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Assessment of Knowledge, Attitude and Practices of Physicians
and Nurses towards Clinical Pharmacy Services in Al-Bayda,
Eastern Libya

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T.R.N.C

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DEDICATION

I dedicate my dissertation work to my family and many friends, A special feeling of gratitude to my wonderful parents, especially my father Saad .

Whose words of encouragement and push for tenacity ring in my ears all my sisters and brothers have never left my side and are very special I also dedicate this dissertation to my many friends and church family what have supported me throughout the process, I dedicate this work and give special thanks to my best Teachers Assoc-Prof. Dr.Bilgen Basgut & Assist.prof.Dr. Abdlkarim Daud .

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LIST OF ABBREVIATIONS

	Abbreviations	Explanations
1	AACP	American Association of Colleges pharmacy
2	ADRs	Adverse Drug Reaction
3	FIP	International Pharmaceutical Federation
4	FDA	Food Drug Administrated
5	PC	Pharmaceutical Care
6	WHO	World Health Organization
7	HCP	Health care providers
8	ESCP	European society of clinical pharmacy
9	PP	Pharmacy practice
10	BCPS	Board Certified Pharmacotherapy Specialists
11	NGOs	nongovernmental organizations
11	EU	European Union
12	UAE	United Arab Emirates
13	UK	United Kingdom
14	BP	Blood pressure
15	HC	Health care
16	HCS	Health care system
17	MSc	Master degree
18	SPSS	Statistical Package for the Social Sciences
19	USA	State for the United States of America

20	PhD	Doctor of Philosophy
21	KR20	Kuder-Richardson
22	NGOs	Non-Governmental Organizations
23	CPs	clinical pharmacy services
24	MOH	Ministry of health
25	PDRM	preventable drug-related morbidity

ABSTRACT

Background: In an era where pharmacists globally work collaboratively with patients' and physicians and nurses in all types of patient care settings; the practice of

clinical pharmacy services (CPS) in Libya is scarcely reported as ambiguity exist about whether HCP will positively interact with CPS implementation in the country.

Objective: The aim of this study is to evaluate the knowledge, attitude and practices of physicians and nurses towards CPS in Al-Bayda, Eastern Libya.

Methodology: A Cross sectional study design was employed. The sample size was calculated and a pre-validated self-administered questionnaire was randomly distributed to 438 HCP in 2 hospitals and 4 primary care clinics. The questionnaire constitutes 64 items, 8 items assessing demographic information, 11 items assessing knowledge, 17 items assessing attitudes, 1 item assessing experience, 15 items assessing satisfaction and 12 items assessing limitations, for implementation. Questionnaire reliability and data analysis was carried using SPSS version-20.

Results: 171 physicians and 182 nurses have completed the survey (82.0% and 79.1% response rate respectively). Of physicians 98 (57.31%) were males mostly specialist (86.5%) aged from 30 to 39 years ($n=91$; 53.22%), while of nurses, 107 (58.8%) were females aged from 20 to 29 years ($n=88$; 48.35%). The data shows that physicians mean \pm SD score in knowledge and awareness scale was average (7.05 ± 2.39 out of 11) yet significantly higher than nurses (6.15 ± 2.59 out of 11; $p < 0.05$). Also physicians had highly positive attitude score in contrast to nurses (62.89 ± 11.02 Vs 33.55 ± 10.01 out of 85; $p < 0.001$). Physicians aged 30-39 years, those studied abroad, and those from other nationalities had significantly higher knowledge scores and attitude scores than others ($p < 0.05$). Lack of clinical knowledge in disease management of current pharmacists was identified as the most common barrier for CPS implementation in Libya (73.7% and 83.5% of physicians and nurses respectively).

Conclusions: Most physicians in eastern Libya had highly positive attitudes to CPS in contrast to nurses and HCP who graduated from local universities. Interventions involving inter-professional education for HCP, improving pharmacist's patient care competence and awareness campaigns are warranted along introducing CPS into Libyan hospitals.

Keywords: Attitude, knowledge, practice, health care providers, clinical Pharmacy services physicians, nurses, Al-Bayda, Libya.

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1-INTRODUCTION

“Clinical Pharmacy is a health science discipline where pharmacists provide patient care to optimise medication therapy and promotes health and wellness and ensure prevention from diseases” (John M. Burke, Pharm.D etal, 2008). The practice of clinical pharmacy embraces the philosophy of pharmaceutical care; it fuses caring orientation with specialized therapeutic knowledge, experience and judgment to ensure optimal patient outcomes. As a discipline, clinical pharmacy also has an obligation to contribute to the generation of new knowledge that advances health and quality of life (ACCP, 2008). The European society of clinical pharmacy (ESCP) defines clinical pharmacy as “a health speciality that elaborates the activities and services of the clinical pharmacist in developing and promoting the rational and appropriate use of medicinal products and devices” (Franklin, B. D., & Van Mil, J. W, 2005). Pharmacy practice focuses on patient-oriented instead of drug product-oriented service (Barker KN, Valentino JG etal, 1972).

Since time immemorial, pharmacy practice has focused on drug product orientation, the roles of pharmacists have been limited and the interaction with health care providers been very complex; however, the outcome did not result in an optimal health care for the patient. Although clinical pharmacy was founded in the early 1960s at the University of Michigan, USA, much of the trailblazing work on it was done by David Burkholder, Paul Parker and Charles Walton at the University of Kentucky in the latter part of the 1960s (MILLER, R. R., 1981). However, “The standards define for the public, health professionals, and policy-makers what they can and should expect of clinical pharmacists”. Standards of practice involved: (1) qualifications management of drugs (2) Process of Care resulting collaborative pharmacists with HCP to optimize patient outcomes (3) patients’ documentation (4) collaboration with HCP Based on Practice and preference (4) Professional development and maintenance of competence (5) Ethics and professionalism (6) Research and Scholarship (7) Other Responsibilities as educators, researchers, clinical preceptors/mentors, administrators, managers, policy developers, and consultants (Standards Pharmacotherapy, 2014).

Pharmacy practice in Libyan hospitals differences from region to other region while, more than half of physicians and nurses do not heard about CPs in Al-Byada city however, the role of pharmacists are limited as medical supply on other the hand, in Tripoli and Benghazi clinical pharmacy in hospitals still in primary phase, additionally showed little interaction between physicians and clinical pharmacist while, just new physicians accept pharmacist recommendation or advising aspect patient care and medication management, additionally no organized clinical pharmacy service in their setups. However, to provide optimal health care needs to intensify the efforts of MOH and HCP. A few years ago several private universities in Libya adopted pharma D to implantation clinical pharmacy services in Libya, for example, Benghazi international university (BIU), additionally specific education program with training for 2 years in hospitals for a pharmacist who graduated with a bachelor's degree. The aim of study to evaluate the knowledge, attitude and practice of physicians and nurses towards clinical pharmacy services

In this study we will discuss the knowledge and awareness of physicians and nurses about the clinical pharmacist's services in eastern Libya city of Al-Byada, while the content of thesis is as follows: The first chapter after introduction involve literature review including: pharmacy practice (PP), pharmaceutical care (PC), clinical pharmacy services (CPS), challenges, collaboration, knowledge and attitudes in developed countries and other countries. The third chapter involves aims and objectives, chapter four involve method, chapter five results, chapter six and seven involve discussion and conclusions followed by the references and the appendix.

2. LITERATURE REVIEW

2.1 Overview

Several studies have demonstrated that physicians were responsive to many clinical services supplied by pharmacists when these services were provided as consultations or during a collaborative role (Bond et al., 2002; Pharm, 1992). In some Arabian countries, a study discovered that care for patients was specifically delivered by physicians and nurses. However, the contribution of pharmacists in administering medication treatment is based upon the physician's arrangements (Ranelli, 2000). In Sudan, physicians were found to be 'uncomfortable' with pharmacists who recommended or suggested prescription medications to their patients, even if it only involved the treatment of minor diseases (Awad, Matowe, & Capps, 2007). However, in Jordan, the situation was completely different; only 48.2% comfortable with pharmacists suggesting the use of prescription medications to physicians. Additionally, pharmacists in Jordan need to develop a working relationship with the physicians (Tahaine, Wazaify, & Albsoul-Younes, 2009). However, in Kuwait, a study reported that physicians were comfortable with other physicians providing a number of services but were less comfortable with pharmacists being involved in direct patient care (Matowe et al., 2006). To clarify, though the role of the community pharmacist appears to be shifting in several countries, 48% of physicians in Kuwait are inconvenienced with 'pharmacists suggesting the use of prescription drugs to patients. Moreover, one-third of physicians don't predict the pharmacist to be available for services providing during rounds' (Matowe et al., 2006). In Libya and the UAE, the interaction between physicians and community pharmacists is found to be quite minimal (Abduelkarem & Sharif, 2008). Furthermore, only less than half of the physicians agreed in some studies that pharmacists were a credible source of information on medication (Plagakis, 1997).

2.2 Pharmacy Practice

In the community, the accurate pharmacist's 'role is considerably imposed by the economical, regulation and institutional contexts in which they work, and, therefore, it differs from region to region (Anderson, 2002). Additionally, pharmacists play the main role in encouraging responsibility in individuals with respect to drug-use by providing counseling and assistance to them so that they have a healthy lifestyle. Furthermore, the pharmacist services involved: measure of Blood pressure (BP), test of body fluids, test of cholesterol, test of pregnancy, smoking suspension counsel and diabetes direction (RPSGB, 2001). Moreover, pharmacists share their expert knowledge on drugs and their usage for utility with other healthcare workers, physicians and nurses (Anderson, 2002). In clinical pharmacy departments, most pharmacists are more patient-focused, support medication use and provide advice to the patients in the hospital and also outpatients. Additionally, the role of pharmacists involved: promotion of new medication and the reasonable and efficient utilization of quality control laboratories and computer services. In the wards of hospitals, the role of clinical pharmacists involves examining the medication perhaps prescribed by physicians and assisting nurses with issues in drugs management. This 'ward pharmacy' developed towards more patient-guidance 'clinical pharmacy'. Furthermore, most developed countries have effectively and incrementally turned from product-focused to patient-oriented practice (Stuart Anderson, 2002).

One the other hand, the physicians and pharmacist have good professional relationships in developed countries, resulting in expert services introduced by the pharmacists. Several studies evidence that practicing pharmacists as drug information providers and physicians as patient counselling providers prefer the new prolonged roles of the pharmacist (Adepu & Nagavi,

2006). In Arabic-speaking traditional Middle Eastern countries, pharmacy learning and pharmacy practice (PP) still need to be developed (Kheir et al., 2009). Additionally, clinical pharmacy practice was first developed by two pharmacists, Graham Calder and John Baker in the UK (Med & Baker, 1988).

Nowadays, the number of pharmaceutical products at the pharmacies has largely increased while on the same time the access to essential drugs remains lacking in several regions of the world. Furthermore, rising healthcare charges and dynamic social, technical, economic and policy factors necessitate health care system (HCS) reforms across the globe. In an advanced setting, interventions are needed at the individual and at the community level, to assure safety and effective drug therapy to patients. Furthermore, the pharmacists are in a perfect place and qualified as an expert to guarantee efficient and safe usage of the drugs. To do so, pharmacists should ensure higher accountability than they presently do for the administration of pharmacotherapy to the patients they serve. This accountability goes very well on the far side of the normal daily practice that had long been the mainstay of pharmacy.

Moreover, the responsibilities of pharmacists should be broadened to incorporate consulting prescribers, monitoring therapeutic progress and collaborating with different HC practitioners on behalf of patients. The mobility against PC could be a crucial agent in this handle. The value of pharmacists' services in terms of clinical, economic and sociological outcome has been evidence. In July 2007, the professional programs resulting in the physicians of pharmacy degree associate degree accreditation which committee for Pharmacy Education it rendered checked standards (Standards, 2007), for expert programs in addition, pharmacy to produce

PP experiences that embody immediate connection with numerous patient populations in new standards which need schools and colleges of pharmacy (Wiedenmayer et al., 2006).

Many initiatives are carried across the globe for the advancement of PP in order to meet and fulfill the increasingly complex needs of patients in the changing healthcare landscape. These changes need pharmacists' provision for additional, complicated services and require clinically orienting roles that are advanced, extended and specialised than that required for the immediate entry-degree application ranges. Additionally, to direct patient care, these extended roles are related to performing and learning the wide pharmacy labor force as well as enterprise searches and proof-based interference in management of medication (Galbraith et al., 2017; Coombes et al., 2011), a world submission on progressive and specialised practice published by the FIP Education in 2015 (Galbraith et al., 2017; International Pharmaceutical Federation, 2015), formalised advanced PP being required currently more than ever for pharmacists to be ready to competently manage progressively advanced patient services and tight HC desires. The FIP endeavor are essentially steering the evolution of institution and sophisticated frames and easing their execution. The practicing action in Australia evolution is essentially consistent with the global aims; however, challenges maintain a property patriotic official qualification trajectory within confrontation building (Galbraith et al., 2017).

In the period 2010 to 2016 the Australian pharmacy profession made great progress in the development and implementation of a practitioner development pathway. This involved a survey to gauge the perspective of the Australian pharmacy profession with respect to advanced practice recognition, the results of which demonstrated a clear preference for assessment by sub-

mission of a professional portfolio and the desire for a credential to recognise advanced practice (Jackson, S., Martin, G., Bergin, J,etal, 2015).In the United Kingdom, general practitioners acknowledged the community pharmacists' engagement and efforts in adverse drug reaction (ADR) (Adepu & Nagavi, 2006; Drury & Brit, 1991) and drug information (Beswick & Brit, 1991).

However, several general practitioners did not prefer the pharmacists' engagement in anticoagulant or lithium or diabetes management clinics (Adepu & Nagavi, 2006; Nathan, Sutters, & Roy, 1993). Perhaps, this essentially led to general practitioners consideration that the pharmacists are acquiring their roles. In spite of the critique, evidence show pharmacists in advanced countries to be interested in developing their knowledge and advancing their expert talent to meet the health care necessitates of their society, and this has positioned them in an appropriate position in the health care settings (Adepu & Nagavi, 2006; Nathan, Sutters, & Roy, 1993).

2.3 Pharmaceutical Care

“Pharmaceutical care includes the determination of the drug needs for a given individual and the provision not only of the drug required but also the necessary services (before, during or after treatment) to assure optimally safe and effective therapy. It includes a feedback mechanism as a means of facilitating continuity of care by those who provide it.” cited in (Charles D. Hepler, Ph.D, 2004) by (Brodie DC, Parish PA, Poston JW etal, 1980) . In 1989, Linda Strand emphasised the indication of guidelines towards a product, which had been fundamen-

tal in its urgent definition as “responsibility providing of drug therapy for the Aim of achieving definite outcome that enhance a patient’s quality of life” (Charles D. Hepler, Ph.D, 2004) by (Hepler CD, Strand LM, et al, 1989) .According to other writings, the authors intended to use the word “care” to invoke similes of nursing care and medical care (Charles D. Hepler, Ph.D, 2004)&by (Parish PA, 1985)& (Hepler CD, 1987). Responsibility was outlined in its prospective sense as ethical trustiness (i.e., behaving, to the complete range of law and custom, as if one is expected to be responsible for one’s actions) (Hepler, 2004; Brushwood & Hepler, 1996).

In 1998, another group defined PC as “a practice in which the practitioner takes responsibility for a patient’s drug-related needs and is held accountable for this commitment. In the course of this practice, responsible drug therapy is provided for the purpose of achieving positive patient outcomes” (Hepler, 2004; (Cipolle RJ, Strand LM, Morley PC, 1998). On the other hand, the International pharmaceutical federation (FIP) describes PC as “the responsible provision of pharmacotherapy for the purpose of achieving definite outcomes that improve or maintain a patient’s quality of life” (FIP, 1998). According to research data, inappropriate prescribing is the leading cause of preventable drug-related morbidity (PDRM). among hospitalized patients. Primarily, there is considerable evidence that reports pharmaceutical services to participate in improving clinical outcomes (Hepler, 2004; (Black .Bl , ed, 1986).

PC is the responsibility to provide pharmacotherapy with the aim of investigating apparent outcomes that enhance a patient’s quality of life. These outcomes are (1) cure of an illness, (2) removal or reduction of a patients symptomatology, (3) arrest or slowing down of an illness

treatment or (4) prophylaxis of an illness or symptomatology of PC including processing, within which a pharmacist collaborates with a patient and alternative professionals in devising, delivering, assembling and observing a healing arrangement that will manufacture a special healing output for the patient; this, in turn, involves three significant functions: (1) Identifying possible and potential medication related problems, (2) resolving potential medication related problems and (3) preventing potential drug-related problems. PC maybe an essential component of healthcare and maybe comprehensive with alternative parts. Moreover, PC is submitted for the immediate good of the patient, and, therefore, the pill pusher is immediately accountable to the patient for the standard of that care. Additionally, the elemental relation in PC may be a dependent trade during that the patient award jurisdiction compliance to the supplier and therefore, the supplier provides competency and commitment (admit accountability to the patient the elemental aims, processes, and relations of PC is no matter practice adjustment (Hepler, 2004). PC should be comprehensive with the opposite parts of HC. It is, however, supplied for the immediate advantage of the patient and the pharmacist directly accepting direct responsibility for the quality of that care.

PC is basically deal between the patient; furthermore, WHO ,pledges to provide jurisdiction to the supplier and promises competency and commitment (accountability) to the patient (Hepler, 2004; (Hepler CD, 1987) (Veatch RM, 1981) (Hepler CD, 1985). Previously, the pharmaceutical profession has evidence numeral significant modifications, as drugs associated practice is influenced by social, cultural, political and economic agents (Berenguer B., La Casa C., de la Matta M.J., etal, 2004).

Although considerations related the safety of the patient and the quality of HC in the USA, particularly related pharmacotherapy, and pharmacists have ground-breaking chances to expand their value and significance (Charles D. Hepler, Ph.D., 2004). While shaping clinical pharmacy and PC, pharmacists' identified the necessity to boost the protection and competence of pharmacotherapy. One reason for the proliferation and popularity of clinical pharmacy is that it is impossible to define it accurately. On the other hand, few people know the term clinical pharmacist, although they differ greatly in practice from what this means.

However, the community pharmacy could be an appropriate place for a clinical PP and the pharmacist-patient interphases of the nursing home consultant and the triage practitioner. Most pharmacists believe that direct contact with the patient across the prescription counter. It is across the prescription counter or at the bedside (Kenneth N etal, 1972) & by (Karin Wiedenmayer ,etal, 2006). The comparisons show that clinical pharmacy and pharmaceutical care are compatible, mutually complementary ideas. They seem to have similar goals; however, these goals are expressed in different language frameworks and emphasize different aspects of practice. One way to sort them out would be to say that clinical pharmacy describes a practice of pharmacy that would contribute, within a larger pharmaceutical care system, to achieving pharmacotherapeutic and quality-of-life therapeutic objectives. Although the idea of pharmaceutical care was developed mainly by pharmacists, pharmaceutical care is not "about" pharmacists. It is fundamentally an idea about a system for the delivery of patient care. It requires cooperation by a variety of hospital and community pharmacists, physicians, nurses, and other professionals. Clinical pharmacy is an essential component in the delivery of pharmaceutical care. Understanding clinical pharmacy can improve the technical quality of

pharmaceutical care. Understanding pharmaceutical care can enrich and broaden the philosophy and practice of clinical pharmacy. Some clinical practices may meet both a definition of clinical pharmacy and a definition of pharmaceutical care. For example, many clinical pharmacy practitioners carry out specific clinical functions, direct their practices at specific outcomes, and act as if they would share responsibility for those outcomes. That was the original idea of clinical pharmacy. The definitions, however, seem to allow for divergent practices that meet one definition but not the other. In addition, PP in a broad range of setting and these involved hospital pharmacy (in universal kind of hospital from minor domestic to significant learning hospitals), the pharmaceutical industry and academics (Charles D. Hepler, Ph.D., 2004). However, pharmacists are participating in health service management, in searches, in global health and in (NGOs), and in community pharmacy (in retail and other health care settings) (Karin Wiedenmayer ,etal, 2006). On the other hand, it's important to practice the key competencies for clinical pharmacy practice description of essential competencies for any activity needs a transparent definition of the activity in question. One way of describing clinical pharmacy follow is to explain eventualities that represent the core roles of a clinical pharmacist and then use these to reverse upon the competencies required to perform these affectivity (Parthasarathi, G., Nyfort-Hansen, K., & Nahata,etal, 2004).

In Libya, HCS has suffered long duration of disregard, impoverished financing, and low of promotion and modernisation programmers The extra demand imposed during and after the Libyan revolution in 2011 led the ailing health care system to collapse (RM El Oakley, MH Ghrew, AA Aboutwerat ,etal, 2013).60 to 70% of Libyan physicians rarely or never counsel patient drug therapy with pharmacists (Eman Abu-Gharbieh1*, 2010). For several reasons,

the MOH introduced recommendation about clinical pharmacists' services involved two importance points for the development of HCS. Absolute health Commission and health organisations should have medication and pharmacotherapy commission which can reinforce the perceptions of fundamental medication, its reasonable use, prescribing generic drugs and in-service fundamental practice of health professionals in the management of medication, which involved the clinical pharmacist for all side. Institution of higher education practice programs in fields, for example, PC, clinical pharmacology, pharmaco-economics, hospital pharmacy, management, regulatory pharmacy, quality control ,pharmaco-vigilance, pharmaco-epidemiology, radio pharmacy and medical supply (RM El Oakley, MH Ghrew, AA Aboutwerat ,etal, 2013).

2.4 Challenges & Barriers

The decay of pharmacists' confidence (lack of trust), in their clinical capacities has been followed to the diversion in PP from to only drugs supply as cited in by (Kirsten Galbraith, BPharm, MClintPharm, etal, 2017) (Mrtek RG, Catizone C. Pharmacy and the professions , etal, 1989). Furthermore, a lot of pharmacists fear of new accountabilities by representation on this lack of trust (Kirsten Galbraith, BPharm, MClintPharm, etal, 2017) (Zellmer WA, 2005) (Briesacher B, Corey R, 1997) (Matowe L, Abahussain EA, Al-Saffar N ,etal, 2006). However, For example, 80% of physician participants expected pharmacists to be knowledgeable pharmacotherapy expertise and only 29% feeling that pharmacists were by rote supply such information was as the title of these study physicians concepts of pharmacists' professional obligations (Kirsten Galbraith, BPharm, MClintPharm, etal, 2017) (Matowe L, Aba-

hussain EA, Al-Saffar N, et al, 2006). In addition, barrier to prevention of pharmacists Risk of aversion advance pharmacy practice recently efforts involved supply pharmacists with a chance to prescribe of drugs (Kirsten Galbraith, BPharm, MCLinPharm, et al, 2017). Since 2006 in the UK, pharmacists have been unable to prescribe in different formats. By 2008, the number of pharmacists with complementary prescribing competence (prescribing in combination with a physician's) had reached about 1500 pharmacists (Kirsten Galbraith, BPharm, MCLinPharm, et al, 2017) while, this appears spectacular on the roof, it really represents only a little section of the over 49,000 pharmacists working in the UK (Kirsten Galbraith, BPharm, MCLinPharm, et al, 2017) (RPSGB, Hassell K., 2004) ,while, since 1980, in Florida, pharmacists have had the ability to prescribe a choice list of drugs (Kirsten Galbraith, BPharm, MCLinPharm, et al, 2017) (Doering PL, 2007).

‘That’s the approach it's continuously been’, and that’s the approach it should be and in addition to, we tend to do not get should prescribing, physicians should be prescribe drugs; pharmacists should fill prescriptions” (Kirsten Galbraith, BPharm, MCLinPharm, et al, 2017) (Doering PL, 2007). Another example in Canada of these kinds of reactions additionally exists. Previously, in 1978, (8) pharmacists in capability have had the ability to the responsibility to refuse to fill a prescription or for a pharmaceutical opinion (Kroger E, Moisan J, Gregoire JP, 2000). Additionally, dysfunction within the face of ambiguity probably associated with pharmacists’ apparent worry of latest responsibility (Kirsten Galbraith, BPharm, MCLinPharm, et al, 2017). Another barrier is that a pharmacist needs approval. It is a related concept pharmacist with that other the healthcare workers and other professions have of them (Kirsten Galbraith, BPharm, MCLinPharm, et al, 2017).

Moreover, PP evidence the amount of drugs interventions advised ratio admitted by physicians can be measurement by essential outcome (Kirsten Galbraith, BPharm, MCLinPharm, et al, 2017) (Sanghera N, Chan PY, Khaki ZF, et al, 2006) (Holland R, 2007).

There are difference challenges that have been long-faced when setting up a clinical service. Exploit their expertise to help you inform the focus of your service and exceed the prospect barriers. In addition, some professional organisations will have workshops and seminars regarding the enforcement of patient care services and/or anticoagulation services as cited in (Ashley W. Ellis, Justin J. Sherman, 2004) (Harris IM, Baker E, Berry TM, et al., 2008) (Snella KA, Sachdev GP, 2003). Some of the challenges came with educating them about what I was able to involve, how they could better use my services, and merging me into the flow of the clinic. With everyone being extended by their patient load and other responsibility, there was not extensive amount of time for us to get to know each else temporarily. Over time, through many shorter conversations between meetings or patients, occasionally shared lunches, setting common interests or goals, and even first to blend in outside of clinic hours, our relationships have been reinforced (Ellis, 2004).

Additionally, the challenge for all pharmacists is to satisfy the eternity - rising prospects of the general audience everywhere and to reveal more valuable to drugs usage (Stuart Anderson, 2002).

2.5 Collaboration physicians and nurses

Many factors affect the provision of high pharmaceuticals care such as collaboration between physicians and patients. Clinical pharmacy services differ from country to country; however, the developed of country clinical pharmacy is applied excellently because the interaction between physicians and pharmacists is strong. In addition, it has been demonstrated that medical physicians are responsive to numerous clinical services supplied by pharmacists if these services were supplied within a kind of consultative or during a corroborative role (Bond CA, Raehl CL, et al, 2002) (Pharm, Am J Hosp, 1992). However, in other countries, the Community pharmacist has been described as a 'complicated relevance with physicians' (Leape LL, Cullen ,David j ,etal, 1999) (Judith A. Sulick, et al, 1996) (Ables AZ, Baughman OL et al, 2002). Some studies have evidenced the presence of communication gap between pharmacists and physicians (Susan J. Bradshaw et al, 1998) (Nesbit F, Chaplin DC et al, 1995). In some Arabian countries, a study carried out that patient care was only by physicians and nurses. However, the contribution of pharmacists in the management of medication dependon the physician's preparedness (Ranelli PL, June Biss J, 2000). As cited in medication-oriented dispensing role towards a patient-centered modality of practice by (Brook O, van Hout H, Nieuwenhuyse H, et al, 2003). In this model, pharmacists afford accountability for therapeutic outcomes, for example, compliance (Fjortoft N, Zgarrick D, 2003), and use their drugs associated with experience to assist patients (Farris K, Schopflocher D, 1999) (G Scheerder, I De Coster... - Psychiatric , 2008). This concept suggests an altering role for pharmacists, the transition from the traditional education, drugs monitoring and increased collaboration with prescribing physicians (Pronk M, 2002). Raising the collaboration with general practitioners

may process the information barrier and enhances pharmacists' supply of information to patients, to which collaboration with general practitioners was considerably related. In this study, the current level of such collaboration was rather low, primarily because it is not regular between these professions. This particularly inhibits pharmacists in following up with patients about depression symptoms and medication information that is required from general practitioners and those pharmacists are required to submit feedback. Inclusion of local general practitioners in practice programs for pharmacists on depression may be one method to increase collaboration and destroy barrier (Sheridan J, Strang J, Taylor C, et al, 1997). Despite the fact that the concept of PC was developed essentially by pharmacists, PC is not about pharmacists. It is principally one concept about a system for the supply of patient care. It needs collaboration between a difference of hospital and community pharmacists, nurses, medical physicians and other HCP. Clinical pharmacy is a fundamental constituent in the provision of PC (Brodie DC, Parish PA, Poston JW, 1980). On the other hand, the importance of collaboration with health care providers involved: monitoring drug therapy, managing drug-related problems, counselling patients about their disease, provision medication to improve patients' quality of life, evaluating and performing laboratory and related tests, identifying drugs adverse events ensuring ,management of drugs, and evaluating patient response to therapy (Manolakis, P. G., & Skelton, J. B, 2010).

2.6 Attitudes and Knowledge in Developed Countries and other countries Countries

Advancements in PC are occurring in both hospital and community settings. In some nations, this accountability is recognised as being involved with different HCP, and the term drugs management is the most popular (Davis, P., 1997). Although these advancements, nevertheless, each PC and medicines. Furthermore, management stays ambitious for the most part in several regions of the globe. In developed countries, the pharmacists visit wards to check prescription documents and to undertake provision, prevent the requirement for prescriptions having to be dispersed to the pharmacy and therefore, they are not out there in the word for the minimum amount of time. As pharmacists became highly related with the wards, in advising physicians on what can be prescribed and assisting nurses with issues in medication management, this 'ward pharmacy' developed inside a lot of patient-directed 'clinical pharmacy'.

In addition, pharmacies in nearly all developed countries have progressively converted from the product-direction to the patient-direction. Pharmacists are to be discovered during a broad spectrum of establishments, for example. Dungeons and, in some nations, several significant pharmacists are employed along with the soldiers, in maritime, army forces and Air Corps institutions. A newer advancement in some advanced nations has been the expansion of the variety of pharmacies recommending native health authorities, typically developing native formularies and watching physicians prescribing. Some are currently employed directly by overall practitioners to provide recommendation on the reasonable and cost-effective use of drugs. Moreover, the role of pharmacists is strengthening and advocating the safe, efficient and rational use of medicines amongst those that they serve. The pharmacist's role has turned from

the preparation and provision of drugs to the integrating of pharmaceutical experience and knowledge with physicians, nurses and patients. Most countries have a combination of public employment provider of health care, and this can be reverse within the supply of pharmacy services. In addition, almost all countries currently have agencies coping with drug security and management along with permitting services and organisation. These embody the provide and medicines institution within us, the medicines management institution in the UK and multi-national authorities, such as the European medications assessments institution, WHO employ significant several of pharmacists. The fact is that the pharmacy level affords a proper practice in health science, and pharmacists are to be found dispersed pass a broad vary of least-apparent activities. These involved medicinal spreading, such as journal and newsletters, and national formularies and pharmacopoeias. Furthermore, in the European continent, there remain significant differences within the education and training of pharmacists at intervals in the EU. In Holland and the US, for instance, it takes six years to qualify as a pharmacist. The elementary two years of study highly stress on essential and pharmaceutical sciences. Practical skills are taught throughout the last two years when students can take associate degree temporary exams after their four years, resulting in the reward of MSc. Nevertheless, in Germany, pharmacists must complete at least three years of the function coaching before being answerable to a hospital pharmacy (Stuart Anderson, 2002).

In other countries, the knowledge and attitudes are quite reverse in contrast to developed countries, for example, Eritrea, which has a population of around three million and a half, is served by a total of just 53% of pharmacists, with every one pharmacist per 6000 patients, 1 or 2 registered pharmacists serve 100,000 patients (Health Action International, 199; Gelaw &

Tegegne, 2017; Parthasarathi et al., 2004). Additionally, PP other countries is a similar practice as in developed countries (Mason, 1999). Furthermore, in some countries, the pharmaceutical experience is well provided by pharmacists from other countries (WHO, 2000). Regarding HCS in other countries, they are taking over more roles that are antecedently instituted by common medical practitioners. Finally, in the developed countries, the accountability for guaranteeing the safety, efficient and rational drugs use lies with the pharmacists. Pharmacists' readiness at the forefront between the developers and producers of pharmaceuticals is important. Therefore, for the sale of their product: they're community's experts on drugs (Barber, Smith, & Anderson, 1994).

3.THE AIM OF STUDY

3.1 Overall Aim:

The aim of this study is to evaluate the knowledge, attitude and practices of physicians and nurses towards CPS in Al-Bayda, eastern Libya.

4. MATERIAL AND METHOD

4.1The Study Setting and Design:

The study was conducted between Nov 2018 to Jan 2019 in the governorate Al-Bayda. Al-Bayda is a city that lies at the eastern part of Libya with an estimated population of 300,000, considered as the third largest city in Libya. Six health centers were involved; 2 general hospitals (Elthowra and El tmyouz) and 4 clinics (El gameea and El farabee ,El trahum , El wafaa) while, The questionnaire is adapted from study done in Ethiopia (BK Gelaw, GT Tegegne, 2017) .

4.2The study population, sampling and inclusion criteria:

Physicians (307) and nurses (384) working in the selected hospitals and clinics were invited to participate in the study through a general announcement. The sample size was calculated using the following formula (qualitative study design questionnaire was utilized to estimate KAP of Physicians and Nurses towards CPS. The sample size was calculated translated (from English to the Arabic language) and a pre-validated self-administered survey was distributed randomly. The Information was analyzed using SPSS version-20) and the satisfactory sample size was: 193 nurses and 171 physicians. 208 questionnaires for physicians and 230 and for nurses were distributed randomly

4.3Inclusion criteria: physicians and nurses working in the study setting in albyada city that agreed to participate and signed consent to participate in the study was involved.

4.4Exclusion criteria: Healthcare professionals working in Academia i.e. universities who may be familiar with CPS from literature.

4.5The Study tools and variables:

(Validations and pilot study)

The Survey was established by experts' 5PhD pharmacists' students as (Face validity) and used KR20 and Cranach's Alpha internal consistency test as reliability translates from the English language to Arabic language and the survey was pilot tested on a subset of participants, 30Physicians and 30 nurses.

4.6Independent variables: Sex, Age, Educational Level, Profession, Place of study.

4.7Dependent variables: Practice, Knowledge, Attitude.

4.8Data collection measures:

Data was collected using self-administered organized Survey. The Survey just involved sealed questions only, and composed of group of questions prepared by the searchers with one version intended at Physician& nurses. It was processed in English language. The survey involves data on demographic features, KAP towards clinical pharmacy service.

4.9Data processing and analysis

All the respondents were encrypted and the information was analyzed using the Statistical Page for Social Sciences(SPSS) version 20, standard deviation (SD)were used to outlined patients' fundamental-line demographic information and assessment dissemination of responses. Three categories were used in the spss software and all the 95% confidence interval was used could be calculated. Descriptive analysis was used to calculate the percentage of each group of the participants who agreed/disagreed with each information in the survey Chi-square test was used for the evaluating any considerable variance through the respondent's Responses related certain data in the survey and with a significant level of p-value to <0.05. The questionnaire is developed with reference to the consumer survey that has already will be implemented in the hospitals Practice Research Resource Center (PPRRC). In addition Cronbach's Alpha and KR2, non-parameter test Mann-Whitney U, whalis test, crosstabs ,correlation.

ETHICAL CONSIDERATION

MOH of Libya and Libyan pharmacists association of Al-Bayda director of the ethical committee has approved the survey of this research to be distributed to all health care providers in hospitals and clinics in Al-Bayda city. As part of the ethical requirements for this study, before the commencement, the researcher strictly adhered to the verbal consent of the participants where all participants were assured that their personal information and signatures.

5. RESULTS

A total of 438 self-administered questionnaires were distributed to 208 physicians and 230 nurses in the study setting. For physicians out of the 208 surveys, 171 were completed giving a response rate of 82.0%. Out of 230 questionnaires administered to nurses, 182 were completed and retrieved thereby giving a response rates of 79.1%. The reliability test of pilot study of physicians shows a KR20 of 0.949 and 0.984 for Sections 1 and 4 respectively, and a Cronbach's Alpha of 0.898 and 0.987 for Section 2 and Section 3 respectively, indicating high internal consistency of the physician's questionnaire items in the format used. The reliability test of pilot study of nurse's shows a KR20 of 0.885 and 0.764 for Sections 1 and 4 respectively, and a Cronbach's Alpha of 0.922 and 0.984 Section 2 and Section 3 respectively, indicating high internal consistency of the nurse's questionnaire items in the format used.

5.1 Physician's characteristics

The physicians represent 48.44% from the total HCP who responded to this survey. Of these 98(57.31%) were males and 73 (42.69%) were females. Physician's aged from 30 to 39 years 91(53.22%) formed the majority of responders. In terms of physicians specialty statue, 148 (86.5%) were specialists mostly Pediatrics 59(34.5%) followed by Emergency medicine (15.79%) and Surgery (11.29%), while years of experience of respondent physicians was mostly more than 5 years of experience 85 (49.7%) (Table 1).

Table 1: Socio-demographic information of participant physicians

Variable	Category	N (%)
Age group (years)	20-29	48(28.1)
	30-39	91(53.2)
	≥ 40	32 (18.7)
Gender	Male	98(57.3)
	Female	73(42.6)
Level of education	General practitioner	23(13.5)
	Special	148 (86.5)
Year of experience in practice (years)	<1	20 (11.7)
	1-5	66 (38.6)
	>5	85(49.7)

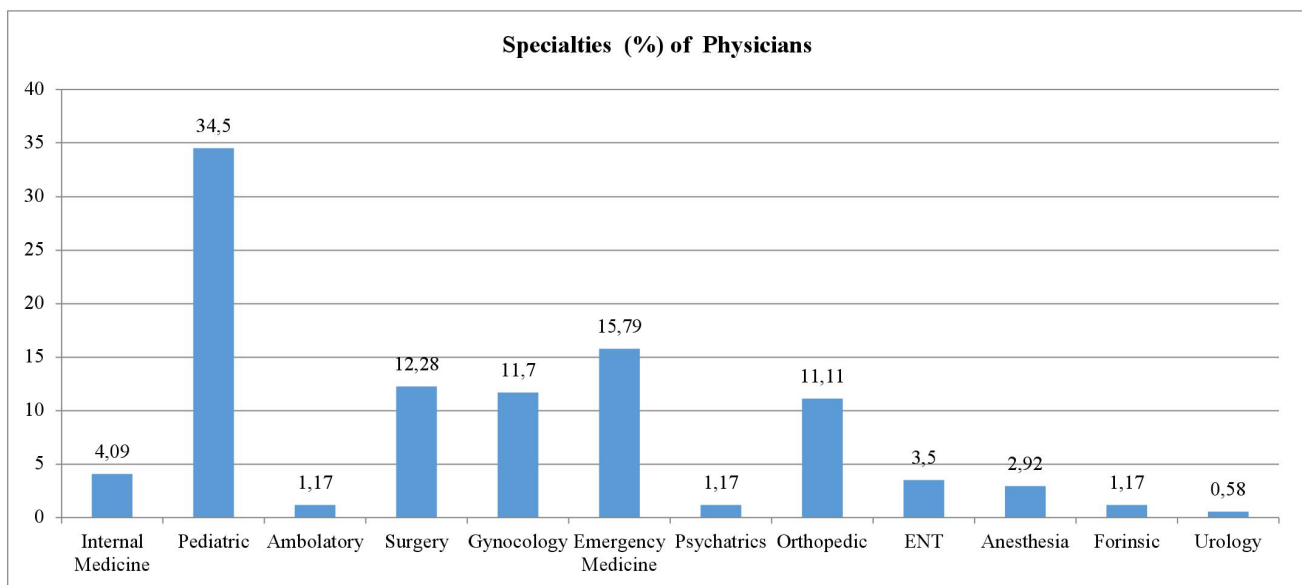


Figure 1: Distribution of specialties among physicians

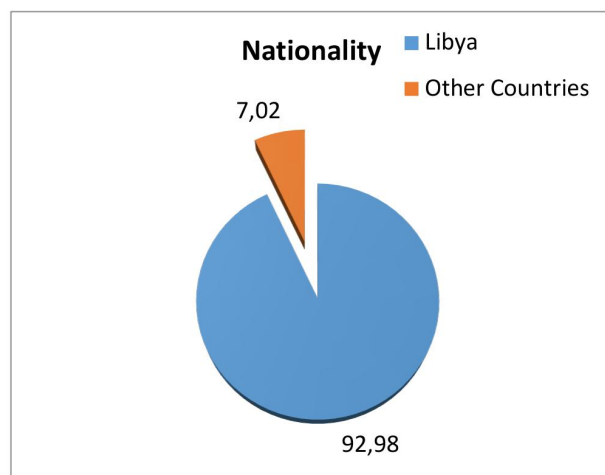
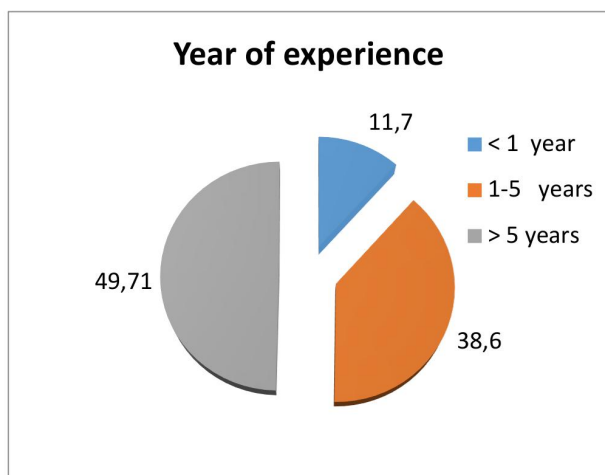
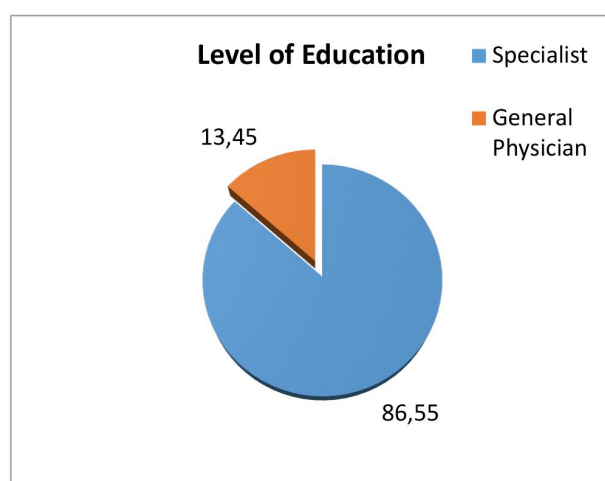
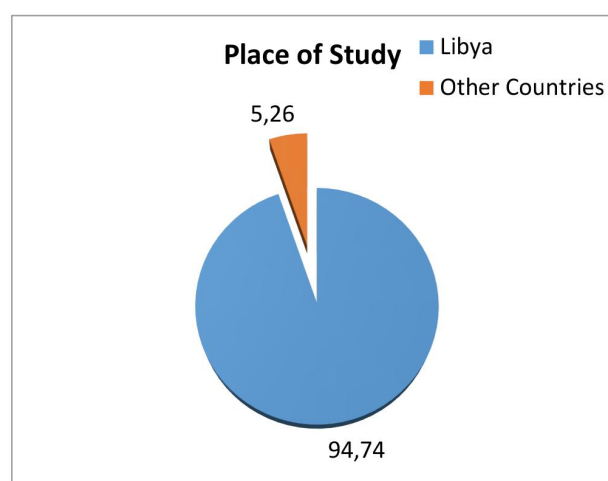
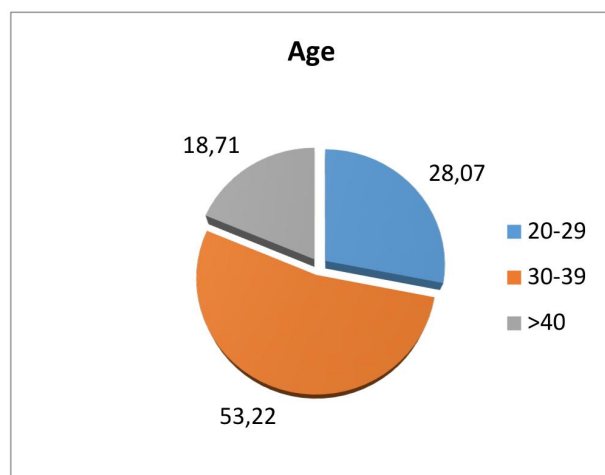
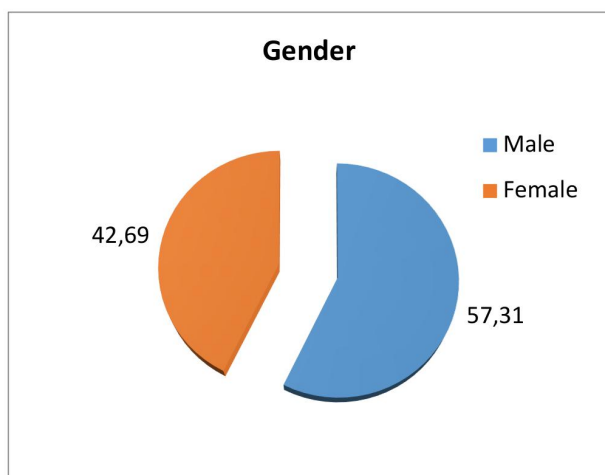


Figure 2- showed pie chart contains percent of gender, age, place of study, level of education year of experience, nationality

5.2 Knowledge and awareness about Clinical Pharmacy Services:

Majority of physicians (68.4%) have not heard about clinical pharmacy services in Libya, while 85.4% are knowledgeable of the lack of patient oriented pharmacist in the Libyan hospitals. In spite most physicians (87.1%) are aware that pharmacist's involvement can reduce health care costs of ambulatory ward and 83.6% are aware that pharmacists may reduce adverse drug event in addition the majority (80.7%) are aware that pharmacists are integral part of medical teams (Table 2).

Mann whitney test shows no significant differences in responses between males and females ($p>0.05$). Kruskal wallis test shows also no significant differences in terms of knowledge based on years of experience, level of education, or current of area practice ($p>0.05$). There are differences in age groups as physicians aged 30-39 years had significantly higher knowledge scores than others ($p=0.020$). Additionally Libyan Physicians who studied abroad ($p=0.006$) and those physicians from other nationalities ($p=0.014$) had significantly higher knowledge scores than others evaluated using Kruskal wallis test.

Table 2: Physicians knowledge towards the current clinical pharmacy service.

Physicians knowledge	Yes (%)	No (%)
1-Have you heard about clinical pharmacy service in Libya?	54 (31.6)	117(68.4)
2-Is there patient oriented pharmacist in your hospital?	25(14.6)	146(85.4)
3-Do you think that pharmacists are integral part of medical teams?	138(80.7)	33(19.3)
4-Do you know that pharmacists attend ward round?	106(62.0)	65(38.0)
5-Do you know that pharmacists attend morning session?	116(67.8)	55(32.2)
6-Do you know that pharmacists improve the patient's quality of life?	135(78.9)	36(21.1)
7-Do you know that pharmacists are capable of offering primary care to the patients?	132(77.2)	39(22.8)
8-Do you have information regarding to pharmacists role in ambulatory ward?	104(60.8)	67(39.2)
9-Do you have information regarding to pharmacists role in intensive care unit?	103(60.2)	68(39.8)
10-Do you know that involvement of pharmacists can reduce adverse drug event?	143(83.6)	28(16.4)
11-Do you know that involvement of pharmacists can reduce health care costs?	149(87.1)	22(12.9)

5.3 Attitude and perception of the respondents:

Majority of the physicians have positive attitude toward clinical pharmacy services (mean attitude score \pm S.E.M = 62.89 \pm 0.84283). Majority (68.4%) perceive that pharmacists can improve overall patient outcome or quality of patient care. 66.5% of respondents appreciate the presence of clinical pharmacists in the wards all the times perceiving that as being important for patient care. In addition 66.1% of respondents reported that the implementation is desirable in health care system. On other the hand, mostly of physicians (63.8%) have negative attitude on clinical pharmacists' service participates can not monitor patient response to drug therapy from effectiveness perspective, 62.6% of respondents report that CPS infrastructure and environment) of their hospital is appropriate for the provision of CPS and feel confidence when there is not clinical pharmacist in the ward/OPD .

Mann whitney test shows no significant differences in gender responses to attitude questions between males and females ($p > 0.05$). Kruskal wallis test shows also no significant differences in terms of attitude based on age groups, speciality status, years of experience of respondents in addition to level of education and the current area of practice ($p > 0.05$). Libyan Physicians who studied abroad ($p = 0.005$) and those physicians from other nationalities ($p = 0.030$) had significantly higher attitude scores than others evaluated using Kruskal wallis test.

Table 3: Physicians, attitude/perception towards the current clinical pharmacy services

Given statements of attitude	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
12-Do you think that Clinical pharmacists' involvement in ward round is desirable?	41(24.0)	57(33.3)	49(28.7)	9(5.3)	15(8.8)
13-Do you think that Clinical pharmacist can play important role in patient education and counseling?	40(23.4)	63(36.8)	58(33.9)	8(4.7)	2(1.2)
14-Do you think that Clinical pharmacist can monitor patient response to drug therapy from toxicity/side effects perspective?	40(23.4)	65(38.0)	53(31.0)	9(5.3)	4(2.3)
15-Do you think that Clinical pharmacist can not monitor patient response to drug therapy from effectiveness perspective?	5(2.9)	15(8.8)	42(24.6)	68(39.8)	41(24.0)
16-Do you think that clinical pharmacist can involve in drug selection (drug, dosage form) based on patient and drug factors?	31(18.1)	62(36.3)	50(29.2)	11(6.4)	17(9.9)
17-Do you think that Clinical pharmacist can provide relevant drug information to health care professionals?	31(18.1)	67(39.2)	58(33.9)	10(5.8)	5(2.9)
18-Do you think that Clinical pharmacist can detect and prevent medication use errors?	33(19.3)	73(42.7)	48(28.1)	11(6.4)	6(3.5)
19- Do you think that Clinical pharmacy services can not enhance patient's satisfaction?	6(3.5)	9(5.3)	59(34.9)	70(40.9)	27(15.8)
20-Do you think that Clinical pharmacist should take patient's medication history at admission?	27(15.8)	78(45.6)	48(28.1)	11(6.4)	7(4.1)
21-Do you think that Clinical pharmacists should have access to patient's chart and have a place to document their services?	27(15.8)	80(46.8)	51(29.8)	11(6.4)	2(1.2)
22-Do you think that Clinical pharmacist analyzes patient treatment and suggest changes of therapy when necessary?	28(16.4)	79(46.2)	49(28.7)	9(5.3)	6(3.5)
23-Do you think that Pharmacists should not also focus on patient care not only drug products?	31(18.1)	72(42.1)	48(28.1)	13(7.6)	7(4.1)
24-Do you think that the current set up (infrastructure and environment) of your hospital is not appropriate for the provision of clinical pharmacy services?	2(1.2)	11(6.4)	51(29.8)	66(38.6)	41(24.0)
25-Do you think that Clinical pharmacy service implementation is desirable in health care system?	34(19.9)	79(46.2)	51(29.8)	5(2.9)	2(1.2)
26-Do you think that Clinical pharmacists can improve overall patient outcome/ quality of patient care?	34(19.9)	83(48.5)	51(29.8)	2(1.2)	1(6.0)
27-Do you appreciate the presence of clinical pharmacists in the wards all the times as being important for patient care?	39(22.8)	73(42.7)	51(29.8)	8(4.7)	-
28-Do you feel confidence when there is not a clinical pharmacist in the ward/OPD?	2(1.2)	7(4.1)	55(32.2)	68(39.8)	39(22.8)

5.4 Practice and satisfaction of the respondents:

Only few respondent physicians 21 (12.3%) said that they had a previous experience with clinical pharmacists in a hospital. Of these 15 (71.4%) were males while 6 (28.6%) were females. Physicians with previous experience with a clinical pharmacist were mostly aged more than 40 years old (66.7%) and had an experience more than 5 year (85.7%) ($X^2=36.78$; $df=2$; $p<0.001$ and $X^2=12.47$; $df=2$; $p=0.002$ respectively). Only 8.6% of those studies inside Libya and 77.8% of those who studied outside had experience working with a clinical pharmacist ($X^2=37.83$; $df=2$; $p<0.001$). Around 52.4% of these physicians were from a non-Libyan nationality ($X^2=75.50$; $df=1$; $p<0.001$) and were mostly Pediatricians (33.3%) Surgery (23.8%) ENT (14.28%) or Gynecologist (14.28%) ($X^2=23.03$; $df=11$; $p=0.017$).

Most of these respondents (71.4%) were satisfied with clinical pharmacists' role, as pharmacist's participation in dose calculation for patients. Of these physicians 66.6% acknowledge pharmacists advice on cost-effectiveness of therapies and their active participation in bedside discussions, to assist clinicians on therapeutic care plan and drug selection. In spite this, 14.3% of physicians were poorly satisfied with pharmacists providing of timely information on drug availability and clinical pharmacist counsel of patients regarding safe & appropriate use of medication. In addition only 9.5% of respondents were dissatisfied with Clinical pharmacist's presence in the ward all the time (Table 4).

Mann whitney test shows no significant differences in satisfaction between males and females ($p>0.05$). Kruskal wallis test shows also no significant differences in terms of satisfaction based on age groups specialty statue or years of experience or of respondents ($p>0.05$). In addition no significant differences was found in satisfaction based on place of study, nationality, level of education or current area of practice.

29-Do you have a previous experience with clinical pharmacists in a hospital?	Yes (%) If yes, please answer the fourth and fifth tables 21(12.3)	No (%) If not, please answer only the fifth table 150(87.7)
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Table 4: Physicians, level of satisfaction on the current performance of pharmaceutical care providers.

Pharmacists' activity	Excellent (%)	Very Good (%)	Good (%)	Satisfactory (%)	Poor (%)
30-Clinical pharmacists present in the ward	8(38.1)	5(23.8)	6(28.6)	2(9.5)	-
31-Clinical pharmacists actively participate in ward rounds with the health care team	6(28.6)	6(28.6)	5(23.8)	1(4.8)	3(14.3)
32-Clinical pharmacists provide timely information on drug availability	6(28.6)	8(38.1)	4(19.0)	1(4.8)	2(9.5)
33-Clinical pharmacists can not provide information on appropriate route of drug administration	-	2(9.5)	4(19.0)	10(47.6)	5(23.8)
34-Clinical pharmacists participate in preventing, detecting and resolving ADR	5(23.8)	6(28.6)	7(33.3)	2(9.5)	1(4.8)
35-Clinical pharmacists involve in side effect prevention and management	6(28.6)	7(33.3)	4(19.0)	2(9.5)	2(9.5)
36-Clinical pharmacists counsel patients regarding safe & appropriate use of medication	5(23.8)	9(42.9)	4(19.0)	2(9.5)	1(4.8)
37-Clinical pharmacists counsel patients during discharge	4(19.0)	4(19.0)	6(28.6)	2(9.5)	5(23.8)
38-Clinical pharmacists can not document their service in patient care card	4(19.0)	2(9.5)	3(14.3)	6(28.6)	6(28.6))
39-Clinical pharmacists participate in dose calculation for patients	8(38.1)	7(33.3)	2(9.5)	3(14.3)	1(4.8)
40-Clinical pharmacists identify and report ADR	6(28.6)	4(19.0)	7(33.3)	4(19.0)	-
41-Clinical pharmacists can not provide information on alternative drug regimen	1(4.8)	3(14.3)	6(28.6)	4(19.0)	7(33.3)
42-Clinical pharmacists advise on cost effective medications	7(33.3)	7(33.3)	4(19.0)	2(9.5)	1(4.8)
43- Clinical pharmacists participate in dose adjustment for pediatric and renal/liver failed patients	5(23.8)	7(33.3)	4(19.0)	3(14.3)	2(9.5)

44- Clinical pharmacists actively participate in bedside discussion to assist clinicians on therapeutic care plan and drug selection	7(33.3)	7(33.3)	3(14.3)	4(19.0)	-
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5.5 Limitations of CPS implementation

Most physicians (73.7%) perceive lack of clinical knowledge on disease management in Libyan pharmacists as the major barrier for implementation. Inconvenient hospital setup for provision of clinical pharmacy service (69.0%) and lack of adequate support by the health care team (67.3%) were also among the major limitations for implementing clinical pharmacy services in Libya according to respondents (Table 5).

Table 5: Limitations and barriers of the current clinical pharmacy services implementation

Questions	Yes (%)	No (%)
45-Lack of clinical knowledge on disease management	126(73.7)	45(26.3)
46-Lack of clinical knowledge on drug related issue	102(59.6)	69(40.4)
47-Lack of active communication skill	98(57.3)	73(42.7)
48-Lack of confidence to interact with the health care team	101(59.1)	70(40.9)
49-Absenteeism on working area	108(63.2)	63(36.8)
50-Lack of interest to provide clinical pharmacy service	112(65.5)	59(34.5)
51-Lack of support from administration	114(66.7)	57(33.3)
52-Lack of adequate support by the health care team	115(67.3)	56(32.7)
53-Lack of proper documentation	114 (66.7)	57(33.3)
54- Shortage of staff	113(66.1)	58(33.9)
55-Inconvenient hospital setup for provision of clinical pharmacy service	118(69.0)	53(31.0)
56-Other justification	96(56.1)	75(43.9)

5.6 Nurse's characteristics:

The nurses represent 51.55% from a total HCP who responded to this survey. Of these 75 (41.2%) were males and 107 (58.8%) were females while nurses' aged from 20 to 29 years 88(48.35%) formed the majority of responders. In terms of nurses specialty statue, 31(17.03%) were specialists mostly Gynecology or Obstetrics followed by surgery 30 (16.48%) and internal medicine by surgery 30 (16.48%), while years of experience of respondent nurses was mostly 93(51.1%) their experience from 1 to 5 years (Table 1).

Table 1: Socio-demographic information of participant Nurses

Variable	Category	N (%)
Age group (years)	20-29	88(48.35)
	30-39	59(32.4)
	≥ 40	35 (19.2)
Gender	Male	75(41.2)
	Female	107(58.7)
Level of education	General practitioner	-
	Special	-
Year of experience in practice (years)	<1	19(10.4)
	1-5	93 (51.1)
	>5	70(38.5)

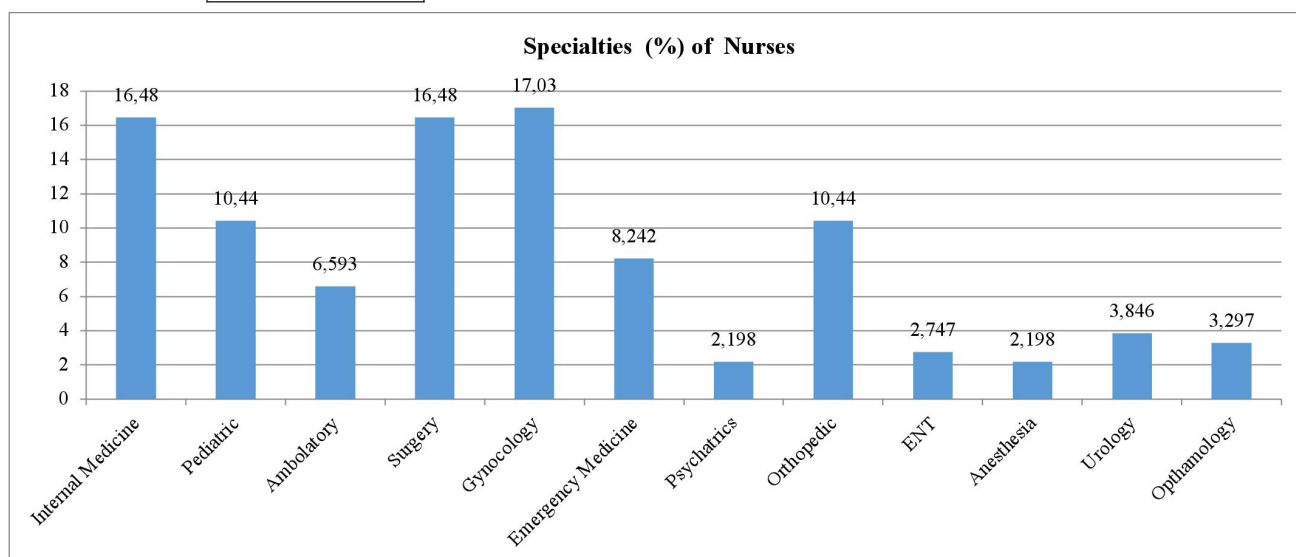


Figure 1: Distribution of specialties among nurses

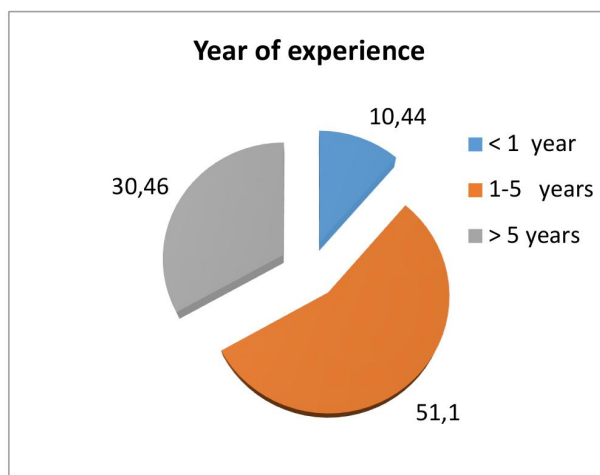
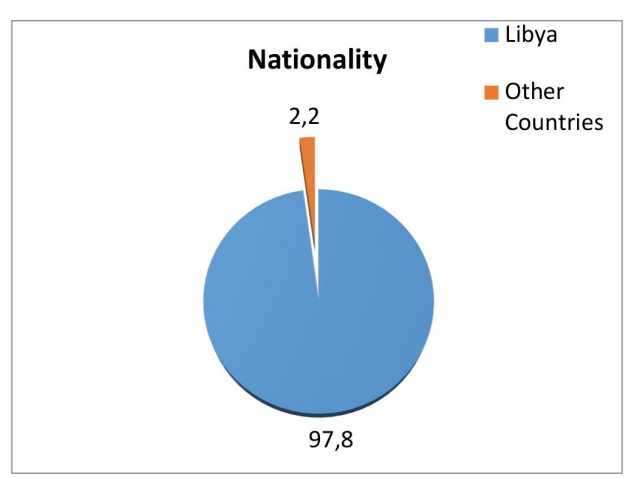
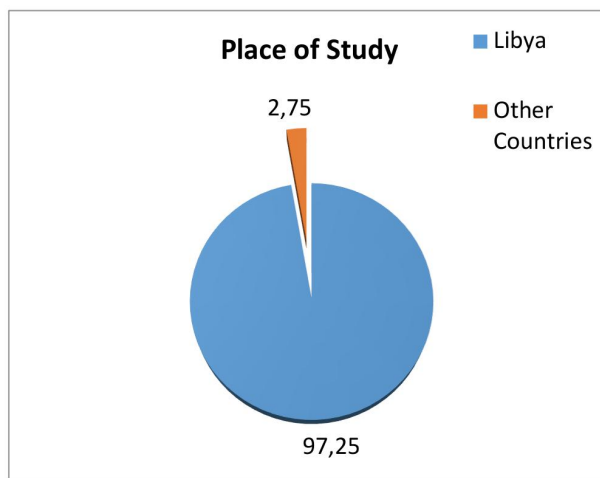
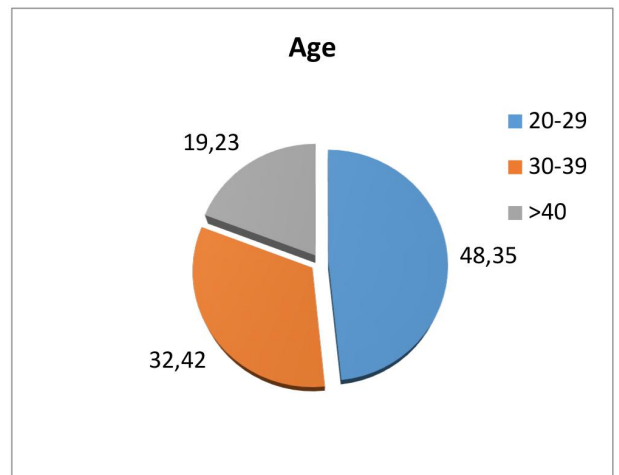
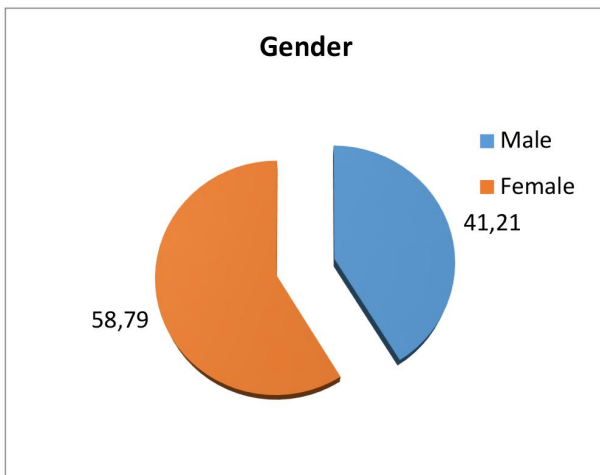


Figure 2- showed pie chart contains percent of gender, age, level of education year of experience, nationality

5.7 Knowledge of the respondents:

Majority of Nurses (69.2%) have not heard about clinical pharmacy service in Libya and 98.4% are knowledgeable of the lack of patient oriented pharmacist in the Libyan hospitals. In spite most nurses (86.8%) are aware regarding to clinical pharmacists as integral part of medical teams, 83.0% are aware that pharmacist may can reduce health care costs, in addition 81.3% are aware the pharmacist can reduce adverse drug event, (Table2).

Mann whitney test shows no significant differences in responses between males and females ($p>0.05$). Kruskal wallis test shows also no significant differences in terms of knowledge based on age groups specialty statue or years of experience or of respondents($p>0.05$). An addition no significant differences in both of level of education, current of area practice, nationality, place of study.

Table 2: Nurses knowledge towards the current clinical pharmacy service.

Nurses knowledge	Yes (%)	No (%)
1-Have you heard about clinical pharmacy service in Libya?	56(30.8)	126(69.2)
2-Is there patient oriented pharmacist in your hospital?	3(1.6)	179(98.4)
3-Do you think that pharmacists are integral part of medical teams?	158(86.8)	24(13.2)
4-Do you know that pharmacists attend ward round?	84(46.2)	98(53.8)
5-Do you know that pharmacists attend morning session?	81(44.5)	101(55.5)
6-Do you know that pharmacists improve the patient's quality of life?	123(67.6)	59(32.4)
7-Do you know that pharmacists are capable of offering primary care to the patients?	110(60.4)	72(39.6)
8-Do you have information regarding to pharmacists role in ambulatory ward?	101(55.5)	81(44.5)
9-Do you have information regarding to pharmacists role in intensive care unit?	105(57.5)	77(42.3)
10-Do you know that involvement of pharmacists can reduce adverse drug event?	148(81.3)	34(18.7)
11-Do you know that involvement of pharmacists can reduce health care costs?	151(83.0)	31(17.0)

5.8 Attitude of the respondents:

Majority of the nurses(86.2%) have positive attitude on clinical pharmacists' service as role in patient education and counseling (mean attitude score \pm S.E.M=33.55 \pm 0.742. Majority (85.7%) perceive that pharmacist can monitor patient response to drug therapy from toxicity/side effects perspective and can provide relevant drug information to health care professionals However, 86.3% of the participates have negative attitude on

clinical pharmacists' participates feel confidence when there is not clinical pharmacist in the ward/OPD, 81.8%of respondents report that CPS can not enhance patient's satisfaction and 81.3% of participants their answers can not monitor patient response to drug therapy from effectiveness perspective (Table 3).

Mann whitney test shows no significant differences in gender responses to attitude questions between males and females ($p>0.05$). Kruskal wallis test shows also no significant differences in terms of attitude based on age groups specialty statue or years of experience or of respondents($p>0.05$). An addition no significant differences in both of level of education,current of area practice, nationality, place of study.

Table 3: Nurses, attitude/perception towards the current clinical pharmacy services

Given statements of attitude	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
12-Do you think that Clinical pharmacists' involvement in ward round is desirable?	81(44.5)	74(40.7)	9(4.9)	15(8.2)	3(1.6)
13-Do you think that Clinical pharmacist can play important role in patient education and counseling?	63(34.6)	94(51.6)	12(6.6)	10(5.5)	3(1.6)
14-Do you think that Clinical pharmacist can monitor patient response to drug therapy from toxicity/side effects perspective?	58(31.9)	98(53.8)	18(9.9)	6(3.3)	2(1.1)
15-Do you think that Clinical pharmacist can not monitor patient response to drug therapy from effectiveness perspective?	3(1.6)	11(6.0)	20(11.0)	108(59.3)	40(22.0)
16-Do you think that clinical pharmacist can involve in drug selection (drug, dosage form) based on patient and drug factors?	46(25.3)	104(57.1)	26(14.3)	5(2.7)	1(0.5)
17-Do you think that Clinical pharmacist can provide relevant drug information to health care professionals?	50(27.5)	106(58.2)	19(10.4)	7(3.8)	-
18-Do you think that Clinical pharmacist can detect and prevent medication use errors?	59(32.4)	93(51.1)	22(12.1)	7(3.8)	1(0.5)
19-Do you think that Clinical pharmacy services can not enhance patient's satisfaction?	1(0.5)	9(4.9)	23(12.6)	102(56.0)	47(25.8)
20-Do you think that Clinical pharmacist should take patient's medication history at admission?	61(33.5)	88(48.4)	18(9.9)	13(7.1)	2(1.1)
21-Do you think that Clinical pharmacists should have access to patient's chart and have a place to document their services?	42(23.1)	100(54.9)	22(12.1)	17(9.3)	1(0.5)

22-Do you think that Clinical pharmacist analyzes patient treatment and suggest changes of therapy when necessary?	57(31.3)	85(46.7)	18(9.9)	19(10.4)	3(1.6)
23-Do you think that Pharmacists should also focus on patient care not only drug products?	49(26.9)	79(43.4)	28(15.4)	24(13.2)	2(1.1)
24-Do you think that the current set up (infrastructure and environment) of your hospital is not appropriate for the provision of clinical pharmacy services?	9(4.9)	15(8.2)	31(17.0)	75(41.2)	52(28.6)
25-Do you think that Clinical pharmacy service implementation is desirable in health care system?	58(31.9)	90(49.5)	22(12.1)	10(5.5)	2(1.1)
26-Do you think that Clinical pharmacists can improve overall patient outcome/ quality of patient care?	56(30.8)	87(47.8)	24(13.2)	15(8.2)	-
27-Do you appreciate the presence of clinical pharmacists in the wards all the times important for patient care?	59(32.4)	89(48.9)	18(9.9)	15(8.2)	1(0.5)
28-Do you feel confidence when there is not clinical pharmacist in the ward/OPD?	1(0.5)	10(5.5)	14(7.7)	89(48.9)	68(37.4)

5.9Practice and satisfaction of the respondents:

Only few respondent nurses 16 (8.8%) said that they had a previous experience with clinical pharmacists in a hospital. Of these 6 (37.5%) were males while 10 (62.5%) were females. nurses with previous experience with a clinical pharmacist were mostly aged from 30 to 39 years old (50%) and had an experience more than 5 year (81.2%) ($X^2=13.58$; $df=2$; $p=0.001$ and $X^2=13.77$; $df=2$; $p=0.001$ respectively). Only 18.7% of those studies inside Libya and 81.2% of those who studied outside had experience working with a clinical pharmacist ($X^2=16.81$; $df=1$; $p<0.001$). Around 87.5% of these nurses were from a non-Libyan nationality ($X^2=8.66$; $df=1$; $p=0.003$) and were mostly orthopedic (31.2%) Surgery (18.7%) internal medicine (12.5%) or Gynecologist (12.5%) ($X^2=10.48$; $df=11$; ($p>0.05$)).

Majority of nurses (56.3%) were satisfied with clinical pharmacists 'role as present in the ward. Of these nurses these (50.1%) acknowledge pharmacists services involve in side effect prevention and management and (50%) of them Clinical pharmacists actively participate in ward rounds with the health care team .In spite this, (56.3 %) of them were poorly satisfied with engagement of clinical pharmacists in can not provide information on appropriate route of drug administration , can not document their service in patient care card

and cannot provide information on alternative drug regimen and counsel patients regarding safe & appropriate use of medication (Table 4).

Mann Whitney test shows no significant differences in responses between males and females ($p>0.05$). Kruskal wallis test shows also no significant differences in terms of satisfaction based on years of experience or of respondents ($p>0.05$). In addition no significant differences in both of level of education, current of area practice, nationality, place of study. There are significant differences in age groups specialty while, ($p=0.017$).

29-Do you have a previous experience with clinical pharmacists in a hospital?	Yes (%)	No (%)
	If yes, please answer the fourth and fifth tables 16(8.8)	If not, please answer only the fifth table 166(91.2)

Table 4: Nurses, level of satisfaction on the current performance of pharmaceutical care providers.

Pharmacists' activity	Excellent (%)	Very Good (%)	Good (%)	Satisfactory (%)	Poor (%)
30-Clinical pharmacists present in the ward	8(50.0)	1(6.3)	3(18.8)	1(6.3)	3(18.8)
31-Clinical pharmacists actively participate in ward rounds with the health care team	8(50.0)	-	1(6.3)	4(25.0)	3(18.8)
32-Clinical pharmacists provide timely information on drug availability	3(18.8)	4(25.0)	2(12.5)	3(18.8)	4(25.0)
33-Clinical pharmacists can not provide information on appropriate route of drug administration	5(31.3)	-	2(12.5)	5(31.3)	4(25.0)
34-Clinical pharmacists participate in preventing, detecting and resolving ADR	3(18.8)	3(18.8)	3(18.8)	2(12.5)	5(31.3)
35-Clinical pharmacists involve in side effect prevention and management	5(31.3)	3(18.8)	3(18.8)	1(6.3)	4(25.0)
36-Clinical pharmacists counsel patients regarding safe & appropriate use of medication	5(31.3)	1(6.3)	2(12.5)	1(6.3)	7(43.8)
37-Clinical pharmacists counsel patients during discharge	5(31.3)	1(6.3)	2(12.5)	2(12.5)	6(37.5)

38-Clinical pharmacists can not document their service in patient care card	3(18.8)	1(6.3)	3(18.8)	3(18.8)	6(37.5)
39-Clinical pharmacists participate in dose calculation for patients	4(25.0)	3(18.8)	3(18.8)	-	6(37.5)
40-Clinical pharmacists identify and report ADR	5(31.3)	-	4(25.0)	2(12.5)	5(31.3)
41-Clinical pharmacists can not provide information on alternative drug regimen	4(25.0)	-	3(18.8)	3(18.8)	6(37.5)
42-Clinical pharmacists advise on cost effective medications	4(25.0)	3(18.8)	3(18.8)	1(6.3)	5(31.3)
43- Clinical pharmacists participate in dose adjustment for pediatric and renal/liver failed patients	4(25.0)	3(18.8)	3(18.8)	-	6(37.5)
44- Clinical pharmacists actively participate in bedside discussion to assist clinicians on therapeutic care plan and drug selection	4(25.0)	3(18.8)	2(12.5)	1(6.3)	6(37.5)

5.10 Limitations of the respondent:

Most nurses (83.5%) perceive lack of clinical knowledge on disease management in Libyan pharmacists as the major barrier for implementation. Inconvenient hospital setup for provision of clinical pharmacy service, Lack of active communication skill (76.4%) and Lack of clinical knowledge on drug related issue (75.8%) were also among the major limitations for implementing clinical pharmacy services in Libya according to respondents (Table 5).

Table 5: Limitations of the current clinical pharmacy service.

Questions	Yes (%)	No (%)
45-Lack of clinical knowledge on disease management	152(83.5)	30(16.5)
46-Lack of clinical knowledge on drug related issue	138(75.8)	44(24.2)
47-Lack of active communication skill	139(76.4)	43(23.6)
48-Lack of confidence to interact with the health care team	134(73.6)	48(26.4)
49-Absenteeism on working area	131(72.0)	51(28.0)
50-Lack of interest to provide clinical pharmacy service	136(74.7)	46(25.3)
51-Lack of support from administration	135(74.2)	47(25.8)
52-Lack of adequate support by the health care team	132(72.5)	50(27.5)
53-Lack of proper documentation	133(73.1)	49(26.9)
54- Shortage of staff	127(69.8)	55(30.2)

55-Inconvenient hospital setup for provision of clinical pharmacy service	128(70.3)	54(29.7)
56-Other justification	72(39.6)	110(60.4)

Table. 1 Total knowledge , attitude and Satisfaction scores with respect to demographic characteristics of Physisians

	Total Knowledge score			Total attitude score			Total Satisfaction score		
	Mean [^] ± SD	Median (Min-Max)	p	Mean [^] ± SD	Median (Min-Max)	p	Mean [^] ± SD	Median (Min-Max)	p
Gender									
Male	7.04 ± 2.30	7 (0-11)	>0.05	61.8 ± 10.7	61.5(32-85)	>0.05	58.7 ± 15.8	61(33-80)	>0.05
Female	7.05 ± 2.52	8(0-11)		64.3 ± 11.2	64(41-85)		61.1 ± 11.4	57.5 (48-80)	
Age									
20-29	7.18± 2.70	8(0-11)	0.020	62.4 ± 10.2	63(34-85)	>0.05	80 ± 0	80 (80-80)	>0.05
30-39	6.67± 2.23	7 (0-11)		62.4 ± 10.28	63(34-85)		61 ± 15.9	63.5 (38-80)	
> 40	7.90± 2.16	8.5 (4-11)		64.6± 11.4	62 (43-85)		57.2± 13.6	57(33-80)	
Experience									
< 1	7.25± 3.20	8.5 (0-11)	>0.05	63.2 ± 12.2	59(48-85)	>0.05	80 ± 0	80 (80-80)	>0.05
1-5	6.77± 2.06	7 (1-10)		61.5± 11.06	60 (32-85)		60.5± 17.6	60.5(48-73)	
> 5	7.21± 2.42	7 (0-11)		63.8± 10.7	64 (34-85)		58.1± 14.2	57.5(33-80)	
Place of study									
Libya	6.93± 2.37	7 (0-11)	0.006	62.3± 10.6	61.5(32-85)	0.005	57.3± 15.2	57 (33-80)	>0.05
Other	9.11± 1.76	9 (6-11)		73.2± 13.3	79 (43-85)		63.5± 13.07	66 (43-80)	
Levelof education									
General	7.1304 ± 2.07	7 (3-11)	>0.05	60.8± 9.63	57 (49-80)	>0.05	66 ± 0	66 (66-66)	>0.05
Special	7.03± 2.44	7 (0-11)		63.2± 11.2	62 (32-85)		59.1± 14.8	57.5 (33-80)	
Current area of practice									
Internal medicine	6.57± 3.69	9(0-10)		60.5± 9.76	59(50-74)		-	-	
Pediatrics	7.08± 2.69	8 (0-10)		64.8± 12.1	64 (41-61)		67.2± 12.3	69(48-80)	
Outpatient	6± 1.41	6 (5-7)		56.5± 6.36	56.5(52-61)		-	-	
Surgery	7.04 ± 2.47	7 (0-11)		60.2± 10.3	62(34-73)		53± 9.02	55 (38-62)	
Gynecology	7.35± 2.15	8 (2-11)		61.3± 10.1	59 (48-85)		49± 12.5	55 (35-58)	

Emergency	6.92± 1.41	7 (3-11)	>0.05	62± 9.96	62 (48-80)	>0.05	66± 0	66 (66-66)	
Psychiatry	7± 1.41	7 (6-8)		63± 7.07	63 (58-68)		-	-	>0.05
Orthopedic	7.10± 1.76	7 (4-10)		60.3± 11.1	62 (32-85)		43± 0	43 (43-43)	
ETN	8± 2.82	8 (4-11)		71.1± 14.9	72 (45-85)		60.6 ± 24.5	69 (33-88)	
Anesthesia	6.2± 1.92	6(4-9)		64.2± 4.81	63 (58-70)		-	-	
Forensic	6.50± 3.53	6.5(4-9)		71± 11.3	71(63-79)		-	-	
Urology	6± 0	6 (6-6)		65± 0	65 (65-65)		73 ± 0	73(73-73)	
<hr/>									
Nationality									
Libyan	6.92± 2.38	7 (0-11)	0.014	62.3± 10.8	62 (32-85)	0.030	56.4± 16.9	59.5 (33-80)	>0.05
Other	8.66± 1.96	9 (6-11)		69.7± 11.3	72 (54-85)		62.1± 12	58 (43-80)	

Table.2 Total knowledge , attitude and Satisfaction scores with respect to demographic characteristics of Nurses

		Total Knowledge score			Total attitude score			Total Satisfaction score		
		Mean [^] ± SD	Median (Min-Max)	P	Mean [^] ± SD	Median (Min-Max)	P	Mean [^] ± SD	Median (Min-Max)	P
Gender										
	Male	16.2±2.82	16 (12-22)	>0.05	35.2± 11.3	34(17-68)	>0.05	45.3± 23.1	35.5(22-75)	>0.05
	Female	15.5± 2.39	16(12-21)		32.3± 8.81	33(17-61)		44.7± 23.4	46.5(16-75)	
Age										
	20-29	16.1± 2.77	16(12-21)	>0.05	34.2± 10.5	34(17-68)	>0.05	36 ± 0	36 (36-36)	0.0017
	30-39	15.3± 2.46	15 (12-21)		33.1± 9.40	33(17-57)		29.7 ± 15.4	25(16-59)	
	> 40	15.9± 2.25	16(13-22)		32.4± 9.81	33(17-61)		63.5± 16.2	71(35-75)	
Experience										
	< 1	16.6± 2.29	17(12-21)	>0.05	36.4± 11.07	34(63-21)	>0.05	-	-	>0.05
	1-5	15.6± 2.72	16 (12-21)		32.8± 10.1	33 (17-68)		27.3± 9.01	28(18-36)	
	> 5	15.8± 2.48	16 (12-22)		33.6± 9.46	34 (17-61)		49± 22.9	47(16-75)	
Place of study										
	Libya	15.8± 2.56	16 (12-21)	>0.05	33.5± 9.82	33(17-68)	>0.05	44.5± 23.07	46(16-75)	>0.05
	Other	15.2± 3.89	13 (13-22)		34.8± 16.9	28 (17-61)		46.6± 24.6	35 (30-75)	
Current area of practice										
	Internal medicine	15.8± 2.91	15(13-22)	>0.05	34.1± 11.4	33.5(17-61)	>0.05	72.± 4.24	72(69-75)	>0.05
	Pediatrics	15.5± 2.73	16 (12-21)		36.5± 10.8	35 (23-56)		18± 0	18(18-18)	
	Outpatient	14.8± 2.44	14 (12-19)		30.9± 10.5	29(17-51)		28± 0	28 (28-28)	
	Surgery	15.6± 2.66	15 (12-21)		32± 6.84	34(17-43)		41.3± 15.5	35 (30-59)	
	Gynecology	15.4± 2.42	16(12-20)		32.3± 7.65	33(17-51)		44.5± 37.4	44.5 (18-71)	
	Emergency	16.6± 2.05	16 (13-21)		36.3± 13.8	34 (17-68)		74± 0	74 (74-74)	
	Psychiatry	16.2± 2.75	16.5 (13-19)		44.7± 14.5	46.5 (26-60)		-	-	

Orthopedic	16.5± 2.81	17 (12-21)		31.8± 7.64	34 (17-51)		39.2± 23.3	36(16-75)	
ETN	16.4± 3.04	16 (13-20)		37.4± 17.6	34 (17-57)		-	-	
Anesthesia	15± 1.41	15.5(13-16)		28± 2.94	28 (25-31)		-	-	
Ophthalmology	16± 3.16	16.5(12-20)		30.6± 8.50	32(17-42)		46± 0	46(46-46)	
Urology	17.1± 1.67	18 (14-19)		34.4± 10.0	34 (25-55)		-	-	
<hr/>									
Nationality									
Libyan	15.8± 2.55	16 (12-21)	>0.05	33.3± 9.82	33(17-68)	>0.05	46.7± 23.6	46.5(16-75)	>0.05
Other	16.7± 4.5	16 (13-22)		41.2± 16.6	38.5 (27-61)		32.5± 3.53	32.5 (30-35)	

6. DISCUSSION

The practice of pharmacy in Al-Bayda hospitals and clinics are currently limited to dispensing and provision of medication supply in contrast to Tripoli, west Libya. For this more than (68.4%) of physicians and (69.2%) nurses in this study have not heard about clinical pharmacy services in Libya and reported a lack of patient-oriented pharmacist in healthcare settings. On other the hand, 12.3% of physicians and 8.8% of nurses said they had previous experience with clinical pharmacy services, most of these HCP were non-Libyan and few of them were Libyans who studied or worked in hospitals outside Libya. The ages of these HCP were mostly more than 40 and their experience years were more than 5 years. However, physicians had higher knowledge scores, positive attitudes and interest in collaborating with clinical pharmacists more than nurses in the studied group.

Several studies have demonstrated that physicians were responsive to many clinical services supplied by pharmacists when these services were provided as consultations or during a collaborative role (Bond et al., 2002; Pharm, 1992). In some Arabian countries, a study discovered that care for patients was specifically delivered by physicians and nurses. However, the contribution of pharmacists in administering medication treatment is based upon the physician's arrangements (Ranelli, 2000). In Sudan, physicians were found to be 'uncomfortable' with pharmacists who recommended or suggested prescription medications to their patients, even if it only involved the treatment of minor diseases (Awad, Matowe, & Capps, 2007). However, in Jordan, the situation was completely different; only 48.2% comfortable with pharmacists suggesting the use of prescription medications to physicians. Additionally, pharmacists in Jordan need to develop a working relationship with the physicians (Tahaine, Wazaify, & Albsoul-Younes, 2009). However, in Kuwait, a study reported that physicians were comfortable with other physicians providing a number of services but were less comfortable with pharmacists being involved in direct patient care (Matowe et al., 2006). To clarify, though the role of the community pharmacist appears to be shifting in several countries, 48% of physicians in Kuwait are inconvenienced with 'pharmacists suggesting the use of prescription drugs to patients.

Moreover, one-third of physicians don't predict the pharmacist to be available for services providing during rounds' (Matowe et al., 2006). In Libya and the UAE, the interaction between physicians and community pharmacists is found to be quite minimal (Abduelkarem & Sharif, 2008). Furthermore, only less than half of the physicians agreed in some studies that pharmacists were a credible source of information on medication (Plagakis, 1997).

In addition, the gender of physicians was 57.31% males and 42.69% females and nurses 58.79% female and 41.21% male. However, in a study done in the U.S reported, dominated female more than male in the specialty, the greater the obvious preference for men. Some nurses also reported being alienated from jobs in obstetrics and gynecology wards, a policy encountered several times in private Catholic hospitals. On other the hand often the pressures keeping men out of certain specialities were more subtle than this. Some men described being "tracked" into practice areas within their professions which were considered more legitimate for men (Williams, C. L, 1992)it is worth noting. Physician's aged from 30to 39 years (53.22%) more than another age group while, nurses common age group was 20 to 29 years (48.35%).On other, the hand physicians speciality (86.55%) most of them, Pediatrics (34.5%) and (17.03%) Gynecology/Obstetrics of nurses participate. While, Place of study in Libya more than other countries while, in physician (94.74%) and (97.25%) as result of In Libya HCS has suffered long duration of disregard, impoverished financing, and low of promotion and modernization programmers. In addition physicians Level of education in special (86.55%) and general (13.45%), because mostly of them have experience and active in their department. On other the hand Profession nearly equal between physician (48.442%) and nurses (51.558%), but the physician percent of response and collaboration more than nurses while, the response rate of physician (82.0%) and nurses (79.1%).Additionally, physicians specialty (86.55%) mostly of them Pediatrics (34.5%) and (17.03%) of respondents Gynecology/Obstetrics of nurses participate while, years of experience of physician most of them (49.7%) their experience more than 5 years and years of experience of nurses most of them(51.1%) their experience from1 to 5 years, because the physician graduated after 7 years and nurses after 4 years for faculties and 2 years for privet schools. Finally, in the nationality (92.96%) Lib-

yan physicians and (97.80%) nurses physicians show a massive significant with other countries, in the last year's ministry of health in Libya depend on Libyan HCP as work in general hospitals that are why the per cent was high.

The involvement of pharmacists in HCS has been demonstrated as being cost-effective instead of just supplementary costs added to therapy costs that would be incurred from the success of therapy, the prevention of adverse medication incidents, the optimal use of complicated healing systems, the designing of compliance programs, and the recommendations for cost-effective treatments. The HCP membership requirement conjunction and coalition complies with a request to achieve such accountabilities. Patient care can be improved by related work between physicians and pharmacists. Due to varied adverse effects of several drugs, pharmacists and physicians are required to work together to minimize healthcare costs while offering the best available care. Drug-relevant health issues require close interaction between pharmacists and physicians, for these to be avoided and resolved (Kheir, Zaidan, & Younes et al., 2008). This interaction requirement broadens the pharmacists' role to assure cost-effective and competitive patients care. It is thus very interesting for the doctors to be prepared to approve CPS. The pharmacy practice has evolved considerably in modern years. This consistently requires changes in proceedings and practice, to enable demand over sources, the imaginary usage of skills pharmacy, and the engagement of clinical pharmacists at prescribing and provision phases (Kirking, Bickley, & Wasserman et al., 1991). Surprisingly, the study indicated the existence of a powerful conviction among physicians – clinical pharmacists are a significant segment of the clinical team who can minimize drugs errors, enhance the quality of life for the patient, provide elementary care, and reduce the adverse drugs incidents as well as healthcare costs in a hospital setting. Furthermore, a study in UAE reported that 75% of students who study medicine conceived clinical pharmacists constitute a significant segment of healthcare providers. Moreover, 82% believed clinical pharmacists could assist in enhancing the quality of medical care in hospitals (Bryant, L., Coster, G., & McCormick, R. et al, 2010). Additionally, a study done by Bleiker& Lewis revealed that general practitioners have a positive attitude against pharmacists about their inclusion into the elemen-

tary health care authority and an extension of their roles in relation to drugs; nevertheless, there was little strengthen for the thought of pharmacists assuming examining and running therapeutic controlling clinics (Abu-Gharbieh, E., Fahmy, S., Rasool, B. A., Abduelkarem, A., et al, 2010).

In a study done in Ethiopia, Ethiopian physicians surveyed were of higher level of education and more experienced in contrast to Libyan physicians in the current study additionally, Ethiopian physicians have high knowledge score contrast Libyan HCP , however most of the Libyan physicians who studied outside Libya and other nationalities physicians who have a previous experience with clinical pharmacists Found satisfy contrast Ethiopian physicians (Gelaw, BK, Tegegne, GT, & Defersha, AD, 2017). On the other hand, according to clinical pharmacists services, HCP in UAE have high knowledge score contrast Libyan HCP, all of the studied report that physicians have a positive attitude about CPS, (Abu-Gharbieh, E., Fahmy, S., Rasool, et al, 2010).

This is the first cross sectional study in Libya to explore and assess perceptions towards clinical pharmacist's services in Libya. It is worth noting that some of these results may be attributed to the weak provision of health care in Libya and the poor practice of clinical pharmacy services in Libya. Such study is important before introducing CPSs to estimate solutions for future challenges that may rise in the CPSs implementation. HCP misperceptions and negative attitudes toward CPSs were reported to improve after implementation by proactive clinical pharmacists in ward-based manner (Rasmussen F, Demirdamar R, Abdi AM., 2014). Preparing graduates with such competences is also crucial for the wide implementation of CPSs in Libya. This may involve introducing clinical pharmacy practice experiences into curricula while training students in all relevant wards of the hospital (Abdi AM, Gultekin O, Mestrovic A, Basgut B, 2017). Also, it's important to involve all stakeholders including MOH and ministry of education, hospital directors and healthcare professionals to intensify collaboration and overcome difficulties in order to apply clinical

pharmacy in global standards. In addition, the roles and responsibilities of clinical pharmacists should be well defined and shared with the medical team as well as patients in order to assure optimum PC for patients.

7-CONCLUSION

Most physicians in Al -Bayda, eastern Libya had highly positive attitudes to CPS in contrast to nurses and HCP who graduated from local universities. Interventions involving inter-professional education for HCP, improving pharmacist's patient care competence and awareness campaigns are warranted along introducing CPS into Libyan hospitals.

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10. APPENDIX i

“Knowledge, Attitudes and Practice of Physicians and Nurses towards Clinical Pharmacy Service in East Libya”

Dear Libyan health care providers

May I ask for help? I am Hassan Hamad, a master student at Clinical pharmacy department of the faculty of pharmacy in Near East University. The aim of the study that I am conducting to evaluate the knowledge, attitudes and practices health care providers towards clinical pharmacy service, Alhyada region also aimed to assess attitudes of health care providers towards clinical pharmacy service & To determine the level of health care providers awareness on clinical pharmacy service Your responses will be kept confidential and anonymous and the results will be only used for research purposes. This is not a Test and it will not affect you in any way.

Thank you for your kind cooperation

Doç. Dr Bilgen Başgut Supervisor

Hassan Hamad Student

Table 1 Demographic characteristics of the respondent					
Gender		Male		Female	
Age group		20-29		30-39	
Place of study		Libya		Other countries specify :	
Level education		General practitioner		special	
Profession		Physicians		Nurses	
Current area of practice		Internal medicine		Pediatrics	
		Emergency Medicine		Psychiatry	
year of experience in practice (years)		< 1 year		1-5 years	
Nationality		Libyan		Others Specify :	

Table 2: Physicians and Nurses knowledge towards the current clinical pharmacy service.

Healthcare providers knowledge	Yes	No
1-Have you heard about clinical pharmacy service in Libya?		
2-Is there patient oriented pharmacist in your hospital?		
3-Do you think that pharmacists are integral part of medical teams?		
4-Do you know that pharmacists attend ward round?		
5-Do you know that pharmacists attend morning session?		
6-Do you know that pharmacists improve the patient's quality of life?		
7-Do you know that pharmacists are capable of offering primary care to the patients?		
8-Do you have information regarding to pharmacists role in ambulatory ward?		
9-Do you have information regarding to pharmacists role in intensive care unit?		

10-Do you know that involvement of pharmacists can reduce adverse drug event?		
11-Do you know that involvement of pharmacists can reduce health care costs?		

Table 3: Physicians and Nurses, attitude/perception towards the current clinical pharmacy services

Given statements of attitude	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
12-Do you think that Clinical pharmacists' involvement in ward round is desirable?					
13-Do you think that Clinical pharmacist can play important role in patient education and counseling?					
14-Do you think that Clinical pharmacist can monitor patient response to drug therapy from toxicity/side effects perspective?					
15-Do you think that Clinical pharmacist can monitor patient response to drug therapy from effectiveness perspective?					
16-Do you think that clinical pharmacist can involve in drug selection (drug, dosage form) based on patient and drug factors?					
17-Do you think that Clinical pharmacist can provide relevant drug information to health care professionals?					
18-Do you think that Clinical pharmacist can detect and prevent medication use errors?					
19-Do you think that Clinical pharmacy services enhance patient's satisfaction?					
20-Do you think that Clinical pharmacist should take patient's medication history at admission?					
21-Do you think that Clinical pharmacists should have access to patient's chart and have a place to document their services?					
22-Do you think that Clinical pharmacist analyzes patient treatment and suggest changes of therapy when necessary?					
23-Do you think that Pharmacists should also focus on patient care not only drug products?					
24-Do you think that the current set up (infrastructure and environment) of your hospital is appropriate for the provision of clinical pharmacy services?					
25-Do you think that Clinical pharmacy service implementation is desirable in health care system?					

26-Do you think that Clinical pharmacists can improve overall patient outcome/ quality of patient care?					
27-Do you appreciate the presence of clinical pharmacists in the wards all the times important for patient care?					
28-Do you feel confidence when there is clinical pharmacist in the ward/OPD?					

29-Do you have a previous experience with clinical pharmacists in a hospital?	Yes If yes, please answer the fourth and fifth tables	No If not, please answer only the fifth table
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Table 4: Physicians and Nurses, level of satisfaction on the current performance of pharmaceutical care providers.

Pharmacists' activity	Excellent	Very Good	Good	Satisfactory	Poor
30-Clinical pharmacists present in the ward					
31-Clinical pharmacists actively participate in ward rounds with the health care team					
32-Clinical pharmacists provide timely information on drug availability					
33-Clinical pharmacists provide information on appropriate route of drug administration					
34-Clinical pharmacists participate in preventing, detecting and resolving ADR					
35-Clinical pharmacists involve in side effect prevention and management					
36-Clinical pharmacists counsel patients regarding safe & appropriate use of medication					
37-Clinical pharmacists counsel patients during discharge					
38-Clinical pharmacists document their service in patient care card					
39-Clinical pharmacists participate in dose calculation for patients					
40-Clinical pharmacists identify and report ADR					

41-Clinical pharmacists provide information on alternative drug regimen					
42-Clinical pharmacists advise on cost effective medications					
43- Clinical pharmacists participate in dose adjustment for pediatric and renal/liver failed patients					
44- Clinical pharmacists actively participate in bedside discussion to assist clinicians on therapeutic care plan and drug selection					

Table 5: Limitations of the current pharmacists to provide clinical pharmacy service.

Questions	Yes	No
45-Lack of clinical knowledge on disease management		
46-Lack of clinical knowledge on drug related issue		
47-Lack of active communication skill		
48-Lack of confidence to interact with the health care team		
49-Absenteeism on working area		
50-Lack of interest to provide clinical pharmacy service		
51-Lack of support from administration		
52-Lack of adequate support by the health care team		
53-Lack of proper documentation		
54- Shortage of staff		
55-Inconvenient hospital setup for provision of clinical pharmacy service		
56-Other justification		

INFORMED CONSENT FORM FOR Participant

Participation without penalty, that you will receive a copy of this form, and that you are not waiving any legal claims.

Name	Surname	Address	Email or phone no	Signature

11. APPENDIX ii

أعزائي مقدمي الرعاية الصحية في ليبيا:

هل لي أن أطلب المساعدة؟ أنا حسن حمد ، طالب ماجستير بقسم الصيدلة السريرية بكلية الصيدلة بجامعة الشرق الأدنى. الهدف من الدراسة التي أجريها لتقييم المعرفة والمواقف والممارسات للدكاترة والممرضين تجاه خدمات الصيدلة السريرية، في منطقة (الببضاء- ليبيا)، أيضا لتقييم مواقف الدكاترة والممرضين تجاه خدمة الصيدلة السريرية ولتحديد مستوى الوعي بمقدمي الرعاية الصحية في خدمة الصيدلة / السريرية سوف تظل إجاباتك سرية ومجهولة الهوية وسيتم استخدام النتائج للأغراض البحثية فقط. هذا ليس إختبار ولن يؤثر عليك بأي شكل من الأشكال.

شكرا لتعاونكم

المشرف الأستاذ الدكتور

الطالب: حسن حمد

الجدول 1: الخصائص الديموغرافية للمجيب					
الجنس		ذكر		أنثى	
العمرية		20-29		30-39	
مكان الدراسة		ليبيا		دول أخرى	
مستوى التعليم		طبيب عام		متخصص	
المهنة		أطباء		تمريض	
المجال الحالي للممارسة		الطب الباطني		طب الأطفال	
		طب الطوارئ		طب النفسي	
				قسم الجراحة	
				قسم العيادات الخارجية	
				قسم العظام	
				قسم أمراض نساء / طب توليد	
				قسم أخرى	
				تحديد:	

سنوات الخبرة	< 1	1-5	> 5
الجنسية	ليبي	أخرى	تحديد:

الجدول 2: معرفة الدكاترة والممرضين تجاه خدمات الصيدلة السريرية الحالية.

لا	نعم	معرفة الدكاترة والممرضين
		1-هل سمعت عن خدمة الصيدلة السريرية في ليبيا؟
		2-هل يوجد صيدلي مختص في المستشفى لتقديم رعاية مباشرة للمريض؟
		3-هل تعتقد أن الصيادلة هم جزء لا يتجزأ من ضمن الفريق الطبي؟
		4-بحسب علمك أن الصيادلة يشاركون في الجولات الطبية لكل أقسام المستشفى (الديوتي)؟
		5-بحسب علمك أن الصيادلة يشاركون في الجلسات الطبية الصباحية مع الأطباء (الاجتماع الصباحي للدكاترة)؟
		6-بحسب علمك أن الصيدلي يعزز من جودة حياة المريض؟
		7-بحسب علمك أن الصيادلة قادرين على تقديم الرعاية الأولية للمرضى؟
		8-هل لديك معلومات بخصوص دور الصيادلة في أقسام المستشفى؟
		9-هل لديك معلومات بخصوص دور الصيادلة في وحدة العناية المركزة؟
		10-بحسب علمك هل إشراك الصيادلة ممكن يحد من الآثار السلبية للأدوية؟
		11-بحسب علمك أن إشراك الصيادلة قد يقلل من التكلفة العلاجية للمريض؟

الجدول 3: مواقف الإدراك تجاه الخدمات الصيدلة السريرية للدكاترة والممرضين

الإفادة المتعلقة من المواقف	موافق بشدة	موافق	محايد	لا أوافق	لا أوافق وبشدة
12-هل تعتقد أن إشراك الصيادلة السريريين في الجولة الطبية (الديوتي) أمر مطلوب؟					
13-هل تعتقد أن الصيدلي السريري يمكن أن يلعب دوراً مهماً في تثقيف المرضى وإرشادهم؟					
14-هل تعتقد أن الصيدلي السريري يمكنه مراقبة مدى استجابة					

					المريض للعلاج الأدوية من منظور أثارها الجانبية ؟
					15-هل تعتقد أن الصيدلي السريري لا يمكنه مراقبة مدى إستجابة المريض للعلاج بالأدوية من منظور فاعلية الدواء ؟
					16-هل تعتقد بقبالية إشراك الصيدلي السريري في اختيار (الدواء، الأشكال الدوائية) بناء على خصائص المريض والدواء.
					17-هل تعتقد أن الصيدلي السريري يمكنه تقديم معلومات عن الأدوية ذات الصلة إلى أخصائي الرعاية الصحية؟
					18-هل تعتقد أن الصيدلي السريري يمكنه إكتشاف الأخطاء في استخدام الأدوية والوقاية منها؟
					19-هل تعتقد أن خدمات الصيدلة السريرية لا تعزز من رضا المرضى؟
					20-هل تعتقد أن الصيدلي السريري يتوجب عليه أخذ التاريخ الدوائي فور إدخال المريض للمستشفى ؟
					21-هل تعتقد بوجود تمكين الصيدلي من الحصول على ملف المريض ومكان توثيق خدماتهم المقدمة للمريض والمستشفى؟
					22-هل تعتقد أن من مهام الصيدلي السريري مراجعة أدوية المريض وإقتراح تعديلات عليها؟
					23-هل تعتقد بأنه يتوجب على الصيدلة التركيز على رعاية المرضى بدلا من التركيز على المستحضر الدوائي فقط؟
					24-هل تعتقد أن الإعداد الحالي (البنية التحتية والبيئة) للمستشفى غير مناسب لتقديم خدمات الصيدلة السريرية؟

					25-هل تعتقد أن تطبيق خدمات الصيدلة السريرية مطلوب في نظام الرعاية الصحية ؟
					26-هل تعتقد أن الصيدلة السريريين قادرين على تعزيز المخرجات الطبية وجودة رعاية المرضى ؟
					27-هل تثن وجود الصيدلة السريريين في أقسام المستشفى على الدوام لرعاية المرضى في الأوقات المهمة ؟
					28-هل لا تشعر بثقة أكبر عندما يكون هناك صيدلي سريري في أقسام المستشفى ؟

29-هل لديك تجربه سابقة مع الصيدلة السريريين في إحدى المستشفيات ؟	نعم في حاله نعم يرجى الإجابة على الجدولين الرابع والخامس	لا في حالة لا يرجى الإجابة على الجدول الخامس فقط .
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الجدول 4: مستوى الرضا للدكاترة والممرضين عن الأداء الحالي للصيدلة السريريين

سوء	مرضى	جيد	جدا	ممتاز	نشاط الصيدلة
					30- وجود الصيدلة السريريين في أقسام المستشفى
					32-تقديم الصيدلة السريريين معلومات عن توافر الأدوية في الوقت المناسب
					33-عدم تقديم الصيدلة السريريين معلومات عن الطرق المناسبة لإعطاء الدواء
					34-مشاركة الصيدلة السريريين في تجنب وكشف علاج الآثار السلبية للأدوية

					35-مشاركة الصيدلة السريريين في المنع وعلاج الأعراض الجانبية
					36-نصح الصيدلة السريريين المرضى بشأن الاستخدام الآمن والمناسب للأدوية
					37-تقديم الصيدلة السريريين المشورة للمرضى أثناء خروج المريض من المستشفى
					38-عدم توثيق الصيدلة السريريين خدماتهم في ملف المريض
					39-مشاركة الصيدلة السريريين في حساب الجرعة المناسبة للمرضى
					40-كشف وكتابة تقرير بخصوص الآثار السلبية للأدوية
					41-عدم تقديم الصيدلة السريريين معلومات عن نظام الأدوية البديلة
					42-مشورة الصيدلة السريريين بالأدوية عالية المردود
					43-مشاركة الصيدلة السريريين في ضبط الجرعة للأطفال ولمرضى فشل الكلى و الكبد
					44-مشاركة الصيدلة السريريين بفاعليه في النقاشات بجانب أسرة المرضى لمساعدة الأطباء على خطة الرعاية العلاجية واختيار الدواء الأنسب

الجدول 5: قيود تحد من تقديم الخدمات الصيدلانية السريرية الحال

لا	نعم	الأسئلة
		45-قلة المعرفة السريرية في إدارة المرض
		46-قلة المعرفة السريرية في إدارة مشاكل العلاج الدوائي
		47-عدم وجود مهارة التواصل النشط
		48-إنعدام الثقة للتفاعل مع فريق الرعاية الصحية
		49-التغيب عن مجال العمل
		50-عدم الاهتمام بتوفير خدمات الصيدلة السريرية
		51-عدم وجود دعم كافي من الفريق الطبي
		52-عدم ملائمة المستشفى لتقديم خدمات الصيدلة السريرية

		53-عدم وجود الوثائق المناسب
		54-نقص في الموظفين
		55-إعداد المستشفى غير مريح لتوفير خدمات الصيدلة السرير
		56-ميررات أخرى

إستمارة الموافقة على المعلومات للمشاركة

المشاركة بدون جزاء، بأنك ستتلقى نسخة من هذا النموذج، وأنت لا تتنازل عن أي مطالبات قانونية.

التوقيع	الايمل أو رقم التليفون	العنوان	اللقب	الإسم

