	0	0
Making the color of the drug containing bottles black or brown is to protect the drug inside form sunlight or light	146	86.9	0	0	22	13.1
Making the color of the drug containing bottles black or brown is not to see the drug inside	101	60.1	32	19.0	35	20.8
Making the color of the drug containing bottles black or brown is not for protection of access to children	77	45.8	62	36.9	29	17.3
Keeping the vaccines in the refrigerator	168	100	0	0	0	0
Keeping the blood or serum-derived medicine in the refrigerator	162	96.4	0	0	6	3.6
Keeping the injective hormonal drugs (insulin) in the refrigerator	88	52.4	12	7.1	68	40.5
Keeping the injection antibiotics in the refrigerator	56	33.3	66	39.3	46	27.4
Keeping the paediatric suspension in the refrigerator	84	50.0	67	39.9	17	10.1
Keeping the temperature inside the refrigerator at 2-8 degree centigrade	12	7.1	6	3.6	150	89.3
The drugs should be handled or counted by using spoon	162	96.4	6	3.6	0	0
The drugs should be handled or counted by wearing gloves	123	73.2	34	20.2	11	6.5
The drugs should be handled or counted by using drug counting instrument	168	100	0	0	0	0
The drugs should not be handled or counted by hand	162	96.4	6	3.6	0	0
FEFO (First-Expired-First-Out) System	162	96.4	6	3.6	0	0
The pharmacy should have separate waste collection bin for pharmaceutical waste	117	69.6	45	26.8	6	3.6

Source: Survey Data (2019)

All of the drug sellers knew that the drugs should be stored according to their different categories, and 93.5% knew that the drugs for the human use and animal use should be stored separately. However, 28% of the drug sellers have the wrong knowledge that the western drugs and traditional drugs were not needed to be stored separately.

All the drug sellers knew that the drugs should not be kept on the ground. Most of the drug sellers (86.9%) knew correctly that making the color of the drug containing bottles black or brown is to protect the drug inside from sunlight or light.

All of the drug sellers knew that vaccine should be kept in the refrigerator and almost all the drug sellers (96.4%) knew that blood or serum-derived medicine should also be kept in the refrigerator. Forty percent of the drug sellers didn't know that injective hormonal drugs (eg. Insulin) were needed to be kept in the refrigerator. Moreover, about 39% of the drug sellers had the wrong knowledge that injection antibiotics and pediatric suspension should be kept in the refrigerator. Only 7.1% knew correctly about the temperature inside the refrigerator which is 2-8 degree centigrade.

Most of the drug sellers knew correctly that the drugs should be handled or counted by using spoon (96.4%), by wearing gloves (73.2%), by using drug counting instrument (100%) and that the drugs should not be handled or counted by hand directly (96.4%).

Most of the drug sellers (96.4%) knew correctly that the drugs should be managed by FEFO (First-Expired-First-Out) system. More than one fourth of the drug sellers (26.8%) had the wrong knowledge that the pharmacy should not need separate waste collection bin for pharmaceutical waste.

(d) Knowledge towards the Drugs that Should or Should not be Sold

Among 54 questions used to assess the knowledge of the drug sellers, 16 questions were concerned with the knowledge towards the drugs that should or should not be sold. Their response to each question were described as frequency and percentage in the following table.

Table (4.14) Knowledge of the Drug Sellers towards the Drugs that Should or Should not be Sold

Knowledge	Correct knowledge		Incorrect knowledge		Don't know	
	No.	%	No.	%	No.	%
The expired drugs should not be sold in the pharmacy.	168	100	0	0	0	0
The drugs which has not been registered should not be sold in the pharmacy.	168	100	0	0	0	0
The drug which registration has been revoked temporarily or cancelled should not be sold in the pharmacy.	168	100	0	0	0	0
The drugs which do not contain "Myanmar Registration Number" should not be sold in the pharmacy.	139	82.7	23	13.7	6	3.6
The fake drug should not be sold in the pharmacy.	168	100	0	0	0	0
The drug differing from standards should not be sold in the pharmacy.	126	75.0	0	0	42	25.0
The deteriorated drug should not be sold in the pharmacy.	168	100	0	0	0	0
The mixed pills ready to use for self-medication should not be sold in the pharmacy.	119	70.8	44	26.2	5	3.0
The adulterated drug should not be sold in the pharmacy.	72	42.9	6	3.6	90	53.6
The drug which has been manufactured with harmful substances should not be sold in the pharmacy.	168	100	0	0	0	0
The dangerous drug which is determined as not fit for utilization by the Ministry of Health by notification should not be sold in the pharmacy.	168	100	0	0	0	0
Controlled drugs shouldn't be sold without a doctor's prescription.	168	100	0	0	0	0
The prescribed drugs must be sold with doctor's prescription.	114	67.9	36	21.4	18	10.7
The injection drugs can be sold in the pharmacy.	110	65.5	23	13.7	35	20.8
The injective hormonal drugs (Insulin) can be sold in the pharmacy.	91	54.2	24	14.3	53	31.5
Condom can be sold in the pharmacy.	145	86.3	12	7.1	11	6.5

Source: Survey Data (2019)

All of the drug sellers had the correct knowledge that the drugs which should not be sold in the pharmacy included the expired drugs, the drug which has not been registered, the drug which registration has not been revoked temporarily or cancelled, the fake drug, the deteriorated drug, the drug which has been manufactured with harmful substances and the dangerous drug which is determined as not fit for utilization by the Ministry of Health by notification.

Some of the drug sellers (13.7%) had the wrong knowledge that the drugs which did not contain "Myanmar Registration Number" but had been registered in a foreign country can be sold in the pharmacy.

Some drug sellers didn't know that the drug differing from standards (25%) and the adulterated drug (53.6%) should not sold in the pharmacy.

Most of the drug sellers (70.8%) had the correct knowledge that the mixed pills ready to use for self-medication should not be sold in the pharmacy while 26.2% had wrong knowledge about it.

All the drug sellers knew correctly that the controlled drugs shouldn't be sold without a doctor's prescription while about one fifth of the drug sellers (21.4%) had incorrect knowledge that the prescribed drugs should be sold without a doctor's prescription.

Some of the drug sellers thought incorrectly that the injection drugs (13.7%), the injective hormonal drugs (eg. Insulin) (14.3%) and the condom (7.1%) should not be sold in the pharmacy.

Attitude towards Pharmacy Practice

Attitude of the drug sellers was assessed by interviewing them with 18 questions. 168 drug sellers were interviewed to get their responses on each question such as "Strongly agree", "Agree", "Disagree", and "Strongly disagree". Their responses to each question were described as frequency and percentage in the following table.

Table (4.15) Attitude of the Drug Sellers towards Pharmacy Practice

Attitude	Strongly Agree		Agree		Disagree		Strongly Disagree	
	No.	%	No.	%	No.	%	No.	%
Establishing a pharmacy with license	126	75	42	25	0	0	0	0
Having a pharmacist in the pharmacy	26	15.5	125	74.4	11	6.5	6	3.6
Registering every drug seller	0	0	144	85.7	24	14.3	0	0
Having a practical training course for every drug seller	61	36.3	107	63.7	0	0	0	0
Counseling to the customers by the drug seller	124	73.8	44	26.2	0	0	0	0
Selling the prescribed drugs only with the doctor's prescription	22	13.1	81	48.2	65	38.7	0	0
Not selling "Mixed pills ready to use for self-medication"	22	13.1	73	43.5	73	43.5	0	0
Not selling other goods (Eg, food and beverages) in the pharmacy	38	22.6	73	43.5	57	33.9	0	0
Keeping the pharmacy well lighted and ventilated and preventing from rodents and pests/insects, direct sunlight and rain	128	76.2	29	17.3	5	3.0	6	3.6
Managing the drugs according to FEFO (First-Expired-First-Out)	79	47.0	84	50.0	5	3.0	0	0
Keeping separate waste bins to collect the pharmaceutical waste and other household wastes	12	7.1	98	58.3	58	34.5	0	0
Keeping the drugs for human use and animal use separately	73	43.5	95	56.5	0	0	0	0
Keeping the drugs separately according to different categories	85	50.6	83	49.4	0	0	0	0
Not keeping the drugs on the ground	109	64.9	53	31.5	6	3.6	0	0
Not handling or counting the drugs by hand	6	3.6	61	36.3	101	60.1	0	0
Having a refrigerator in the pharmacy	22	13.1	118	70.2	28	16.7	0	0
Having air-conditioner in the pharmacy	22	13.1	99	58.9	41	24.4	6	3.6
Not doing BP measuring and blood glucose measuring in the pharmacy	6	3.6	57	33.9	100	59.5	5	3.0

Source: Survey Data (2019)

All the drug sellers had positive attitude concerning establishing a pharmacy with license, having a practical training course for the drug seller, counseling to the customers by the drug seller, keeping the drugs separately according to different categories and keeping the drugs for human use and drugs for animal use separately.

Majority of the drug sellers had positive attitude towards having a pharmacist in the pharmacy (89.9%), registering the drug sellers (85.7%), keeping the pharmacy well lighted and ventilated and preventing from rodents and pests/insects, direct sunlight and rain (93.5%), managing the drugs according to FEFO (First-Expired-First-Out) (97%), not keeping the drugs on the ground (96.4%), having a refrigerator in the pharmacy (83.3%) and having air-conditioner in the pharmacy (72%).

Some drug sellers had negative attitude on selling the prescribed drugs only with the doctor's prescription (38.7%), not selling "mixed pills ready to use for self-medication" (43.5%), not selling other goods (eg, food and beverage) in the pharmacy (33.9%) and keeping separate waste bin to collect the pharmaceutical waste and other household wastes (34.5%).

Most of the drug sellers had negative attitude concerning not handling or counting the drugs by hand (60.1%) and not doing BP measuring and blood glucose measuring in the pharmacy (62.5%).

Practice towards Pharmacy Practice

Practice of the drug sellers was assessed by using checklist containing 19 items. Each item of the checklist contained "Yes" and "No" results for "Proper practice" and "Improper practice" respectively. The results of each checklist item were described as frequency and percentage in the following table.

Table (4.16) Practice of the Drug Sellers towards Pharmacy Practice

Practice	Proper practice		Improper practice	
	No.	%	No.	%
Having recommended minimal space of 100 square feet	83	49.4	85	50.6
Not using the place for drug storage for other purposes	106	63.1	62	36.9
Having the pharmacy license at a suitable place so that customers can see it easily	63	37.5	105	62.5
Keeping the pharmacy neat and tidy	105	62.5	63	37.5
Keeping the pharmacy free from rodents and pests/insects	66	39.3	102	60.7
Keeping the pharmacy well lighted	163	97.0	5	3.0
Keeping the pharmacy well ventilated	163	97.0	5	3.0
Protecting the medicine storage area from sunlight	163	97.0	5	3.0
Protecting the medicine storage area from rain	168	100	0	0
Having Air-conditioner in the pharmacy	10	6.0	158	94.0
Selling the prescribed drugs only with a doctor's prescription	0	0	168	100
Not selling "mixed pills ready to use for self-medication"	0	0	168	100
Checking the shelves at a predetermined periodicity (at least once a month) for expired drugs (FEFO)	144	85.7	24	14.3
Storing expired drugs separately or managing them in a suitable way not to be sold them.	138	82.1	30	17.9
Having a separate waste bin for pharmaceutical waste	87	51.8	81	48.2
Not keeping the drugs on the ground	157	93.5	11	6.5
Storing the drugs according to the different categories	133	79.2	35	20.8
Handling or counting the drugs by using spoon or wearing gloves to prevent from the direct contact to hand	70	41.7	98	58.3
Using clean material to package the drugs sold	168	100	0	0

Source: Survey Data (2019)

Majority of the pharmacies had proper pharmacy practice towards keeping the pharmacy well lighted (97%), keeping the pharmacy well ventilated (97%), protecting the medicine storage area from sunlight (97%) and from rain (100%), checking the shelves at a predetermined periodicity (at least once a month) for expired drugs (FEFO) (85.7%), storing expired drugs separately or managing them in a suitable way not to be sold them (82.1%), not keeping the drugs on the ground (93.5%), storing the drugs according to the different categories (79.2%) and using clean material to package the drugs sold(100%).

Nearly half of the pharmacies had proper pharmacy practice on having recommended minimal space of 100 square feet (49.4%) and having a separate waste bin for pharmaceutical waste (51.8%).

Some of the pharmacies had improper pharmacy practice such as using the place for drug storage for other purposes (36.9%) and not keeping the pharmacy need and tidy (37.5%).

Most of the pharmacies also had improper pharmacy practice such as not having the pharmacy license at a suitable place so that customers can see it easily (62.5%), not keeping the pharmacy free from rodents and pests/insects (60.7%), not having air-conditioner in the pharmacy (94%) and not handling or counting the drugs using spoon or wearing gloves (58.3%).

Finally, all of the drug sellers had improper pharmacy practice towards selling the prescribed drugs without a doctor's prescription and selling "mixed pills ready to use for self-medication".

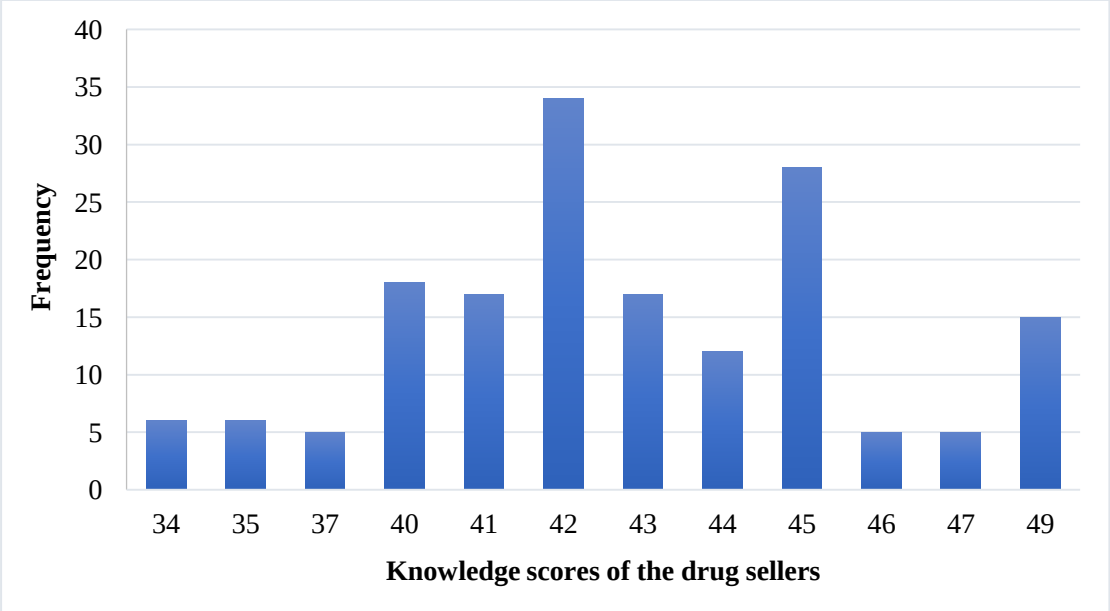
4.3.4 Knowledge, Attitude and Practice Levels on Pharmacy Practice

Knowledge Levels on Pharmacy Practice

Questionnaires to access the knowledge on pharmacy practice included 54 items. Each question item had three types of response such as "correct knowledge", "incorrect knowledge" and "don't know answer". The response for each question item was given score (score 1 for "correct knowledge" and score 0 for "incorrect knowledge" and "don't know answer"). Therefore, the scores for 54 question items ranged from 0-54. The lower 70% of this range was considered "low knowledge level" and the upper 30% of the range was considered "high knowledge level". Therefore, the low and high knowledge levels are defined according to the cut-off point of 70 percent value of the range (0-54), which was 37.5.

The knowledge scores of the 168 drug sellers were first observed to describe their frequency distribution. (See the following figure).

Figure (4.2) Knowledge Scores of the Drug Sellers on Pharmacy Practice

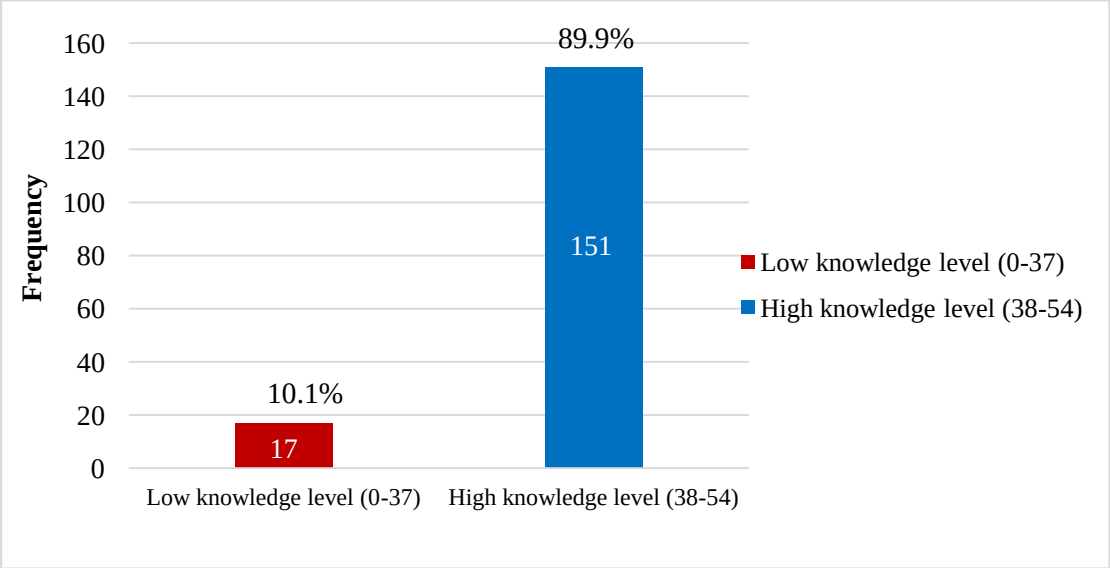


Source: Survey Data (2019)

The knowledge scores of the 168 drug sellers ranged from 34 to 49. Their mean knowledge score was 42.65. Then, the knowledge scores of the 168 drug sellers were grouped into two levels (low knowledge and high knowledge), as described in this section, according to the cut-off point of 70 percent value of the range of the scores of the 54 knowledge questions (i.e., 37.5).

Therefore, low knowledge level was determined as scores less than and equal to 37.5 (i.e., 0 to 37), and high knowledge level was defined as scores greater than 37.5 (i.e., 38 to 54).

Figure (4.3) Knowledge Levels of the Drug Sellers on Pharmacy Practice



Source: Survey Data (2019)

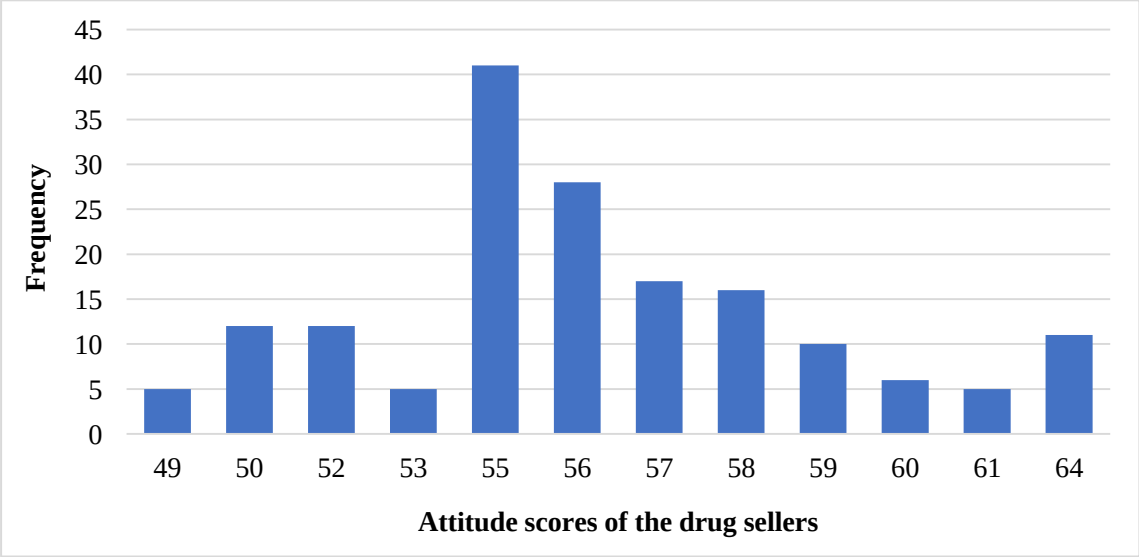
The figure above showed the knowledge scores of the 168 drug sellers in two knowledge levels. Minority of the drug sellers (10.1%) had low knowledge and majority (89.9%) had high knowledge on pharmacy practice. Their mean knowledge score (42.65) also fell in high knowledge level.

Attitude Levels on Pharmacy Practice

Questionnaires to assess the attitude on pharmacy practice included 18 items. Each question item had four types of response such as “strongly agree”, “agree”, “disagree”, and “strongly disagree”. The response for each question item was given score (score 4 for “strongly agree”, score 3 for “agree”, score 2 for “disagree”, score 1 for “strongly disagree”). Therefore, the scores for 18 question items will range from 18 to 72. The lower 70% of this range was considered “negative attitude level” and the upper 30% of the range was considered “positive attitude level”. Therefore, the negative and positive attitude levels were defined according to the cut-off point of 70 percent value of the range (18 to 72), which was 55.5.

The attitude scores of the 168 drug sellers were first observed to describe their frequency distribution. (See the following figure).

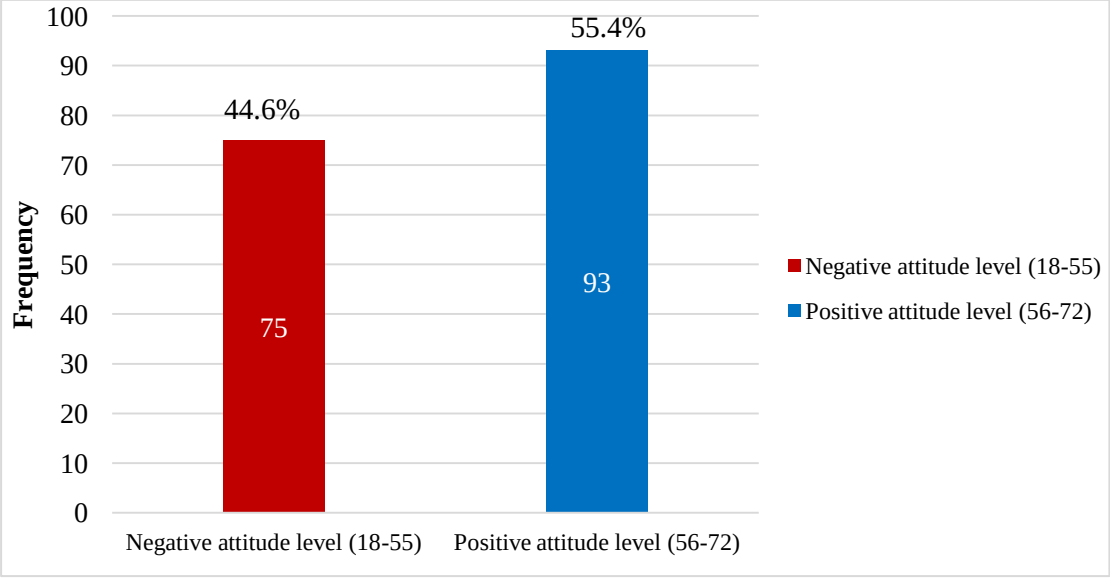
Figure (4.4) Attitude Scores of the Drug Sellers on Pharmacy Practice



Source: Survey Data (2019)

The attitude scores of the 168 drug sellers ranged from 49 to 64. Their mean attitude score was 56.03. Then, the attitude scores of the 168 drug sellers were grouped into two levels (negative attitude and positive attitude), as described in this section according to the cut-off point of 70 percent value of the range of the scores of the 18 attitude questions (i.e, 55.5). Therefore, negative attitude level was determined as scores less than and equal to 55.5 (i.e, 18 to 55), and positive attitude level was defined as scores greater than 55.5 (i.e, 56 to 72).

Figure (4.5) Attitude Levels of the Drug Sellers on Pharmacy Practice



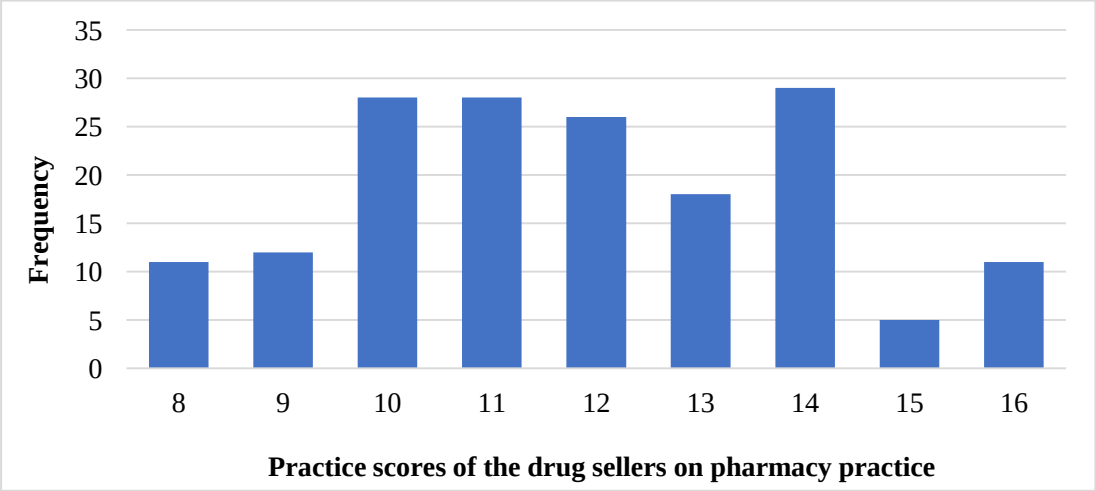
Source: Survey Data (2019)

The figure above showed the attitude scores of the 168 drug sellers in two attitude levels. Number of drug sellers with positive attitude is slightly higher than those with negative attitude, having 55.4% and 44.6% respectively. Their mean attitude score (56.03) also fell in positive attitude level.

Practice Levels on Pharmacy Practice

The checklist to assess the practice on pharmacy practice included 19 items. Each checklist item had two types of answer as "proper practice" and "improper practice". The answer for each checklist item was given score (score 1 for "proper practice" and score 0 for "improper practice". Therefore, the scores for 19 checklist items ranged from 0 to 19. The lower 70% of this range was considered "poor practice" and the upper 30% of the range was considered "good practice level". Therefore, the poor and good practice levels were defined according to the cut-off point of 70 percent value of the range (0 to 19), which was 13. The practice scores of the 168 drug sellers were first observed to describe their frequency distribution. (See the following figure).

Figure (4.6) Practice Scores of the Drug Sellers on Pharmacy Practice

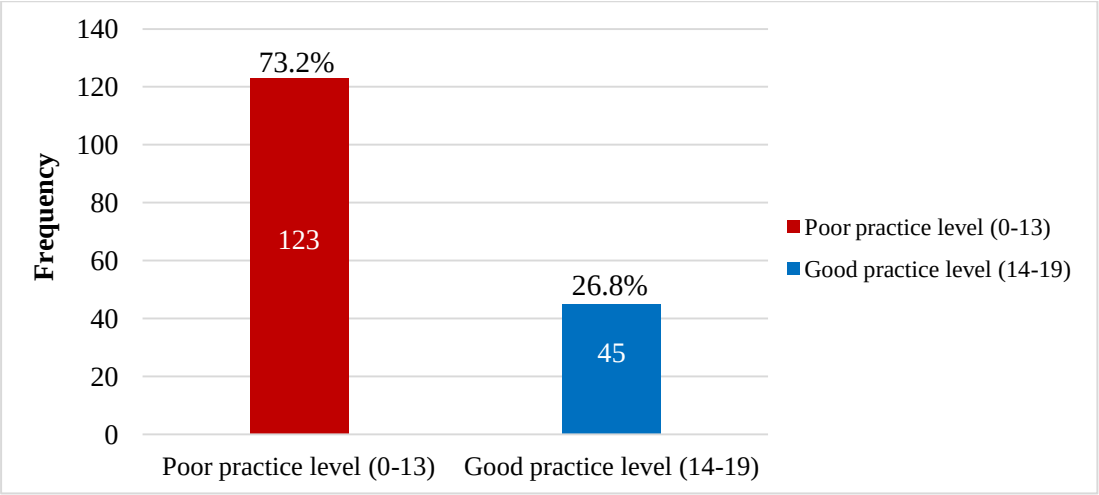


Source: Survey Data (2019)

The practice scores of the 168 drug sellers ranged from 8 to 16. Their mean practice score was 11.83. Then, the practice scores of the 168 drug sellers were grouped into two levels (poor practice and good practice), as described into this section, according to the cut-off point of 70 percent value of the range of the scores of the 19 checklist items. (i.e., 13). Therefore, poor practice level was determined as

scores less than and equal to 13 (i.e., 0 to 13), and good practice level was defined as scores greater than 13 (i.e., 14 to 19).

Figure (4.7) Practice Levels of the Drug Sellers on Pharmacy Practice

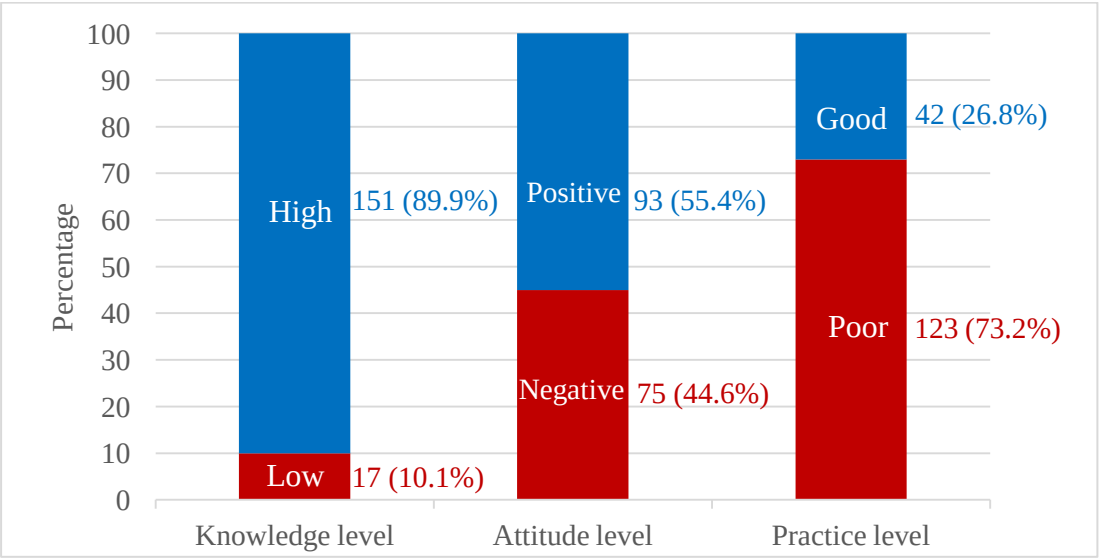


Source: Survey Data (2019)

The figure above showed the practice scores of the 168 drug sellers in two practice levels. About three fourth of the drug sellers (73.2%) had poor practice and one fourth (26.8%) had good practice on pharmacy practice. Their mean practice score (11.83) also fell in poor practice level.

Knowledge, Attitude and Practice Levels on Pharmacy Practice

Figure (4.8) Knowledge, Attitude and Practice Levels on Pharmacy Practice



Source: Survey Data (2019)

Figure (4.8) compared the distributions of the knowledge, attitude and practice levels in their respective two levels. The majority of the knowledge scores of the drug sellers were distributed in the high level. The attitude scores in positive attitude level were a little higher than those in negative attitude level. However, the majority of their practice scores were distributed in the poor practice level.

CHAPTER V
CONCLUSION

5.1 Findings

In most developing countries including Myanmar, most of the drug selling and distribution of medicines to the patient and customers is being done by the drug sellers of the pharmacies. Due to the lack of pharmacist in many hospitals, townships or districts, often the duties of managing the drug store fell into non-pharmacist. It is important that the drug sellers should have correct and appropriate knowledge and attitude on pharmacy practice in their pharmacies providing good services with standard facilities to the patients and customers. The study was undertaken to determine the knowledge, attitude and practice among drug sellers in the selected townships of East district of Yangon Region.

The study was conducted in 168 drug sellers in selected townships of East District of Yangon Region. Fifty-six pharmacies were selected randomly from each of Pazuntaung Township, Tharkayta. Township and Tamwe Township. The result showed that drug sellers which were of mainly female (81%), aged between 36-45 years were most likely to work in the pharmacies. Male working in the pharmacies were considerably lower which were only 19%. Therefore, female was the predominant in this study. Most of the drug sellers had the minimum education level of having passed the matriculation examination. Among them, majority (83.3%) were graduated. One third of the drug sellers have working experience of between 11 to 15 years and only 12% of drug sellers have the experience of between 21 to 25 years. Minority of the drug sellers were from medical professions as pharmacists or nurses, each occupying 3% of the study population. Therefore, only 6% of the drug sellers had their drug selling experience from their medical professionals as pharmacists or nurses, and 94% got drug selling experience either from drug selling in previous pharmacies or from private pharmacy training course. More than three fourth (76.2%) of the respondents themselves in this study were the owners of the pharmacies and the rest (23.8%) were not the owners.

Concerning background characteristics of the pharmacies, the minimum years of establishment of the pharmacies was 6 months and the maximum years of establishment was 22 years. The mean years of establishment of the pharmacies was 6.89 years. Half of the pharmacies in this study had at least 7 years of establishment. The majority of the pharmacies (97%) had the range of opening hours from 3 to 15 hours while very few pharmacies (3%) opened 24 hours. Only (13%) of the pharmacies had a pharmacist in their pharmacies and the majority (87%) had no pharmacist in their pharmacies. The reason why (87%) of the pharmacies in this study had no pharmacist was that there was no rule and regulation in Myanmar describing there must be a pharmacist in every pharmacy. Only one in ten pharmacies applied for control drug selling license. As regards pharmacy services, two third of the pharmacies did BP measuring for the patients while the rest of the pharmacies did not. Only one fifth of the pharmacies (19.6%) did blood glucose measuring for the patients but four fifth of the pharmacies (80.4%) did not do blood glucose measuring. For the quality control of the drugs selling in pharmacies, refrigerator utilization and air-conditioner utilization in pharmacies were undertaken in survey in which only (42.3%) of the pharmacies were using well-functioning refrigerators and a few pharmacies (9.5%) were utilizing well-functioning air-conditioners.

All of the pharmacies sold multivitamin and essential drugs which contains analgesic, anti-inflammatory drugs, anti-hypertensive, drugs for gastric problems, oral antibiotics, oral hypoglycemic agents. Also, all the pharmacies sell the mixed pills ready to use for self-medication which is poor pharmacy practice due to the possibility of incorrect drug and incorrect dosage dispensing.

Knowledge, attitude and practice towards pharmacy practice was assessed by interviewing the drug sellers and by using the checklist. Fifty-four knowledge questions, eighteen attitude questions and nineteen checklist items were used respectively. Low knowledge level and high knowledge levels in this study were determined by 70 percent value of the score range of 54 knowledge questions (37.5). Therefore, about one in ten of the drug sellers (10.1%) had low knowledge level and majority (89.9%) had high knowledge on pharmacy practice. Then, the mean knowledge score of all 168 drug sellers was 42.65 and the value fell in the high knowledge level.

Negative attitude and positive attitude levels in this study were determined by 70 percent value of the score range for 18 attitude questions (55.5). Then, the drug

sellers with negative attitude on pharmacy practice (44.6%) were not much different to the drug sellers with positive attitude (55.4%), compared to the knowledge level which had obvious difference between them. Then, the mean attitude score of all 168-drug seller was 56.03 and the value fell in the positive attitude level.

Poor practice and good practice levels in this study were determined by 70 percent value of the score range for 19 practice checklist items (13). Therefore, most of the drug sellers (73.2%) had poor practice and rest of them (26.8%) had good practice on pharmacy practice, compared to the knowledge and attitude levels in which most of the drug sellers were in high knowledge and positive attitude levels respectively. Then, the mean score of all 168 drug sellers was 11.83 and the value fell in the poor practice level.

To summarize the knowledge, attitude and practice levels on pharmacy practice in this study, the majority of the knowledge scores (89.9%) and attitude scores (55.4%) of the drug sellers were distributed in the high knowledge level and positive attitude level respectively. However, the majority of their practice scores (73.2%) became distributed in the poor practice level. Similarly, the mean values of the knowledge, attitude and practice scores were distributed in high knowledge level, positive attitude level and poor practice level respectively.

Based on the findings, it was found that only the minority of the drug sellers are from medical professionals in which it indicates that there was a great need of skilled personnel in pharmacies. Moreover, facilities and services given to customers in most of the pharmacies are not sufficient. In this study, most of the drug sellers had high knowledge level and positive attitude level concerning with pharmacy license, pharmacy premise, pharmacy drug storage, handling and selling practices and drugs that should or should not be sold. This is due to their higher education status limitation in pharmacies which has minimum of passed matriculation exam to sell drugs. However, most of them had poor practice because all of the drug sellers had improper pharmacy practice towards selling the prescribed drugs without a doctor’s prescription and selling mixed pills to customers. This is due to the weak regulation and control system of pharmacy practice in Myanmar.

5.2 Recommendations

Although most of the drug sellers had high knowledge and positive attitude levels on pharmacy practice, continuing education and training program should be developed and sustained for them to maintain their high knowledge and positive attitude level. These education and training program should emphasize on improving their practice on pharmacy practice. By raising investment on health sector such as public health education training to public and support the training of health professionals and upgrading the quality of pharmacies, people will get better healthcare services.

According to the survey, all of the pharmacies sell the medicines without a prescription and mixed pills ready to use for self-medication. Thus, educational and regulatory interventions needed by FDA and other government officials which include improving knowledge and professional behavior of pharmacist, pharmacy staff and pharmacy drug sellers. The owner and pharmacy personnel should be encouraged to strictly follow the rules and regulations mentioned in the drug laws and by-laws. As the pharmacy practice in Myanmar were only under the control of National drugs Law and Notification No. 6/93 announced by Ministry of Health, there should be updated guidelines and regulations for better control of pharmacies.

Lastly, as in other countries which has their own “National Good Pharmacy Practice Guidelines”, Myanmar should also develop “National Good Pharmacy Practice Guidelines” based on “Joint FIP/WHO Guidelines on GPP” so that the standards for quality pharmacy services and safe use of medicine by public will appear in future.

Annex (1) Questionnaires

----------Township, East District, Yangon Region

Questionnaires for the study on knowledge, attitude and practice towards pharmacy practice

Socio-demographic characteristics of the drug sellers

No.	Items		Answer	Code
1	Age of the drug seller	Completed age in years		
2	Sex of the drug seller	Male		
		Female		
3	Marital status of the drug seller	Single		
		Married		
		Widowed		
		Divorced/Separated		
4	Highest education of the drug seller	Illiterate		
		Can just read and write		
		Passed Primary school		
		Passed Middle school		
		Passed High school		
		Graduated		
5	Working experience of the drug seller	Working experience in completed years in drug selling experience		
6	Source of the drug selling experience of the drug seller	I am a doctor		
		I am a pharmacist		
		I am a health assistant		
		I am a nurse		
		I am a midwife		
		Traditional medicine training		
		Private pharmacy training		
		Previous experience from other pharmacy or drug company		
		From drug selling in this pharmacy		
		Others (specify)		
7	Are you an owner of the pharmacy?	Yes		
		No		

Annex (2) Scoring system

Scoring for the questionnaires for the knowledge of the drug sellers

No.	Items		Score
1	How much in square feet should be the minimum suitable space for a pharmacy?	50	0
		100	1
		200	0
		300	0
		Don't know	0
2	The places for drug storage should be used for selling other goods (e.g, food and beverage) and for the drug seller to live in.	True	0
		False	1
		Don't know	0
3	The pharmacy should be free from rodents and pests/insects.	True	1
		False	0
		Don't know	0
4	The pharmacy should be well lighted.	True	1
		False	0
		Don't know	0
5	The pharmacy should be well ventilated.	True	1
		False	0
		Don't know	0
6	The drug storage area should be protected from exposure to sunlight.	True	1
		False	0
		Don't know	0
7	The drug storage should be protected from rain.	True	1
		False	0
		Don't know	0
8	Antibiotics, Anti-hypertensives and cardiovascular drug should be sold without doctor's prescription.	True	0
		False	1
		Don't know	0
9	Condom should be sold in the pharmacy.	True	0
		False	0
		Don't know	1
10	The pharmacy should prepare and sell "mixed pills ready to use for self-medication" so that the patients can take it readily.	True	0
		False	1
		Don't know	0
	The pharmacy should sell the controlled drugs to the patient who is above 18 years old	True	0
		False	1
		Don't know	0
12	The pharmacy should apply FEFO (First-Expired-First-Out).	True	1
		False	0
		Don't know	0
13	The drugs should be stored according to the different categories	True	1
		False	0
		Don't know	0

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