

## THE ROLE OF COMMUNITY PHARMACISTS ON THE LIFE STYLE OF DIABETIC PATIENTS

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### Abstract

Community pharmacists are one of the closest health care professional who can provide information to the diabetic patients about their disease and treatment. The purpose of this study is to investigate and evaluate the role of community pharmacists on the life style changes of diabetic patients in Turkey. Questionnaires addressing issues which were important for their diseases and lifestyles were given to diabetic patients who visited the pharmacy of the researcher in Safranbolu (district of Kastamonu province). Patients were informed about the quality of lifestyle changes by the pharmacist, and then questionnaire forms were re-given. It was observed that 64% of the patients who participated in the first questionnaire were on a diet. After consultation with the pharmacist and having the necessary information, it was determined that 76 % of patients took up a diet. Results of the study suggest that pharmacists have a positive effect on life style changes of diabetic patients. Therefore community pharmacists should take a more active role in managing the life quality of patients who have chronic diseases such as diabetes.

**Key words:** Diabetes, Pharmacist, Life style changes

### Serbest Eczacıların Diyabet Hastalarının Yaşam Tarzı Üzerindeki Rolü

Diyabet hastalarının, hastalıkları ve tedavileriyle ilgili gerekli bilgileri alabilecekleri en yakın sağlık çalışanlarından biri de serbest eczacılardır. Bu çalışmanın temel amacı, diyabet hastalarının yaşam tarzı değişiklikleri üzerinde serbest eczacıların rolünün incelenmesi ve değerlendirilmesidir. Bu çalışmada, Safranbolu'da araştırmacının eczanesine gelen diyabet hastalarına, hastalıkları için önemli olan ve yaşam tarzları ile ilgili soruların olduğu anket formları uygulanmıştır. Hastalara eczacı tarafından hastalığı, yaşam kalitesi ile ilgili bilgilendirme yapıldıktan sonra anket formları tekrar uygulanmıştır. İlk ankete katılan hastaların %64'ünün diyet yaptığı gözlemlenmiştir. Eczacının bilgilendirmesi sonrasında ise bu hastaların % 76'sının diyet yaptığı tespit edilmiştir. Çalışmanın değerlendirilmesi sonucunda serbest eczacıların, diyabet hastalarının yaşam tarzları üzerine olumlu etkiler kazandırdığı görülmektedir. Serbest eczacılar, diyabet gibi kronik hastalıklarda hastaların yaşam kalitesini yükseltmekte daha aktif rol almalıdır.

**Anahtar kelimeler:** Diyabet, Eczacı, Yaşam tarzı değişikliği

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## INTRODUCTION

The number of people affected by diabetes worldwide is increasing. Thus, the demand for health personnel able to support patients in managing lifestyle changes, medication use and glucose monitoring is also on the increase.

Studies have shown that the most successful interventions for assisting diabetes patients are those in which several groups of health personnel cooperate to achieve the best possible care for the patient. Pharmacists could be valuable assets to such a team, considering their focused training on medication use and their availability to patients. Extensive research worldwide explores possible and implemented pharmacy based services for diabetes patients. These include educational programs in the pharmacies, counseling on medication, glucose monitoring and lifestyle, and screening for undiagnosed type 2-diabetes. In Norway, only one brief report describing the Norwegian pharmacies' involvement in diabetes care has yet been published (1). Type 2 diabetes is an escalating epidemic with predictions of worldwide prevalence exceeding three million by 2030 (2). There is now irrefutable evidence that strict control of type 2 diabetes can delay the onset of the complications of this disease (3), is costeffective, and brings about improvements in overall quality of life (4,5) These findings highlight the need for disease state management (DSM) approaches which focus on intensive management of type 2 diabetes involving regular monitoring, follow-up, and continuity of care. Such approaches have been shown to be effective in improving disease control in a recent meta-analysis of disease management programmes (6).

The majority costs of diabetes are associated with the possible complications of the disease including amputations, blindness, cardiovascular conditions, stroke, and renal disease. In patients with diabetes, cost of therapy, severity of disease, presence of co-morbid conditions and complexity of drug regimen have all been shown to be factors associated with medication adherence (7,8-10).

Community pharmacies have an important role to play in DSM (11–16). In addition to dispensing prescription medications, their involvement shows beneficial effects in patient education and disease management (17,18). Attitudes were significantly more positive towards diabetes and medication, towards communicating with a pharmacist and patients perceptions regarding knowledge about medication among patients who had been in contact with a pharmacist (16). Patient satisfaction and patient-pharmacist relationships are important because these factors typically lead to positive health behaviours, such as improved adherence and disease management, subsequently leading to improved disease outcomes (13,14).

In order to maintain a satisfactory quality of life throughout their lifetime, diabetic patients have to pay much more attention to health issues than non-diabetic people. This can only be achieved by conscious behaviour to manage their illness. Therefore in the present study the importance of community pharmacists in raising awareness amongst diabetic patients has been investigated.

The aim of this study is to evaluate the role of community pharmacists on the lifestyles of patients with type 2 diabetes.

## EXPERIMENTAL

The study group consisted of diabetic patients who visited “Safranbolu Murat Pharmacy” in order to purchase their antidiabetics medication. Data were collected through questionnaires conducted face to face. In the questionnaire following issues were asked; the patients' illnesses, lifestyles and medications.

Prior to undertaking the main survey, the questionnaire was pilot-tested by using a small group of patients to ensure that the questions can be understood. The questionnaire consisted of four sections. The first section contained of demographic informations and questions about medications (age, gender, weight, the length of diabetes illness, family history of diabetes and types of medication used); the second section examined patients' lifestyles (diet, exercise, weight control, alcohol and cigarette consumption etc.); the third section determined diabetes-related diseases or other diseases; the fourth section concerned about the patients' medications, which would inform pharmacoepidemiological and pharmacovigilance studies.

Following the first administration of questionnaire forms given to diabetic patients, the pharmacist informed each patient about their medication, life style and existing and potential diseases for 30 minutes. Also written information brochure were provided to the patients.

Total of 25 type 2 diabetic patients who visited the Safranbolu Murat Pharmacy in February 2008-May 2008 took part in the study. All patients informed about the study were accepted to participate in the questionnaire. Initial questionnaire forms were given after 3 months, in order to determine whether information provided by the pharmacist lead to any changes in lifestyle and awareness. Results were evaluated by using Microsoft Excel 2003.

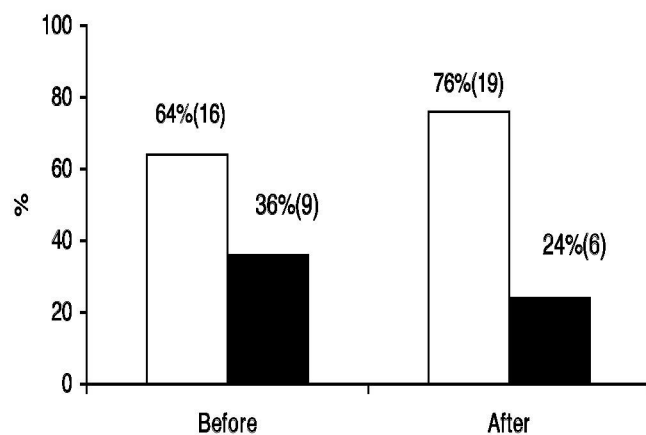
## RESULTS

Positive changes in life style of diabetics as a result of the information given by pharmacists are shown in Figures 1-8.

**Table 1.** Patients of demographic data.

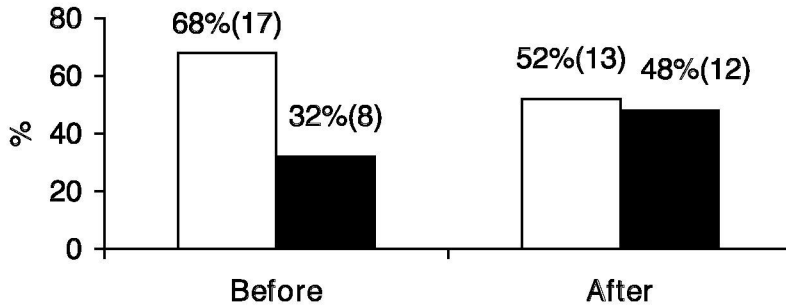
Characteristics of Patients	
Average age	59,48 ± 1.94*
Average weight	79,28 ± 1.61
Gender	
Male	68 %
Female	32 %
Number of type 2 diabetes patient	25
Duration of diabetes (years)	10
Medication	
Biguanide	44 %
Sulfonylurea	44 %
Tiazolidindion	20 %
Alpha-Glukosidase	4 %

\*Mean ± SD



**Figure 1.** Patients managing their diet (White bars: on diet, black bars: not on diet).

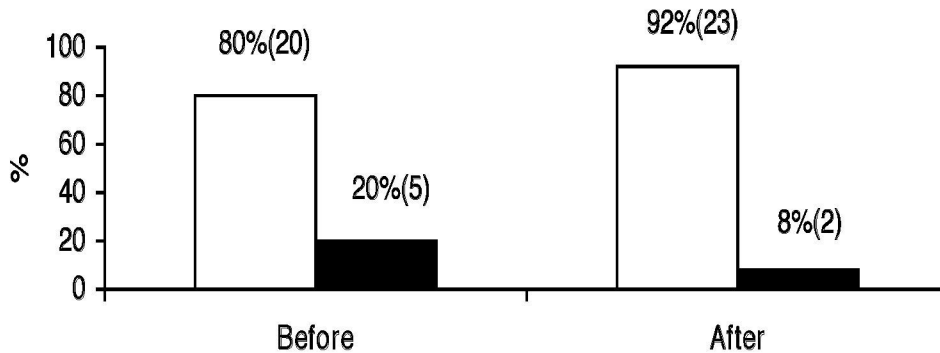
When the first questionnaire was applied, 64 % of the patients were on a diet, with the remaining 36 % not on a diet. At the time of the second questionnaire, the proportion of patients being on a diet had risen to 76 %. In addition to patients who were on a diet before the first questionnaire, 3 more patients decided to go on a diet suggested by doctor (Figure 1).



**Figure 2.** Patients undertaking physical exercise (White bars: not under regular exercise, black bars: under regular exercise).

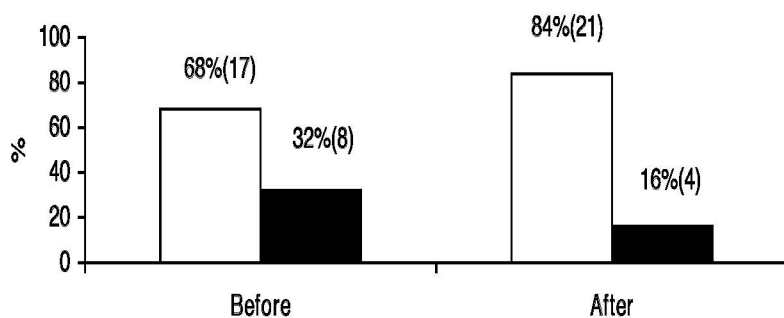
When the first questionnaire was applied, 32 % of patients exercised regularly while 68 % were not physically active. After being informed by the pharmacist and following this advice the proportion of patients undertaking regular exercise had risen to 48 % at the time of the second questionnaire.

In addition to patients who took exercise on before the first questionnaire, 4 more patients decided to take exercise suggested by doctor (Figure 2).



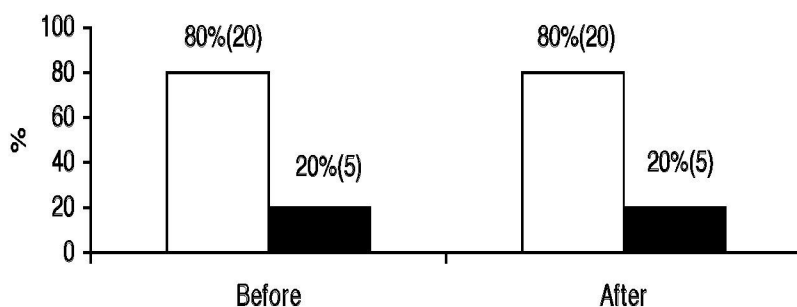
**Figure 3.** Patient medication compliance (White bars:in compliance, black bars: not in compliance).

While 80 % of patients took their medication regularly according to the first questionnaire, this increased to 92 % after the information provided by the pharmacist (Figure 3).



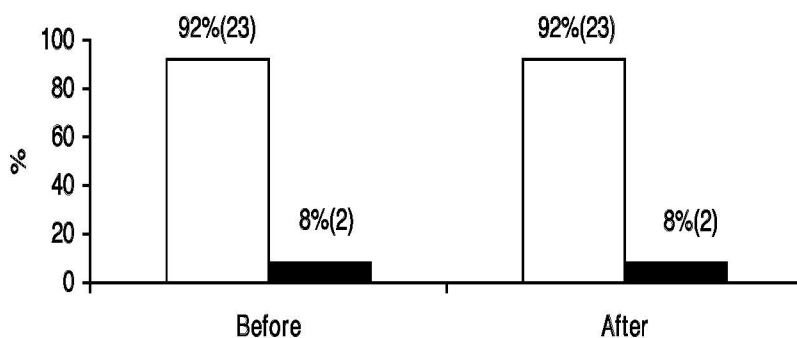
**Figure 4.** Patients involved in weight control (White bars: Patients under body weight control, black bars: patients not under body weight control).

The initial survey showed that 68 % of patients were trying to manage their weight. The follow-up survey showed that this had increased to 84 % after the information provided by the pharmacist (Figure 4).



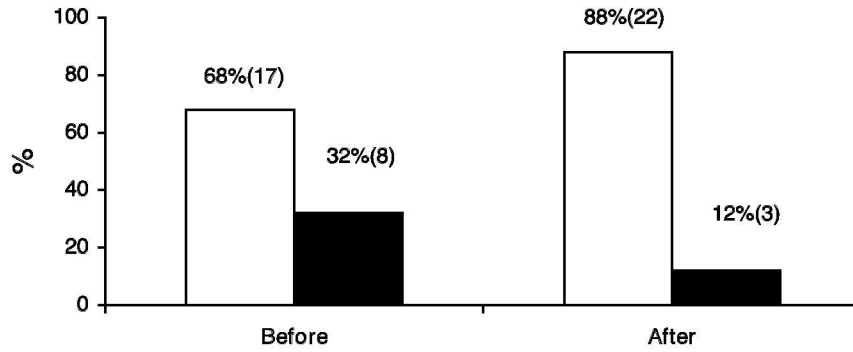
**Figure 5.** Patients smoking prevalence (White bars: smokers, black bars: non-smokers).

The initial survey showed that 80 % of the patient group were smokers. No change was observed in the proportion of smoking (80 %) and non-smoking (20 %) patients who participated in the second questionnaire (Figure 5).



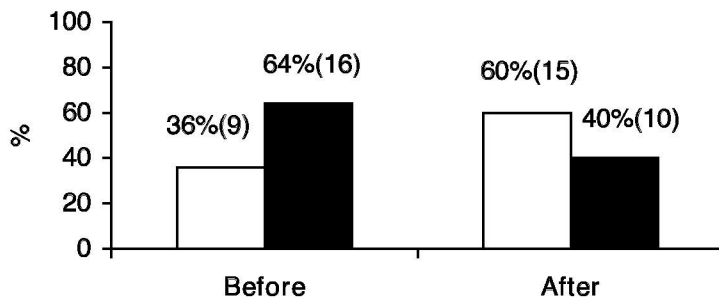
**Figure 6.** Distribution of alcohol consumption patients (White bars: non-consumers of alcohol, black bars: alcohol consumers).

The initial survey showed that 92 % of the patients did not consume alcohol and that 8 % consumed some alcohol. The follow-up questionnaire showed that this distribution did not change after the information provided by the pharmacist (Figure 6).



**Figure 7.** Blood sugar control/ monitor (White bars: patients under regular blood sugar control, black bars: patients not under regular blood sugar control).

An increase was observed in blood sugar control/monitor of the patients after the information provided by the pharmacist. The percentage of patients regularly monitoring their diabetes increased from 68 % to 88 % (Figure 7).



**Figure 8.** Patients under routine control of a doctor (White bars: Patients under routine control of a doctor, black bars: patients not under routine control of a doctor).

The initial survey indicated that only 36 % of the patient group attended regular medical examinations. After obtaining the useful information from the pharmacist, the follow-up survey indicated that this had risen to 60 % (Figure 8).

## DISCUSSION

An estimated 285 million people, corresponding to 6.4 % of the world's adult population, will live with diabetes in 2010. The number is expected to grow to 438 million by 2030, corresponding to 7.8 % of the adult population (18).

The incidence of diabetes in population older than 35 in Turkey is 11,3 % (There is no difference between man and woman) (19). Complications of diabetes can be decreased with optimal control of blood glucose, which depend on compliance of patients, changes of life style, monitoring of blood glucose and education of patients. Diabetes take care of themselves or are under the care of their relatives, education of the patients is a major part of treatment.

Main topics in education of diabetics are diet, exercise, drug treatment and knowledge of the illness (20).

Advancement in pharmacy profession changed the traditional role of the pharmacist (compounding and dispensing of drugs) and Today's pharmacists can identify people at risk, screen for pharmacotherapy problems, and encourage them to visit physicians (21). Therefore, pharmacists can be in a unique position to affect the lives of diabetics (22).

The data obtained by searching in Medline in years 1996-2008 have showed that pharmacists are active members of health team related to medical care of diabetics (23) A study in which 358 pharmacists in Norway participated in showed that the pharmacists were generally willing to actively support patients with diabetes (24). In the another study pharmacists have been found to play an important role in diet, self medication and measuring blood glucose of patients with diabetes (25). Similarly, community pharmacists in Belgium have been found to provide a beneficial contribution in management type II Diabetics (26).

It has been shown that total medical expenses of diabetics are lower as a result of the information given to patients by pharmacists (27).

In Turkey after doctors and teachers, the community pharmacists are the third most important professional group for society (28). Taking into account the specific health conditions in Turkey, community pharmacists are one of the closest health service providers from whom the patients can obtain information related to their diseases and support for their treatments.

Indeed, in the present study, we observed that the information provided by the pharmacist for diabetic patients in the study led diabetic patients to adopt habits which will improve their quality of life. After the information, percentage of patients' dieting, doing exercise, taking medicines and measuring blood glucose regularly increased by 12 %, 16 %, 12 % and 20 %, respectively.

In the light of these results, we consider that the advisory functions performed by pharmacists have positive effects in enabling diabetic patients to pursue a quality life at the desired level and for enabling them to continue their routine treatments. Community pharmacists should therefore offer a conscious and understandable dialogue to their patients and should remember to reflect a life style which would support their treatment. It should be also kept in mind that the information and follow-up services provided to diabetic patients by community pharmacists will be reflected to the pharmacist in economic terms.

The project "Turkey Diabetes Control" is run with the cooperation of non-governmental institutions and universities with the purpose of improving patients' quality of life. The results of the present study suggest that the Turkish Ministry of Health should consider giving pharmacists an important role in the control of diabetes through providing information and advice to patients (29).

## **CONCLUSION**

The community pharmacists in Turkey can elicit a broad service in improvement of life style of diabetics. Therefore, pharmacists should have responsibility for preventing and managing diabetes. For this aim, the education on this topic should be given to the pharmacists by organizing vocational training program.

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