TURKISH REPUBLIC OF NORTH CYPRUS
NEAR EAST UNIVERSITY
HEALTH SCIENCES INSTITUTE

PHARMACY STUDENTS PERCEPTIONS OF PREPAREDNESS TO PROVIDE PHARMACEUTICAL CARE IN TURKEY AND NORTH CYPRUS.

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A Thesis Submitted To The Institute Of Health Science In Partial Fulfillment Of The

Requirement For The Award Of Master Degree In

Clinical Pharmacy

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DEDICATION

This research is dedicated to my family.

I would never have done this without your faith, support and constant encouragement. Thank you for teaching me to believe in myself and my dreams!

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Approval

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SUMMARY

Introduction: Taking care of the patients and making them the center of attention to achieve maximum medical benefit and to enhance patients quality of life should be the primary aim of all health professionals involved in the medication chain, The protocol of Pharmaceutical care which the pharmacist deal with a patient and other professionals in one chain in resolving, realizing, and monitoring a therapeutic plan that will insure the needed therapeutic outcome.

Aim: Assess Pharmacy students perceptions of preparedness to provide pharmaceutical care in Turkey and Northern Cyprus.

Methodology: A cross-sectional study was conducted on the third and fifth year pharmacy students in Turkey and Northern Cyprus using a pre-validated 34 items "The Preparedness to Provide Pharmaceutical Care (PREP)" survey tool. The permission for using this scale was taken from authors. Each item was scored on a Likert scale ranging from 1 to 7. Data was collected from the second semester of 2017-2018 year from April till July 2018. Of 34 faculties of pharmacy, only 20 matched the inclusion criteria of having fifth year pharmacy students**.** Mann Whitney U test was applied for comparisons.

Results: The number of students who particpated in this study was 246 students (out of 'response rate'). A total 235 (95.5%) fully completed the survey. We find between the 5 aspect we have in the survey that the highest rating between students goes to the Communication aspect and the lowest ranting aspect is for Research part. Within the technical part the hightest rated item were provide counseling to the patient followed by devise method to seek optimal patient compliance.

Conclusion: The growing of knowledge of students about pharmaceutical care improve with getting more courses specially after the third year. The Turkish and the Northern Cyprus universities seems to give equal education for students in pharmaceutical care

Keywords: Pharmaceutical care, clinical pharmacy, Northern Cyprus, Turkey, Therapeutic outcome, Students, Pharmacy, Education, Pharmacy Curriculum.

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ABBREVIATIONS

ABBREVIATION	EXPLANATION
PC	Pharmaceutical Care
WHO	World Health Organization
FIP	International Pharmaceutical Federation
FSI	Foundation Systems Inc.
NAPLEX	North American Pharmacist Licensure Examination
MPJE	Multistate Pharmacy Jurisprudence Examination
OSCE	objective structured clinical examination
OSPE	objective structured practical examination
COPD	Chronic Obstructive Pulmonary Disease
RDU	Rational Drug Use
ASHP	American Society of Health-System Pharmacists
PBMs	pharmacy benefit managers
CPD	continuing professional education
CE	Continuing education
LLL	Life Long Learning
CAMH	comprehensive accreditation manual for hospitals
ACPE	The Accreditation Council for Pharmacy Education
ACCP	American College of Clinical Pharmacy
IPE	inter-professional education
PREP	Preparedness to Provide Pharmaceutical Care
SPSS	Statistical Package for Social Sciences
IRB	Institutional Reviews Board

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1. INTRODUCTION

1.1 Pharmaceutical Care

1.1.1 Definition

Pharmaceutical care (PC) as defined by Heplar and Strand is the responsible provision of drug therapy for achieving definite outcomes that improve the patient's quality of life.

Medication is one of the biggest problems in health system. Taking care of the patient and making him in the center of attention for achieving maximum medical benefit and to enhance patients quality of life. This is the primary aim of all health professionals involved in the medical chain. The protocol of Pharmaceutical care which the pharmacist deal with a patient and other professionals in one chain in resolving, realizing, and monitoring a therapeutic plan that will insure the needed therapeutic outcome.

The concept of PC concern provision of drug therapy led to develop from focusing on just taking drugs to something else that make the patient is the center of care. Pharmaceutical care is a professional movement that started in the eighties as a result of a profound change, due to an economic crisis, in the sanitary system of the United States (Berenguer, 2004). In 1990 Hepler and Strand gave a definition for Pharmaceutical Care that concert on patient as the main outcome (Roberts, 1987) . More than twenty years after the definition was published by Hepler and Strand, some roles still unclear about what PC includes and how to distinguish it from such other terms (Allemann, 2014). A more patient-centered approach was endorsed by Linda Strand et al., who stated in 1997 that Pharmaceutical care is not only a theory but also a philosophy of practice (Allemann, 2014).

1.1.2 History of pharmaceutical care

Most papers cited the definition developed by Hepler and Strand in 1990 (Allemann, 2014). Clinical pharmacy practice -1960's moved toward "patient-oriented practice“ and away from chemistry and drug product orientation . In the transitional stage leaded by helper definition, commitment to the product and the ultimate responsibility to patient not yet clear (the organizations are clear, but implementation in practice does not). As a result some research and politicking, Robert Cipolle and some other pharmacy leaders have successfully came with a new practice paradigm through Patient advocacy, support and encouragement (Cipolle, 1998).

The last decade has seen rapid developments in the roles of pharmacies and Pharmacists driven by a range of factors including increased customer demand associated with the growth in prescription medication use, new ways of organizing community pharmacy services, technological innovation, increased specialized theoretical and practical knowledge, and government policies (Allemann, 2014).

American Society of Health-System Pharmacists declares pharmaceutical care service as a primary mission of the pharmacist. Extensive clinical research and practice implementation projects have proven the benefits of pharmaceutical care service in patient management, care and clinical outcomes (Gillani, 2018).

These outcomes are preventing diseases, promoting wellness, managing drug therapy for the intended outcomes. Therefore, as the positive contribution of pharmacists in improving not only patients’ outcomes but also reducing costs. Driven by these roles, the pharmacist has to do as an important part of pharmaceutical care cycle, many studies has shown improved patient outcome when pharmacist increased their participation in management of drug therapy (Berenguer, 2004).

1.1.3 Difference between clinical pharmacy and pharmaceutical care

In the last 40 years, the pharmacy profession has showed spectacular practice changes, especially in the era of introducing of clinical pharmacy concepts in the late 1960s, followed by the philosophy of pharmaceutical care in the early 1990s (Who Are, 2008), (Fairbanks, 2007). These two concepts are too similar but different and even the definition of them vary from country to another. For example, The United Kingdom Clinical Pharmacy Association describes clinical pharmacy as encompassing the knowledge, skills, and attitudes required by pharmacists to contribute to patient care (Ahmed, 2010).

The European Society of Clinical Pharmacy characterized it as a health specialty that explain the activities and duties of the clinical pharmacist in developing the appropriate rational drug use of medicinal products and devices (Franklin, 2005).

The definition of clinical pharmacy described by the American College Of Clinical pharmacy which contain information about science and applying the rational drug use (Ahmed, 2010). Whatever definition we choose, the basic essence of clinical pharmacy is the provision of pharmaceutical care to the patient, which is a different and more evolved form of hospital pharmacy services (Ahmed, 2010).

The aim of pharmaceutical care conducts the practicing of clinical pharmacy; it integrate health care with some other factors specialized therapeutic knowledge, aggregated experience, and judgment insure the ultimate patient relief (Who Are, 2008). Pharmaceutical care is defined clearly by the professional bodies mentioned, and a clinical pharmacist is the one who possesses specialized clinical pharmacy education that enables him or her to deliver pharmaceutical care (Ahmed, 2010).

1.2 Clinical Pharmacy education in Turkey North Cyprus and other developing countries

Pharmaceutical care is a relatively new concept in Turkey. A stepwise process has been followed in implementing the concept and education of clinical pharmacy and pharmaceutical care in Turkey. Recently the duration of undergraduate pharmacy education has been increased to five years, consisting more clinical content (ie. courses of pharmaceutical care, clinical pharmacy, pharmacotherapy, professional communication skills, etc) making a good opportunity for further implementation of these concepts (Sancar, 2013). The "Society of Clinical Pharmacy" which was established in 1998 with the purpose of promoting clinical pharmacy in Turkey, and The Turkish Pharmacists' Association Academy of Pharmacy has been organizing various continuing education programs on clinical pharmacy and pharmaceutical care since 2003. More than 1300 pharmacists have participated to these programs. Considering there are approximately 25000 community pharmacists in Turkey, it can be said that majority of pharmacists have not yet taken basic education on pharmaceutical care and clinical pharmacy. Moreover, in Turkey, research studies have been done in the field of clinical pharmacy and pharmaceutical care (Sancar, 2013).

There are 13 Faculties of Pharmacy in Turkey teaching clinical pharmacy courses. In Hacettepe University, there are two clinical pharmacy specialists and they give Clinical Pharmacy lectures in Pharmaceutical Care I and II courses which include also training at hospital services. In Yeditepe University, two clinical pharmacy specialists who took their PhD degree from Marmara University started in 2005 clinical pharmacy courses which include practices at hospital services. In the present time the clinical pharmacy courses are given by academic staff from Marmara university. An MSc program in Clinical Pharmacy is also available. 'Pharmaceutical care' course is given by clinical pharmacist specialists from Marmara or Hacettepe Universities in some of faculties such as Inönü University, Gazi University and Ankara University. Clinical Pharmacy MSc and PhD Programs are also available in Near-East University (Turkish Republic of Northern Cyprus) and Clinical Pharmacy MSc Program is available in Ankara University (Izzettin, 2011).

The model of Marmara university which followed since 1991 is a stepwise process in implanting the idea of clinical pharmacy and pharmaceutical care. This process includes stepwise introduction of the 'clinical pharmacy' idea in undergraduate curriculum and at the same time starting a graduate program to develop specialists in clinical pharmacy. As a part of this stepwise development, it is very important to start lectures on principles of clinical pharmacy and pharmaceutical care regardless of the course at which the lectures (Izzettin, 2011).

In Marmara university master and PhD programs are given since 1991. Mandatory undergraduate courses of clinical pharmacy in Marmara University are 'Clinical Pharmacy I and II' which include observation in clinical services (general surgery, pediatrics, internal medicine) and laboratory (drug information, case presentation, patient education) at the 4th year. Since 2009, pharmacy education is a 5- year program. At the fifth year, the students who select clinical pharmacy and pharmaceutical care module must take following mandatory courses:

• Principles of Pharmaceutical Care
• Patient Education and Monitoring
• Clinical Pharmacy and Drug Information

In addition, fifth year students must do their pharmacy practice at hospital and community pharmacy settings for the fall semester and selective training either at pharmaceutical industry or at pharmacy (community or hospital pharmacy) for the spring semester. Practice at the hospital setting includes presentation of selected cases from general surgery, internal medicine and pediatric services. As a part of pharmacy practice in community pharmacy, students attend professional skills laboratory and participate in problem-based learning sessions and improve their knowledge and skills on drug information and patient education (Izzettin, 2011). Many schools of pharmacy have clinical pharmacy courses and practice in hospital (for example: Bezmialem Vakif, Erzincan, Inonu, Istanbul, Medipol, Ankara and Yeditepe universities). Newly the specialization program in Turkey was started in 2016.

According to the press info release issued by the Directorate of Press and Public Relations of Near East University, students currently studying at Faculties of Pharmacy in a university in Turkey or in the Turkish Republic of Northern Cyprus are provided the opportunity carrying

advanced pharmacy practice internships at the Near East University Hospital. PC experiential practice is a new concept in North Cyprus (Abdi, 2018). A. Abdi et al reported the introduction of advance pharmacy practice experiences into pharmacy curricula (Abdi, February 2017). The course involved 8 weeks structured pharmacy practice experience for fifth year students in internal medicine, respiratory and cardiology clinics, and drug information center. Student competence are assessed using OSCEs and mapped in 8 main pharmaceutical care competence domains (Abdi, 2017). The course utilizes a wide variety of learning and practical activities including rounds participation, morning case reports, interdisciplinary activities, carrying interventions, role-play, direct patient care, Formal case presentations, journal clubs and answering drug queries in drug information center (Abdi, February 2017). Competencies tested and strengthened include: taking medication history, response to the symptoms, pharmacotherapy knowledge, comprehensive patient assessment, data interpretation using evidence-based approach, public health counseling, drug related problems management, patient counseling and communication skills and students well perceived the course structure assessment and knowledge attained (Abdi, February 2017).

In USA Since 2000, practicing pharmacists have been required to have a Doctor of Pharmacy (Pharm D) degree, which consists of 2–4 years in a pre-pharmacy program and 4 years in a pharmacy program. Pharmacy education combines didactic classroom learning and experiential training, specifically “Introduction to Pharmacy Practice Experience” training in community and hospital pharmacy settings for each of the first 3 years and “Advanced Pharmacy Practice Experience” as fourth-year rotations (Scott, 2016). After graduation, a prospective pharmacist must pass 2 examinations to become a registered pharmacist. One of them is (North American Pharmacist Licensure Examination) which called the NAPLEX exam, that scales the candidate’s knowledge about the practice of pharmacy. The jurisprudence exam is known as the MPJE (Multistate Pharmacy Jurisprudence Examination), which combines federal- and state-specific questions, most states also administer their own legal exam covering state-specific regulations (Scott, 2016).

In Kuwait, pharmacy practice consists of three main part laboratories and practicums and case studies. In the practicums, students dispense simulated prescriptions. During the process, students are required to handle with these prescriptions as they are real patients. This

includes contacting the prescribing physician if the student thinks there is an error in the prescription that requires intervening (Al-Wazaify, 2006).

A computerized dispensing system, the FSI from Foundation Systems, Inc. (2003, Lindon, UT) is used for dispensing practical's. By the time they graduate, students are expected to be competent with at least one computerized dispensing system (Al-Wazaify, 2006).

In Iraq the newly graduate pharmacists can be enrolled in clinical pharmacy program for one year under training at teaching hospitals. They will be legally obliged to work as clinical pharmacists. Till now it is a successful program. But from the other side, the program is not recognized by ministry of higher education, and it is neither a residency program nor specialized (Rasheed, 2012).

At the same time, the process of improving pharmaceutical care was restricted to ministry of health in the form of one-year program of clinical pharmacy (Rasheed, 2012).

1.3 Pharmaceutical care services

The philosophy of pharmaceutical care has been accepted worldwide as the primary mission of pharmacy and the services that are provided as a part of pharmaceutical care had been changed across the years to meet the demands of changing patients needs and to be part of whole teams to achieve the final goal which is patient health.

Pharmaceutical care services different from country to another, these changes depend on acute shortage of qualified pharmacists and no separation of dispensing practices and a lack of standard practice guidelines (Azhar, 2009).

Although the difference we may see it between these countries specially between modern countries and developing countries but there are specific standards followed by all.

In 1993 at the San Antonio consensus conference the discussed the functions of pharmaceutical care and the critical skills necessary to provide it (American Society of

Health-System Pharmacists, 1993). Functions for the provision of pharmaceutical care were identified by the practitioner task force of the Scope of Pharmacy Practice Project. Those functions have been defined in more detail in the pharmacotherapy series of the American Society of Health-System Pharmacists (ASHP) Clinical Skills Program (American Society of Health-System Pharmacists, 1996).

Using these guidelines are not specific for one setting. These specific methods can be used in acute care (hospitals), ambulatory care, home care, long-term care, and other practice settings by ASHP. For every practice setting function can be customized. Varying the applicable standardization and fitting appropriate for a given work site will depend on the place of practice, regulating of services (e.g., patient-focused or section focused), working relationships with other health professionals, the health system's and patient's financial abilities, and the health system's policies and procedures (American Society of Health-System Pharmacists, 1996).

These functions consist of several main points and branches to many services. The aim of pharmaceutical services are recording, collecting and organizing patient-disease related information, identifying if there are any presence of medication-therapy problems, knowing the patients' health care needs, specifying pharmacotherapeutic goals, drawing a pharmacotherapeutic plan, layout a monitoring plan, put an pharmacotherapeutic regimen and corresponding monitoring plan with the help of other health professionals, starting the pharmacotherapeutic regimen, watching the effects of the pharmacotherapeutic regimen, and redesigning the pharmacotherapeutic regimen and monitoring plan (American Society of Health-System Pharmacists, 1996).

The presence of difference in pharmaceutical care models and practices among countries were reported (Boyce, 2008). In Kuwait, as developing country, a study was hold in 2006 to assess the services that provided in hotspitals of Kuwait (American Society of Health-System Pharmacists, 1996). The mean number of prescriptions dispensed was high, which would limit the time required for patient counseling and appropriate checking of prescriptions and the majority of the participants reported that they frequently checked for prescription appropriateness; and performed interventions on prescriptions (American Society of Health-System Pharmacists, 1996). In this study they also noticed the lack of

communication between the pharmacists and the patients which could lead to more dispensing errors (Awad, 2006).

Pharmacy in the United States is forces towards pharmaceutical care and started to use improved systems to provide to good life quality for patients. One of these is a system used by pharmacy benefit managers (PBMs), which employs clinical decision-making programs to alert the pharmacist to patient care opportunities (e.g., interactions, drug allergies) that can be used to help the patient resolve drug therapy problem (Scott, 2016).

1.3.1 Data Collection, Evaluation and Formulating a Plan

The pharmacist-patient interview is established with the patient to develop a healthy working relationship and to start the patient's pharmacy record. Using the interview regularly to collect some needed information about the patient and to begin a pharmacy record which conclude information and data related with the patient's general health and his daily activity, past medical history, medication history, social history (including economic situation), family history, and history of present illness. The sources of information may include also patient’s family and other patient’s health care providers. Pharmacist starts to create a record with specific information about patient and everything is accurately recorded. The pharmacist insure that the patient's record is appropriately organized, kept in safely way and easy to reach by other health care providers (Who Are, 2008).

The pharmacist evaluates the subjective and objective information collected from the patient and other sources then forms conclusions regarding: (1) chances to improve and assure the safety, effectiveness, and/or economy of current or planned drug therapy; (2) chances to minimize any drug-related problems and (3) the necessary time for any additional consultation. Moreover, the pharmacist with help of other healthcare providers, develop and evaluates the best action plan to: (1) improve and/or assure the safety, effectiveness, and/or cost-effectiveness of current or planned drug therapy; and/or, (2) minimize current or potential future health-related problems (Who Are, 2008).

1.3.2 Monitoring and Modifying the Plan/Assuring Positive Outcomes

The pharmacist regularly evaluates the signs and laboratory results in order to see if the plan is going well. The pharmacist start monitoring progress in getting the wished outcomes with the patient and write a report with the best way is needed. Using an appropriate mechanism for establishing follow-up with patients and determine with other professional health care if there are a need to modify the plan (Who Are, 2008).

1.4 Studies in preparedness and attitudes of students to provide PC services

In 2009 a survey conducted from September to December in Saudi Arabia in King Saud University at department of pharmacy. The students accomplished a self-administrated questionnaire was developed and revalidated in USA. The aim of the study was to test and explain the attitude of Saudi pharmacy students toward pharmaceutical care. Only 214 students completed the questionnaire, 95.2% felt that pharmaceutical care change will enhance patient health, 94.9% thought that the practice of pharmaceutical care is important, 85% "strongly agree" or "agree" that all pharmacists should perform pharmaceutical care, whereas, about two third (64.5%) "strongly agree" or "agree" that students should perform pharmaceutical care (Al-Arifi, 2009).

Another study had been done in Nigeria which focused on pharmacy student attitudes toward pharmaceutical care. A cross-sectional (first-fourth year, n=250) survey, the students completed a self-administered questionnaire designed to test the research objectives. The percentage that approved that all pharmacists and pharmacy students should perform pharmaceutical care was 88%. About half (48%) also cleared that introducing pharmaceutical care takes a lot of time and effort. males had significantly less positive attitudes than their female partners ($p < 0.0001$). The three positive attitude are with age ($p < 0.0001$), pharmacy curriculum ($p = 0.048$), and work experience ($p = 0.007$) (Oparah, 2006).

A descriptive study process to the standard Pharmaceutical Care Attitudes Survey Cuba between professional fourth year pharmacy students to measure the opinion about 13

statements related to pharmaceutical care. Demographic characteristics including age, country of origin, current professional year, marital status, and pharmacy training experience and distributed to 42 students. Only 30 students completed the survey. The people who strongly agreed that that providing pharmaceutical care takes too much time and effort was about 80%. favorable attitude ranking were associated with the pharmaceutical care education at the university and the teacher role (Sanchez, 2016).

Another study accomplished in 2012 in Pakistan that discussed the attitude of pharmacy student to pharmaceutical care. Pharmacy undergraduate students in Karachi, Pakistan had an moderately positive attitudes toward pharmaceutical care, It is concluded that pharmacy students were motivated to practice pharmaceutical care during their clerkship as well as professional career (Rahim, 2012).

A survey was modified and administered to each class at a Midwestern university from 2005-2008 to assess students' perceptions of their preparedness to pharmaceutical care. Students evaluated themselves highest on the psychological parts and lowest on the administrative parts. Students' abilities and skills are developed to provide pharmaceutical services correlated with changing curriculum and subjects that reflect their competencies(Scott, 2010).

University of Kuwait in 2014 conducted a a descriptive, cross-sectional survey of pharmacy students (n=126) to investigate pharmacy students' attitudes towards pharmaceutical care, perceptions of their preparedness to perform pharmaceutical care competencies and other items. The response rate was 99.2%. In general, a positive feeling toward pharmaceutical care is seen in pharmacy students. They realized that the students are prepared to perform the different aspects of pharmaceutical care, with the lowest preparedness in the administrative/management aspects. Perceived pharmaceutical care competencies improve as students advance with the curriculum (Katoue, 2014).

In 2017 in Brazil a study was done to analyze students' perception about preparedness to pharmacy practice and to patient-centered care and identify experiential training barriers. Two discussion groups were formed with 12 and 13 individuals to present their perceptions about teaching and learning for pharmaceutical care. The analysis of the answers indicates

that there is a significant gap in the training of pharmacists, with a strong emphasis on theoretical issues and less focus on knowledge acquisition and interpersonal communication, generating poor professional training. Students identify the lack of infrastructure, such as the lack of a pharmacy staff and underutilization of the hospital, deficiencies in the curriculum such as the lack of key subjects, lack of clinical practice, and lack of preparation of some teachers, with an excess of classes following the lecture format. These factors influence the teaching and learning of clinical and communication skills, which undermine the pharmacists' ability to carry out clinical interventions, as well as affect the pharmaceutical-patient and pharmaceutical-physician relationship (Rios, 2017).

In 2016 university of Kuwait and university of Qatar done an Descriptive, cross-sectional, web based survey for final year pharmacy students to assess Perception, Preparedness and Perceived Barriers to Provide Pharmaceutical care. Of a total of 77 students, 63 students completed the questionnaire (21 students from QU and 42 students from KU) overall response rate 82%.Students in Kuwait University Faculty of Pharmacy (KU-FoP) placed low expectation of the pharmacist's role by the society and within health care team as important barrier; while students in Qatar University College of Pharmacy (QU-CPH) thought that documentation and communication between pharmacists and healthcare providers can have an impact on PC services (Bacha, 2016 March).

The most recent study about perception of preparedness of pharmacy students was in Malaysia in 2017. 227 students participate from pharmacy students in third and fourth year in across-sectional study at International Islamic University Malaysia (IIUM). 227 students participate with the response rate was about 95.05%. research explored the perception of the preparedness towards PC provision with four aspects; technical, psychosocial, communication, and management. Within the technical aspect, pharmacy students showed good perception towards the provision of counseling to patients and/or caregivers about the proper use and effects of medicines (mean 3.5) followed by evaluation of patient information obtained from history and assessment (mean 3.4). Interestingly in the management aspect, pharmacy students reflected a lesser mean score of 2.6 in the context of development and implantation of a pharmacy inventory (stock) control system for the distribution and administration of medications (Elnaem, 2017).

1.5 Aim of the study

An opportunity existed to use the PREP survey to detect student perceptions of the curriculum and the main objectives of our study were to assess pharmacy students in fifth and third year for accepting and possibility of application of the pharmaceutical care philosophy through evaluation of the five aspects; technical, psychosocial, communication, management and research in Turkey and Northern Cyprus universities. Beside this objective was focused on:

1. Making a comparison between fifth and third year students in these aspects
2. Studying the effect of presence of clinical pharmacy department in understanding PC concept
3. Try to understand the limitation and points of weakness in the students to provide a good pharmaceutical care

2. METHODOLOGY

2.1 Study design

A cross-sectional survey study was conducted on the third and fifth year pharmacy students in Turkey and Northern Cyprus. Data was collected from the second semester of 2017-2018 year from April till July 2018. A list of 34 Turkish and Northern Cyprus universities was prepared which include 3400 pharmacy students. Only 20 university have fifth year students. At the end only 8 universities participated 1 from Northern Cyprus and 7 from Turkey. Near East University, from Northern Cyprus and Marmara, Bezmialem Vakif, Erzincan, Inonu, Istanbul, Medipol, Trakya and Yeditepe universities from Turkey. Demographic characteristics including age, class year and gender. The original PREP scale addressed various aspects of pharmaceutical care in the survey. The Turkish and English version of the scales is mentioned in the appendix (Ried et al.2002). Recently Scott et al. (2010a) slightly modified the scale by excluding socio demographic items. The Turkish version (29) was used in the present study, a total of 33 pharmaceutical care items were evaluated. These 33 items, 14 focused on technical aspect, 9 items cover psychosocial aspects, 4 items address communications aspects, 4 items cover administrative aspects, and 2 items address research aspects. Each item was scored on a Likert scale ranging from 1 to 7. In order to accomplish the application in line with this objective, it's required to score from 1 to 7 for the competence. For example; 1 = poor competence 4 = intermediate competence 7 = excellent competence. Permission was taken from the deans of each faculty.

2.2 Survey Administration

The survey conducted on the universities that had fifth year students. We started sending e-mails in April to each dean of pharmacy faculties from the list matching the inclusion criteria to take the acceptance for accomplishing the survey. At the first of May we started disturbing the survey for students at Near East University inside classes through choosing the classes that have full attendance after taking the approval from the lecturer. There were two options for accomplishing the survey; one of them is by delivering hard copies and the other one by filling the survey on internet after we used Google Form (a free web-based survey engine) to prepare the survey on it. Till the end of the spring semester the student from the third year accomplished the survey. For the other universities the mode of data collection included an online web survey, mail questionnaire with the assistance of Google Form. Students who are more than 18 years old and agreed to participate in the present study after being informed regarding its aims and methods were eligible to participate in the study.

2.3 Data analysis

All statistical calculations and analysis were performed with Statistical Package for Social Sciences (SPSS) Demo version 20.0 software. Frequency analysis and percentage were carried out to investigate the descriptive characteristics of study sample such as gender, age, to determine the statistical hypothesis testing methods, the distribution characteristics of the scale scores were investigated in terms of normality. For this purpose, Shapiro test of normality was used. To understand the possible associations between scale scores, Pearson correlation test was used. Mann Whitney U test was applied to understand the pairwise comparisons between mentioned groups. Cronbach Alpha was calculated to understand the reliability of the attitude scale in current study sample to be 0.91. Related analysis result of each statistical method is shown in their corresponding tables throughout the text. Level of significance was accepted to be 0.05 for the whole study.

2.4 Ethical consideration

The study and the survey was approved by the Near East Institutional Reviews Board (IRB) of Near East Hospital that assigned this research.

3. Results

3.1 Characteristics of the participants

3.1.1 Demographic

The number of students who particpated in this study were 246 students during the spring semester. A total 235 (95.5%) completed the survey. Among the participants there were 92 (39.1%) students from the universities in Northern Cyprus and the rest 143 (60.9%) were from Turkish universities. Between the students there were 155 (66%) females and 80 (34%) were males. The median age was 23 (mean age 23.40). In the study there were 98 (41.7%) 3rd year students and 137 (58.3%) 5th year students. [Table 1]

3.1.2 Existing of clinical pharmacy department

Among the students 201 (85.5%) said that they have clinical pharmacy department in there universities, 21 (8.9%) said no and 13 (5.5) they don't know if they have.[Table 2]

3.1.3 Availability of clinical pharmacy or PC courses

The respond for asking if you have clinical pharmacy or pharmaceutical care in your university was; 85 (36.2%) said yes in the 5th year, 117 (49.8%) said yes in the 4th year, 27 (11.5%) said they take it in 4th and 5th year, 3 (1.3%) they take it in 3rd and 4th year and 3 (1.3%) said they don't have any of these courses. [Table 2]

Table 1: Demographic data of the students

Characteristics	Frequency			Percentage%
Gender				
Female	155			66%
Male	80			34%
University				
Northern Cyprus		**3rd year**	**5th year**	
Near East	92	(36)	(56)	39.1%
Turkey				
Marmara	66	(26)	(40)	28.1%
Bezmialem	30	(18)	(12)	12.8%
Erzincan	4	(2)	(2)	1.7%
Medipol	9	(5)	(4)	3.8%
Trakya	6	(2)	(4)	2.6
Yeditepe	5	(2)	(3)	2.1
Inönü	23	(7)	(16)	9.8
Class year				
3rd year	98			41.7
5th year	137			58.3

Table 2: Existing clinical pharmacy departments or courses in different pharmacy faculties

	Frequency	percentage
Clinical pharmacy department		
Yes	201	85.5
No	21	8.9
Don't know	13	5.5
Clinical pharmacy or PMC course		
5th year	85	36.2
4th year	117	49.8
4th & 5th	27	11.5
3rd & 4th	3	1.3
No	3	1.3

PMC: pharmaceutical care

3.2 Inter reliability and correlation

The mean ± SD score of pharmacy students perceptions of preparedness to provide pharmaceutical care was 4.485±1.4 and the Cronbach's alpha was 0.987 which present a high inter-reliability for this scale. Internal reliability of the total score and domains' scores of the scale has been presented with high Cronbach alpha values.

The statistically the high correlation between each aspect and total scores of the scale showed a strong association. [Table 3]

3.3 Perceptions of preparedness to provide pharmaceutical care

In Table 4 we observe the students rating through mean and standard deviation of their perceived preparation to perform pharmaceutical care. We find between the 5 aspect we have in the survey that the highest rating between students go to Communication aspect and the lowest ranting aspect is for Research part.

Within the technical part the hightest rated item were provide counseling to the patient followed by devise method to seek optimal patient compliance. The administrative aspect showed a low rating and the lowest rating item in it was develop and implement a pharmacy inventory control system. [Table 4]

Table 3 : Spearsman's correlation coefficients among domain of the scale

	Technical	Psychological	Communication	Administrative	Research	Total
Technical						
Psychological	0.745**					
Communication	0.663**	0.780**				
Administrative	0.798**	0.733**	0.699**			
Research	0.786**	0.704**	0.611**	0.695**		
Total	0.947**	0.896**	0.817**	0.877**	0.829**	

**** All coefficients are statistically significant (p<0.001)**

Table 4: Total scores of the students' preparedness to perform pharmaceutical care. (n= 235)

	Mean (SD)	Median
Technical aspect	**4.181±1.2**	
Recommend appropriate drug therapy	4.18±1.47	4
Evaluate medications and/or laboratory tests	4.09±1.56	4
Integrate knowledge for pharmacotherapy	3.91±1.66	4
Determine the appropriate drug delivery system	4.31±1.48	4
Recommend medication doses and dosage schedules	3.82±1.64	4
Identify/collect information to resolve a drug therapy problem	4.22±1.62	4
Evaluate laboratory test results for a specific patient	4.17±1.66	4
Calculate and evaluate pharmacokinetic properties	3.66±1.67	4
Evaluate information from patient history and assessment	4.22±1.74	4
Make reasonable conclusions when data is incomplete	3.96±1.59	4
Provide counseling to patients	4.66±1.62	5
Devise methods to seek optimal patient compliance	4.61±1.64	5
Monitor therapeutic plan for a patient	4.23±1.71	4
Document information on drug-related problems	4.49±1.62	5

Research aspect	**3.991±1.0**	
Describe the research process	4.10±1.65	4
Provide a critical review of a publication	3.89±1.66	4
Psychological aspect	**4.927±1.1**	
Gather information to resolve a problem	5.00±1.40	5
Synthesize information and decide a course of action for a problem	4.49±1.52	4
Make decisions integrating social. cultural. and ethical issues	4.56±1.62	5
Impact of values in professional interactions	4.72±1.52	5
Apply ethical theories to professional decisions	5.30±1.34	5
Understand social and cultural impact on health environment	4.81±1.43	5
Understand practice related to changing societal expectations	5.42±1.40	6
Appropriate interpersonal behaviors during patient interactions	4.96±1.31	5
Contribute opinions/insights to healthcare team	4.63±1.51	5

Communication aspect	**4.948±1.0**	
Communicate medical records information to health professionals	5.00±1.60	5
Communicate medical records information to patient	5.03±1.59	5
Collect information to respond to a patient DI request	4.91±1.58	5
Respond to an information request from a patient	4.85±1.53	5
Administrative aspect	**4.229±1.0**	
Evaluate. select. and purchase pharmaceuticals	4.40±1.68	4
Develop and implement a pharmacy inventory control system	4.20±1.68	4
Manage fiscal and human resources	4.23±1.72	4
Develop and implement drug use evaluations and formulary	4.08±1.56	4

Scale : 1=poor to 7=excellent

3.4 perception of preparedness to provide PC according to Gender

According to the data we have collected in the Total scale the male (mean = 153.9±38.7) students have higher rating than female (mean = 143.54±40.58) but there are no significant difference ($p>0.005$). We found that the total weighted mean for male is (219.01) while for female it was (189.43). In each aspect males have higher rating than females. In independent samples Kruskal-Wallis test showed that the only significant difference ($p<0.05$) between females and males was in the Technical aspect. With Mann-Whitny test we can see the opinion of each gender in the diferrent 5 aspects with showing the mean of them to make the comparism between them. [Table 5]

Table 5: Perception of preparedness to provide PC according to Gender

	Gender	Mean ±SD	P values
technical	Male	4.5±1.24	0.011**
	Female	4.01±1.38	
administrative	Male	4.49±1.47	0.809
	Female	4.09±1.52	
research	Male	4.17±1.38	0.239
	Female	3.89±1.65	
Psychological	Male	4.91±1.23	0.54
	Female	4.85±1.18	
communication	Male	5.08±1.36	0.350
	Female	4.87±1.45	

**. statistically significant ($p<0.05$).

3.5 Students perception of preparedness to provide PC according to class year

The PREP scale were administrated to 98 (41.7%) third year students and the fifth year students were 137 (58.3%). Overall, 5th year student have higher rating in PREP scale than the 3rd year students. The fifth year students highest rated average was in the Communication aspect then Psychological then Technical aspect and the lowest two aspects are the Administrative aspect and the Research aspect. As for the 3rd year students, communication aspect was the highest then and the Psychological aspect then Administrative aspect and the lowest one are the Technical and the Research aspects. The overall mean difference for the 3rd and 5th year students was significant between all the aspects ($p<0.001$) and in each aspect the rating of the 5th year students were higher than the 3rd year students.

Table 6: Students perception of preparedness to provide PC according to class year

	Class Year	Mean±SD	P Values
Overall	3rd	120.56±35.68	0.000**
	5th	166.08±31.67	
Technical	3rd	3.20±1.19	0.000**
	5th	4.88±0.98	
Communication	3rd	4.37±1.55	0.000**
	5th	5.35±1.16	
Psychological	3rd	4.31±1.16	0.000**
	5th	5.27±1.05	
Research	3rd	2.92±1.38	0.000**
	5th	4.73±1.22	
Administrative	3rd	3.36±1.49	0.000**
	5th	4.84±1.19	

**. statistically significant ($p<0.05$).

3.6 PREP scale according to availability of clinical pharmacy department or PC courses according to participants opinion

A total of 235 students who completed the survey, 201 (85.5 %) said that they have a clinical pharmacy department in there universities, 21 (8.9%) of them said they don't have a clinical pharmacy department and the rest 13 (5.5%) said they don't know if their pharmacy faculty have a clinical pharmacy department or not.

In our study it was found that there are relationship between PREP scale rating and the availability of clinical pharmacy department. As for the all aspects there are a significant difference ($p<0.05$) between students perceptions that said may have clinical pharmacy department and those they don't know. Also it's been seen significant between who said there are no clinical pharmacy department and who don't know. The students who said no have the highest rating in overall of the PREP scale survey (151.76±37.09). As for the difference between the who have and don't have clinical pharmacy department it wasn't significant ($p>0.05$).

As for the Technical, Administrative, research and Communication there are a significant difference between the ones who said yes and no. For the students who said no and I don't know showed also an significant difference in these aspects. Despite of that there are no significant difference between students who said yes and no. Finally, at the Psychological part there are no significant difference between the different groups of this classification.

Studying the effect of presence of clinical pharmacy or PC courses and in which grade on the PREP scale rating showed that the students who are taking these courses in the 3rd and 4th year have the highest rate in the overall survey.

As for the students who said that they are taking these courses in the 5th year they rated the Communication aspect as the highest factor followed by Psychological factor, Administrative, Technical and at the end Research factor.

The students that answered that they are taking these courses in the 4th year they were slightly different the highest rating was for Communication factor then Psychological, after that Technical part, Administrative and the Research aspect.

The students who said they don't take any of these courses at their universities there rating was different. The Psychological factor was the highest one and the lowest factor was the Research factor.

After applying the Kruskal-Wallis Test it showed that in the overall rating for the PREP that there are significant difference (p=0.010) between the students taking these courses at 4^{th} year and who are taking it at the 4^{th} and 5^{th} year.

At the Technical, Administrative, Psychological and Research factors also showed that there are significant difference between the 4^{th} year students and the students taking them in the 4^{th} and 5^{th} year.

The Communication aspect didn't show any significant difference between the students taking these courses in any different year.

3.7 Students perceptions in Turkey and Northern Cyprus

The PREP scale survey had been done in seven universities in Turkey and one university in Northern Cyprus. A total 143 (60.9%) students completed from Turkish universities and 92 (39.1) from Northern Cyprus.

There was no significant differences in overall Students perceptions in Northern Cyprus was higher than Turkey (p>0.05). In Turkish universities the highest rating were in the Psychological and Communication factor followed by Administrative and Technical factor. The lowest rated part was the Research one.

As for the Northern Cyprus universities, the Communication aspect had the highest rating. The Psychological aspect was the second highest followed by the Administrative and Technical aspect. The lowest score was for the Research aspect.

There was no significant difference between the rating in each country.

4. Discussion

Due to the change of pharmacists responsibilities from focusing on dispensing the drugs to provide a pharmaceutical care. In attempt to develop the skills of pharmacy students and competency we must measure their strengths and weaknesses. In most countries, including Turkey and Northern Cyprus pharmacy education has been shifting from product-oriented focus to patient care. The good knowledge to pharmaceutical care and how to apply it lead to prepare more qualified pharmacists that they have an important role in the chain of the patients care. Many tools was used to assess the knowledge of the students and observe perceptions of preparedness to provide pharmaceutical care. One of them is Ried LD et al, developed a scale to evaluate pharmacy students' perceptions of preparedness in USA. In the present study, a total of 33 items were assessed by scoring on a Likert scale ranging from 1 to 7 similar to previous studies (Ried, 2002) (Scott, 2010). We used the validated Turkish version of the PREP scale which consisted of five domains (Okuyan, 2016). In particular, the graduate of pharmacy school suffer from the fear that they will not be able to apply the information they received during their studies.

This study show the students perception of their preparedness to provide pharmaceutical care in Turkey and Northern Cyprus. Northern Cyprus pharmacy education system in Cyprus is similar to Turkey. In Northern Cyprus both "Clinical Pharmacy" and "Rational Drug Use" are mainly based on case discussions (Demirdamar, 2012). The National Accreditation Board for Pharmacy Education started to accredit the faculties of pharmacy in 2014 in Turkey. This is one of the most important and recent advancements in pharmacy education in Turkey (Okuyan, 2016). This board concentrate on some points, especially that theoretical and practical patient-oriented courses should be included in the bachelor of pharmacy education and also all the courses in the programs should be self-evaluated. Pharmacy education must provide students with set of skills with adequate information and a set of values and attitudes that pharmaceutical care responsibilities will be enhanced (Adamcik, 1992).

Different studies run the survey on different classes. The previous studies like Scott DM et al, within the same academic year, examined differences in all 4 professional classes and collective the data for 4 accumulative years. Another study administrated in Kuwait (Katoue,

2014), included the fifth and fourth year students for PREP scale survey. There was another study established in Turkey has taken only the fifth year student in different universities. In our study we preferred to implement it on the fifth and third year students because third year didn't start to take clinical pharmacy or PMC courses yet and we want the difference that these courses will make on the students perceptions of preparedness to provide pharmaceutical care.

Our result are in according to several studies wrote in past like Ried LD, Scott DM, the results showed approximately medium preparedness to provide pharmaceutical care by the students.

Administrative, communication and technical tasks showed that students were more ready to perform them. In previous studies the preparedness highest scores were 'impact of values in professional interactions', followed by 'apply ethical theories to professional interactions' and 'gather information to resolve a problem (Okuyan, 2016). Our study showed that highest rated items were 'Understand practice related to changing societal expectations', followed by 'Apply ethical theories to professional decisions' and 'Communicate medical records information to patient'. We found that the students felt more relief in the communication area may due to everyday experience with communications.

In previous studies, the lowest scores were respectively obtained in three items: 'justified medication doses and dosage schedules', 'calculate and evaluate pharmacokinetic properties' and 'manage fiscal and human resources' (Okuyan, 2016). In the present study, the lowest scores were obtained in three items 'Calculate and evaluate pharmacokinetic properties', followed by 'Recommend medication doses and dosage schedules' and 'Provide a critical review of a publication'.

Despite taking courses like biostatistics this didn't change the weakness of students in describe research process review and evaluate professional publications. The reason behind this that most of the universities concentrate on research and publication part in post-graduations courses. We found that the area of weakness in technical part is the same in our and previous studies. The highest rating showed similar results in comparison with other studies (Okuyan, 2016). As we see also the managerial aspect show weakness this is

consistent with the nature of the coursework, since students take their only required course in pharmacy management during their second year. These results highlight the need to evaluate the courses covering the administrative aspects of pharmaceutical care within the current curriculum to improve students' preparedness in these aspects.

In the previous studies, it was found that 5th year pharmacy students perceived more preparedness towards patient oriented pharmacy services than the pharmacy students in their initial levels (Ried, 2002) (Scott, 2010). Fifth year student' perception of their preparedness to provide pharmaceutical care showed a significant difference in contrast to third year students' in all aspects. This indicates that the curriculum was successful in teaching students pharmaceutical care skills. In present study we found the same results like the previous studies (Ried, 2002) (Scott., 2010). The fifth year students showed more relief for preparedness in all aspect than the third year students. The reason behind this difference between classes and the similarity of results between the studies when students shift from basic science to applied pharmaceutical care content. Education in the first three years concentrate on courses containing pharmaceutical science and they get no training. while theoretical and practical courses regarding patient-oriented services take place in the last year. Another study held in Kuwait agreed also with our study (Katoue, 2014).

According to the gender in our study male showed more competence compared to female but the only significant difference found in the technical aspect and the other aspects showed no significantly difference between them. Another study investigated the scores of total scale and subscales did not show statistically differ between genders (Okuyan, 2016).

According to result we have, we tried to assess the difference between the Turkish and Northern Cyprus student' preparedness. The Turkish Universities participated with (60.9%) and 92 (39.1%) from Northern Cyprus. These results showed they are sharing the same highest aspects and lowest aspects. Both of them showed good communication skills and some weakness in the administrative part. A study held in Turkey in 2016 (Okuyan, 2016) that used the PREP scale showed very similar results in contrast to our results in Turkish universities. We noticed that the students in both studies rated 'apply ethical theories to professional decisions', 'understand practice related to changing societal expectations' as the highest ones. The similarity between the Turkish and Northern Cyprus universities is due to

the same education system and same curriculum in both of the countries. In Turkey, patient-oriented pharmacy education first developed in the 1990s. However, the acceptance and implementation of this educational model across the country covers approximately the last 10-years period. The National Accreditation Board for Pharmacy Education started to accredit the faculties of pharmacy in 2014 in Turkey (Okuyan, 2016).

The study showed some interesting points in some parts of the survey. The absence of clinical pharmacy courses in the curriculum showed some different rating from those who have clinical pharmacy as one of their courses during their study. The results showed that students who said yes they have clinical pharmacy courses have the highest rating in communication and psychological and the less negative rating was in research and administrative. The students who said no courses, psychological and communication where the highest and the lowest are the research and administrative aspects. As for students who their answers were I don't know if they have clinical pharmacy courses or not, psychological and communication were the highest aspects and the lowest are the technical and the research aspects. We didn't notice any statistically difference between who said yes and no ($p>0,05$).

Most of the students feel like something missing between what they are learning and how to practice it although there are courses like clinical pharmacy which help to practice some of this knowledge and actually there are some efforts to apply pharmaceutical care services in Turkey and Northern Cyprus. We can help our students for this feeling they have by providing more practicing areas for their clinical rounds that will enhance their pharmaceutical care services. simulation could be used as adjunct to experiential training to enable students to acquire the necessary practice experience. Simulation is a valuable teaching technique that has been integrated in pharmacy education to prepare students for pharmacy practice (Gallagher, 2012). The using technique of simulation in pharmacy education has shown a successful change in areas such as medication, communicating skills, physical assessment, patient health and improving the health care team skills (Gallagher, 2012).

Moreover, inter-professional education (IPE) would bring a lot of benefits to students' preparation for pharmaceutical care practice. IPE would enhance a lot the relations between different health care providers. This will help them create a cooperative relationship between

them in the future, with the ultimate goal of being the patient the center of care cycle. However, attention should be given to develop collaborative learning models, in which students are not passive recipients of knowledge through didactic teaching. The schools of pharmacy may consider adding more administrative knowledge and this could be through additional courses.

5. Limitation of the study

Self-reported perception consider to be good tool for assessment for student. Although this tool could be used as aggregated information to define which courses outcome is meeting our need in enhancing and improving the student outcomes. Boyce reported that self-assessments have not correlated well with performance (Berenguer, 2004) and students commonly rate themselves higher than they are able to perform (Austin, 2007) particularly those with lower performance, or when assessing patient communication and interaction abilities (Kirkpatrick, 2001). The aggregated result year by year will help because response may be affected by the students' improvement also influenced to some degree by circumstances and events unrelated to their education. Another limitation was the response rate. While we found the fifth year students' responds are higher, we found the third year student have less attractive to complete the survey. The rate of participating universities was low in both Turkey and North Cyprus. Replicating the survey would give more comprehensive and a boarder analysis for pharmaceutical care competence.

6. Conclusion

The study assessed the students preparedness of perception to provide pharmaceutical care in some of Turkey and Northern Cyprus universities. The result we found was similar to other studies was done. The growing of knowledge of students about pharmaceutical care improve with getting more courses specially after the third year. The Turkish and the Northern Cyprus (Near East University) universities seems to give equal education for students in pharmaceutical care. Depending on this work and previous literature the following ideas will help to implement the idea of pharmaceutical care

1. introducing more patient-oriented courses.

2. Adding more hospital rotation.

3. Decreasing the number of labs.

4. Adding more courses related with research process could be a good way to make students more familiar with clinical research.

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8. Appendix

In order to accomplish the following applications in line with this objective, you are required to score from 1 to 7 of your current competence. For example; 1 = poor competence 4 = intermediate competence 7 = excellent competence

Technical	*Recommend appropriate drug therapy*	①	②	③	④	⑤	⑥	⑦
	Evaluate medications and/or laboratory tests	①	②	③	④	⑤	⑥	⑦
	Integrate knowledge for pharmacotherapy	①	②	③	④	⑤	⑥	⑦
	Determine the appropriate drug delivery system	①	②	③	④	⑤	⑥	⑦
	Recommend medication doses and dosage schedules	①	②	③	④	⑤	⑥	⑦
	Identify/collect information to resolve a drug therapy problem	①	②	③	④	⑤	⑥	⑦
	Evaluate laboratory test results for a specific patient	①	②	③	④	⑤	⑥	⑦
	Calculate and evaluate pharmacokinetic properties	①	②	③	④	⑤	⑥	⑦
	Evaluate information from patient's history and assessment	①	②	③	④	⑤	⑥	⑦
	Make reasonable conclusions when data is incomplete	①	②	③	④	⑤	⑥	⑦
	Provide counseling to patients	①	②	③	④	⑤	⑥	⑦
	Devise methods to seek optimal patient compliance	①	②	③	④	⑤	⑥	⑦

	Monitor therapeutic plan for a patient	①	②	③	④	⑤	⑥	⑦
	Document information on drug-related problems	①	②	③	④	⑤	⑥	⑦
Administrative	*Evaluate. select and purchase pharmaceuticals*	①	②	③	④	⑤	⑥	⑦
	Develop and implement a pharmacy inventory control system	①	②	③	④	⑤	⑥	⑦
	Manage fiscal and human resources	①	②	③	④	⑤	⑥	⑦
	Develop and implement drug use evaluations and formulary	①	②	③	④	⑤	⑥	⑦
Research	*Describe the research process*	①	②	③	④	⑤	⑥	⑦
	Provide a critical review of a publication	①	②	③	④	⑤	⑥	⑦
Psychological	*Gather information to resolve a problem*	①	②	③	④	⑤	⑥	⑦
	Synthesize information and decide a course of action for a problem	①	②	③	④	⑤	⑥	⑦
	Make decisions integrating social. cultural and ethical issues	①	②	③	④	⑤	⑥	⑦
	Impact of values in professional interactions	①	②	③	④	⑤	⑥	⑦
	Apply ethical theories to professional decisions	①	②	③	④	⑤	⑥	⑦
	Understand social and cultural impact on health	①	②	③	④	⑤	⑥	⑦

	environment							
	Understand practice related to changing societal expectations	①	②	③	④	⑤	⑥	⑦
	Appropriate interpersonal behaviors during patient interactions	①	②	③	④	⑤	⑥	⑦
	Contribute opinions/insights to healthcare team	①	②	③	④	⑤	⑥	⑦

Communication	*Communicate medical records information to health professionals*	①	②	③	④	⑤	⑥	⑦
	Communicate medical records information to patient	①	②	③	④	⑤	⑥	⑦
	Collect information to respond to a patient DI request	①	②	③	④	⑤	⑥	⑦
	Respond to an information request from a patient	①	②	③	④	⑤	⑥	⑦

Şu ana kadar aldığınız eczacılık eğitimini göz önünde bulundurarak hasta odaklı eczacılık uygulamaları için kendinizi ne kadar yeterli ve hazır hissettiğinizi öğrenmek istiyoruz. Bu amaç doğrultusunda aşağıdaki uygulamaları gerçekleştirmek için şu anki yeterliliğinizi 1'den 7'ye kadar puanlamanız istenmektedir. Örneğin; 1= zayıf yeterlilik 4= orta yeterlilik 7= mükemmel yeterlilik olarak değerlendirilecektir.

TEKNİK	*Belirli bir hasta için uygun ilaç tedavisi önerebilmek*	①	②	③	④	⑤	⑥	⑦
	İlaçlar ve/veya laboratuvar testlerini değerlendirebilmek	①	②	③	④	⑤	⑥	⑦
	İlaçla ilgili problemleri önlemek ve çözmek için temel ve klinik bilimlerden aldığınız bilgileri kullanarak hastaya özel farmakoterapötik rejimleri oluşturabilmek, uygulayabilmek ve değerlendirebilmek	①	②	③	④	⑤	⑥	⑦
	Belirli bir hasta için uygun ilaç veriliş sistemini veya preparatı belirleyebilmek	①	②	③	④	⑤	⑥	⑦
	Hastaya özgü faktörler ve ilaç farmakodinamik ve farmakokinetik özelliklerine dayanarak belirli bir hasta için ilaç dozları ve dozaj rejimleri önerebilmek	①	②	③	④	⑤	⑥	⑦
	İlaçla ilgili bir problemi önlemek veya çözmek için gerekli tüm bilgileri belirleyebilmek ve elde edebilmek	①	②	③	④	⑤	⑥	⑦
	Belirli bir hastanın laboratuar test sonuçlarını	①	②	③	④	⑤	⑥	⑦

	değerlendirebilmek							
	Belirli bir hasta için ilaç farmakokinetik özelliklerini hesaplayabilmek ve değerlendirebilmek	①	②	③	④	⑤	⑥	⑦
	Hastanın anamnez ve fiziksel muayene sonuçlarından elde edilen bilgileri değerlendirebilmek	①	②	③	④	⑤	⑥	⑦
	Eksik verilerin varlığında makul varsayımlarda bulunabilmek ve/veya makul sonuçlar çıkarmak	①	②	③	④	⑤	⑥	⑦
	İlaçların doğru kullanım ve etkileri ile ilgili hastalara ve/veya bakım sağlayıcılarına danışmanlık hizmeti sağlayabilmek	①	②	③	④	⑤	⑥	⑦
	Optimum hasta uyuncu için yöntemler veya yaklaşımlar planlamak	①	②	③	④	⑤	⑥	⑦
	Belirli bir hasta için bir terapötik planın etkinliğini ve güvenirliliğini belgeleyebilmek ve izlem yapabilmek	①	②	③	④	⑤	⑥	⑦
	Her bir hastada ilaçla ilgili problemleri önlemek, belirlemek ve çözmek için gerekli bilgileri kaydedebilmek	①	②	③	④	⑤	⑥	⑦
İDARİ	*İlaçları ve tıbbi ekipmanları değerlendirebilmek, seçim yapabilmek ve temin edebilmek*	①	②	③	④	⑤	⑥	⑦
	İlaçlar ve tıbbi malzemenin dağıtımı ve uygulamasında eczacılık envanter kontrol sistemleri geliştirebilmek ve	①	②	③	④	⑤	⑥	⑦

	yerleştirebilmek							
	Hastaların ihtiyaçlarını en uygun şekilde karşılamak için serbest, kurumsal veya diğer eczacılık uygulama alanlarında işletme, finansal ve insan kaynaklarını yönetebilmek	①	②	③	④	⑤	⑥	⑦
	İlaç kullanımının değerlendirmeleri ve formüller hizmetlerin geliştirilmesinde ve yerleştirilmesinde yer alabilmek	①	②	③	④	⑤	⑥	⑦
ARAŞTIRMA	*Klinik ve temel farmasötik bilimlerde bir araştırmanın genel sürecini tanımlamak ve tartışabilmek*	①	②	③	④	⑤	⑥	⑦
	Klinik ve temel farmasötik bilimlerde yapılmış bir yayın hakkında eleştiri içeren ve özenli bir derleme yapabilmek	①	②	③	④	⑤	⑥	⑦
PSİKOLOJİK	*Problemi çözmek için bilgi toplayabilmek*	①	②	③	④	⑤	⑥	⑦
	Bir problem ve durum için bilgiyi sentezlemek ve bir çözüm oluşturabilmek, hipotezde bulunabilmek, sonuçları belirleyebilmek, alternatifleri tahmin edebilmek veya aksiyon planına karar verebilmek	①	②	③	④	⑤	⑥	⑦
	Bilimsel, sosyal, kültürel bakış açısının yanı sıra bireyin düşünce ve değerlerini etkileyen etik sorunların tamamının kaynaştırılmasını gerektiren kompleks problemler hakkında	①	②	③	④	⑤	⑥	⑦

	kararlar verebilmek							
	Diğer bireylerle kişisel ve mesleki etkileşimlerde değer yargılarının etkisini kavrayabilmek	①	②	③	④	⑤	⑥	⑦
	Kişisel ve mesleki değerlerde ve kararlarda etik kuramları ve prensipleri uygulayabilmek	①	②	③	④	⑤	⑥	⑦
	Sosyal, kültürel, tarihsel, politik ve/veya bilimsel sorunların sağlık bakım çevresindeki değişimler üzerine etkilerinin nasıl olduğunu anlayabilmek ve açıklayabilmek	①	②	③	④	⑤	⑥	⑦
	Mesleki uygulamalardaki tutumlarınızın, sağlık bakım sisteminde eczacıların görevleri üzerine toplumsal beklentileri değiştireceğinin bilincinde olabilmek	①	②	③	④	⑤	⑥	⑦
	Hastalar, diğer sağlık bakım sağlayıcılar ve bireylerle mesleki ilişkiler sırasında kişiler ve gruplar arasında uygun davranışları yerleştirebilmek ve uygulayabilmek	①	②	③	④	⑤	⑥	⑦
	Sağlık bakım ekibinin karar verme sürecinde yer alarak, iddialı ve uygun katkılarda (görüş, bakış açıcı, bilgi ve liderlik gibi) bulunabilmek	①	②	③	④	⑤	⑥	⑦

İLETİŞİM	*Hastanın tıbbi kayıtlarındaki bilgilerle ilgili diğer sağlık çalışanlarıyla iletişime geçebilmek*	①	②	③	④	⑤	⑥	⑦
	Hastanın tıbbi kayıtlarındaki bilgilerle ilgili hastalarla iletişime geçebilmek	①	②	③	④	⑤	⑥	⑦
	Uygun kaynakları ve teknolojiyi kullanarak diğer sağlık çalışanları tarafından istenen bilgilerin cevaplanmasında gerekli tüm bilgileri belirleyebilmek ve elde edebilmek	①	②	③	④	⑤	⑥	⑦
	Hastanın talep ettiği bir bilgiyi cevaplandırabilmek	①	②	③	④	⑤	⑥	⑦

CURRICULUM VITAE

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Educational Level

	Name of the Institution where he/she was graduated	**Graduation year**
Postgraduate/Specialization		
Masters	Near East University	2019
Undergraduate	International University for Science and Technology	2015
High school	Alekhlas private school	2010

Job Experience

Duty	**Institution**	**Duration (Year - Year)**

Foreign Languages	**Reading comprehension**	**Speaking***	**Writing***
English	Good	Good	Good

Foreign Language Examination Grade#								
YDS	ÜDS	IELTS	TOEFL IBT	TOEFL PBT	TOEFL CBT	FCE	CAE	CPE

	Math	**Equally weighted**	**Non-math**
ALES Grade			
(Other) Grade			

Computer Knowledge

Program	Use proficiency
Microsoft word office	good

*****Evaluate as very good, good, moderate, poor.