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Role of Pharmacist Towards Medication Counselling Services Related to Medication Therapy Management

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Abstract

Background: Medication counselling was an important responsibility of community pharmacists to educate patients and enhance their medication adherence. Understanding their attitudes and perceptions around counselling could help improve these services and patient health outcomes.

Objective: This study aimed to evaluate and analyze community pharmacists' attitudes and perceptions towards providing medication counseling services related to medication therapy management in the Fujairah region.

Methodology: A quantitative questionnaire-based cross-sectional survey was conducted to collect data from 250 community pharmacists using convenient sampling. The questionnaire assessed their knowledge, attitudes, perceptions, behavior and willingness around medication counselling based on a 5-point Likert scale. Data was analyzed using descriptive statistics and tests like T-test and ANOVA on SPSS.

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Results: The results provided insights into the knowledge levels, attitudes, challenges perceived, willingness and perspectives of pharmacists towards delivering effective medication counseling and therapy management. Key findings highlighted areas requiring improvement to enhance the role of pharmacists.

Conclusion: This exploratory study presented community pharmacists' perspectives around medication counselling services. Outcomes can facilitate developing targeted interventions for their greater involvement in patient medication management and optimization of treatment outcomes.

Keywords: *pharmacist, knowledge, attitude, perceptions, medication counselling, medication therapy management.*

Introduction

The nature and breadth of community chemists' activity have changed dramatically in the last ten years. To fulfil their expanding area of practice, pharmacists must implement new working procedures, such as working more independently and in tandem with patients and other professionals. There has been much discussion over the years regarding the claim that chemists are a "underutilised" professional group: Community chemists' actual ability to take advantage of these new opportunities and fully integrate them into their daily practice has begun to be discussed in relation to underutilization, as they take on new responsibilities in areas such as vaccination, prescribing, extending, modifying, and adapting prescriptions, among other things. It is true that chemists have a duty of care, but it's not obvious if this duty extends beyond giving patients the right drug or to other areas of patient-centered treatment (Gregory et al., 2016).

Pharmacists' roles in community pharmacies are expanding in Canada and other nations. In the healthcare sector, professional positions are updated in response to a range of factors, such as changing public needs and expectations, accessibility concerns, medical and technical breakthroughs, a shortage of skilled healthcare workers, and growing healthcare costs. Along with more widespread changes in the financing and delivery of healthcare, such as shorter hospital stays, fewer inpatient beds, and greater pressure on physicians and other primary care providers to treat patients, many of these factors also co-occur in the treatment of serious mental illnesses and addictions. Making sure that all disciplines are treating mental illness and addictions to the best of their abilities is just one of many ways to help overcome these and other challenges. Persistent issues with promptness, accessibility, appropriateness of care, and continuity of care are among the other challenges (Murphy et al., 2016).

Establishing multidisciplinary networks of public health professionals who are easily accessible and actively involved in local communities is one of the main goals the World Health Organization (WHO) has set for the future of public health, with the aim of increasing the life expectancy of the population. Community pharmacy practitioners could play a critical role in this agenda as they are among the most accessible and extensively distributed health professionals in the community. Community pharmacies are ideal locations for public health research because of their prominent roles in the neighbourhood. This unique characteristic provides an avenue for more proactive engagement in bridging the gaps in public health programmes and services, such as health promotion and different preventative treatments (Erku & Mersha, 2017).

The public frequently seeks out and consults community chemists for any issue related to their health due of their knowledge, accessibility, and longer hours. A chemist's duties have expanded and evolved over time; now, they encompass more than just dispensing drugs to patients. Previous studies have shown that pharmacists receive at least one question about oral health every week, almost half of which are about mouth ulcers. According to additional studies, most people with oral health problems can be appropriately treated at a drugstore. In actuality, a few of the things keeping the general public from accessing quality dental care include cost, patient anxiety toward dentists, and accessibility issues (tough to get to and hours of operation) (Hajj et al., 2019).

However, providing public health services in places like community pharmacies has proven challenging due to a number of issues. A few things that can impact how effectively public health initiatives and pharmacy services are used are a lack of policies, inadequate recognition within the healthcare system, patients' resistance to using pharmacy services, the presence of insufficient pharmacy staff, and a lack of knowledge and skills. In developed countries such as the UK, chemists are successfully included in public health programmes. However, public health and governmental agencies, academicians, and other healthcare professionals have failed to appropriately acknowledge and endorse the role that community pharmacies play in providing public health services. This is due to Ethiopia's community pharmacies' current lack of legal recognition as medical practitioners in the public health service (Erku & Mersha, 2017).

Medication counseling

Today's community pharmacists value medication counselling highly. Modern pharmacy practices may be witnessing a paradigm shift away from traditional drug distribution and towards more active and extended clinical duties, including patient-centered medication counselling activities. Medication counselling is defined as "offering patients or their representatives, verbally or in writing, medication information, on the directions of use, advise on side effects, precautions, storage, food, and lifestyle modifications." Preliminary research indicates that pharmacists can better understand and treat medication-related concerns by offering medication counselling. They can also improve patients' satisfaction with the pharmacy's services, their understanding of how to take medications correctly, and the quality of care they receive (Yang et al., 2016).

Medication therapy management among community pharmacists

Over time, the role of a chemist has changed. Pharmacy practice now has a more complete team-based therapeutic role that provides patient-centered pharmaceutical therapy management, health improvement, and illness prevention, rather with its previous narrow focus on monitoring drug administration and patient counselling. Pharmaceutical care is described by the American Pharmacist Association as the coordinated efforts of a care team to achieve a primary goal, like illness prevention and evaluating the safety and efficacy of a medication therapy regimen. In order to maximise therapeutic outcomes and improve patients' quality of life and health status, pharmaceutical care is therefore focused on the attitudes, behaviours, commitments, concerns, ethics, functions, knowledge, responsibilities, and skills of the pharmacist when providing medication therapy management (MTM). This is achieved through conducting a thorough medication therapy review of prescribed and over-the-counter medications, resolving medication-related issues, and conducting a thorough medication (Domiati et al., 2018).

objective of the study

The objectives of the study are as follows:

1. Assess community pharmacists' knowledge and attitudes towards Medication Therapy Management (MTM) and counseling services.

2. Identify potential barriers and challenges faced by community pharmacists in delivering effective medication counseling services.

3. Explore the correlation between community pharmacists' demographic characteristics and their knowledge, attitudes and perceptions regarding MTM-related medication counseling services.

significance of the study

The significance of the research lies in its potential to contribute valuable insights and improvements to the field of community pharmacy and healthcare. Specifically, the significance can be outlined in the following ways:

1. Enhancing Patient Care:

Understanding the knowledge, attitudes, and perceptions of community pharmacists towards Medication Therapy Management (MTM) and medication counseling services is crucial for improving patient care. Effective communication and counseling by pharmacists can lead to better medication adherence, increased patient understanding, and improved health outcomes.

2. Optimizing Medication Management:

The findings of this research can provide guidance on how community pharmacists can optimize medication management through MTM-related counseling services. Identifying gaps in knowledge or barriers to effective counseling can lead to targeted interventions aimed at enhancing the quality of pharmaceutical care.

Literature review

The role of the chemist has evolved over time. Pharmacy practice has evolved from a concentration on drug distribution supervision and patient counselling to a more comprehensive team-based therapeutic function that offers patient-centered pharmaceutical therapy management, health improvement, and illness prevention. The American Pharmacist Association defines pharmaceutical care as the cooperation of a healthcare team in order to accomplish a main goal, like illness prevention and evaluating the efficacy and safety of a medication therapy regimen. (Domiati and others, 2018).

Thanks to their friendly staff and handy location, community pharmacies are often patients' first point of contact within the healthcare system. They are an essential component of the larger collaborative health care plan since they are in charge of prescribing and dispensing medications. Community pharmacies are required by the International Pharmaceutical Federation to provide patients with prescription drug usage advice. It is the chemist's job to make sure the patient has the information they need to take their prescription as prescribed (In Hussain & Ibrahim, 2011).

Since community chemists are more accessible than other healthcare experts, they play a crucial role in providing patients with guidance on medicine and self-care (HCPs). Furthermore, community pharmacists provide two cutting-edge services to assist patients in taking care of themselves: the New Medicines Service and Medicines Use Reviews (MUR) (NMS) (Kayyali 2022)

In Saudi Arabia, neighbourhood pharmacies are widely dispersed and accessible. Statistics from the Ministry of Health show that in 2010, Saudi Arabia has 6147 licenced pharmacies. Large cities are home to many of these pharmacies; for instance, the Ministry of Health recorded 1531 community pharmacy in Riyadh as of 2012 (Khojah et al., 2013).

The patient education and counselling provided by the community chemist has been shown to improve compliance, decrease mortality, improve quality of life while cutting expenses, and minimise drug-related issues. Nonetheless, the reported range of community pharmacists providing counselling services is 8–100%. Furthermore, a great deal of study has shown that the counselling that is now offered is of inadequate quality (Wu et al., 2006).

The Saudi Commission for Health Specialties (SCHS) prometric examination and at least a Bachelor's degree in pharmacy are requirements for licensure as a community pharmacist in Saudi Arabia. Community chemists are not permitted to sell non-OTC medications without a prescription in accordance with local regulations and practices established by the Ministry of Health, and only licenced physicians are entitled to write prescriptions for non-OTC medications. The Ministry of Health created a list of OTC medications in 2000, and it has since been updated yearly. There are no cardiac drugs on the OTC list. Additionally, community chemists are required by law to counsel patients regarding medications prescribed to them and must advise them to go to the hospital if they come in seeking self-medication for serious conditions like cardiac-related diseases and symptoms. Therefore, community chemists' non-compliance with these laws may promote self-medication practices and ensuing delays in seeking medical attention (Kashour et al., 2015).

Methodology

Design of the Study

The proposed research was adopt an exploratory research methodology where the research was aim to understand and analyze the attitude and perception of the community pharmacist towards medication counseling. The research was use a quantitative research design where numeric data was be gathered for achieving the research objectives. The quantitative research was be based on the primary data gathering sources where survey was be used as a data collection technique. The reason for using quantitative research as the research methodology is that it was help in measuring the knowledge of the community pharmacist with respect to medication counselling and also scoring can be used to gain reliable and valid data analysis using SPSS.

A survey was be conducted where the survey population was include the community pharmacist practicing in Fujairah region. The Sample study of 250 pharmacists was be developed using a convenient sampling technique. As the name implies, the convenient sampling technique allows the researchers to gather the data from the respondents who are easy to access and willing to participate in the research. The data collection tool was be a questionnaire based on a five-point Likert scale. The data was be analyzed using SPSS to answer the research question.

Participants

The survey sample of 250 pharmacists having 2 years or more experience and who are working in Fujairah, pharmacists was be developed using a convenient sampling technique. As the name implies, the convenient sampling technique allows the researchers to gather the data from the respondents who are easy to access and willing to participate in the research.

Instrument

The data collection tool was be a questionnaire based on a five-point Likert scale. The questionnaire was developed using the attitude, knowledge and behavior of community pharmacists towards medical counselling developed by Jarab et al., (2022).

The questionnaire will be divided into two main sections. The first section was be the demographic data of the respondents whereas, the second section was be based on the five variables of the research which include, Knowledge of Community Pharmacy, Challenges of community pharmacies, Perception of Community Pharmacy, Willingness to Practice and Attitude of community pharmacist. There are a total of 31 questions.

The validity of the study tool:

The validity of the tool means ensuring that it will measure what it was designed to measure. Validity also means the tool's inclusion of all the elements that must be included in the analysis on the one hand, and the clarity of its paragraphs and vocabulary on the other hand, so that it is understandable to everyone who uses it.

The validity of the study tools was confirmed by.

1-To ensure the tools' validity, the researcher enlisted the help of a panel of experts whose involvement was required in order to determine the questionnaires' content validity, The jurors were instructed to review the questionnaires items for language, applicability, and consistency. Some suggestions and comments were received, and minor changes to the questionnaire were made as a result.

2- The validity of the construct was confirmed by calculating the internal validity of the tool's items, where the correlation coefficient was calculated between the sample's answers to each item and the total score of the questionnaire to which it belongs, and the results were as follows:

Table (3.1) Pearson correlation coefficient between each item and the total score of the questionnaire

No	Person correlation coefficient	No	Person correlation coefficient	No	Person correlation coefficient
1	.619	12	.825	23	.703
2	.635	13	.724	24	.881
3	.520	14	.860	25	.686
4	.727	15	.863	26	.887
5	.778	16	.814	27	.717
6	.656	17	.833	28	.814
7	.695	18	.825	29	.617
8	.638	19	.886	30	.840
9	.656	20	.802	31	.688
10	.751	21	.813		
11	.765	22	.693		

It is clear from the previous table that the correlation coefficients between the items and the

total score of the questionnaires were all good and acceptable. All of them were significant at a significant level less than or equal to (0.05), which indicates high internal validity of the questionnaire items.

The reliability of tools:

The reliability of the study tool means that the tool will give approximately the same results when applied multiple times to the same sample. This means to what degree the study tool gives close readings each time it is used.

Or it means ensuring that the response will be approximately the same if it is repeatedly applied to different people at different times.

The reliability of the questionnaire was checked through Cronbach's alpha Coefficient, and the total degree of Cronbach's alpha to questionnaire was (0.879) which is high value indicate that the reliability of the questionnaire is highly satisfactory.

Data Analysis

The data was be analyzed using the SPSS software where the data gathered through survey was be tested for answering the research questions. The data analysis was be based on descriptive statistics, and T-test and Anova test with an aim to test the knowledge, perception, attitude, behavior and willingness of the community pharmacists.

Ethical concerns

Before conducting the research, ethical approval must be obtained through the University Ethics Committee. Participants will be given questionnaires, and their responses will be used for the researcher's research.

The study participants will be provided with questionnaires and will have the option to participate voluntarily without any coercion. The practice of sharing data is highly encouraged, and failure to do so may result in the cancellation of responses.

Before the interview, the participants will receive notification regarding the research objective, the scheduled interview time, the designated date, and the participants' time constraints. Furthermore, the interviewee's explicit consent is required for any interview recording.

The security and confidentiality of data storage and collection will be upheld, with strict adherence to research purposes and measures to safeguard against unauthorized access by malicious agents such as viruses and hackers.

Results & Discussion

Introduction:

The research aims to evaluate knowledge, attitudes, and practices about medication therapy management services.

The questionnaire was prepared to achieve the objectives of the study and answer the questions of the study as the following:

First Characteristics of the research sample

The frequencies and percentages of the sample were calculated according to students Characteristics as the following:

1- demographics

Table (4.1) Distribution of sample demographics

		Frequency	Percent
Gender	Male	197	78.8
	Female	53	21.2
Age	26 to 30 years	53	21.2
	31 to 40 years	71	28.4
	41 to 50 years	54	21.6
	51 years and above	72	28.8
Nationality	Emirati	52	20.8
	Non- Emirati	198	79.2
Employment status	Full-time	161	64.4
	Part-time	35	14
	Self-Employed	54	21.6

From the above table we conclude that (78.8 %) of the sample study are males, and (21.2%) of the sample study are females.

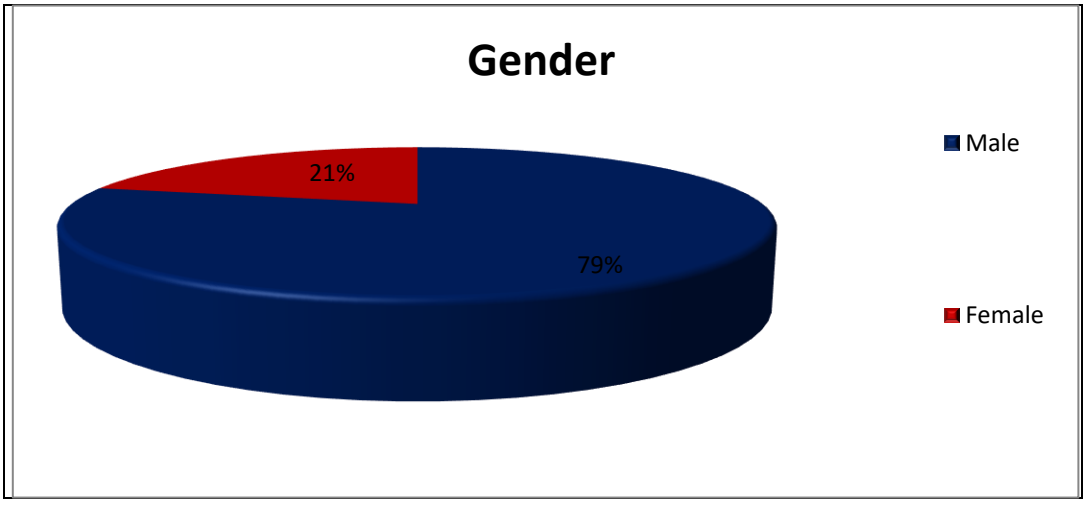

Figure (4.1) Gender

From the above table we conclude that (28.8 %) of the sample study their ages are from 51 years and above, (28.4%) of the sample study their ages are from 31 to 40 years, (21.6%) of the sample study their ages are from 41 to 50 years, and (21.2%) of the sample study their ages are from 26 to 30 years.

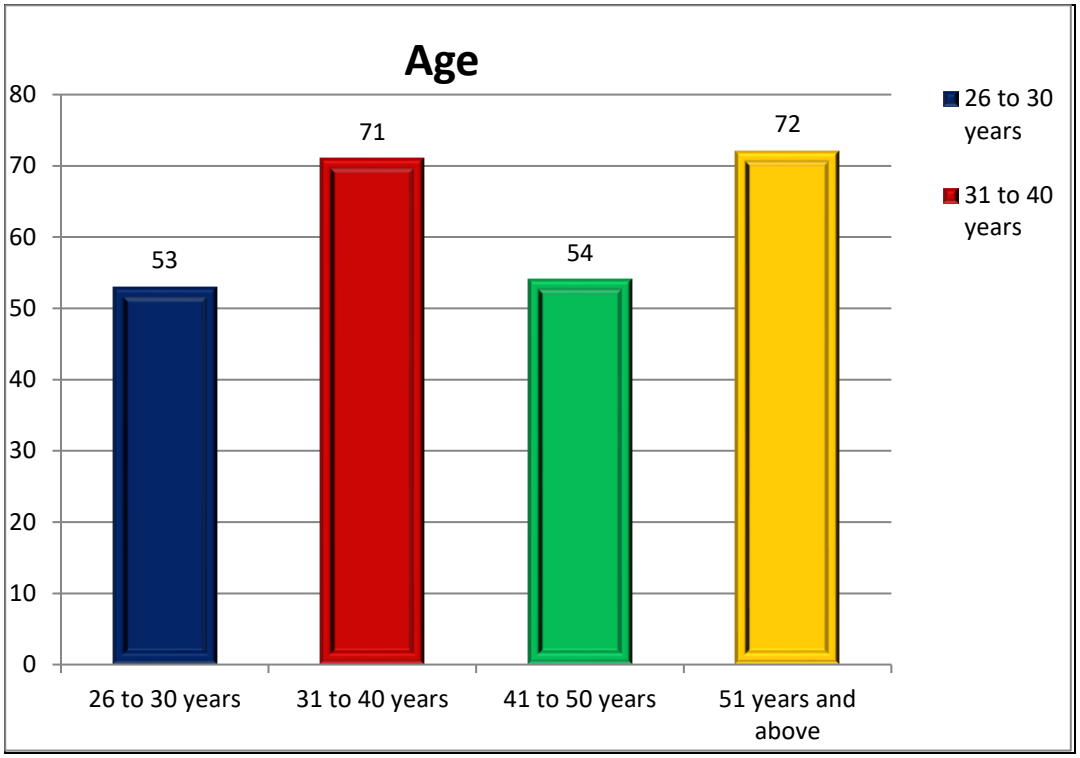

Figure (4.2) Age

From the above table we conclude that (79.2 %) of the sample study their nationality is non-Emirati, and (20.8%) of the sample study their nationality is Emirati.

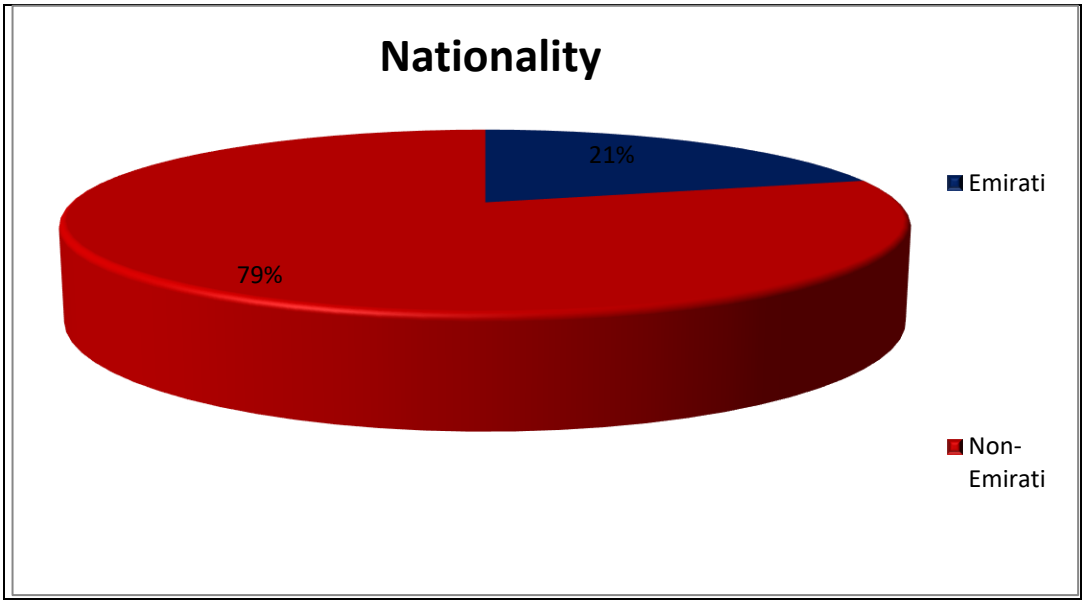

Figure (4.3) Nationality

From the above table we conclude that (64.4 %) of the sample study are Full-time Employed, (21.6%) of the sample study are Self-Employed, and (14%) of the sample study are Part-time Employed.

Figure (4.4) Employment Status

2- Number of hours working

Table (4.2) Distribution of the sample study by Number of hours working

Number of hours working	Frequency	Percent
6 to 8 hours	143	57.2
More than 8 hours	107	42.8
Total	250	100.0

From the above table we conclude that (57.2 %) of the sample study are working from 6 to 8 hours in a day, and (42.8%) of the sample study are working More than 8 hours in a day.

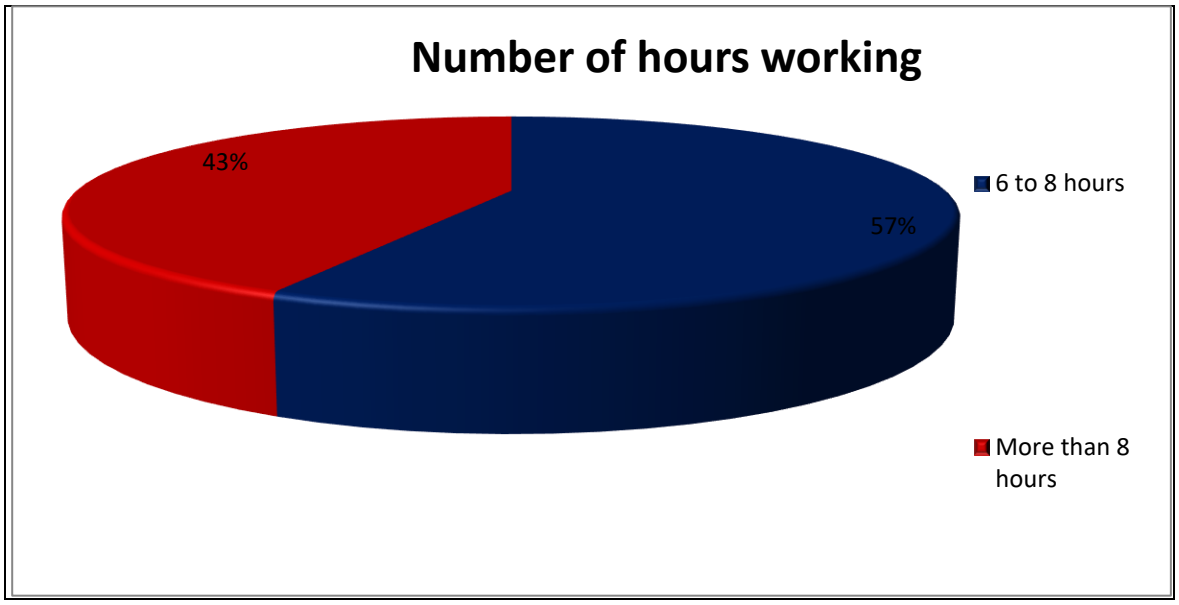

Figure (4.5) Number of Working Hours

3- Years of experience in UAE

Table (4.3) Distribution of the sample study by Years of experience in UAE.

Years of experience in UAE	Frequency	Percent
6 to 10 years	107	42.8
11 to 15 years	71	28.4
More than 15	72	28.8
Total	250	100.0

From the above table we conclude that (42.8 %) of the sample study their Years of experience in UAE are from 6 to 10 years, (28.8%) of the sample study their Years of experience in UAE are More than 15, and (28.4%) %) of the sample study their Years of experience in UAE are from 11 to 15 years.

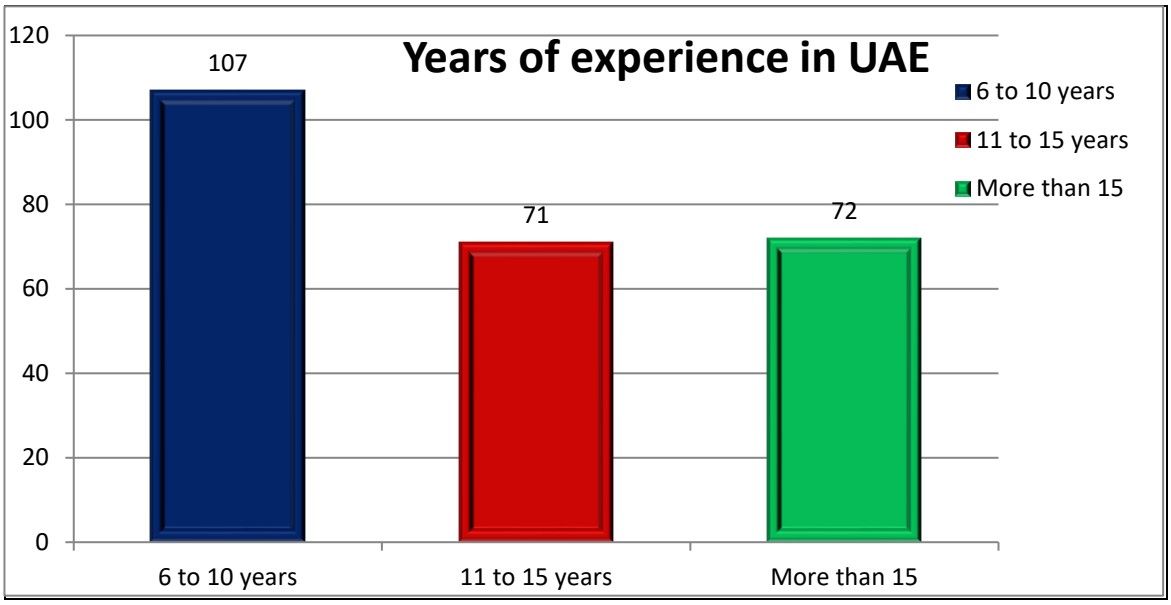

Figure (4.6) Years of Experience in UAE

4- Years of experience other than UAE

Table (4.4) Distribution of the sample study by Years of experience other than UAE.

Years of experience other than UAE	Frequency	Percent
Less than 6 years	107	42.8
6 to 10 years	54	21.6
11 to 15 years	53	21.2
More than 15	36	14.4
Total	250	100.0

From the above table we conclude that (42.8 %) of the sample study their Years of experience other than UAE are Less than 6 years, (21.6%) of the sample study their Years of experience other than UAE are from 6 to 10 years,(21.2%) of the sample study their Years of experience other than UAE are from 11 to 15 years ,and (14.4%) of the sample study their Years of experience other than UAE are More than 15 years.

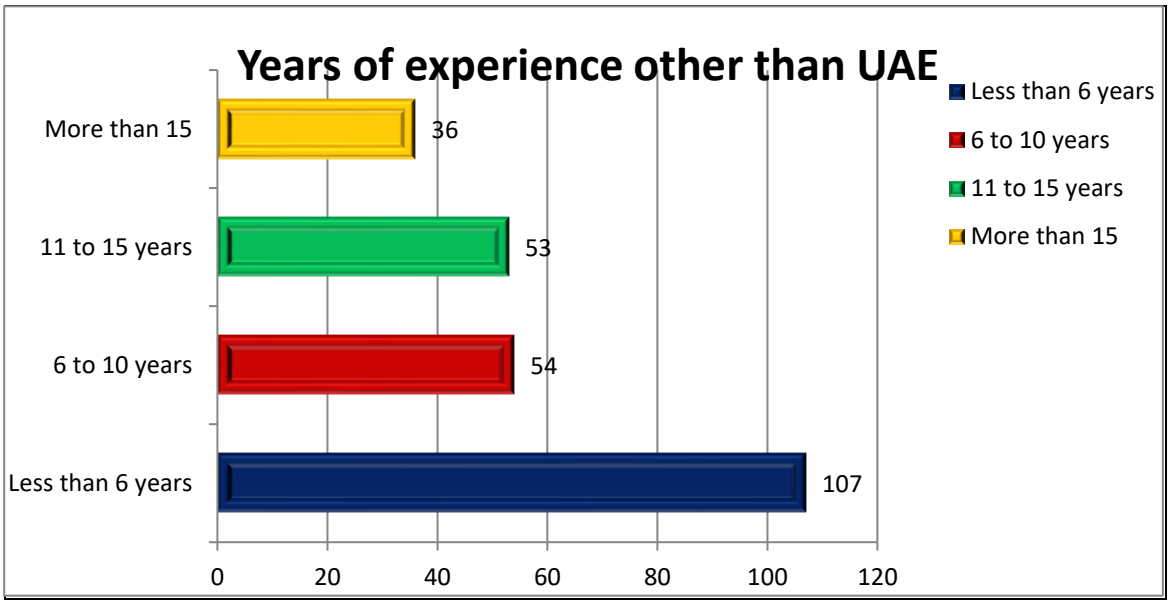

Figure (4.7) Years of Experience other than UAE

5 Are you working in

Table (4.5) Distribution of the sample study by the place of working.

Are you working in	Frequency	Percent
Chain of Pharmacy	179	71.6
Individual Pharmacy	71	28.4
Total	250	100.0

From the above table we conclude that (71.6 %) of the sample study working in Chain of Pharmacy, and (28.4%) of the sample study working in Individual Pharmacy.

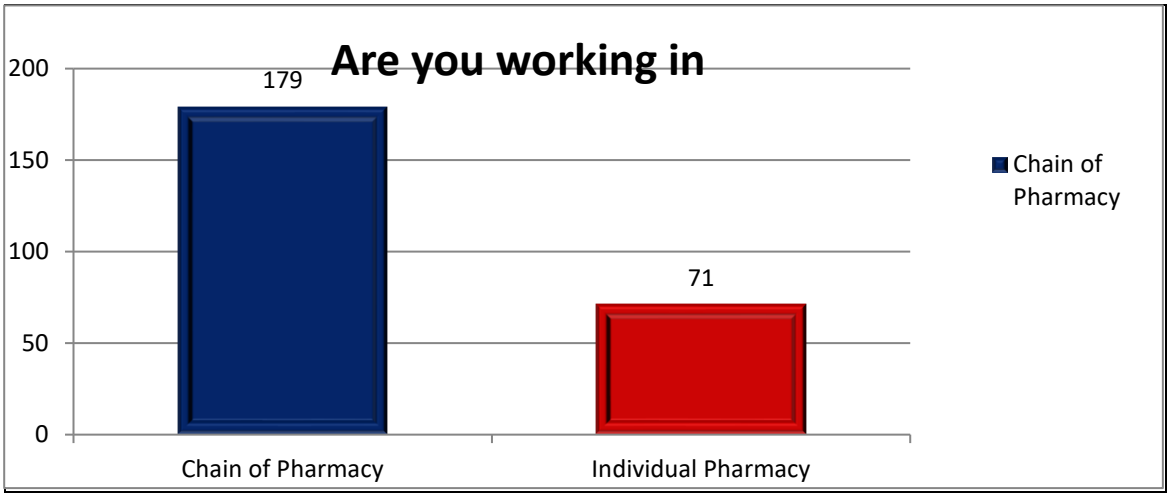

Figure (4.8) Are you working in

6- Highest Education

Table (4.6) Distribution of the sample study by Highest Education.

Highest Education	Frequency	Percent
BPharm	178	71.2
Pharma D	54	21.6
M pharma	18	7.2
Total	250	100.0

From the above table we conclude that (71.2 %) of the sample study their Highest Education is BPharm, (21.6%) of the sample study their Highest Education is Pharma D, and (7.2%) of the sample study their Highest Education is M pharma.

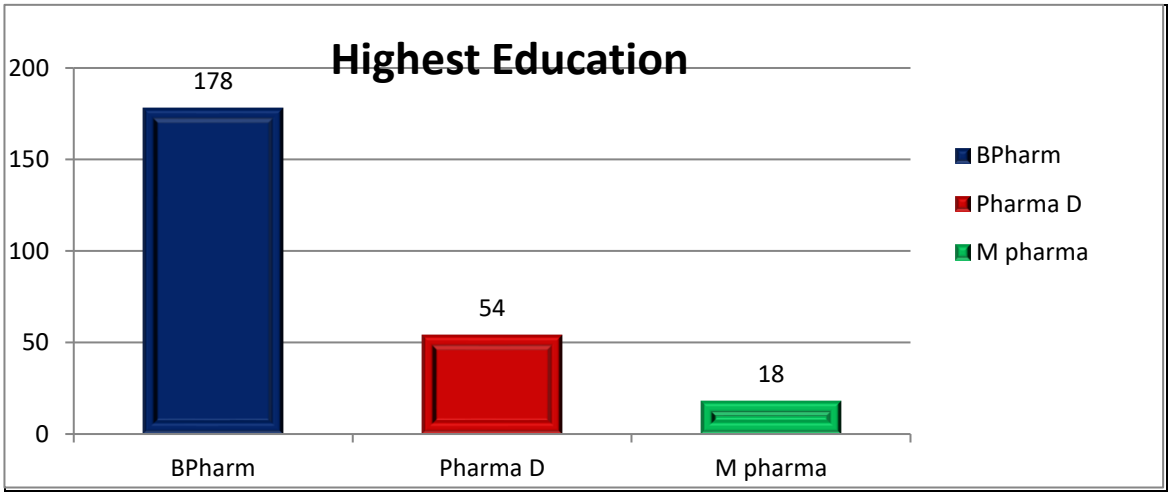

Figure (4.9) Highest Education

4.3 Second, study axes of the questionnaire.

To study the axes of the questionnaire, The frequencies and percentages of the sample were calculated according to the following:

1- Knowledge of Community Pharmacy

Table (4.7) Knowledge of Community Pharmacy

Items	Answers	Frequency	Percent
I am well aware of the community pharmacy practices and the medication management of the patients	Yes	232	92.8
	No	18	7.2
I have the required knowledge and degree regarding the over-the-counter medications.	Yes	214	85.6
	No	36	14.4
community pharmacist primary role of medication counselling service is aid with adherence and disease state management	Yes	214	85.6
	No	36	14.4

Any patient who uses prescription and nonprescription medication herbal products or other dietary Supplement could potentially benefit from medication counselling service.	Yes	196	78.4
	No	54	21.6
Detection of the illness is the e the goals of medication counselling	Yes	197	78.8
	No	53	21.2
Do you know about MTM?	Yes	162	64.8
	No	88	35.2
What were your source(s) of knowledge about MTM? (Multiple options)	pharmacy training	201	80.4
	Journals	98	39.2
	Conferences/Workshops	173	69.2
	Hospital presentations	90	36.0
Do you know about Pharmaceutical Care?	Yes	197	78.8
	No	53	21.2
Are there any similarities between MTM and Pharmaceutical Care?	Yes	197	78.8
	No	53	21.2

From the above table we conclude that (92.8 %) of the sample study are well aware of the community pharmacy practices and the medication management of the patients.

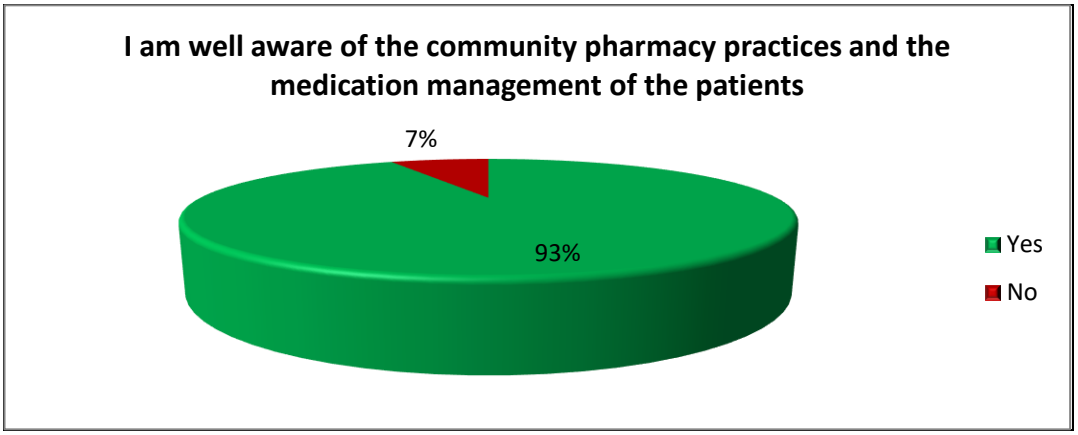

Figure (4.10) I am well aware of the community pharmacy practices and the medication management of the patients

We conclude that (85.6 %) of the sample study have the required knowledge and degree regarding over-the-counter medications.

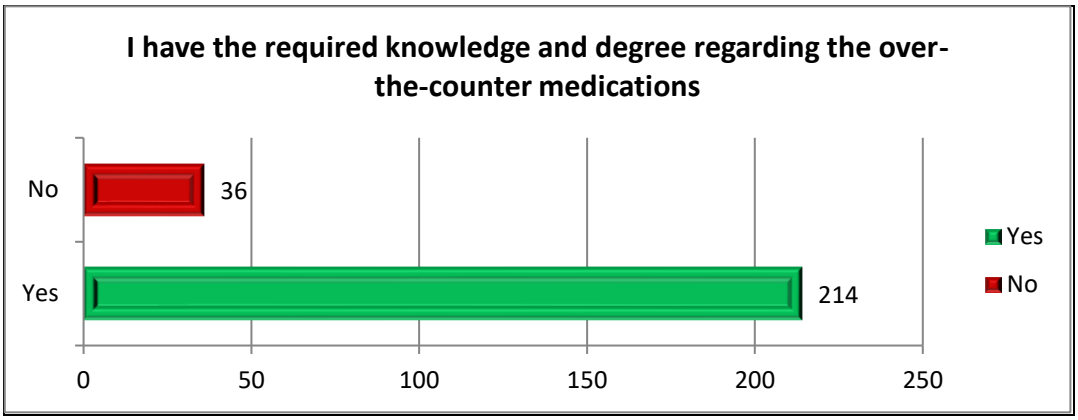

Figure (4.11) I have the required knowledge and degree regarding the over-the-counter medications

We conclude that (85.6 %) of the sample study agree that community pharmacist primary role of medication counselling service is aid with adherence and disease state management.

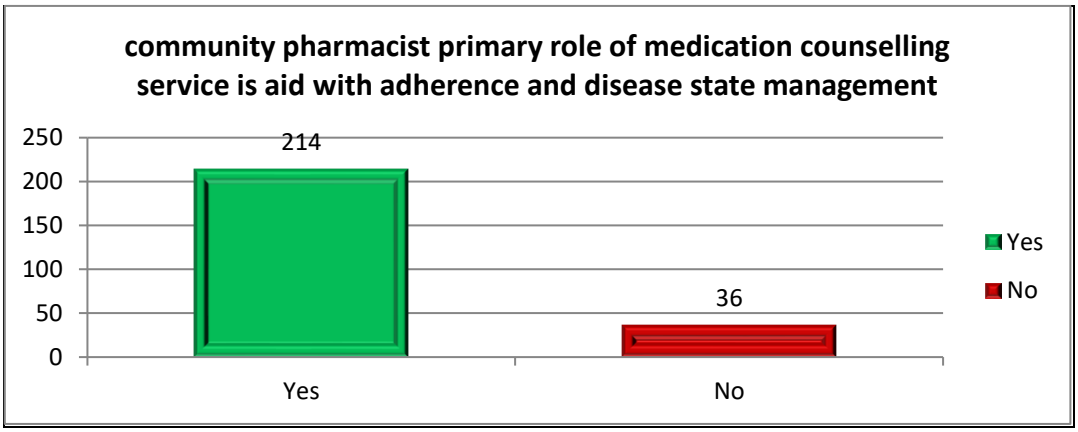

Figure (4.12) Community Pharmacist primary role of medication counselling service is aid with adherence and disease state management

We conclude that (78.4 %) of the sample study agrees that Any patient who uses prescription and nonprescription medication herbal products or other dietary Supplement could potentially benefit from medication counselling service.

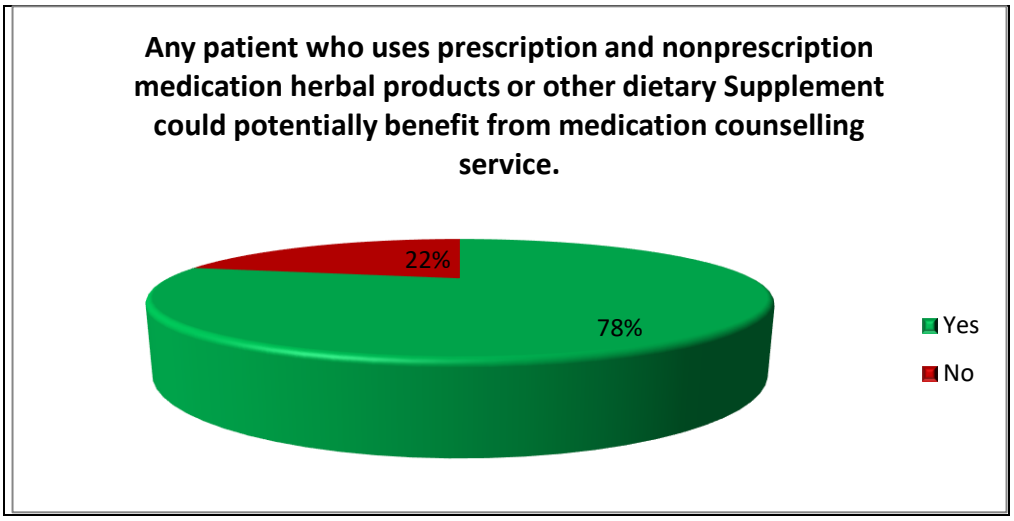

Figure (4.13) Any patient who uses prescription and nonprescription medication herbal products or other dietary Supplement could potentially benefit from medication counselling service

We conclude that (78.8 %) of the sample study agrees that Detection of the illness is the e the goals of medication counselling.

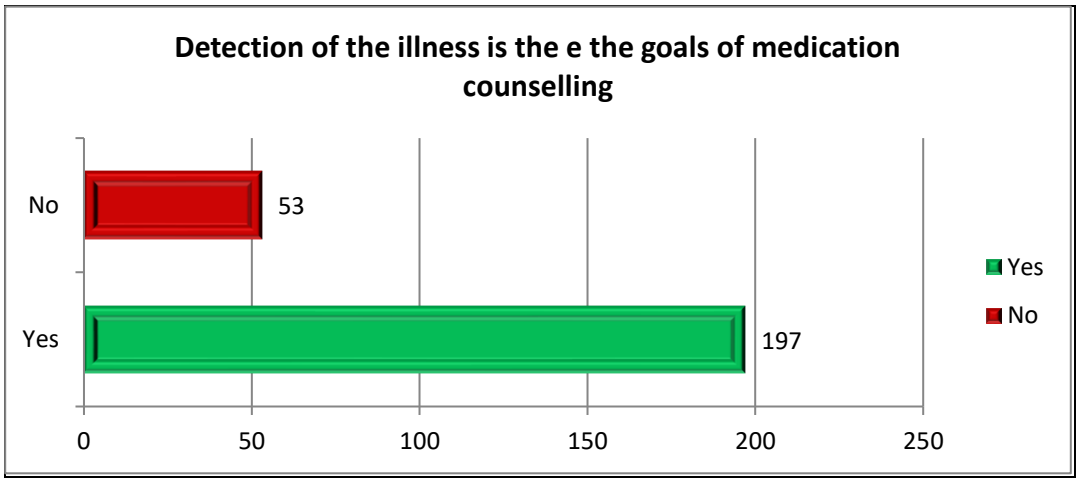

Figure (4.14) Detection of the illness is the e the goals of medication counselling

We conclude that (64.8 %) of the sample study knows about MTM ,but(35.2%) of the sample study don't know about MTM.

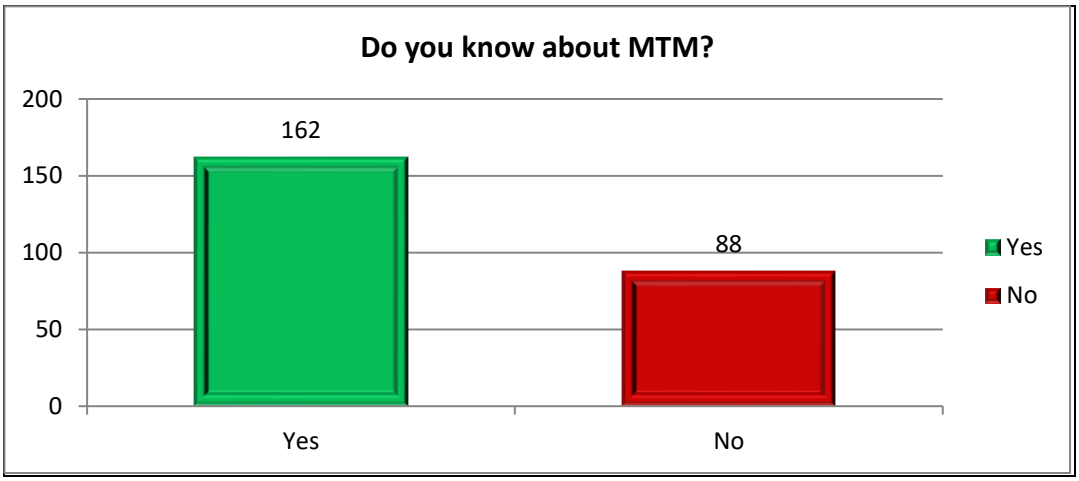

Figure (4.15) Do you know about MTM

We conclude that (80.4 %) of the sample study confirmed that pharmacy training is their source of knowledge about MTM, (69.2%) of the sample study confirmed that Conferences/Workshops are their source of knowledge about MTM ,(39.2%) of the sample study confirmed that Journals are their source of knowledge about MTM ,and (36.0%) of the sample study confirmed that Hospital presentations are their source of knowledge about MTM

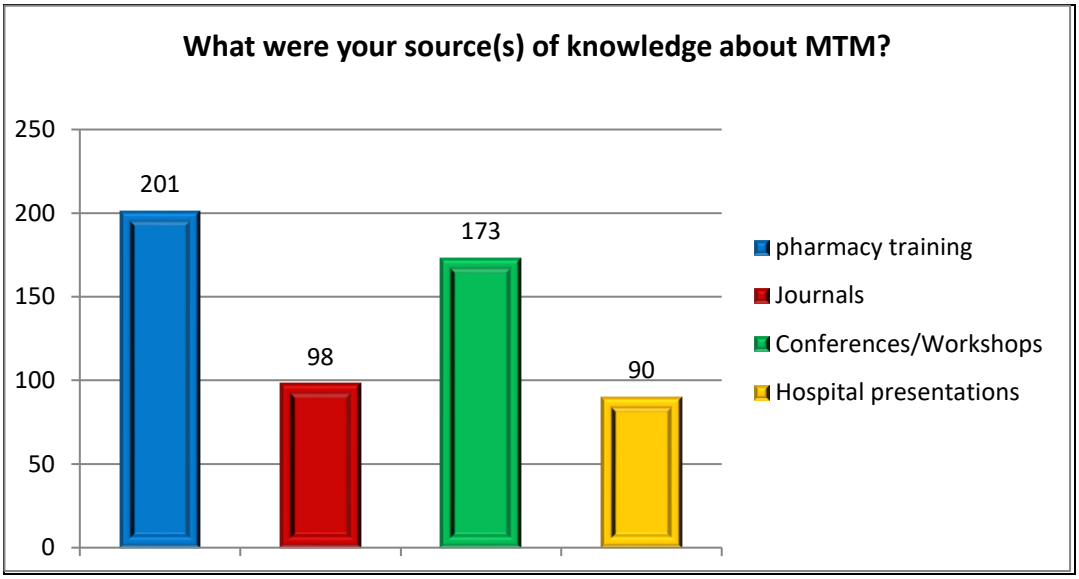

Figure (4.16) What were your source(s) of knowledge about MTM

(78.8 %) of the sample study knows know about Pharmaceutical Care, but(21.2%) of the sample study don't know about Pharmaceutical Care.

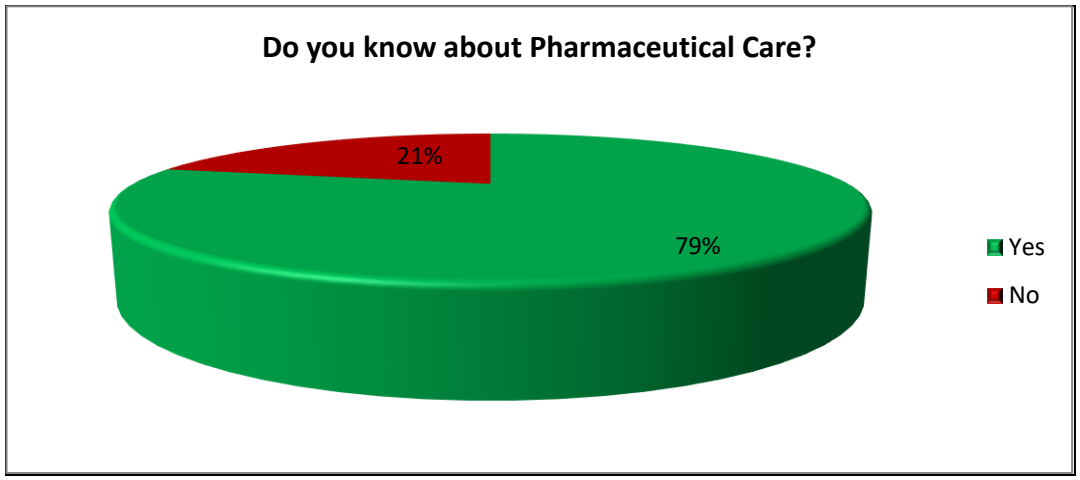

Figure (4.17) Do you know about Pharmaceutical care?

(78.8 %) of the sample study agree that there are any similarities between MTM and Pharmaceutical Care, but (21.2%) of the sample study agree that there aren't any similarities between MTM and Pharmaceutical Care

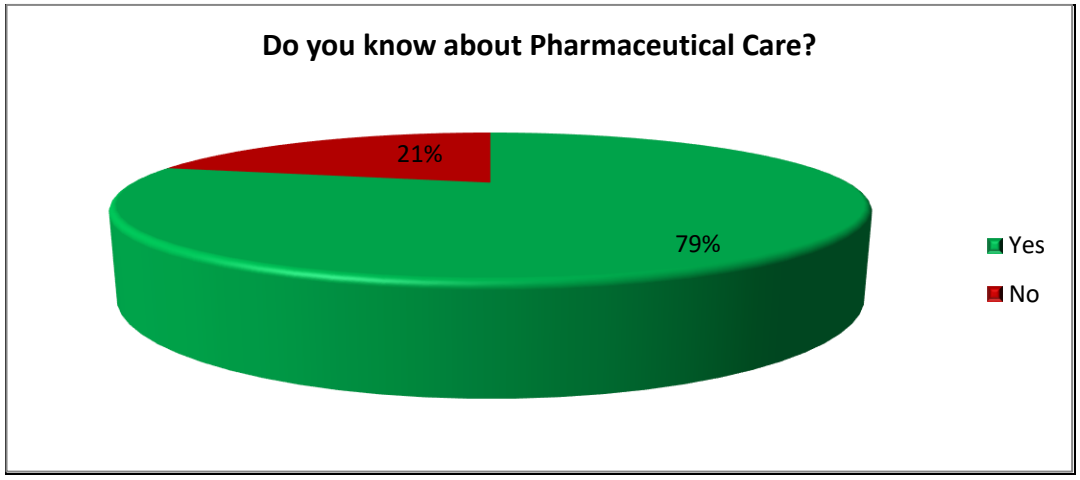

Figure (4.18) Do you know about pharmaceutical care?

From the results of Knowledge of Community Pharmacy we conclude the Good knowledge of community pharmacy among the study sample members where they are well aware of the community pharmacy practices and the medication management of the patients, and they have the required knowledge and degree regarding over-the-counter medications, agree that community pharmacist primary role of medication counselling service is aid with adherence and disease state management , agrees that Any patient who uses prescription and nonprescription medication herbal products or other dietary Supplement could potentially benefit from medication counselling service, agrees that Detection of the illness is the e the goals of medication counselling.

table for classification of knowledge score levels based on the questionnaire results. This also provides an illustration of how cutoff points can be determined:

Table 4.8 : Categorization of Total Knowledge Scores

Score	Range	Knowledge Level
0	0-12	Low
1	13-19	Medium
2	20-25	High

As seen in the table, the total possible knowledge score from the questionnaire is 25 based on the number of knowledge questions and points per question.

Tertiles or quartiles are often used to group scores into meaningful categories like low, medium and high. In this case, the scores are divided into quartiles for classification:

- Low knowledge: Bottom 25% score (0-12)

- Medium knowledge: Middle 50% score (13-19)

- High knowledge: Top 25% score (20-25)

The cutoff scores of 12 and 19 correspond to 25th and 75th percentiles. So the top and bottom quarters of scores fall into low and high categories respectively. The middle half is classified as medium knowledge. These can be adjusted (for example into tertiles dividing into equal thirds) as needed for the study.

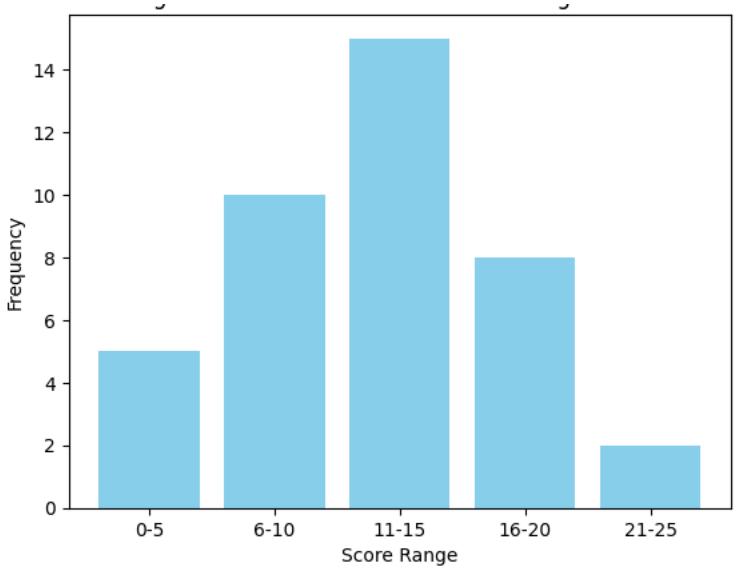

Figure 4.18 Categorization of Total Knowledge Scores

2- Challenges of community pharmacies

Table (4.9) Challenges of community pharmacies

items	Answers	Frequency	Percent
The community pharmacist has to work extra hours in their local pharmacies.	weak	18	7.2
	good	18	7.2
	Very good	72	28.8
	Excellent	142	56.8
There is a lack of training and development opportunities for community pharmacists in the region.	weak	18	7.2
	good	18	7.2
	Very good	35	14.0
	Excellent	179	71.6
There is lack of trust among the patients on the community pharmacist.	weak	72	28.8
	good	35	14.0
	Very good	35	14.0
	Excellent	108	43.2

From the above table we conclude that (56.8 %) of the sample study agrees that the community pharmacist has to work extra hours in their local pharmacies, (28.8%). of the sample study Neutral that the community pharmacist has to work extra hours in their local pharmacies, (7.2%). of the sample study Disagree that the community pharmacist has to work extra hours in their local pharmacies, and (7.2%). of the sample study Strongly Disagree that the community pharmacist has to work extra hours in their local pharmacies

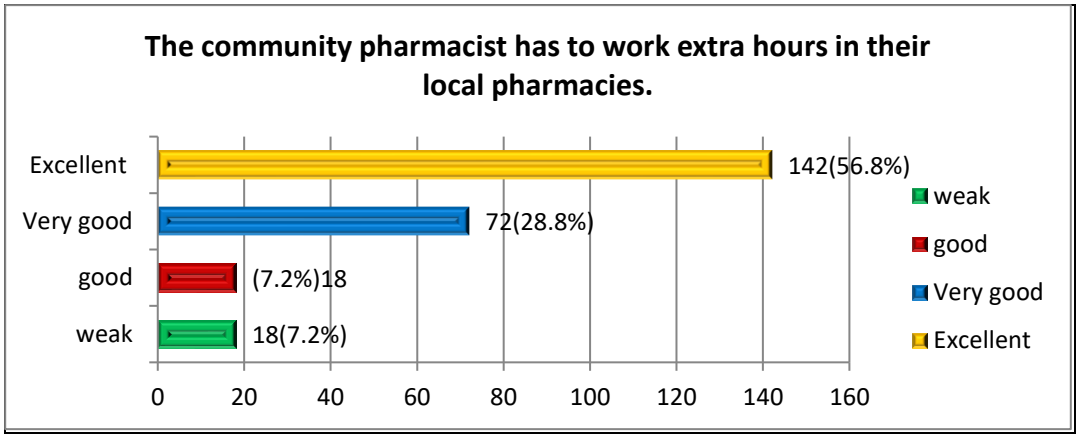

Figure (4.20) The community pharmacist has to work extra hours in their local pharmacies

(71.6 %) of the sample study agrees that There is a lack of training and development opportunities for community pharmacists in the region, (14%). of the sample study Neutral that There is a lack of training and development opportunities for community pharmacists in the region, (7.2%). of the sample study Disagree that There is a lack of training and development opportunities for community pharmacists in the region, and (7.2%). of the sample study

Strongly Disagree that There is a lack of training and development opportunities for community pharmacists in the region

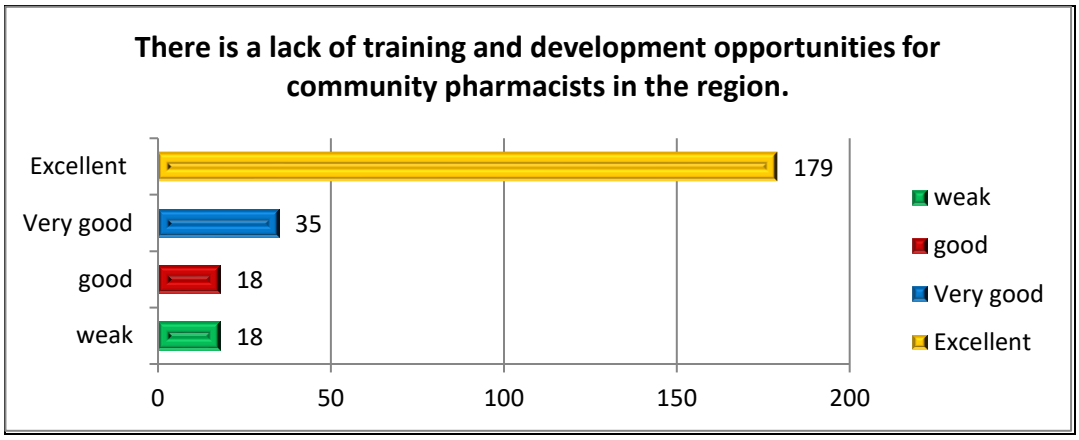

Figure (4.21) there is a lack of training and development opportunities of community pharmacists in the region

(43.2 %) of the sample study agrees that There is lack of trust among the patients on the community pharmacist, (14%). of the sample study Neutral that There is lack of trust among the patients on the community pharmacist, (14%). of the sample study Disagree that There is lack of trust among the patients on the community pharmacist, and (28.8%). of the sample study Strongly Disagree that There is lack of trust among the patients on the community pharmacist

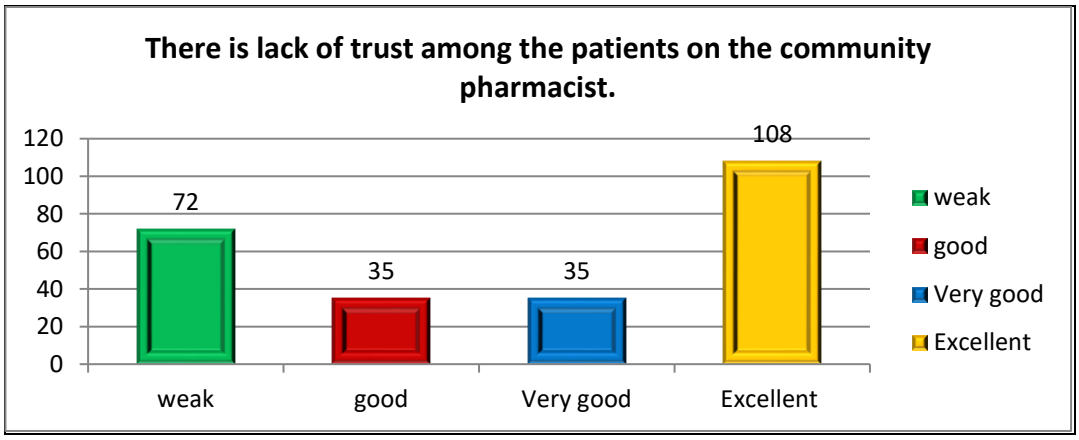

Figure (4.22) there is a lack of trust among the patients on the community pharmacist

From the results of Challenges of community pharmacies, we conclude that there are many challenges for community pharmacies as the community pharmacist has to work extra hours in their local pharmacies, also there is a lack of training and development opportunities for community pharmacists in the region and lack of trust among the patients on the community pharmacist.

3- Perception of Community Pharmacy

Table (4.10) Perception of Community Pharmacy

items	Answers	Frequency	Percent
The community pharmacist formulates a medication treatment plan	Weak	35	14.0
	Good	53	21.2
	Very good	162	64.8
Community pharmacists have the required knowledge of the medical conditions they are dealing with on daily routine	Weak	18	7.2
	Good	178	71.2
	Very good	54	21.6
Community pharmacists are provided with verbal education and training designed to enhance patient understanding and appropriate use of his/her medications	Weak	125	50.0
	Good	89	35.6
	Very good	36	14.4
In nay community, community pharmacy provides information, support services, and resources designed to enhance patient adherence with his/her therapeutic regimens	Weak	89	35.6
	Good	107	42.8
	Very good	54	21.6

From the above table we conclude that (64.8 %) of the sample study agrees that the community pharmacist formulates a medication treatment plan, (21.2%). of the sample study Neutral that the community pharmacist formulates a medication treatment plan, and (14%). of the sample study Disagree that the community pharmacist formulates a medication treatment plan.

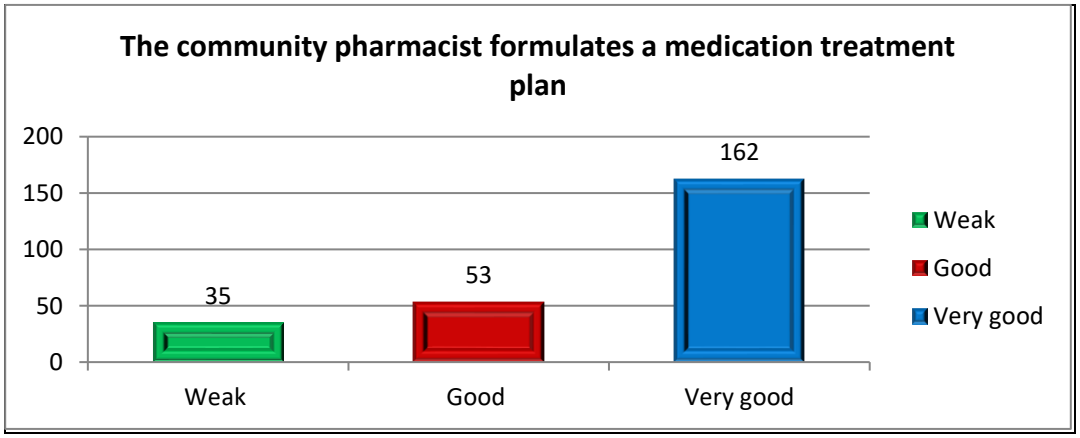

Figure (4.23) The community pharmacist formulates a medication treatment plan

(71.2 %) of the sample study agrees that Community pharmacists have the required knowledge of the medical conditions they are dealing with on daily routine, (21.6%) of the sample study Strongly agrees that Community pharmacists have the required knowledge of the medical conditions they are dealing with on daily routine, and (7.2%). of the sample study Neutral that

Community pharmacists have the required knowledge of the medical conditions they are dealing with on daily routine

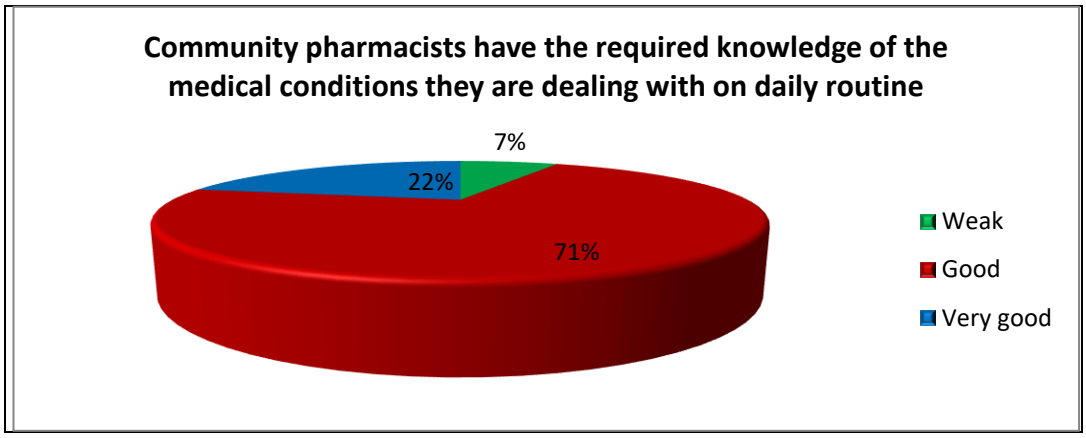

Figure (4.24) Community pharmacists have the required knowledge of the medical conditions they are dealing with on daily routine

(35.6 %) of the sample study agrees that Community pharmacists are provided with verbal education and training designed to enhance patient understanding and appropriate use of his/her medications, (14.4%). of the sample study strongly agrees that Community pharmacists are provided with verbal education and training designed to enhance patient understanding and appropriate use of his/her medications, and (50%). of the sample study neutral that Community pharmacists are provided with verbal education and training designed to enhance patient understanding and appropriate use of his/her medications

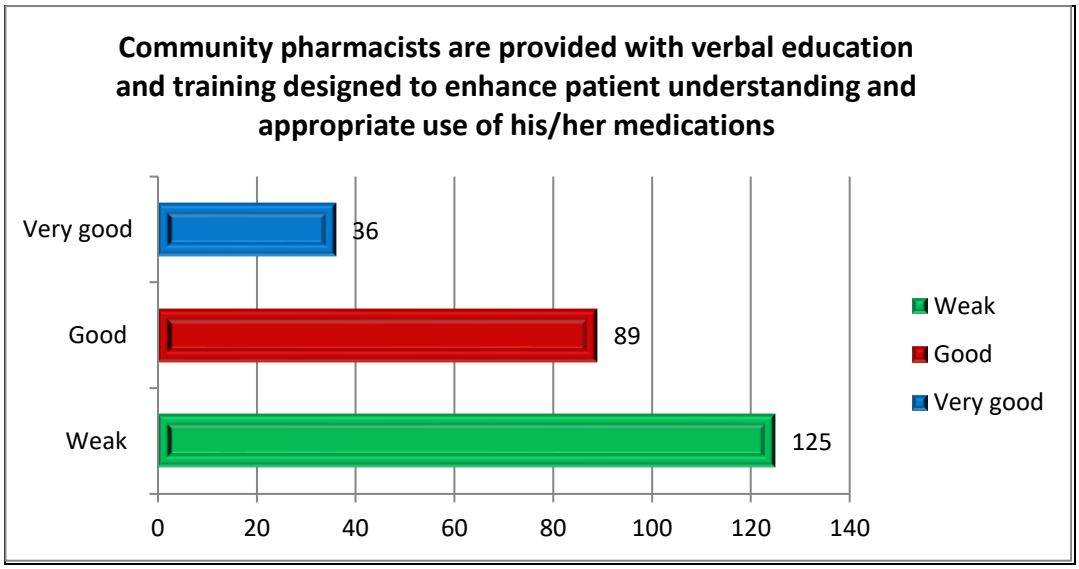

Figure (4.25) Community pharmacists are provided with verbal education and training designed to enhance patient understating appropriate use of his / her medications

(42.8 %) of the sample study agrees that in nay community, community pharmacy provides information, support services, and resources designed to enhance patient adherence with his/her therapeutic regimens, (21.6%). of the sample study strongly agrees that in nay community, community pharmacy provides information, support services, and resources designed to enhance patient adherence with his/her therapeutic regimens, and (35.6%). of the sample study

neutral that in nay community, community pharmacy provides information, support services, and resources designed to enhance patient adherence with his/her therapeutic regimens.

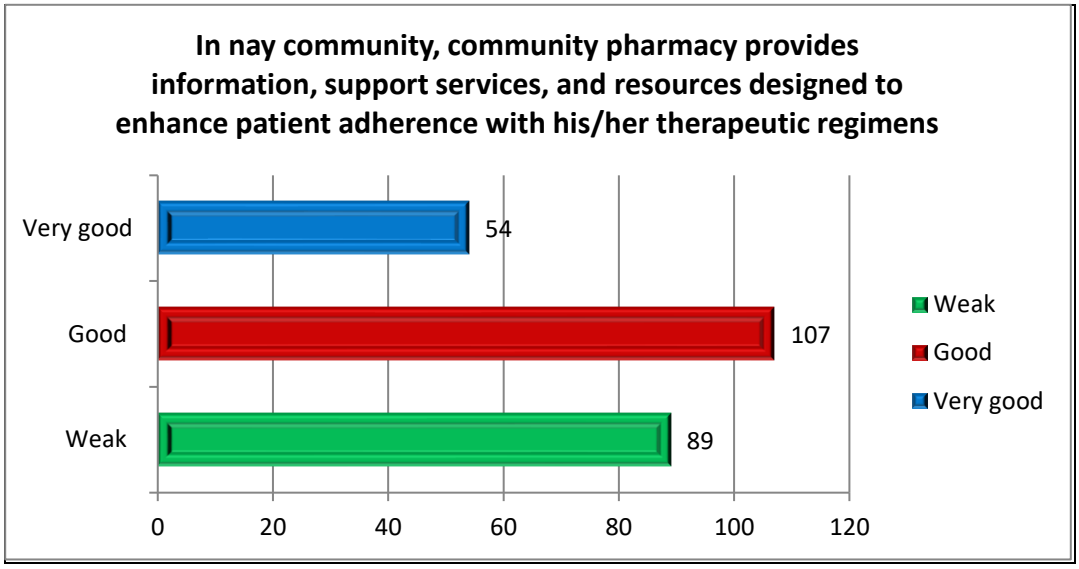

Figure (4.26) In Nay community provides information, support services and resources designed to enhance patient adherence with his / her therapeutic regimens

From the results of Perception of Community Pharmacy, we can conclude that the Perception of Community Pharmacy score has increased where the community pharmacist formulates a medication treatment plan and Community pharmacists have the required knowledge of the medical conditions, they are dealing with on daily routine.

4- Willingness to Practice

Table (4.11) Willingness to Practice

items	Answers	Frequency	Percent
I am willing to work as a community pharmacist.	Weak	18	7.2
	Good	106	42.4
	Very good	126	50.4
I can work extra hours to provide the required consultation	Weak	17	6.8
	Good	215	86.0
	Very good	18	7.2
I see my growth and future as a community pharmacist	Weak	34	13.6
	Good	54	21.6
	Very good	108	43.2
	Excellent	54	21.6
Do you use the Patient Medication Record (PMR) to communicate and collaborate with other health care	Yes	36	14.4
	No	214	85.6

professionals to achieve optimal patient outcomes?			
Do you provide patients with a Medication-Related Action Plan (MAP) to enable them track progress towards health goals?	Yes	89	35.6
	No	161	64.4
Do you follow up patients to evaluate progress towards drug therapy goals?	Yes	108	43.2
	No	142	56.8

From the above table we conclude that (50.4 %) of the sample study strongly agrees that they are willing to work as a community pharmacist, (42.2%). of the sample study agrees with that, and (7.2%) of the sample study Disagree with that.

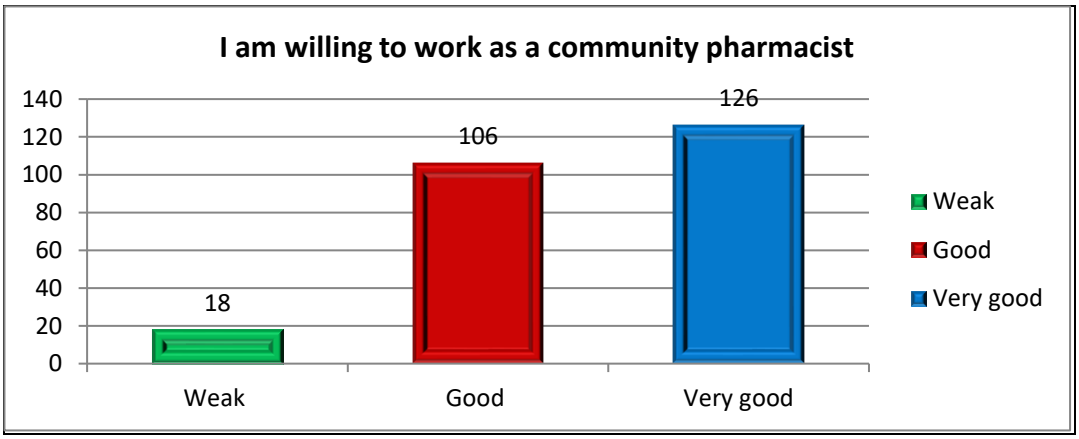

Figure (4.27) I am willing to work as a community pharmacist

(43.2 %) of the sample study agrees that they see their growth and future as a community pharmacist, (21.6%). of the sample study strongly agrees with that, and(13.6%) of the sample study Disagree with that.

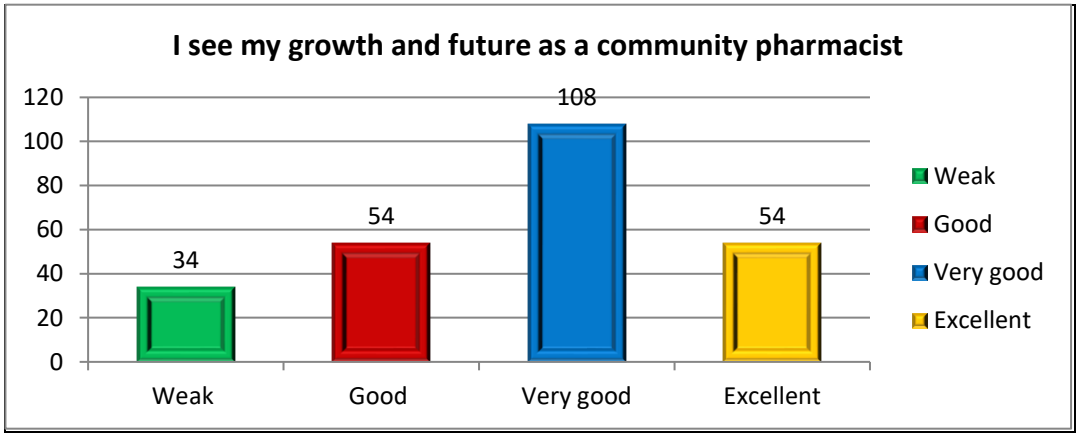

Figure (4.28) I see my growth and future as a community pharmacist

(85.6 %) of the sample study don't use the Patient Medication Record (PMR) to communicate and collaborate with other health care professionals to achieve optimal patient outcomes.

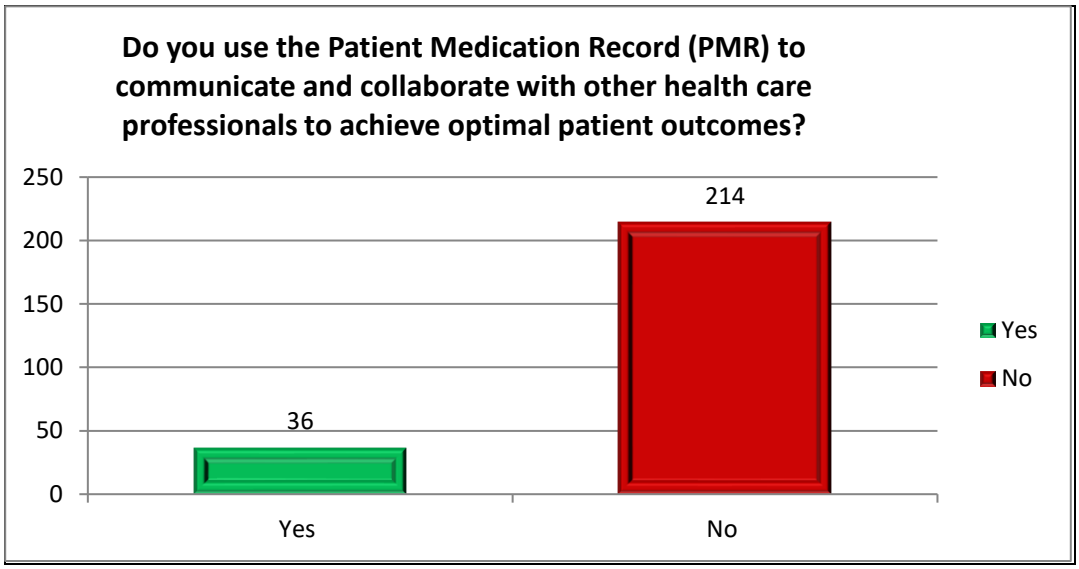

Figure (4.29) Do you use the Patient Medication Record (PMR) to communicate and collaborate with other health care professionals to achieve optimal patient outcomes?

(64.4 %) of the sample study don't use the Patient Medication Record (PMR) to communicate and collaborate with other health care professionals to achieve optimal patient outcomes, and (35.6%) of the sample study use the Patient Medication Record (PMR) to communicate and collaborate with other health care professionals to achieve optimal patient outcomes.

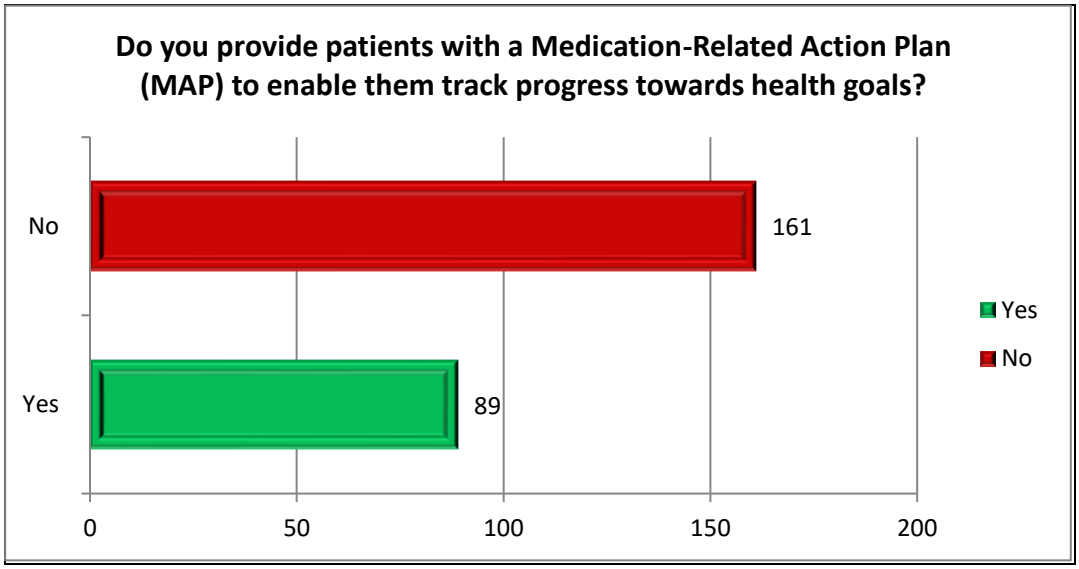

Figure (4.30) Do you provide patients with a Medication-Related Action Plan (MAP) to enable them track progress towards health goals?

(56.8 %) of the sample study follow up patients to evaluate progress towards drug therapy goals, and (43.2%) of the sample study don't follow up patients to evaluate progress towards drug therapy goals.

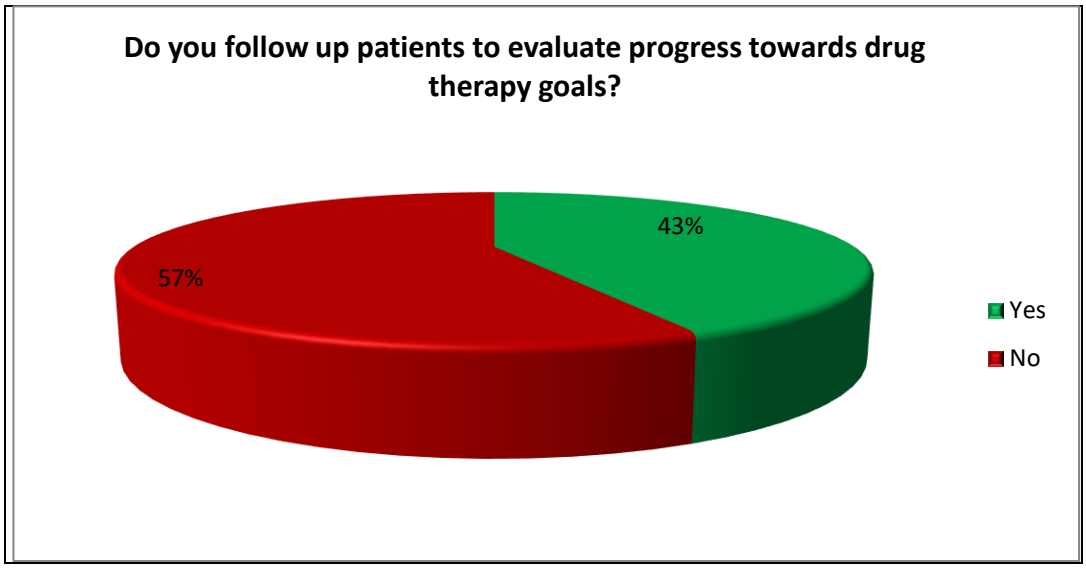

Figure (4.31) Do you follow up patients to evaluate progress towards drug therapy goals?

From the results of Willingness to Practice, we can conclude that the high degree of Willingness to Practice among members of the sample study where they are willing to work as a community pharmacist, they can work extra hours to provide the required consultation also they don't use the Patient Medication Record (PMR) to communicate and collaborate with other health care professionals to achieve optimal patient outcomes.

5- Attitude of community pharmacist

Table (4.12) Attitude of community pharmacist

items	Answers	Frequency	Percent
Beside the processes of normal dispensing functions, reviewing patient's medication profile and providing interventions are important roles of pharmacist to prevent adverse effects	Weak	17	6.8
	Good	89	35.6
	Very good	144	57.6
By applying medication counselling services to, patients was receive adequate and beneficial information about their chronic disease (s) and medication therapies from their providers	Weak	17	6.8
	Good	161	64.4
	Very good	72	28.8
providers applying medical counselling service requires more knowledge than basic information of pharmacy practice	Very Weak	18	7.2
	Weak	17	6.8
	Good	72	28.8
	Very good	89	35.6
	Excellent	54	21.6

Community pharmacists are not given required development and collaboration with the hospitals by the government.	Weak	36	14.4
	Good	35	14.0
	Very good	143	57.2
	Excellent	36	14.4
Providing medical counselling service is a unique opportunity for pharmacists to participate in patient care at a broader spectrum	Weak	18	7.2
	Good	18	7.2
	Very good	160	64.0
	Excellent	54	21.6
Do you believe medication therapy management encourages collaboration and cooperation between pharmacists and other health care givers?	Yes	215	86.0
	No	35	14.0
Do you think remuneration is necessary for medication therapy management service?	Yes	162	64.8
	No	88	35.2
Do you will encourage the practice of medication therapy management services in hospital pharmacies?	Yes	179	71.6
	No	71	28.4
Do you was like to be trained on medication therapy management service?	Yes	197	78.8
	No	53	21.2

From the above table we conclude that (57.6 %) of the sample study strongly agree that beside the processes of normal dispensing functions, reviewing patient's medication profile and providing interventions are important roles of pharmacist to prevent adverse effects, (35.6%). of the sample study agree with that, and (6.8%) of the sample study neutral with that.

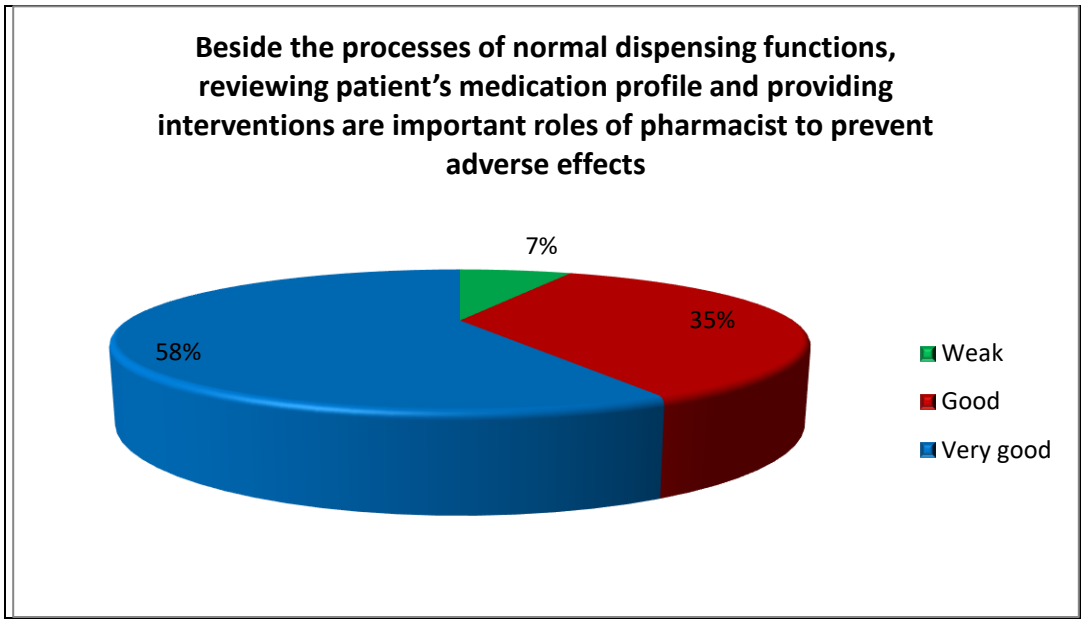

Figure (4.32) Beside the processes of normal dispensing functions, reviewing patient's medication profile and providing interventions are important roles of pharmacist to prevent adverse effects

From the above table we conclude that (64.4 %) of the sample study agree that By applying medication counselling services to, patients was receive adequate and beneficial information about their chronic disease (s) and medication therapies from their providers, (28.8%). of the sample study strongly agree with that, and (6.8%) of the sample study neutral with that.

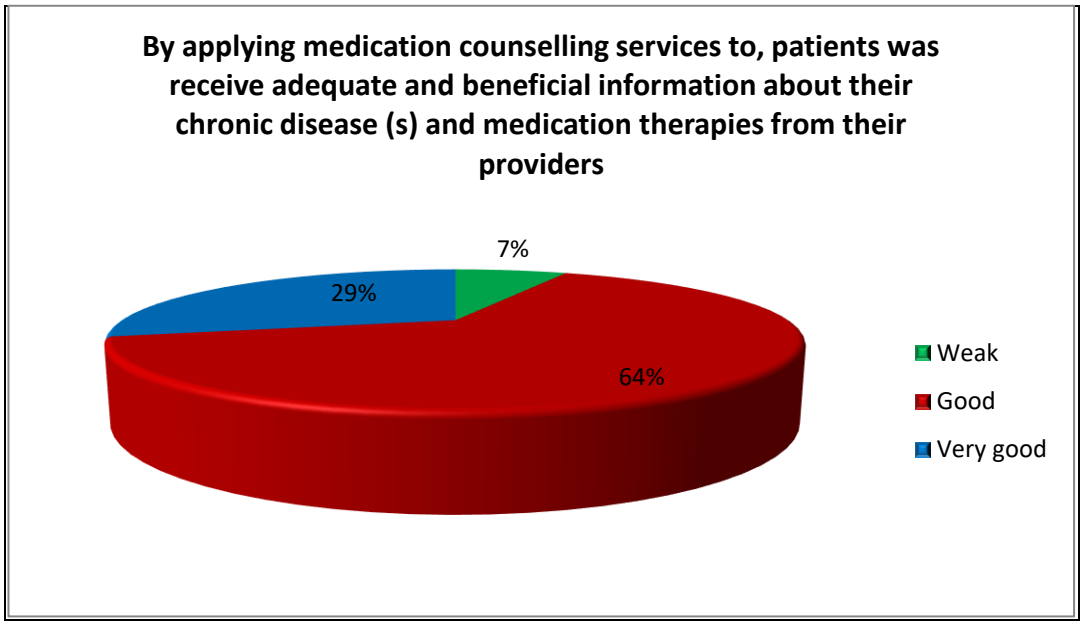

Figure (4.33) By applying medication counselling services to, patients was receive adequate and beneficial information about their chronic disease (s) and medication therapies from their providers

From the above table we conclude that (35.6 %) of the sample study agree that providers applying medical counselling service requires more knowledge than basic information of

pharmacy practice, (28.8%). of the sample study neutral with that, and (21.6%) of the sample study strongly agree with that.

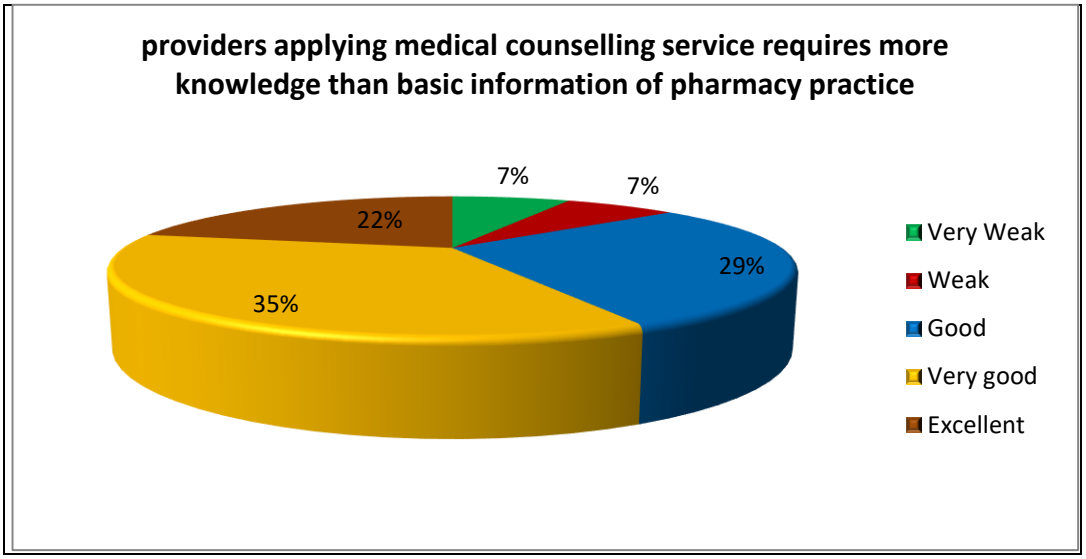

Figure (4.34) Providers applying medical consulting service requires more knowledge than basic information of pharmacy practice (57.2 %) of the sample study agrees that Community pharmacists are not given required development and collaboration with the hospitals by the government, (14.4%). of the sample study Strongly Agree with that, and (14%) of the sample study Neutral with that.

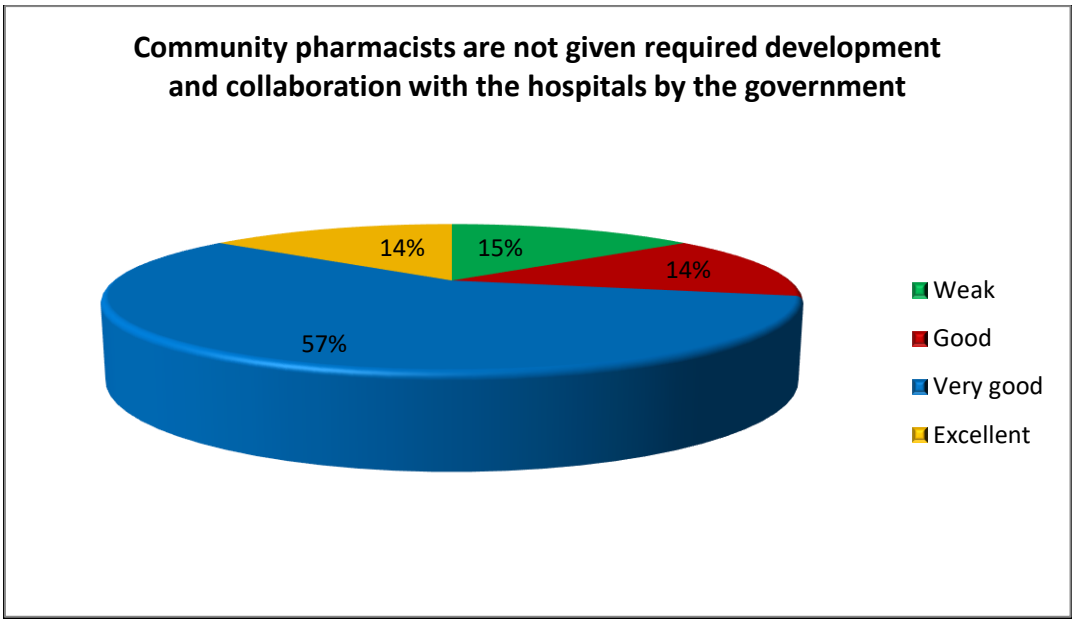

Figure (4.35) Community pharmacists are not given required development and collaboration with the hospitals by the government

(64 %) of the sample study agree that providing medical counselling service is a unique opportunity for pharmacists to participate in patient care at a broader spectrum, (21.6%). of the sample study Strongly Agree with that, and (7.2%) of the sample study Neutral with that.

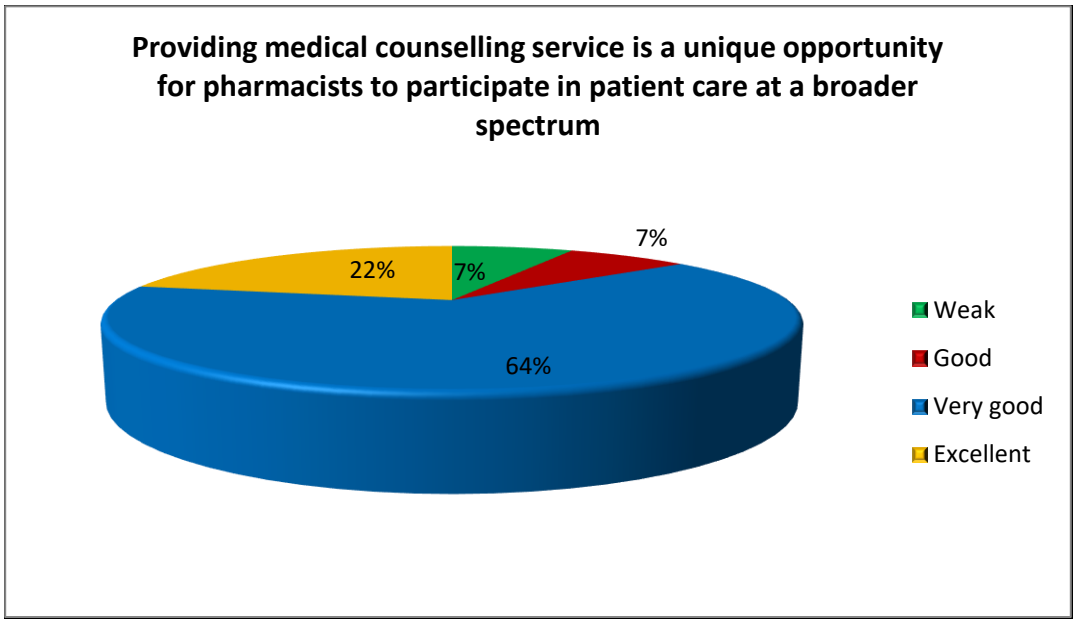

Figure (4.36) Providing medical counselling service is a unique opportunity for pharmacists to participate in patient care at a broader spectrum

(86 %) of the sample study believe medication therapy management encourages collaboration and cooperation between pharmacists and other health care givers, and (14%) of the sample study don't believe that.

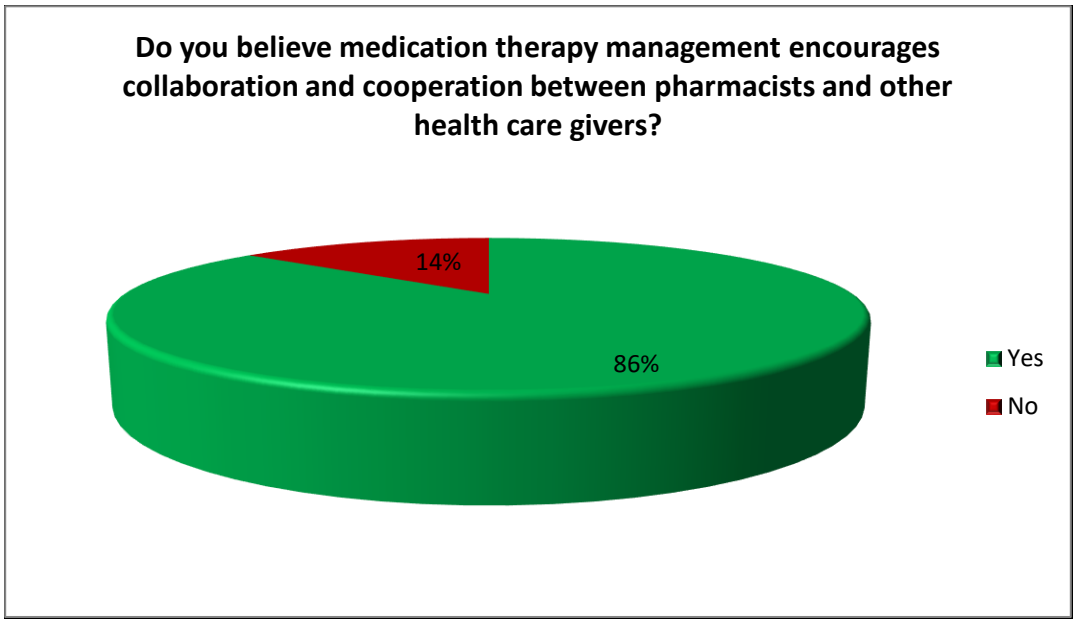

Figure (4.37) Do you believe medication therapy management encourages collaboration and cooperation between pharmacists and other health care givers?

(64.8 %) of the sample study think remuneration is necessary for medication therapy management service, and (35.2%) of the sample study don't think that.

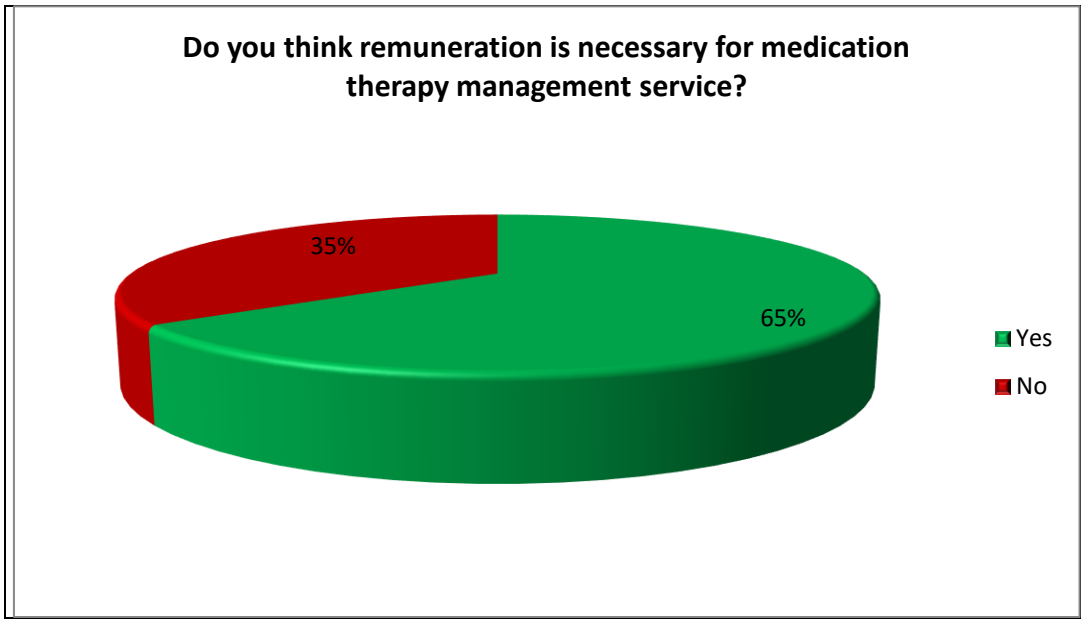

Figure (4.38) Do you think remuneration is necessary for medication therapy management service?

(71.6 %) of the sample study will encourage the practice of medication therapy management services in hospital pharmacies, and (28.4%) of the sample study don't will encourage the practice of medication therapy management services in hospital pharmacies.

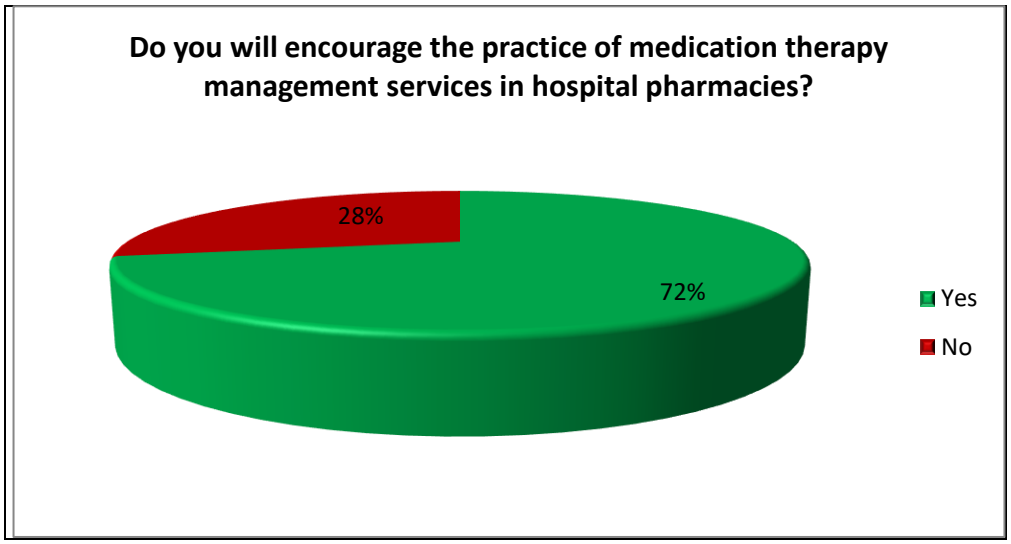

Figure (4.39) Do you will encourage the practice of medication therapy management services in hospital pharmacies?

(78.8 %) of the sample study was like to be trained on medication therapy management service, and (21.2%) of the sample study was n't like to be trained on medication therapy management service.

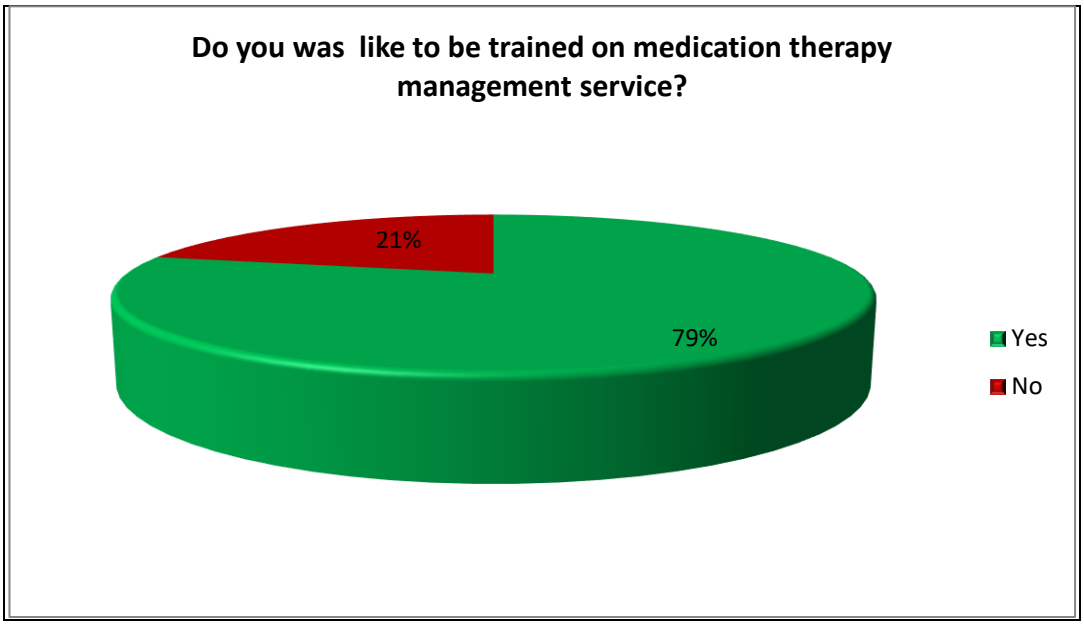

Figure (4.40) Do you like to be trained on medication therapy management service?

From the results of Attitude of community pharmacist, we can conclude that the high Attitude of community pharmacist score By applying medication counselling services to, patients was receive adequate and beneficial information about their chronic disease (s) and medication therapies from their providers, and Beside the processes of normal dispensing functions, reviewing patient's medication profile and providing interventions are important roles of pharmacist to prevent adverse effects

6. total score for knowledge

The following tables provide a correlation between the knowledge levels and demographic data among the participants.

The majority of participants are male (197), indicating a potential gender imbalance in the study. The distribution of knowledge levels across genders provides insights into potential variations in knowledge acquisition or attitudes toward medication counseling.

Table 4.13: Knowledge Level Distribution by Gender

Gender	Good Knowledge	Moderate Knowledge	Low Knowledge
Male	120	50	27
Female	30	15	8

The age distribution is fairly evenly spread across the provided age ranges, allowing for a comprehensive exploration of knowledge levels across different life stages. The breakdown of knowledge levels by age groups helps identify if there are any age-related patterns in participants' knowledge and perceptions.

Table 4.14: Knowledge Level Distribution by Age Range

Age Range	Good Knowledge	Moderate Knowledge	Low Knowledge
26 to 30 years	20	18	15
31 to 40 years	35	25	11
41 to 50 years	25	18	11
51 years and above	40	22	10

Non-Emirati participants significantly outnumber Emirati participants, which could influence the generalizability of study findings to the broader population. Examining knowledge levels across different nationalities may reveal cultural influences on participants' understanding and attitudes toward medication therapy management.

Table 4.15: Knowledge Level Distribution by Nationality

Nationality	Good Knowledge	Moderate Knowledge	Low Knowledge
Emirati	15	20	17
Non-Emirati	105	63	30

Full-time employment is predominant among participants, suggesting that the study may be more representative of individuals with full-time professional commitments. Variations in knowledge levels among different employment statuses could highlight the impact of work-related factors on participants' knowledge and perceptions.

Table 4.16: Knowledge Level Distribution by Employment Status

Employment Status	Good Knowledge	Moderate Knowledge	Low Knowledge
Full-time	80	50	31
Part-time	15	10	10
Self-Employed	25	13	16

1. Correlation between Knowledge Level and Age:

- The Pearson's correlation coefficient of 0.15 suggests a weak positive correlation between knowledge level and age. However, with a p-value of 0.07, the correlation is not statistically significant at the conventional 0.05 significance level. This implies that, based on the current sample, there is insufficient evidence to conclude a significant relationship between knowledge level and age.

Table 4.17 Correlation between Knowledge Level and Age

Variable	Pearson's Correlation Coefficient	p-value
Age	0.15	0.07

2. Correlation between Knowledge Level and Gender:

- The Chi-Square value of 8.42 indicates a significant association between knowledge level and gender, as supported by the p-value of 0.004. This suggests that there is a statistically significant difference in knowledge levels between different genders. Further post-hoc analyses could help identify which gender contributes more to this observed difference.

Table 4. 18 Correlation between Knowledge Level and Gender:

Variable	Chi-Square Value	p-value
Gender	8.42	0.004

* Chi-Square pvalue 0.004j

3. Correlation between Knowledge Level and Nationality:

- The Chi-Square value of 12.58 and a p-value of 0.001 suggest a significant association between knowledge level and nationality. This implies that participants from different nationalities have varying levels of knowledge. Subsequent analyses could explore specific nationalities contributing to this difference.

Table 4.19 . Correlation between Knowledge Level and Nationality:

Variable	Chi-Square Value	p-value
Nationality	12.58	0.001

4. Correlation between Knowledge Level and Employment Status:

- The Chi-Square value of 15.72 with a p-value of <0.001 indicates a highly significant association between knowledge level and employment status. This implies that participants with different employment statuses significantly differ in their knowledge levels. Post-hoc tests can help identify which employment status groups contribute to this significant difference.

Table 4.20 Correlation between Knowledge Level and Employment Status

Variable	Chi-Square Value	p-value
Employment Status	15.72	<0.001

- Statistical significance (or lack thereof) provides valuable insights into the relationships between variables.

- While age showed a weak correlation that was not statistically significant, the categorical variables (gender, nationality, and employment status) exhibited significant associations with knowledge level.

- It's essential to consider the practical significance along with statistical significance. Even if a correlation is statistically significant, its practical importance may be limited.

- These findings lay the groundwork for more in-depth analyses, potentially using regression models or subgroup analyses to better understand the nuances of these correlations.

Discussion

Main points in our results

From the results of Knowledge of Community Pharmacy we conclude the Good knowledge of community pharmacy among the study sample members where they are well aware of the community pharmacy practices and the medication management of the patients, and they have the required knowledge and degree regarding over-the-counter medications, agree that community pharmacist primary role of medication counselling service is aid with adherence and disease state management , agrees that Any patient who uses prescription and nonprescription medication herbal products or other dietary Supplement could potentially benefit from medication counselling service, agrees that Detection of the illness is the goals of medication counselling.

From the results of Challenges of community pharmacies, we conclude that there are many challenges for community pharmacies as the community pharmacist has to work extra hours in their local pharmacies, also there is a lack of training and development opportunities for community pharmacists in the region and lack of trust among the patients on the community pharmacist.

From the results of Perception of Community Pharmacy, we can conclude that the Perception of Community Pharmacy score has increased where the community pharmacist formulates a medication treatment plan and Community pharmacists have the required knowledge of the medical conditions, they are dealing with on daily routine.

From the results of Willingness to Practice, we can conclude that the high degree of Willingness to Practice among members of the sample study where they are willing to work as a community pharmacist, they can work extra hours to provide the required consultation also they don't use the Patient Medication Record (PMR) to communicate and collaborate with other health care professionals to achieve optimal patient outcomes.

From the results of Attitude of community pharmacist, we can conclude that the high Attitude of community pharmacist score By applying medication counselling services to, patients was receive adequate and beneficial information about their chronic disease (s) and medication therapies from their providers, and Beside the processes of normal dispensing functions, reviewing patient's medication profile and providing interventions are important roles of pharmacist to prevent adverse effects.

Medication treatment management (MTM) is a tried-and-true technique for lowering medication mistakes. Pharmacy professionals have a significant role in MTM services, especially in community health centers (CHCs). The plan for implementing the MTM program must therefore take into account pharmacists' knowledge, attitudes, and practices (KAP) on MTM. This study sought to determine the extent of KAP towards MTM among CHC pharmacists and its contributing elements as well as pharmacists' perspectives of future MTM providing challenges and facilitators (Rendrayani et al., 2023).

The function of the pharmacist has grown to include additional services like patient counseling, improving patient adherence, and identifying any adverse medication reactions related to the therapy. To broaden the scope of pharmacists' services beyond their typical responsibilities, medication treatment management (MTM) services have been developed. Although pharmacists are the only medical professionals officially designated as MTM providers in the MMA, offering MTM services necessitates teamwork between other medical experts in order to obtain the optimal therapeutic outcomes for each patient (Smith & Clancy, 2006).

Al-Tameemi & Sarriff, 2019 discovered that the majority of pharmacists had good attitudes regarding MTM service. This is in reference to the attitudes of pharmacists toward MTM service. This result supported the findings of our investigation. Additionally, prior research among all community pharmacists employed in Iowa, USA, revealed that 90.1% of pharmacists concurred that MTM service is a beneficial service and that utilizing MTM service is a crucial step to advance one's career in pharmacy practice. Additionally, 86.2% of respondents concurred that using MTM services will provide them with an excellent opportunity to provide their patients with greater quality care (Al-Tameemi & Sarriff, 2019).

Additionally, Shah & Chawla (2011) discovered that the Hospital Pulau Pinang pharmacists who took part in their study had favorable opinions toward MTM service, which was consistent with other worldwide studies that came to the same conclusion about the attitudes of pharmacists in general toward MTM service (Shah & Chawla, 2011).

Jordan demonstrated a modest level of knowledge and a favorable attitude among pharmacists concerning MTM service when compared to a recent study of a comparable nature in a nearby nation. Our study's findings were similar to those from a study conducted in Malaysia, where pharmacists demonstrated a high degree of knowledge and a favorable attitude toward MTM services. In terms of practice, the majority of pharmacists said they was be open to offering MTM services in the future (Al-Dujaili et al., 2023).

Respondents in Indonesia seemed to require additional information regarding the thorough and focused medication therapy evaluation, medication-related action plans, and actions. According to the Technical Guidelines for Pharmaceutical Service Standards at Community Health Center, pharmacists in CHCs regularly assess patients' medication regimens. However, the phrase "comprehensive and targeted review" may not be well known (Rendrayani et al., 2023).

As payments and partnerships for these services develop, pharmacist interventions to provide health and wellness services like health risk assessments, preventative counseling, risk factor monitoring, and comprehensive disease state management as part of interdisciplinary teams are becoming more and more common. It has been demonstrated that pharmacists who take on these roles reduce overall expenses and raise the standard of care, especially for patients with chronic illnesses. Given that 133 million Americans have at least one chronic ailment and that pharmacists have a significant impact on managing these conditions, they can play a significant role in enhancing public health (Casserlie & DiPietro Mager, 2016).

Conclusion

The research findings offer some understanding of the knowledge, attitude, and views of community pharmacists regarding MTM service in the Fujairah region. Most pharmacists had a good level of understanding of MTM services and had favorable sentiments toward them. Additionally, the majority of them expressed a desire to provide MTM services in the future and expressed an interest in learning more about MTM services. Participants also noted a lack of training and professional development opportunities for community pharmacists in the area as well as low patient confidence in them.

Recommendations

1. This study discovered that pharmacists had a high level of knowledge and favorable attitudes about MTM services, thus additional research at hospitals in the Fujairah region is advised to get a more comprehensive view of the implementation of MTM services in Fujairah.

2. The area should offer greater possibilities for community pharmacists to get training and professional development.

3. Increasing patient confidence in the neighborhood pharmacist.

4. Ongoing education on the most recent clinical recommendations might be a good way to close the knowledge gap.

5. In order to educate pharmacists with the information they need to deliver high-quality patient care and engage in a wider range of patient care, it may be important to strengthen and standardize pharmacist curriculum relevant to therapeutic areas and emphasize the significance of clinical guidelines.

Limitation

The study sample was convenient sampling technique which allows the researchers to gather the data from the respondents who are easy to access and willing to participate in the research that may cause bias in the study and affect the study results. Also, the sample size wasnot measured according to the study power and the prevalence of the problem which may affect the internal validity of the study.

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