

“Assessment of Pharmacists' Attitudes and Role in Diabetes Management”

Abstract:

Managing diabetes is a lifelong process that requires a lot of work. It is arguable that this individual is the single most important factor in successfully controlling the illness. When diabetes isn't properly treated, complications tend to worsen. Therefore, it's necessary to take medication as advised. Poor adherence is a problem for patients and healthcare providers. This study aimed to assess the attitudes held by pharmacists, as well as their roles in the management of diabetes, and to identify the pharmacy services that are currently offered to patients who have diabetes. systematic review looks at the studies that look at the roles, attitudes, knowledge, and professional practices of pharmacists in Saudi Arabia as they relate to patient-centered care. This is important for figuring out the attitudes and roles of pharmacists in Saudi Arabia when it comes to taking care of people with diabetes. The study's results could help improve the way pharmacies work in the country. According to the study, even if pharmacists in Saudi Arabia provide medical counselling and other patient-centered care services, these services have room to expand and develop. This review may be beneficial for policy makers, regulators, pharmacy educators, and academics to learn about community pharmacy in Saudi Arabia. Pharmacy continuing education programs for diabetes patients improve pharmacists' capacity to counsel patients. This is confirmed by a Canadian study. The study found that pharmacists who had undergone CDE (continuous diabetes education) programs counselled diabetic patients more often than those who had not.

Key words: Pharmacists' Attitudes – Diabetes - Assessment – management - Saudi Arabia.

ملخص:

تعد إدارة مرض السكري عملية تستمر مدى الحياة وتتطلب الكثير من العمل. يمكن القول إن هذا الفرد هو العامل الوحيد الأكثر أهمية في السيطرة على المرض بنجاح. عندما لا يتم علاج مرض السكري بشكل صحيح، تميل المضاعفات إلى التفاقم. لذلك، من الضروري تناول الدواء كما هو موصى به. يمثل ضعف الالتزام مشكلة للمرضى ومقدمي الرعاية الصحية. هدفت هذه الدراسة إلى تقييم المواقف التي يتبناها الصيادلة، فضلاً عن أدوارهم في إدارة مرض السكري، والتعرف على خدمات الصيدلية التي يتم تقديمها حالياً لمرضى السكري. تنظر المراجعة المنهجية في الدراسات التي تبحث في الأدوار والمواقف والمعرفة والممارسات المهنية للصيادلة في المملكة العربية السعودية من حيث صلتها بالرعاية التي تركز على المريض. هذا مهم لمعرفة مواقف وأدوار الصيادلة في المملكة العربية السعودية عندما يتعلق الأمر برعاية مرضى السكري. يمكن أن تساعد نتائج الدراسة في تحسين طريقة عمل الصيدليات في الدولة. وفقاً للدراسة، حتى لو قدم الصيادلة في المملكة العربية السعودية المشورة الطبية وغيرها من خدمات الرعاية التي تركز على المريض، فإن هذه الخدمات لديها مجال للتوسع والتطور. قد تكون هذه المراجعة مفيدة لوضعي السياسات والمنظمين ومعلمي الصيدلة والأكاديميين للتعرف على الصيدلة المجتمعية في المملكة العربية السعودية. تعمل برامج التعليم المستمر للصيدلة لمرضى السكري على تحسين قدرة الصيادلة على تقديم المشورة للمرضى. هذا ما أكدته دراسة كندية. وجدت الدراسة أن الصيادلة الذين خضعوا لبرنامج (CDE)التثقيف المستمر عن مرض السكري) قدموا المشورة لمرضى السكري أكثر من أولئك الذين لم يفعلوا ذلك.

الكلمات المفتاحية: اتجاهات الصيادلة - مرض السكري - التقييم - الإدارة - المملكة العربية السعودية.

Introduction:

The management of diabetes is a process that continues throughout a person's life and takes a significant amount of effort from the individual who has the condition. It is arguable that this individual is the single most important factor in terms of successfully controlling the illness. Complications of diabetes tend to become more severe when sufficient care for the disease is not provided. Consequently, it is vitally crucial to ensure that one takes their medication exactly as directed. Poor adherence, on the other hand, has been a persistent issue for patients as well as healthcare professionals. (Khunti, N., 2013).

Patients in developing countries often have a hard time getting to health facilities. As a result, they often seek medical attention from alternative sources, such as merchants, pharmacists, or even rumours about other patients who have the same diseases, in addition to cultivating close relationships with healthcare professionals. When it comes to the treatment of diabetic patients, the role of the pharmacist in the healthcare system is of the utmost significance. The vast majority of the time, it is the first location that individuals in the neighborhood go to in order to receive counselling, screening, or assistance with the management of a condition. This is happening because there is a pharmacy nearby, the general population has a low standard of living, people are afraid, the health care system isn't good enough, and there aren't enough qualified people to take care of diabetics. Additionally, the general population has a low standard of living. (Mane, D. I., et al., 2019).

Pharmacists are an important part of the health care team for managing diabetes, and they also know how to teach people about diabetes (Schapansky, L. M., 2000). But even though pharmacists are usually the last people a patient talk to about their medicine, they are still an underused resource in the care of chronic diseases. Pharmacists have the knowledge, attitudes, skills, and abilities to improve glycemic control, increase the effectiveness of medications, make it easier for patients to take their medicines as prescribed, and reduce the side effects of drugs.

It is widely acknowledged that diabetes is a serious health issue, hence colleges and schools of pharmacy are emphasizing diabetes teaching and care in their curricula. This objective is in line with the learning outcomes established by the Center for the Advancement of Pharmacy Education and is consistent with Standards 11 and 12 of the Accreditation Council for Pharmacy Education (American Association of Colleges of Pharmacy, 2013).

Pharmacists, because of their long shifts, high patient contact, and extensive understanding of medication therapy (Pousinho, S., et al., 2016), can make a substantial contribution to diabetes multidisciplinary healthcare teams. Pharmacists have the potential to take on a variety of tasks for diabetic patients, including but not limited to the following: patient identification, assessment, education, referral, and monitoring. Patients who have no symptoms associated with diabetes may be easier for pharmacists to recognize as having diabetes.

Likewise, pharmacists can help in the detection of asymptomatic diabetics (El Hajj, M. S., 2018) Additionally, they can aid in the prevention of type 2 diabetes mellitus by increasing public awareness of the condition and the need of adopting a healthy lifestyle (Ciardulli, L. M., 2003) Patient education is another key area in which pharmacists are involved. One aspect of diabetes management is diabetes self-management education (DSME), which is assisting the diabetic patient in acquiring the knowledge and skills essential for self-care.

In DSME, the role of the pharmacist includes educating the patients about their condition, going over the treatment plan, instructing the patient in the proper use of blood glucose monitors, and encouraging the patient to take their medication as prescribed. Educating the patient about their condition also includes going over the treatment plan. Pharmacists play an essential part in the treatment of diabetic patients by, among other things, closely monitoring and optimizing their patients' medication therapy and, when necessary, referring patients to other medical professionals.

Even though there are several pharmaceutical options for diabetic patients, only around half of them manage to keep their HbA1c levels where they need to be (del Cañizo-Gómez, F. J., 2004) Pharmacists have a vital role in diabetes management, which is reflected in international guidelines (American Diabetes Association., 2019). Even more so for those with diabetes, pharmacists can facilitate patient identification, education, and support through a variety of non-medical services.

Because of the complexity of diabetes, and in accordance with the recommendations of the American Diabetes Association, a collaborative and integrated team approach should be sought for the management of diabetes. In this approach, the patient must play an active role along with a multidisciplinary health care team (Du, Y., 2015). In this context, pharmacists can also make a positive contribution to the management of diabetes by providing pharmaceutical care programs. These programs involve working closely with the patient and other health care professionals in the process of designing, implementing, and monitoring therapeutic plans to achieve specific outcomes that will improve patient quality of life.

Problem statement:

Several different investigations came to the conclusion that there is a broad spectrum of service delivery frequencies for diabetes-related care. This could be because of the diverse settings in which pharmacists are employed, the fluidity with which the profession is evolving, the variety of pedagogical approaches utilized by schools of pharmacy, the expanding role that pharmacists play in the provision of direct patient care, and the extensive range of cultural backgrounds represented among their student body. In addition, there is a scarcity of information regarding the scope of services provided by pharmacists and the impact of practice environment on patients' points of view in the published research that is currently available.

Although the role of the pharmacist has evolved to encompass drug therapy management in various regions of the world, in the majority of countries and regions, the majority of the pharmacist's responsibilities still involve filling prescriptions and supervising the pharmacy (e.g., stock management, medication orders, and record keeping). There are not nearly enough local guidelines available to specify the full breadth of a pharmacist's responsibility in patient care. The purpose of this study was therefore to assess the attitudes of pharmacists regarding diabetes care and to determine the pharmacy services that are currently offered to patients who have diabetes.

Objective of the study:

The goals of this study are to determine the attitudes held by pharmacists, as well as their roles in the management of diabetes, and to identify the pharmacy services that are currently offered to patients who have diabetes.

Literature review:

The pharmacist's role in diabetes management:

It's becoming increasingly clear that pharmacists play a crucial role in the treatment of chronic conditions. Patients increasingly view their neighborhood pharmacy as the initial point of contact for disease management guidance. It is estimated that on average, a person with diabetes visits the pharmacy three to eight times more often than other patients (Pinto et al, 2006). Thus, community pharmacists have a great opportunity to play a crucial role in the management of diabetes and its complications by providing people with diabetes with programs for monitoring therapeutic interventions and improving medicine compliance, as well as counselling on lifestyle factors for improving quality of life.

In addition to dispensing medications, pharmacists may also provide many other services, such as the management of medication therapy, the reconciliation of medication, preventive care services like screening and immunization, as well as education and behavioral counselling (American Diabetes Association., 2016) It is essential for medical professionals such as doctors, nurses, nutritionists, and

pharmacists to work together in order to provide the highest standard of patient care and diabetes treatment (Farsaei, S., 2011).

To define the pharmacist's role in diabetes management, we can generalize the activities associated with patient identification, screening patients at high risks, assessment for drug-related problems (focusing on barriers to optimal glucose control), patient education, and referral to other members of the diabetes management team (Leal, S., et al., 2004) A number of studies (Wubben, D. P., & Vivian, E. M., 2008) have found that when pharmacists are involved in the process of detecting and managing drug-related problems, treatment outcomes improve consistently.

Given the dual nature of the ailment and the pharmacist's position, it's possible that they might make a significant contribution to diabetes care. Patients with diabetes often take seven or more drugs [8], necessitating not only extensive instruction on self-management but also meticulous medication management. Hypertension, dyslipidemia, overweight/obesity, coronary artery disease, congestive heart failure, depression, and a host of other chronic illnesses are common among patients with diabetes. They will most commonly interact with pharmacists among all healthcare professionals (Schmittiel, J. A., 2014)

In the past half-century, the job of the pharmacist has evolved dramatically. Transitioning from solely dispensing to delivering clinical services, including as patient education, direct patient care responsibilities, and chronic illness management via team-based care. The expansion of the pharmacist's position has relied heavily on specialized training for pharmacists, such as residency programs and certificate programs. By dispensing medications, providing education, prescribing and administering immunizations and medications, and, with additional certification, dispensing and administering immunizations and medications, community pharmacists are uniquely positioned to increase access to care for patients in their community (eg naloxone). Residency-trained clinical pharmacists have more specialized training in the direct care of patients and are typically placed in a clinic with a team of clinicians. The American Diabetes Association acknowledges the pharmacist as an essential member of the diabetes care team (Orabone, A. W., et al., 2022)

Previous studies:

Mishore, K. M., 2020 examines pharmacists' knowledge and attitudes toward pharmaceutical care delivery in Harar and Dire Dawa town, Eastern Ethiopia. In 2018, pharmacists from hospitals and community pharmacies participated in a cross-sectional descriptive study. In all, 43 different types of healthcare facilities (6 hospitals and 37 community pharmacies) took part in the research. Through a systematic and random process, all eligible pharmacists who expressed interest in participating in the study were recruited. Pre-tested, structured, self-administered questionnaires were utilized to compile the information. Statistical Product for the Social Sciences (SPSS) version 21.0 was used to categorize, input, and analyze the obtained data. Tables were used to exhibit summary statistics, and percentages and frequencies were used to present the findings. Knowledge and attitudes about pharmaceutical care were assessed by administering the Chi-Square test and Fisher's exact test to identify statistically significant correlations between socioeconomic status and the two variables. The Harar Health Sciences College Research Ethics Review Committee sanctioned this study. The vast majority of pharmacists have some familiarity with PC. Nonetheless, 49.2% of pharmacists felt negatively about pharmaceutical care. Pharmacists in both community and hospital settings should get ongoing education on pharmaceutical care from the Harari Regional and Dire Dawa City Health Bureaus. Pharmaceutical care should be promoted as part of a broader CPD initiative by the relevant agencies.

The purpose of (Pawar, S., & Pawar, A., 2020) research is to determine whether specialized pharmacist training in diabetic pharmacological treatment improves patient outcomes. As a result of its ongoing diabetes epidemic, India now has more adults with the disease than any other country (77 million). Type 2 diabetes is a progressive chronic illness that can be managed well via careful medication use, close patient monitoring, and consistent care. Through the provision of pharmacological treatment, a properly qualified pharmacist can aid patients in achieving appropriate glycaemic control. The purpose of this

research is to determine whether or not specialized training for pharmacists in diabetic pharmacological treatment improves patient outcomes. To evaluate the effect of diabetic pharmaceutical care training on the knowledge, attitude, and practice (KAP) levels of community pharmacists, a prospective interventional quantitative study was done. Select qualified pharmacists engaged patients with type-2 diabetes and evaluated the practice component by monitoring the patients' knowledge, attitude, and practices in addition to clinical outcomes such as glucose control and post-pharmaceutical care provision. A statistical evaluation and descriptive analysis in SPSS 21. Patients with type-2 diabetes can benefit from the pharmaceutical treatment provided by community pharmacists who have received formal training in diabetes management.

The purpose of Rasheed, M. K.'s (2019) study was to examine previously published studies in Saudi Arabia regarding community pharmacists' knowledge, attitude, roles, and practices in providing patient-centered care. A systematic search of papers published between 1 January 2007 and 31 December 2017 utilizing the following electronic databases: PubMed, International Pharmaceutical Abstracts, Scopus, Science Direct, Cochrane Library, TRiP database, Springer Link, and Google Scholar. Studies were included if they described the knowledge, role, attitude, and professional practice behaviors of community pharmacists about patient-centered care provided by pharmacists alone or in partnership with another healthcare professional (s). Two reviewers identified the studies and extracted the data independently. Using the modified Newcastle-Ottawa scale for cross-sectional studies, the quality of each study was evaluated. Included were twenty-four original studies conducted in Saudi Arabia. The bulk of research (62.5%) consisted of questionnaire-based surveys. One-fourth of the research examined the knowledge, roles, and attitudes of community pharmacists about the illogical dispensing and prescribing of antibiotics and prescription-only drugs. Numerous knowledge, attitude, role, and practice deficiencies in the provision of patient-centered care services by community pharmacists in Saudi Arabia were identified in the included studies. Lack of expertise and time, absence of a pharmacy information database, lack of continuing professional development training, absence of adverse drug reaction reporting forms, and professional and cultural challenges were some of the obstacles to providing patient-centered care.

Another research (Alkhoshaiban, A., & Almeman, A., 2019) was aimed to assess pharmacists' expertise of diagnosing and treating diabetes. Beginning in June 2015, researchers at King Saud Hospital in Unaizah City, Saudi Arabia, compared outcomes in the hospital's diabetes clinic with those at a private clinic. The research project involves three distinct stages. The study consisted of three parts: 1) a survey of the pharmacist's baseline diabetes knowledge using the Michigan Diabetes Knowledge Test (MDKT); 2) a five-day training programme; and 3) a post-test survey using the same pre-test component as a means of gauging the success of the training. To conduct this research, 15 pharmacists caring for diabetic patients were recruited, and 9 out-patient pharmacists were chosen at random to take part. Before and after the training, the pharmacists who work with outpatients participated in an investigation to determine the program's influence on their expertise. Following the course, the pharmacist's knowledge increased greatly. The mean difference between pharmacists' pre- and post-test scores on a test of their knowledge of type 2 diabetes was -3.556 ($P=0.005$), with a mean of 17.22. Pharmacists benefited from the training session because they learned more and were better able to share that information with their patients who have type 2 diabetes. When it comes to patient care, pharmacists can be an invaluable asset regardless of the setting.

While Wajid, S., et al 2018.'s study sought to assess pharmacy students' familiarity with diabetes mellitus and their perspectives on the disease. From February 25th to March 15th, 2018, pharmacy students from King Saud University participated in a cross-sectional study utilizing a self-administered questionnaire. Using a multi-stage sampling technique, we were able to invite and enroll 120 randomly selected students in the study. This study found that students had appropriate knowledge and attitudes concerning diabetes mellitus, but that there was room for development in students' understanding of diabetes mellitus prevention techniques and sequelae.

According to Al Haqan, A., et al., 2017, this study aims to analyze pharmacists' attitudes toward diabetes care, determine current pharmacy service levels for diabetic patients, and identify hurdles for additional diabetes-related service supply. A descriptive, cross-sectional study was conducted on 198 pharmacists

in one health region of Kuwait using a self-administered questionnaire. Comparative and descriptive statistics were used. 84.4% (168) responded. Respondents viewed diabetes management positively. Pharmacists often advised patients on when to take their prescriptions, but they rarely managed hypoglycemia or concomitant conditions. Positive diabetes-related views were negatively correlated with pharmacists' engagement in glucose monitoring, concomitant disease care, and healthy lifestyle choices. The assumption that pharmacists are just distributors is the biggest impediment to offering diabetes-related services. Pharmacists have positive opinions about diabetes but offer little help. Diabetes patients should have access to pharmacy services for optimal management.

Also in (Shatnawi, A., & Latif, D. A., 2017), study looked at the roles and attitudes of West Virginia (WV) pharmacists toward diabetes. It looked at the services offered, the clinical understanding and training of pharmacists, and the problems that make it hard for pharmacists to manage disease states effectively. The role of pharmacists in managing chronic diseases has been shown to make a big difference in how well patients do and how much health care costs overall. We used Qualtrics online survey software to invite 435 preceptors from the University of Charleston School of Pharmacy to take part in the study. The survey was broken up into sections about pharmacists, their work environment, their roles in managing diabetes, and the problems they face that make it hard for them to give good care to diabetic patients. A one-way analysis of variance was used to look at the data, and a P value of less than .05 was considered statistically significant. Based on the Qualtrics tracking tool, 104 of the eligible invited preceptors got to the online survey, but only 58 of them filled it out. This is a 56% response rate. In general, WV pharmacists have a positive view of the main activities related to drug use and the problems that come with it. But we found that WV pharmacists are less likely to teach or give advice about risk factors for diabetes, such as nephropathy, retinopathy, foot care, and gastroparesis. Also, most pharmacists said that they face many problems with patients and the practice site environment that make it hard for them to give the best diabetes patient care. Even though there is more and more evidence that pharmacists can improve the health of diabetic patients and cut costs overall, pharmacists in West Virginia aren't as involved in teaching or counselling in a number of areas related to disease state management. Also, knowing what problems pharmacists face gives important information for planning how to improve care for diabetic patients in the future.

Jdaitawi, M., and Mukatash, T. (2015) assessed the knowledge, attitudes, and experiences of community pharmacists in Jordan about diabetes and its management. The validated diabetes knowledge survey instrument received from Simpson et al. (2009) was adapted to the Jordanian community pharmacist population. It includes two sections on pharmacists' services to diabetic patients and attitudes toward health care professionals. It was determined the attitudes of pharmacists in Jordan towards diabetes by administering oral interviews using modified questionnaires using a random sampling technique. Through the use of numbered lists of 1,000 community pharmacists, 500 were selected at random across the nation. In 422 completed surveys (84.4%), more than 60% of pharmacists indicated that they "sometimes" counsel diabetic patients. Additionally, roughly half of them advocated for home blood glucose monitoring. A minority of respondents indicated that they examined prescriptions for drug interactions. The majority did not offer patients with information about insulin use and storage. The majority of these studies demonstrated that a lack of time and a dearth of continuing education programs are the most significant obstacles to community involvement with diabetic patients. Continuous diabetic education programs should be provided to pharmacists in order to improve their counselling skills. Community pharmacists should have a larger impact on the health of diabetic patients.

In addition, Sa'ab, H. A., et al. (2013) evaluated pharmacists' knowledge, attitude, and practice of pharmaceutical treatment for patients with diabetes mellitus. Using a standardized questionnaire, a cross-sectional study was conducted on the entire population (30) of hospital pharmacists participating in the management of diabetes mellitus. Nineteen (65.5%) respondents possessed satisfactory / acceptable knowledge of pharmacological treatment ($F = 71.32$; $p = 0.00$; $df = 2$). Twenty-Eight (96.6%) respondents showed a positive attitude toward pharmaceutical care for diabetes mellitus patients based on their desire to learn more and their willingness to adopt pharmaceutical care into practice ($F = 172.98$; $p = 0.00$; $df = 1$) Twenty-two (75.9%) of the pharmacists had strong practice of pharmaceutical care in identifying prescriptions errors ($F = 23.24$; $p = 0.00$; $df = 2$) and in identifying 1-5 prescription errors per week ($F = 52.02$; $p = 0.00$; $df = 2$). However, there was no significant difference between the proportion

of pharmacists with good and poor practice in monitoring medications and improving the health of diabetic patients ($2 = 1.62$, $p = 0.203$, $df = 1$). In the areas of medication monitoring and improvement of diabetic patients' health, the pharmacists' degree of pharmaceutical care practice must be enhanced.

Method:

Research can be categorized as either exploratory, descriptive, or explanatory, depending on the researcher's goals. The first method is used when clarity is required, such as when defining words, gaining operational knowledge, evaluating a phenomenon, or searching for new information. The primary objective of this sort of study is to generate hypotheses. The adaptability of this research strategy has won widespread acclaim. The goal of descriptive research is to offer a vivid image of a topic of study. Before diving deeper into the topic at hand, the investigator needs to have a clear image in his or her head of the phenomenon being studied. This is why it is crucial to make any necessary revisions before starting the investigation. On the other hand, explanations lay out the causal relationships between the many factors involved (Lambert, 2012). This study used a mixed research strategy, which entailed mixing or integrating qualitative and quantitative data and research methods to produce an explanatory research design (Winter, 2001).

This systematic review looks at the studies that look at the roles, attitudes, knowledge, and professional practices of pharmacists in Saudi Arabia as they relate to patient-centered care. This is important for figuring out the attitudes and roles of pharmacists in Saudi Arabia when it comes to taking care of people with diabetes. The study's results could help improve the way pharmacies work in the country.

Scope of review:

The focus of this systematic review was on the contributions of Saudi Arabian pharmacists in terms of their patient-centered care knowledge, attitude, professional roles, and practices. A pharmacist's efforts to improve patients' health, prevent and detect healthcare-related issues, and encourage patients to keep tabs on their own health through self-monitoring are all included in the scope of patient-centered care in this systematic review. Knowledge, roles, attitudes, and professional practice behaviors of community pharmacists are the main indicators of success.

Original research articles employing survey-based or simulated patient methodologies were considered if they reported one or more primary outcomes. The studies were disqualified if they did not evaluate pharmacists' knowledge, attitude, roles, and professional practice in patient-centered care. In addition, they were omitted if the whole text was unavailable, if they were not in English, or if they were published prior to 2010. Excluded were studies that lacked specifics on the roles, attitudes, knowledge, and practices of community pharmacists, as well as those that investigated both community and hospital pharmacists. This research was published within the last ten years (2012 -2022).

Discussion:

The current study found that patients and the general public often go to pharmacists in Saudi Arabia for health advice. This review showed that pharmacists in Saudi Arabia give patients inadequate and unsatisfactory to provide quality patient-centered care services

This review established that pharmacists in Saudi Arabia provide inadequate and unsatisfactory to provide quality patient-centered care services by contrast, a study by Rasheed, M. K.'s (2019) study was to examine previously published studies in Saudi Arabia regarding community pharmacists' knowledge, attitude, roles, and practices in providing patient-centered care. Numerous knowledge, attitude, role, and practice deficiencies in the provision of patient-centered care services by community pharmacists in Saudi Arabia were identified in the included studies.

This review showed that community pharmacists in Saudi Arabia give patients good quality counselling and instructions on how to use their medicines. Similar results were found in a previous study by Al Haqan, A., et al., 2017. The goal of this study is to look at how pharmacists feel about diabetes care, find out what services are currently available for diabetic patients at pharmacies, and find out what's stopping

more diabetes-related services from being offered, which reported that 84.4% (168) responded. Respondents viewed diabetes management positively. Pharmacists often advised patients on when to take their prescriptions, but they rarely managed hypoglycemia or concomitant conditions. Positive diabetes-related views were negatively correlated with pharmacists' engagement in glucose monitoring, concomitant disease care, and healthy lifestyle choices.

Additionally, a previous study by Jdaitawi, M., and Mukatash, T. (2015) reported that the knowledge, attitudes, and experiences of community pharmacists in Jordan about diabetes and its management were assessed, as more than 60% of pharmacists indicated that they "sometimes" counsel diabetic patients. Most of these studies demonstrated that a lack of time and a dearth of continuing education programs are the most significant obstacles to community involvement with diabetic patients. Continuous diabetic education programs should be provided to pharmacists to improve their counselling skills. Community pharmacists should have a larger impact on the health of diabetic patients.

Based on the findings of this review, it was determined that the majority of pharmacists in Saudi Arabia had an inadequate awareness of the laws and regulations governing pharmacy in regards to the reporting of adverse drug reactions. As a direct consequence of this, the vast majority of community pharmacists in Saudi Arabia are ignorant of the protocols that the Ministry of Health (MOH) of Saudi Arabia uses to receive reports of adverse drug reactions.

According to the findings of this review, pharmacists in Saudi Arabia routinely prescribe and dispense a diverse range of pharmaceuticals that are only available with a doctor's prescription, including but not limited to antibiotics, cardiovascular, and diabetic treatments. This is consistent with the practice of pharmacists in other regions of the Middle East, where it is extremely normal for pharmacists to distribute drugs that require a prescription even when the patient does not have one. This approach may result in the inappropriate use of medications, unsuccessful therapy, excessive or inadequate dosing, wasteful expenses, and the development of antimicrobial resistance in Saudi Arabia.

One of the studies in this review found that the services offered, the clinical understanding and training of pharmacists, and the problems that make it hard for pharmacists to manage disease states effectively. The role of pharmacists in managing chronic diseases has been shown to make a big difference in how well patients do and how much health care costs overall. According to the results of this review, most pharmacists said that they face many problems with patients and the practice site environment that make it hard for them to give the best diabetes patient care (Shatnawi, A., & Latif, D. A., 2017).

It will be necessary for the future to do research on topics such as the factors that influence pharmacists' attitudes and the characteristics of improved knowledge and skills for pharmacists who provide care services in Saudi Arabia. Knowledge gaps can then be identified, allowing for the implementation of continuous professional development programs that are relevant and unique to their training and growth of clinical competence.

Limitation of the review:

The fact that there were so few studies conducted on the subject in Saudi Arabia indicates that there is a need for additional mature and confirmed research on the matter. Some of the included studies either had an insufficient number of participants in their sample, inadequate statistical measurements, an unsatisfactory response rate, or unsuitable results. It's possible that this will cause the survey's findings to be inconsistent as a result.

Conclusion:

According to the findings of the studies, even if pharmacists in Saudi Arabia do provide medicine counselling and other patient-centered care services, these services have significant room for growth and development. In order to have a better knowledge of the work being done in the community pharmacy environment in Saudi Arabia, policy makers, regulators, pharmacy educators, and researchers may find this review helpful.

It is important that pharmacies offer continuing education programs for diabetic patients, as this will help pharmacists improve their ability to counsel patients. This is confirmed by the findings of an earlier study that took place in Canada. The study indicated that pharmacists who had completed CDE (continuous diabetes education) programs counselled diabetic patients more frequently than those who had not completed such programs and were not qualified.

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