



## International Journal of Preclinical & Pharmaceutical Research

Journal homepage: [www.preclinicaljournal.com](http://www.preclinicaljournal.com)

### PHARMACISTS' ROLE TOWARD DIABETES TREATMENT

Ala' M Yasin\*, Suhair S Al Tarawneh, Mosheer Kamil. Al. Mogasgas,  
Samar Mohammad Al hawary, Sahar Mohammed Jdaitawi

Department of Clinical Pharmacy, Royal Medical Services Irbid, Jordan.  
Ala' M Yasin, Msc of Clinical Pharmacy, Royal Medical Services, Irbid, Jordan.

#### ABSTRACT

To measure the role of pharmacists in Jordan toward DM treatment. A survey tool was used to measure the role of them in DM treatment. It contains two sections focused to the services that they provided to diabetics patients. The random sampling selection method of them was used and oral interviews using the survey were administered to measure the role of them in DM treatment. 80% completed the survey and 60% of them provided counseling to diabetic patients. Home blood glucose level was promoted by 50% of them. Only the minority of them reviewed prescriptions for drug-drug interactions. The majority of them not gave patients with the information regarding insulin. 60% of them illustrated the importance of time and training to increase and enhance their counseling skills.

**Key Words:** Role of pharmacists.

#### INTRODUCTION

DM affects around 30% of Jordanians [1]. Recently, there has been an increasingly growing role for respondents to help DM patients [2]. American study about the role of them toward diabetes treatment illustrated that they should be part of the medical group for managing diabetes and should be required to have DM educating program [3,4]. Their role in diabetes treatment is defined by different activities like patients education, review drug-drug interaction and ongoing monitoring [5-7]. Many studies have concluded that when they take part in identifying and managing medication-related problem, there will be consistent improvement in patients healthy [8-10]. In this study, we focused the current situation in Jordan with regards to role of them in diabetes patient counseling through a questionnaire distributed to a sample of randomly selected pharmacists in the country.

#### METHODS

The questionnaire was used to measure the relationship between diabetes-specific training and pharmacists' activities in and attitudes toward diabetes management.

The questionnaire contain 22 questions that focus in the role of them in DM management using the third version of the Diabetes Attitude Scale (DAS-3).

Sample: A list of 900 pharmacies was taken from the Jordan Pharmacy Association. Halve of them were randomly selected.

The survey: The study needed three month. They were informed that the survey was about their role in DM treatment.

#### RESULTS

In this study the questionnaires were distributed to 450 pharmacist all over the country with 422 completed questionnaires (86%). (50%) of pharmacists have practicing pharmacy for six years or less. (55.5%) of pharmacists illustrated that less than 30 diabetic patients meet them each week and they were often advised diabetic patients.

With regards to the conditions that concerned to blood sampling, (26.5%) of them illustrated that they often advised diabetic patients on how to monitor glucose level including manner of blood sampling, times to blood sample (23.7%), normal level of glucose (31.3%), translation of A1C results (19.4%).

However, the small portion of them advising patients on distinguishing the reasons of abnormal level (23.2%) as shown in table 1.

Corresponding Author

Ala' M Yasin

Email: Alaayassien@yahoo.com

With regards to the conditions that concerned to insulin a small portion of them illustrated that they often advice patients include insulin storage (25.6%), proper insulin taken (12.8%) ideal insulin administration (21.8%). Furthermore, a portion of them advised the side effects of diabetic medications (35.1%) as shown to table 2.

With regards to the conditions that concerned to co-morbidities they did not communicate with diabetic patients including other co-morbidities. A minority of pharmacists illustrated that they often advise patients on different diseases that are present with diabetes. (29.9%) of them often advised diabetic patients the importance of anti-platelet therapy, controlling of blood pressure (26.5%), blood cholesterol normal level range (19.9%) as shown to table 3. With regards to conditions concerned to behavior of diabetic patients, a minority of them illustrated that they often advised smoking patients regarding dangerous of

continue smoking (30.8%). (24.4%) of them advised diabetic patients the importance of influenza and pneumococcal vaccines. About one half of them told diabetic patients the importance of diet to diabetes treatment (41.7%) and importance of exercise to diabetes treatment (37.9%). Further results are shown in Table 4.

When asked about advising patients regarding hypoglycaemia, only 16.6% of respondents reported to always counsel the patients on signs and symptoms of hypoglycemia. Only (13.7%) of the participates reported to counsel patients on how to identify frequency of hypoglycemic episodes and on how to Identify possible causes of hypoglycemia.

However, the majority of respondents reported that they always (28%) or often (39.8%) counsel the patients about treatment of hypoglycemia. Further results are present in Table 5.

**Table 1. Conditions concerned to blood sampling**

	Never	Rarely	Often	always
Advise manner of blood sampling	66 15.6%	116 27.5%	112 26.5%	128 30.3%
Advise times to blood sample	66 15.6%	128 30.3%	100 23.7%	128 30.8%
Advise normal level of glucose.	60 14.2%	88 20.9%	132 31.3%	142 33.6%
Advise the interpretation of A1C results	92 21.8%	138 32.7%	82 19.4%	110 26.1%
Advising patients on distinguishing the reasons of abnormal level	72 17.1%	178 42.2%	98 23.2%	74 17.5%

**Table 2. Conditions concerned to insulin and anti-diabetic medications**

	Never	Rarely	Often	always
Advise insulin storage	100 23.7%	138 32.7%	108 25.6%	76 18%
Proper insulin taken	162 38.4%	126 29.9%	92 12.8%	42 10%
Advise on ideal insulin administration	144 34.1%	158 37.4%	92 21.8%	28 6.6%
Advise of side effect of diabetic medication	94 22.3%	134 31.8%	148 35.1%	46 10.9%

**Table 3. Conditions concerned to co-morbidities**

	Never	Rarely	Often	always
advised diabetic patients the importance of anti-platelet therapy	92 21.8%	156 37%	124 29.4%	50 11.8%
Provide education on the importance of controlling blood pressure in diabetes	84 19.9%	144 34.1%	112 26.5%	78 18.5%
Advise blood cholesterol normal level range	160 37.9%	150 35.5%	84 19.9%	28 6.6%
Advise dangerous of continue smoking	52 12.3%	124 29.4%	130 30.8%	116 27.5%
advised diabetic patients the importance of influenza and pneumococcal vaccines.	108 25.6%	168 39.8%	102 24.2%	44 10.4%

**Table 4. Conditions concerned to lifestyle modification**

	Never	Rarely	Often	always
advised smoking patients regarding dangerous of continue smoking	52 12.3%	124 29.4%	130 30.8%	116 27.5%
advised importance of influenza and pneumococcal vaccines	108 25.6%	168 39.8%	102 24.2%	44 10.4%
the importance of diet	54 12.8%	76 18%	176 41.7%	116 27.5%
importance of exercise	74 17.5%	68 16%	160 37.9%	120 28.4%
advise the symptoms of neuropathic pain.	108 25.6%	132 31.3%	140 33.2%	42 10%
Foot care	92 21.85	156 37%	122 28.95	52 12.3%

**Table 5. Conditions concerned to signs and symptoms of hypoglycemia and treatment options**

	Never	Rarely	Often	always
Counsel on signs and symptoms of hypoglycemia.	54 12.8%	144 34.1%	154 36.5%	77 16.5%
Identify frequency of hypoglycemic episodes.	92 22.8%	174 41.2%	98 23.2%	58 13.7%
Identify possible causes of hypoglycemia.	74 17.5%	108 25.6%	182 43.1%	58 13.7%
Provide recommendations for treatment of hypoglycemia to the patient	60 14.2%	76 18%	168 39.8%	118 28%

## DISCUSSION

This questioner measures the pharmacists' role toward diabetes treatment. Almost one quarter of them in this study illustrated that they often advised diabetic patient on blood glucose sampling, manner of blood sampling, times to blood sampling, normal level of glucose, translation of A1C results. However, the small portion of them advised patients on distinguishing the reasons of abnormal level. The same results were shown in a questionnaire that took part in Canada and Norway. These studies illustrated that about one third of pharmacists told that they regularly give advising to patients on blood sampling, times to blood sampling, normal level of glucose, translation of A1C results [11,12]. Irregular advising diabetic patients in smoking cessation, exercise and diet control illustrated in this survey was found to be consistent with another surveys that took part in the North East of England and India to evaluate the pharmacist's role in treatment of diabetes [13,14]. Heaton and Frede told that the doctor could not able to give sufficient advising to diabetic patients like lifestyle behaviour where the pharmacist is could be able to provide these services [15].

This survey illustrated that a small portion of them advised diabetic patients about signs, symptoms, frequency, and causes of hypoglycaemia. The same results have been illustrated by a questionnaire that took part in Canada in which a small portion of pharmacist illustrated that they advised diabetic patients about hypoglycaemic symptoms, signs, frequency and causes of hypoglycaemia

[11]. This deficiency of diabetic patient advising may cause a lack of knowledge of hypoglycaemic symptoms. This has been shown in a survey that survived 57 diabetic patients in the United Kingdom. This survey illustrated that one quarter of pharmacists did not know what action to take with hypoglycemia and one third did not know any hyperglycemic symptoms or signs [16].

The respondents of this survey illustrated that the primary obstacles to providing diabetic advising are time constrain (20%) and lack of continuous education program (71%). These results are consistent with a previously survey that survived 233 pharmacists. The latter survey illustrated the common obstacles to the pharmacists' communication with patients were inadequate amount of time with patients (58%) limit knowledge (33%) [17]. So, as indicated in this study, inadequate amount of time is the most obstacle against the pharmacist's role in patient advising [18-20]. Further dealing between different health institutions will enhance the current pharmacy services [21].

## CONCLUSION

There is an increasing need to introduce effective and continuous education programs to current pharmacists in order to enhance and update their knowledge with regards to the prevention and management of diabetes disease. The pharmacists should play a greater role toward the well being of diabetic patients.

## REFERENCES

1. Ajlouni K, Jaddou H, Batiha A. Diabetes and impaired glucose tolerance in Jordan: prevalence and associated risk factors. *Intern Med*, 244, 1998, 317–323.
2. Shereen Arent, JD .The Role of Health Care Professionals in Diabetes Discrimination Issues at Work and School Diabetes. *Spectrum*, 15, 2002, 217–221.
3. Mühlhauser J, Kasper, G Meyer. Understanding of diabetes prevention studies: questionnaire survey of professionals in diabetes car. *Diabetologia*, 49, 2006, 1742–1746.
4. Campbell RK. Role of the pharmacist in diabetes management. *Am J Health Syst Pharm*, 59, 2002, S18–S21.
5. Hawkins D, JC Bradberry, MJ Cziraky et al. National Pharmacy Cardiovascular Council treatment guidelines for the management of type 2 diabetes mellitus: toward better patient outcomes and new roles for pharmacists. *Pharmacotherapy*, 22, 2002, 436–444.
6. Rodriguez de Bittner M and ST Haines. Pharmacy-based diabetes management: a practical approach. *J Am Pharm Assoc (Wash)*, 37, 1997, 443–55.
7. Guirguis LM and JA Johnson. Diabetes: are pharmacists making an impact on patient outcomes?. *Can Pharm J*, 136, 2003, 24–28.
8. Leal S, JJ Glover, RN Herrier et al. Improving quality of care in diabetes through a comprehensive pharmacist-based disease management program. *Diabetes Care*, 27, 2004, 2983–2984.
9. Blenkinsopp A and A Hassey. Effectiveness and acceptability of community pharmacy-based interventions in type 2 diabetes: a critical review of intervention design, pharmacist and patient perspectives. *Int J Pharm Pract*, 13, 2005, 231–240.
10. Wubben DP and EM. Vivian. Effects of pharmacist outpatient interventions on adults with diabetes mellitus: a systematic review. *Pharmacotherapy*, 28, 2008, 421–436.
11. SH Simpson, S Haggarty, JA Johnson, et al. Survey of pharmacist activities and attitudes in diabetes management *Canadian Pharmacists Journal*, 142, 2009, 128-134.
12. Kjome RL, Sandberg S, Granås AG. Diabetes care in Norwegian pharmacies: a descriptive study. *Pharm World Sci*, 30, 2008, 191–198.
13. Abduelkarem AR, Sackville MA, Morgan RM, Sackville MP, Hildreth AJ. Views and practices of community pharmacists regarding services for people with type 2 diabetes. *Int J Pharm Pract*, 11, 2003, 161–168.
14. Kotecki JE, Elanjian SI, Torabi MR. Health promotion beliefs and practices among pharmacists. *J Am Pharm Assoc*, 40, 2000, 773–779.
15. Heaton PC. Patients' need for more counseling on diet, exercise, and smoking cessation: results from the National Ambulatory Medical Care Survey. *J Am Pharm Assoc*, 46, 2006, 364 -369.
16. Pegg A, Fitzgerald F, Wise D, Singh BM, Wise PH. A community-based study of diabetes-related skills and knowledge in elderly people with insulin-requiring diabetes. *Diabet Med*, 8, 1991, 778-781.
17. Otero LM, Zanetti, ML, Ogrizio MD. . Knowledge of diabetic patients about their disease before and after implementing a diabetes education program. *Rev Latino-am Enfermagem*, 16, 2008, 231-237.
18. McKenney JM. An evaluation of cholesterol screening in community pharmacies. *Am Pharm*, 33, 1993, 34–40.
19. Crawford N. The pharmacistsofficentre: providing quality care. *Am Pharm*, 32, 1992, 36–38.
20. Nykamp D, Barnett CW. Use of stationary automated blood pressure devices in pharmacies. *Am Pharm*, 32, 1992, 33–36.
21. Bell JS, Va a nanen M, Ovaskainen H, Narhi U, Airaksinen MS. Providing patient care in community pharmacies: practice and research in Finland. *Ann Pharmacotherapy*, 41, 2007, 1039–1046.