Pharmacist's Knowledge, Attitude, and Practice Towards Type I Diabetes Mellitus Patient in Tabuk City, Saudi Arabia

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I. PROJECT SUMMARY

The pharmacist's in Tabuk, Saudi Arabia's Knowledge, Attitude, and Practice Towards Type I Diabetes Mellitus, the current research seeks to answer the following questions:

- What is the level of knowledge of the pharmacist's in Tabuk, Saudi Arabia about Type I Diabetes Mellitus?
- What is the attitude of the pharmacist's in Tabuk, Saudi Arabia towards people with Type I Diabetes Mellitus?

What is the practice of the pharmacist's in Tabuk, Saudi Arabia in caring for people with Type I Diabetes Mellitus?

II. INTRODUCTION

Diabetes mellitus is a rapidly growing disease world-wide that is estimated to be present in 6.6% of the international population and projected to increase by 7.8% in 2030 (Wild et al., 2004). (1) It is considered of clinical and public health significance, as it adversely affects personal health, health-related quality of life, life expectancy and has significant implications on the health care system. Epidemiological evidence shows that diabetes frequently results in severe complications, such as cardiovascular disease, cerebro-vascular disease, micro-vascular disorders (e.g. nephropathy, retinopathy, neuropathy, sexual dysfunction) and diabetic foot disorders.

III. PROJECT OBJECTIVES

- To determine the level of knowledge of the pharmacist's in Tabuk, Saudi Arabia about Type I Diabetes Mellitus.
- To assess the attitude of the pharmacist's in Tabuk, Saudi Arabia about Type I Diabetes Mellitus.
- To investigate the practice of the pharmacist's in Tabuk, Saudi Arabia about Type I Diabetes Mellitus.

IV. LITERATURE SURVEY/BACKGROUND

Diabetes mellitus is a rapidly growing disease world-wide that is estimated to be present in 6.6% of the international population and projected to be increased by 7.8% in 2030. Treating diabetic patients is multifaceted in all aspects and they require objectives and optimum information in order to obtain the maximum benefits of their treatment and avoid complications. Pharmacists are increasingly considered as a part of the health care system. Hence, the aim of this review is to address and summarize the effectiveness of clinical pharmacists in managing diabetic patients. (1)

Follow-up epidemiologic studies are needed to assess trends and patterns of disease spread. No follow-up epidemiologic study has been done in the Kingdom of Saudi Arabia to assess the current prevalence of major chronic, no communicable diseases, specifically in the urban region, where modifiable risk factors remain rampant. This study aims to fill this gap.(2)

If the prevalence of diabetes mellitus type 1 (T1D) continues to increase at the current rate, the global burden of this disease will swell between 2000 to 2030 from 171 million to 366 million patients [1]. Furthermore, healthcare expenditures on T1D alone will skyrocket from US$376 billion in 2010 to US$490 billion in 2030 [2]. The Middle East region has not been spared from this scourge and currently is among those worst-hit [1]. This global epidemic, shared by both industrialized and developing countries, has stimulated increased public awareness of the disease, the identification of risk factors and the knowledge that T1D can be delayed and, even better, prevented [3-5]. Recognition of the importance of glycemic control in the prevention of the complications and morbidity of T1D has led to worldwide campaigns for modifications in lifestyle and an intensive search for better antidiabetes medications [6-9].n 2005, the Joint Commission of Pharmacy Practitioners (a council of 11 pharmacy practitioner organizations) described the following role for pharmacists in its Vision of Pharmacy Practice: “Pharmacists will be the health care professionals responsible for providing patient care that ensures optimal medication therapy outcomes.” There are significant gaps between reaching the goal of “optimal medication therapy” and the state of medication use in the United States. We have all seen news items on medication errors, adverse drug events, and rising costs of co-pays interfering with good patient medication adherence. (10,11)

Pharmacists are the highly accessible and well-trained, yet often underutilized, key health care professionals to move us closer toward achieving better medication therapy outcomes for patients. In addition, pharmacists can serve as a resource to other health care providers and payers to assure safe, appropriate, cost-effective medication use(12,13)

V. RESEARCH DESIGN

cross-sectional study design

VI. METHODS

In studies involving human subjects, Methods for sampling population and the type of sampling procedure should be mentioned (Subject Recruitment and Selection, Location, Duration, Potential Risks, Potential Benefits, Data Collection and Analysis of Clinical Studies, Contact People, Informed Consent)

Study Design

This study will be conducted using a cross-sectional study design, which is a type of observational study that involves the collection of data at a single point in time in Tabuk, Saudi Arabia.

Study Area

The study area for this research would be Tabuk, Saudi Arabia-KSAFH-Pharmacy

Study Duration

NOV/2024 –APR25

Study Setting

The study will be conducted at King Salman Armed Forces Hospital, pharmacy in Tabuk, KSA.

Study Population:

The study population will consist of all pharmacists who are residing in Saudi Arabia.

Inclusion and Exclusion Criteria

The inclusion criteria will be :

1. All pharmacist’s technician or specialist working in KSAFH
2. aged 20 years-60 years
3. who are willing to participate in the study.
4. Male and Female
5. Saudi and non-Saudi

The exclusion criteria will be:

1. Other people work in the pharmacy not pharmacists
2. Age <20 and >60

Sample Size

The sample size for this study will be calculated using the following formula:

$$n = (Z^2 * p * q) / d^2$$

where n = required sample size, Z = confidence level (standard value of 1.96 for 95% confidence), p =

estimated proportion of population with adequate knowledge about pancreatitis (based on previous studies), q = 1-p, and d = margin of error (5% or 0.05). Assuming an estimated proportion of 50% and a margin of error of 3%, the required sample size will be approximately 110 participants.

Sampling Technique
We will distribute the questionnaire by email

Study Variables
Dependent Variables:
- Knowledge about DM Type 1
- Attitude towards individuals with DM Type 1
- Practice related to DM Type 1 awareness and support

Independent Variables:
- Demographic characteristics (age, gender, educational background, etc.)

Data Collection Tools
The data will collect by multiple data collectors using a structured interviewing technique of a questionnaire. The survey will modify from one that was previously published [9]. The questionnaire compiled for the current study consisted of 27 questions divided into three groups; the first five questions on the demography of the participants, the following eight questions on assessing knowledge, and the last 14 questions on attitude and practice. All data collectors will be trained on Arabization of the questions in a workshop designed for this purpose to avoid variation in data collection. A pilot study will apply among 25 participants who will not a part of this study to assess whether the questionnaire items will clear, understandable, relevance, and validity

Data Analysis Plan
The data will be entered and analysed using SPSS version 25. Descriptive statistics will be used to summarize the data. The chi-square test will be used to test for associations between variables. A p-value of less than 0.05 will be considered statistically significant.

Ethical Consideration
This study will obtain ethical approval from the Institutional Review Board (IRB) of King Salman Armed Forces Hospital. Informed consent will be obtained from all study participants before they participate in the study and the questionnaire will be collected from respondents and will be treated with confidentiality with keeping optimal privacy.

Research work plan

ACTIVITY / MONTH	Preparation of the proposal	Data collection	Data analysis	Reporting	Final report
Nov 2024					
DEC 2024					
JAN 2025					
FEB 2025					
MAR 2025					
APR 2025					

VII. BUDGET/FUNDING

self-sponsor

VIII. UTILIZATION

NO Utilization

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Table-1: Pharmacists knowledge on their role on Type 1 diabetes Mellitus (T1DM)

Questions	Options
Responsibility to take prominent role in T1DM patient care	Strongly agree
	Agree
	Neutral
	Disagree
	Strongly disagree
Prescribing physicians are the only professionals who need to understand T1DM patient care	Strongly agree
	Agree
	Neutral
	Disagree
	Strongly disagree
Adequate training should be provided to pharmacists on T1DM patient care	Strongly agree
	Agree
	Neutral
Pharmacist role in DM type 1 improve patient care	Strongly agree
	Agree
	Neutral
Educational activities for pharmacists to enhance understanding for T1DM	Strongly agree
	Agree
	Neutral
Pharmacist role in DM type 1 dispensing medications reduce patient complains	Strongly agree
	Agree
	Neutral
	Disagree
	Strongly Disagree
Strongly agree	
Key health care professionals to move	Agree
us toward achieving better medication	Neutral
therapy outcomes	Disagree
Strongly Disagree	
Strongly agree	
Serve as a resource to other health	Agree

Table-2: Pharmacists Attitude & Practice towards Type 1 diabetes Mellitus patients

Questions	Options
I dispense DM prescription with complete clinical information	Always
	Often
	Rarely
I dispense anti diabetic medications without prescription	Rarely
	Never
I screen the diabetic prescription accordance with local guidelines before dispensing	Always
	Often
	Rarely
I collaborate with other health professionals for DM type 1 patient care	Always
	Often
	Rarely
I communicate with prescriber if am unsure about the appropriateness of diabetic medications	Always
	Often
	Rarely
I sought additional clinical information	Always
	Often
	Rarely
I educate patient on the use of anti - diabetic medication and related issues	Always
	Often
	Rarely
I make efforts to prevent or reduce the patient complains regard the diabetic medications	Always
	Often
	Rarely
I take part in diabetic workshops, diabetic counselling day to promote the optimal use of diabetic medications	Always
	Often
	Rarely
I contact the prescriber if the medication is not available to give alternatives	Always
	Often
	Rarely
I advise the patient to change his life style (diet and exercise) for better improvement with the medications	Always
	Often
	Rarely
I share all update clinical information for diabetic medication with my colleague	Often
	Rarely
	Never
I use resources of drug information that available in the pharmacy like BNF, medical journals and med line data base	Often
	Rarely
	Never
I spend more than 5 minutes in patient counselling for diabetic medications	Always
	Often
	Rarely
	Never

Table-3: Association of Pharmacist Knowledge, Attitude and Practice with Age, experience and Job status

Age	Experience	Job
0.557	0.396	0.184
0.099	0.168	0.364
0.370	0.467	0.007*
0.401	0.280	0.044*
0.580	0.920	0.670
0.689	0.604	0.625
0.603	0.298	0.672
0.181	0.491	0.134
0.412	0.361	0.896
0.488	0.486	0.469
0.336	0.196	0.707
0.160	0.774	0.320
0.078	0.201	0.213
0.548	0.735	0.844
0.738	0.853	0.622
0.949	0.988	0.808
0.982	0.636	0.561
0.710	0.627	0.198

0.454	0.175	0.128
0.707	0.782	0.652
0.657	0.797	0.311
0.379	0.032*	0.36

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Authors Contribution