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Research Article

In-patient and Out-patient Pharmacist Intervention in the Management of Diabetes Mellitus Conditions in Dubai, United Arab Emirates: A Qualitative Approach

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ABSTRACT

There is a growing body of literature showing the importance of pharmacists' involvement in the management of Diabetes Mellitus (DM) conditions. This study tried to explore the extent to which pharmacists in Dubai, United Arab Emirates intervene in the management and control of diabetic patients within different healthcare settings by using a qualitative approach method. Based on the sample pooled, our key findings pointed to the lack of pharmacists' intervention in designing or altering DM drug therapy. In addition, hospital pharmacists in Dubai are not actively involved in the management and control of DM conditions. The only positive role of pharmacists were found in the primary healthcare setting where community pharmacists are consulted regularly on sudden or urgent complications related to DM conditions.

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INTRODUCTION:

Diabetes Mellitus (DM) is a chronic disease characterized by the body's inability to process sugar. ^[1, 2] In the long term, uncontrolled DM leads to organ damage and is associated with a whole host of micro-vascular and macro-vascular complications. ^[3] Glycemic control is fundamental to the management of diabetic patients. To reap the benefits of modern medical therapies, more efficient and effective interventions to aid people in following medical regimens are needed. ^[4] Recently there has been an interest in broadening the role of the community pharmacist beyond the traditional product-orientated functions of dispensing and distributing medication to include a greater role in public health. ^[5] The pharmacy profession is increasingly being recognized as having a strategic position in health promotion, due to their in-depth knowledge of the rational use of medicines. ^[6] Pharmacists are now a critical part of healthcare teams and they are taking more

responsibility for clinical outcomes of drug therapy. ^[7]

Adherence to therapy is a vital component of any medication regimen and pharmacists are ideally positioned at the interface of patients and their medicine to influence medication adherence in a positive manner. ^[8] The World Health Organization (WHO) have stated that to address the problem of low adherence to long-term therapy for chronic conditions; pharmacists have an important role to play, which is much more than selling medicines. ^[9] They summarized that this role included the "seven-star concept", in which pharmacists are described as caregivers, communicators, decision-makers, teachers, lifelong learners, leaders and managers in which they are perfectly positioned to carry out effective interventions. ^[9] These roles of pharmacists enable them to successfully carry out interventions which have been shown to improve drug therapy, save costs, prevent undesirable side effects, and improve clinical outcomes of patients. ^[10] It is being increasingly accepted that community pharmacists

are well equipped and well trained to provide interventions for chronic conditions. [11] Intervention programs involving the community pharmacist are one of the few interventions that are proven successful, generating benefits that are ten times greater than the costs. [11] All of the roles that pharmacists can play as part of multi-disciplinary teams are dependent on the pharmacists being suitably qualified in a number of competencies, which may not always be the case, especially in the third-world countries. [12] This study examines the contributions of pharmacists in Dubai, United Arab Emirates (UAE) to the long term prognosis of patients with DM by improving their control and management. It is our hypothesis that pharmacists can play a major role in reducing diabetic complications and improving both glycemic control and quality of life of DM patient.

Material and Methods

Semi-structured interviews were used to collect data in this research after extensive literature review and depending on a survey done in Malaysia. [13] Application of previously validated instruments to address pharmacy practice issues was found to be useful to ensure instrument validity and reliability. [14] The participants were DM patients recruited using Dubai health authority (DHA) patients' list that was adopted as sampling frame. The sample of 72 DM patients (38 male, 34 female) was randomly selected via a predetermined numbering system from a current list of approximately 876 DM patients registered in the software system of DHA within the control zone of the Government of Dubai, UAE. The study took place between November 10, 2016 and December 11, 2016. The appointed research team experts managed arrangements for the time and place of interviews during the initial contact and obtained written consents from the participants prior to each interview.

The interviews mainly focus on exploring the extent to which pharmacists play role in managing and educating diagnosed DM patients on the disease's related issues and complications in Dubai, UAE. Probing questions were used where necessary by the research team and the participants were given freedom to express their views at the end of the interview session. Each interview was conducted by the researcher at the place and time convenient for the patients and lasted approximately twenty to thirty minutes. The research team conducted all the interviews in English, audio taped and transcribed verbatim. The authors verified transcripts for their accuracy by listening to the tapes. Then, analyzed the transcripts line by line, which were read repeatedly and thematically analyzed for its content. [15]

Ethical Approval: Institutional ethics committee approvals were obtained from Ajman University of

Science and Technology's Ethics Committee in the United Arab Emirates.

Results

Seventy two interviews were conducted by an independent research team. Among the participants, 38 were males and 34 were females. Demographic characteristics of the respondents are shown in Table 1. Thematic content analysis yielded four major themes: 1) Pharmacist's contribution in designing initial DM drug therapy, 2) Hospital pharmacist's role after discovering DM, 3) In-patient role of hospital pharmacist in managing DM related conditions and 4) Perceptions about the role of community pharmacist in managing DM related conditions.

Table 1: DM patients' demographic data

Description	N
Age range	
Under 30	5
30-40	9
41-50	15
51-60	19
60 +	24
Gender	
Male	38
Female	34
Nationality	
UAE national	10
Expatriate	62

Theme 1: Pharmacist's Contribution in Designing Initial DM Drug Therapy

To investigate the extent to which pharmacists collaborate in designing primary DM drug therapy, we asked the participants about their experience throughout the period of launching their therapy plan. Almost all responses (n=67) stated that hospital pharmacists had minimal role in designing, choosing or altering their drug regimens.

"When my doctor discovered that I have high blood sugar, he wrote a prescription which contained few medications. I went to the pharmacy in the hospital and the pharmacist guided me on the right way to take my medicines" (P5)

"The only thing that the pharmacist did was to write number of times I have to take my drugs" (P12)

Theme 2: Hospital Pharmacist's Role after Discovering DM

Ideas about the advisory role of hospital pharmacists after DM being diagnosed were not very optimistic (n=53). According to the participants, pharmacists'

role was mostly limited to instructions about drug therapy related issues. They added that advices about life style modifications related to their illness are part of endocrinologists' tasks.

"My doctor advised me about the things that I have to do as a diabetic patient like stopping smoking, reducing my weight and practicing a kind of sport. She kept nothing to the pharmacist to explain" (P26)

"The pharmacist was wonderful in explaining the safest way to take my medicines, however, I didn't know that he is capable of telling me anything related to my new life style after being diagnosed with diabetes" (P61)

Theme 3: In-patient Role of Hospital Pharmacist in Managing DM Related Conditions

Participants pointed that routine hospital checkup visits were communicated with hospital physicians with almost no significant obvious role for hospital pharmacists (n=57). Based on their experience, physicians helped DM patients to manage complications related to their illness like neuropathies, nephropathies, ketoacidosis and foot damage.

"As part of my compulsory medical insurance stated by Dubai Government, I visit the hospital for routine checkups every 3 months. I'm very particular about the source of information I get. The doctor is the one I seek for help" (P22)

"I certainly believe in hospital pharmacists' capabilities compared to outside pharmacists, but I don't think it is possible to talk to them especially they are always look busy and a long queue won't wait for me to ask some questions in addition to the privacy that I lack over there" (P70)

Theme 4: Perceptions about the role of community pharmacist in managing DM related conditions

More than half of the sample pooled preferred to visit the community pharmacy to seek advices of pharmacists about sudden or urgent DM complications (n=41). They added that pharmacists are considered the primary source of drug related information. Moreover, it has been pointed that pharmacists have vast knowledge about ways to control some diseases like DM. However, interviewees seek pharmacists' advices when the condition connected to DM is minor (n=49).

"It is so easy to approach the pharmacist in the shopping mall. Parking is essential and it is always available especially in the day time. When he is free,

pharmacist can provide me important information about issues related to high blood sugar" (P11)

"It is cheaper to talk to a pharmacist than paying a big consultation fees to a doctor. Don't forget the long waiting time that we have to withstand till our appointment" (P34)

Discussion

Theme 1: Pharmacist's Contribution in Designing Initial DM Drug Therapy

Generally speaking, pharmacist's contribution in designing initial DM drug therapy is well established in many industrialized countries.^[16] However, based on this study's results, the current scenario might look like not favoring an active contribution of pharmacists in designing drug therapies for diabetic patients in Dubai. It is a matter of fact to argue that pharmacists worldwide are already having a positive role on glycemic control and decisions made on choosing the right drug therapy for the right case of DM. It is reasonable to assume that the improvement was due to the regular contact between the pharmacist on one side and patient and the healthcare professional from the other side. There is also an ease-of-access factor to consider, because patients will travel to their pharmacy to collect their prescriptions on a regular basis, in any case.

DM drug therapy offers a didactic model to implement this measure and, at the same time, is appreciated by pharmacists. There were many previous studies on the effect of pharmacist intervention on diabetes-related complications. One study reported that the level of micro-albuminuria was significantly reduced in pharmacist-managed patients,^[17] and two studies reported an increase in the frequency of micro-albuminuria screening due to the same reason.^[18] In addition, one study reported an increase in the number of pharmacist-managed patients being referred for "dietary instruction".^[19]

Theme 2: Hospital Pharmacist's Role after Discovering DM

Medication management conducted by pharmacists has been shown to improve medication adherence and clinical outcomes for patients with chronic diseases such as diabetes, hypertension, cardiovascular disease, and hyperlipidemia, among others.^[19]

Pharmacists are ideal for undertaking interventions in type 2 DM patients because of their specific training in pharmacology and medication management. Many type 2 DM patients have to take a lot of medications and have a complex dosing regimen. The pharmacist

is well placed to educate the patients about their medication and clarify their regimen to improve adherence.

The introduction of patient education by pharmacists in providing diabetes care showed a favorable effect on glycemic control. [20] Based on the participants' experience pooled, hospital pharmacists in Dubai have limited role in educating the patients about their life style post being diagnosed with DM.

Theme 3: In-patient Role of Hospital Pharmacist in Managing DM Related Conditions

With the complexity of today's drug therapies and greater emphasis on patient medication safety, the need for an interdisciplinary, shared responsibility between pharmacists and physicians to improve patient medication outcomes and manage cost effectiveness of drug-therapy regimens has become more apparent. [21] More than 75% of participants stated that hospital pharmacists in Dubai have minimal role in managing DM conditions. In many developed countries, collaborative drug-therapy management (CDTM) involves qualified pharmacists (with requisite clinical training and practice experience) working within the context of a defined protocol with one or more physicians to perform patient assessments; order medication-related laboratory tests; administer medications; and select, initiate, monitor, and adjust medication therapy regimens. [22]

Theme 4: Perceptions about the role of community pharmacist in managing DM related conditions

Consistent with the results of this research paper, there is a growing body of literature supporting the role of the pharmacist in diabetes care, as pharmacists can provide "continuity of care" by following patient care progress between physician visits, utilizing their clinical expertise to monitor and manage diabetes medication plans, and educating patients on disease, lifestyle, and adherence issues. [23, 24]

Pharmacists in community and primary care settings can be a key resource working in an interdisciplinary model for improved medication management of patients with diabetes. This is consistent with the "medical home" concept of care that promotes health care providers working collaboratively to coordinate patient-centered care. In such a model, pharmacists can focus on managing medications to positively impact health outcomes, reduce overall healthcare system costs, and empower patients and consumers to actively manage their health.

Conclusion

In conclusion, this qualitative study found that pharmacists in Dubai are not given the right position to be actively involved in designing, management and/or control of DM conditions. Hospital pharmacists were found to have limited intervention in following up DM patients. Community pharmacists in Dubai are positively acting as the first port of information related to sudden or urgent complications of DM disease or its drug therapy. Generous efforts must be made to increase the involvement of pharmacists in the management of chronic diseases like DM. This might be done through revising the current rules and regulations which could be a reason behind restricting the role of pharmacists to solely dispensing medications. Moreover, continuous medical education to pharmacists is essential in elevating their knowledge regarding the control of chronic diseases. Not to forget educating other healthcare professional about the benefits of collaboration with pharmacists in accelerating outcomes from cure plans. Future studies might concentrate on the reasons behind the obstacles of active involvement of pharmacists in the management of chronic diseases.

Disclaimer

The views expressed in the submitted article are of our own and not an official position of the institutions we belong to. The manuscript has been read and approved by all the authors and we believe that the manuscript represents honest and professional work.

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