EVALUATION OF SELF-MANAGEMENT ACTIVITIES OF THE PATIENTS WITH TYPE-2 DIABETES IN FAMAGUSTA, NORTH CYPRUS

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1. ABSTRACT

Introduction:

Diabetes mellitus is a chronic condition, characterized by increased levels of glucose in the blood as a result of insufficient insulin production or ineffective response to it. 'Diabetes self-management' refers to the control of blood sugar level by managing the factors that affect it, such as dietary control and physical activity management. This study aims to provide data that helps taking necessary steps, and improve self-management of type-2 diabetic patients living in Famagusta.

Methods:

This cross-sectional study was done in Famagusta, North Cyprus. Target population was calculated as 151 with 95% confidence interval. Permission was obtained from Dr. Andreas Schmitt to use Diabetes Self-Management Questionnaire (DSMQ) as a tool for this research. A printed questionnaire was given to the patients with a total of 24 questions (16-DSMQ, 8-demographic). Individuals younger than 20 years old were excluded. Approval obtained by EMU Ethics Board and permission letter from TRNC Ministry of Health. Data analysis was done via IBM SPSS and graphs were designed via Microsoft Excel.

Results:

151 patients were reached in defined time period. Percentage of males is (49.7%) and females is (50.3%). Majority of the subjects were overweight and obese (78%). The percentage of subjects who completed primary/secondary school education (64%), high-school/upper education (25%) and (11%) were non-educated. Mean value for age was calculated as (63.42). The physical activity showed a significant relationship with gender, BMI and level of satisfaction. Seminar attendance was significantly associated with tobacco usage which gave us a clue about the seminar effectiveness. Unexpectedly the BMI was not related with the nutritional habits and the educational level had no impact on the diabetes self-care.

Conclusion:

Diabetes is a multifactorial condition, but physical activity is a dominant factor affecting the self-management of type-2 diabetic patients in Famagusta, Northern Cyprus. Our study results were generally compatible with the previous studies. Based on our study findings, we recommend holding more seminars and creating more physical activity facilities in Famagusta.

Keywords: diabetes, diabetes self-management, Famagusta

2. INTRODUCTION

Diabetes mellitus is a chronic, lifelong metabolic disorder characterized by hyperglycemia. This can result from the insufficient insulin production, defective response to it or both. Since the cells can't take in the glucose, it builds up in the blood. High levels of blood glucose can damage the tiny blood vessels in kidneys, heart, eyes, or nervous system. Therefore, diabetes -especially if left untreated- can eventually cause cardiovascular disease, stroke, nephropathy, retinopathy and neuropathy. [1]

The WHO estimated that the number of diabetic patients has risen from 108 million in 1980 to 422 million in 2014. It was reported that the global prevalence of diabetes among adults over 18 years of age has risen from 4.7% in 1980 to 8.5% in 2014. [2]

Diabetes is associated with different pathogenic processes and according to that it is classified into 3 types:

Type 1 Diabetes vs. Type 2 Diabetes vs. Gestational Diabetes: [3]

Type 1 diabetes is an autoimmune condition in which the immune system attacks and destroys the insulin-producing beta cells in the pancreas, therefore the body is unable to produce insulin.

Type 2 diabetes is characterized by insulin resistance. The body still produces insulin, but it is unable to use it effectively.

Gestational diabetes only happens during pregnancy, the placenta synthesizes hormones that can lead to accumulation of glucose in the blood. But usually pancreas is capable of handling that by producing enough amount of insulin. If not, glucose level will elevate and cause gestational diabetes.

Diabetes self-management:

It refers to the control of blood sugar level by managing the factors that affect it. There are several essential self-management behaviors but the main ones are eating habits and physical activity. These behaviors have been found to be positively correlated with less complications, improved quality of life and good glycemic control. The vast majority of day-to-day care in diabetes is handled by the patients and/or the families. Therefore diabetic patients have been shown to affect the progression of their disease dramatically by participating in their own care. [4]

Literature review:

- A study conducted in Algeria regarding The eating habits of Patients with Type 2:

The findings showed that Overweight and obese patients with diabetes had significantly higher level of consumption of bread. However, normal weight patients had significantly higher, level of the consumption of fruit and vegetables. (p=0.006 and p=0 respectively). [5]

- According to JNMA (J Nepal Med Association) about Gender Difference in Care of Type 2 Diabetes:

The findings show that Men had higher self-efficacy regarding their diabetes care (65%) compared to women (35%). Gender was significantly associated with diet practices which revealed that men have less chance (0.328 times) of bad dietary practices compared to women. [6]

- A study conducted in Saudi Arabia (Riyadh) regarding The Role of Educational Level in Glycemic Control among Patients with Type II Diabetes Mellitus:

The findings show that Educational level had no impact on glycemic control, but patients of high educational level had better awareness of complications and a high rate of adherence to diet. [7]

- According to the third national health and nutrition examination survey (NHANES III) concerning the Diet and exercise among adults with type 2 diabetes:

The findings show that 82% of participants were overweight (36%) or obese (46%). 31% of sample reported with no regular physical activity, another 38% reported as doing physical activity less than recommended, so in total making 69% had insufficient amount of physical activity. [8]

- A study conducted in Omani regarding Diabetes self-management (DSM) with type-2 diabetes:

The findings indicated that most of the participants in this study reported lack of diabetes self-management. Except for medication-taking, most of the participants scored significantly low in the remaining six components of DSM. Only 1% of them were regular on SMBG; 9.5% of them exercise regularly; and 18% of them maintain healthy diet practices. Describes the percentage of participants performing DSM. [9]

- Self-management education for adults with type 2 diabetes: a meta-analysis of the effect on glycemic control:

A meta-analysis of self-management education for adults with type-2 diabetes revealed improvement in glycemic control at immediate follow-up. However, the observed benefit declined one to three months after the intervention ceased, suggesting that continuing education is necessary . [10]

- An integrated intervention program to control diabetes in overweight Chinese women and men with type 2 diabetes:

This study demonstrates that Chinese men and women with type 2 diabetes following an integrated intervention program including diabetes education, frequent blood glucose monitoring and daily use of a diabetes-specific meal replacement, can achieve significant improvements in glycemic control and markers of cardiovascular health. [11]

- Diabetes education program with emphasis on physical exercise in subjects with type 2 diabetes: a community based quasi-experimental study:

A diabetes education program with emphasis on supervised physical exercise improved triglycerides and glycemic control in subjects with T2DM. [12]

Since Few studies have been carried out about Diabetes in North Cyprus, this study is Important to Increase the knowledge and awareness about type 2 diabetes. It Provides data to help taking necessary steps, and improving diabetes self-management.

Research Questions:

The main question was: "What are the factors that influence diabetes self-management activities of people living with type-2 diabetes in Famagusta, North Cyprus?"

The sub-questions were:

1. Is there a gender-based difference regarding diabetes self-care?
2. Is there any significant relationship between BMI and eating habits & physical activity?
3. How does education level affect diabetic patients' attitude towards their self-care?

Aims:

- To evaluate the self-management activities of type-2 diabetes patients in order to raise awareness and promote their life standards.
- To find out demographic variables which have an effect on: **I.** Dietary control **II.** Physical activity
- To find the association between the level of satisfaction regarding diabetes self-care and: **I.** Gender **II.** Educational level **III.** Age group

3. MATERIALS AND METHODS

In October 2017, research group was determined and the study topic was chosen. In December 2017, forms sent to EMU Ethics Board for approval of the research. After the first reply, some parts were corrected and ethical approval was obtained in January 2018. In order to distribute the questionnaire in the state hospital, an additional permission letter was obtained from TRNC Ministry of Health in February 2018. In March 2018, data collection took place. Finally, in April 2018, data entering and analysis was done.



This study was a cross-sectional study, which was done with type-2 diabetics in Famagusta, North Cyprus. Sample size calculation was done via *Openepi* using the latest prevalence of diabetics that was estimated by a governmental research (2008) [13]. Sample size was calculated as 151 patients with 95% confidence level. Sampling method was 'convenience sampling' as the sample is chosen by questionnaire distributers. It was not randomized on a computer system basis, because no access gained to reach diabetics' information.

For the data collection tool, a broad search done on the internet and '*Diabetes Self-Management Questionnaire (DSMQ)*' which was developed in 2012 by German researchers found as the most suitable one for this research. As a next step, e-mailing with the developer of DSMQ was done and permission obtained from *Dr. Andreas Schmitt* to use DSMQ as a tool for this study.

In addition to English version, a Turkish version of DSMQ was provided as well. However, EMU Ethics Board did not allow the use of *DSMQ Scoring Guide* for Turkish version.

About validation of DSMQ questionnaire tool, please find the validation for English version in the Appendix part. Detailed information quoted below from a publish. For the translated Turkish version, scoring-guide was not used to fulfill the request of EMU Ethics Board.

The data collection tool consisted of 2 sections: Section-A and Section-B. In the first section, 8 demographic questions asked, including these questions in order: gender, year of birth, age of diagnosis, height & weight (for BMI), educational level, tobacco products consumption, diabetic relatives and attendance of seminars regarding diabetes. In the second section, patients answered "Diabetes Self-Management Questionnaire (DSMQ)", which contained 16 questions.

Dependent variables were; BMI, educational level, tobacco products consumption, and attendance of seminars regarding diabetes. Independent variables were; gender, year of birth, age of diagnosis, diabetic relatives.

Patients who were below 20 years old and/or who quit filling survey were not included; type-2 diabetics who gave consent are included in the research.

It was planned to reach all subjects in EMU Health Center and Famagusta State Hospital, North Cyprus. Accordingly, an ethical approval obtained from 'EMU Ethics Board' (January, 2018) and permission letter from 'TRNC Ministry of Health' (February, 2018) to reach subjects.

Distribution was done by giving printed questionnaire and volunteer participation form (consent form) to type-2 diabetic patients; printing costs were paid by research group members. It took less than 1 month to distribute as expected, started on 7th of March and finished on 23rd of March, 2018. Questionnaire and consent form were being distributed, and right after filling data were being collected from patients as the distributers waited next to the patients for any possible help. First this process took place in Famagusta State Hospital by frequently visits, and later on in order to reach calculated amount of sample size in a given time, distributed to 33 more patients by making one-day visit to a village of Famagusta district. Still vast majority of the subjects were reached at Famagusta State Hospital. Although it was planned in the beginning to distribute at EMU Health Center, there were no participants from there as a result of no type-2 diabetic patients fitting defined requirements.

It was also in the plan to distribute a small leaflet which would contain information and some contact details where patients could get more advice and support regarding management of their diabetes, if the patients wanted further advice and health tips. However the leaflet was not prepared to accomplish this plan. Instead of it, small conversations held with the patients to encourage them to have better nutritional habits and do sufficient amount of physical activity with the guidance of their doctors.

After collection, data entered to *IBM-SPSS 24* for analysis. '*Chi-square test*' was used to find statistical relationships, which p-value was taken as $p<0.05$ for significant relationships. In addition, frequencies and numerical values (mean, standard deviation) calculated. After analysis, the graphs (pie charts, bar charts, tables, etc.) designed via *Microsoft Excel*.

4. RESULTS

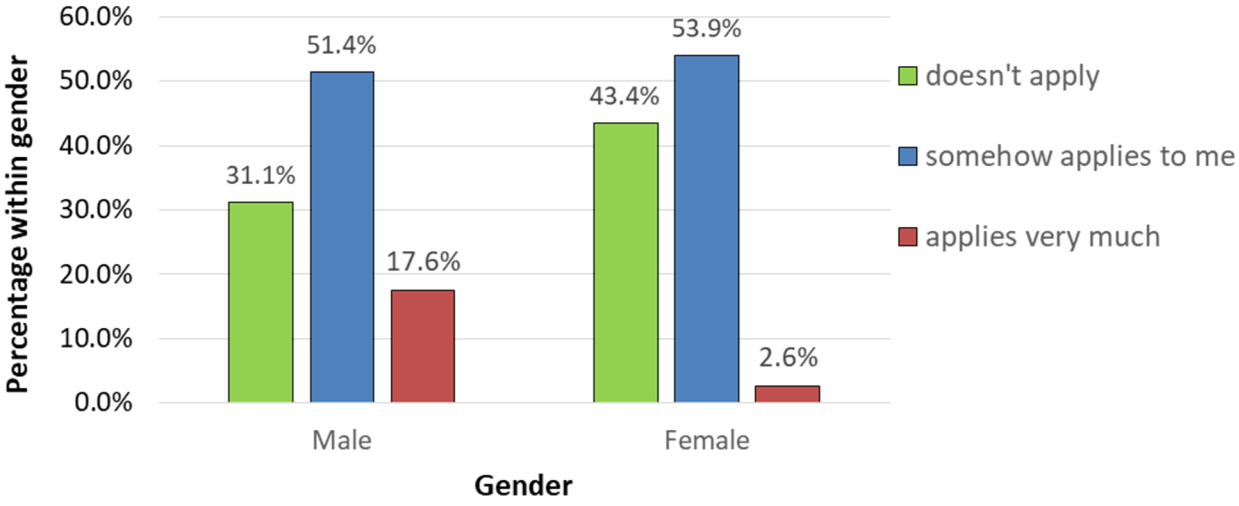
151 patients were reached in defined time period and the response rate was 100% with 2 missing BMI responses. The number of males and females were almost equal. Majority of the subjects were overweight and obese (78%). Most of the participants completed the primary/secondary education level and (11%) of them were non-educated and all of them were females. The youngest patient was 25 years old and the oldest one was 92 years old. The mean value of age was 63.42 ± 11.445, age of diagnosis was 51.05± 10.785, and BMI was 29.65± 5.145. Frequencies regarding the demographic part of the questionnaire are reported in Table 1.

Table 1: Characteristics of the sample.

Characteristic	n (%)
Gender	
Male	75 (49.7)
Female	76 (50.3)
Age groups	
25-50	15 (9.9)
51-65	62 (41.1)
>65	74 (49.0)
Educational status	
None	17 (11.3)
Primary / Secondary school	97 (64.2)
High school / Upper education	37 (24.5)
BMI	
Underweight / Normal	33 (22.1)
Overweight	50 (33.6)
Obese	66 (44.3)
Tobacco usage	
Yes	36 (23.8)
No	72 (47.7)
Quit	43 (28.5)
Diabetic relative	
Yes	122 (81.3)
No	23 (15.3)
I don't know	5 (3.3)
Seminar attendance	
Yes	34 (22.5)
No	117 (77.5)
I don't remember	0 (0)

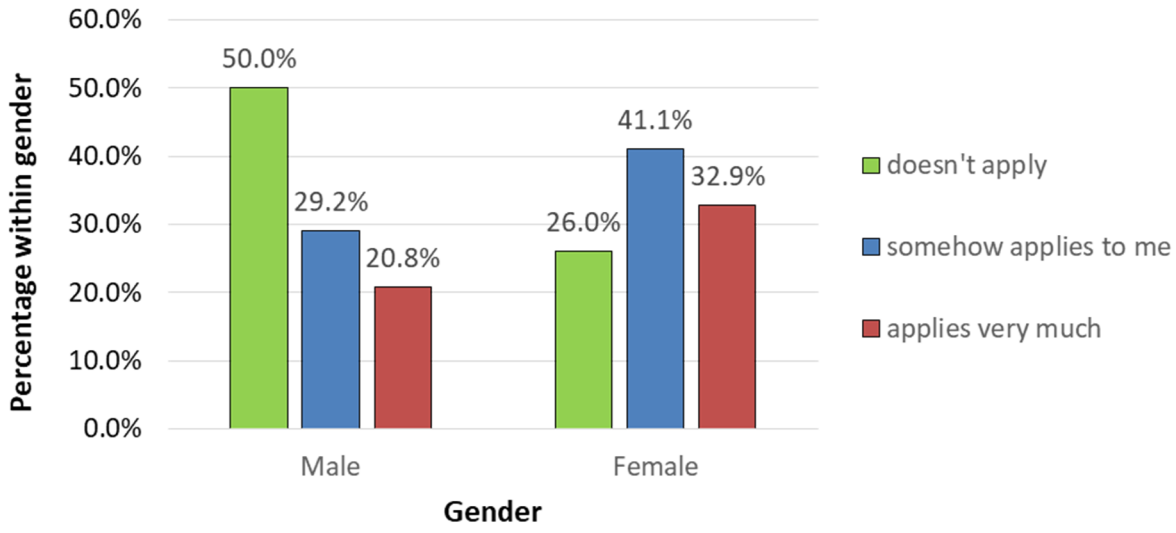
After applying chi-square test, significant associations between the variables were determined. There was a significant difference among males and females in terms of 'occasionally eating lots of sweets or carbohydrate rich foods' (p=0.007). The percentages reported in Figure 1 show that 17.6% of males tend to eat more sweets or carbohydrate rich foods occasionally compared with only 2.6% of females.

Figure 1: Percentages of males and females who occasionally eat lots of sweets or carbohydrate rich foods.



Gender was significantly related with the tendency to skip planned physical activity (p=0.012). According the percentages shown in Figure 2, 32.9 % of females tend to skip planned physical activity compared with 20.9 % of males. Moreover, gender had significant relationship with avoiding physical activity (p=0.003).

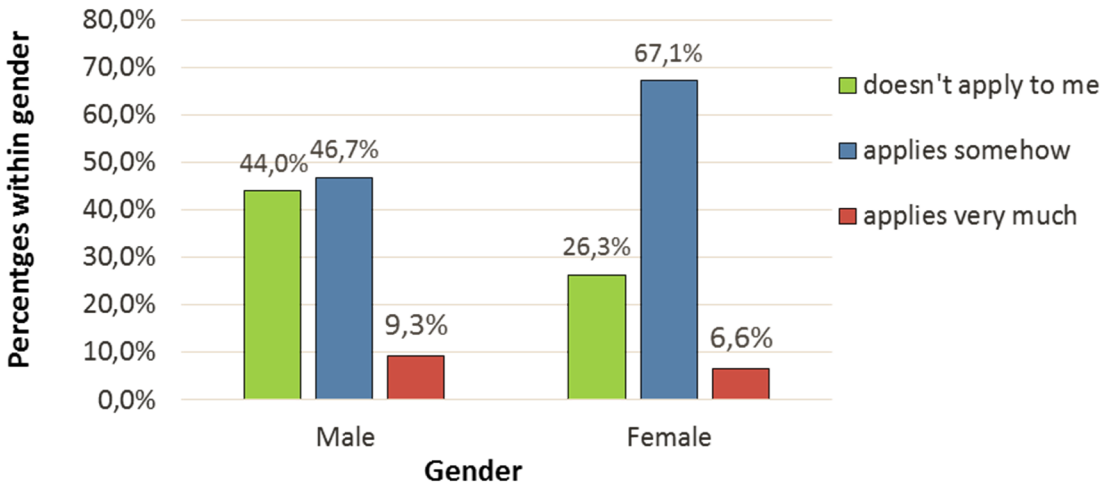
Figure 2: the percentages of males and females who tend to skip planned physical activity



These gender-based differences concluded that: although males eat more sweets and carbohydrates, they are physically more active.

Therefore, there was a difference regarding their level of satisfaction (p=0.039). Figure 3 shows the percentages regarding the level of satisfaction within gender.

Figure 3: level of satisfaction regarding diabetes self-care within gender



Level of satisfaction was also associated with doing regular physical activity (p=0.037) seem complex. There are two significant points. The first one show that; 34.6% of the patients who "doesn't apply" doing regular physical activity answered "applies very much" to "my diabetes self-care is poor" question. On the other hand, none of the patients who do regular physical activity "very much" answered that they have poor diabetes self-care "very much".

Unexpectedly the BMI was not related with the nutritional habits but it was significantly related with physical activity (p=0.013). 67.8% of the obese & overweight subjects avoid physical activity.

The research proved the effectiveness of attending seminars, which showed a significant relationship between tobacco usage and attending seminars (p=0.015). 47.1% of the subjects who attended seminars quit smoking, whereas 23.1% of the subjects who did not attend seminers quit smoking. Unpredictably, the educational level /age had no impact on the diabetes self-care and eating habits didn't show significant association with level of satisfaction.

5. DISCUSSION AND CONCLUSION

The aim of this research was to relate different demographic variable with **(1)** diabetes self-management **(2)** level of satisfaction regarding the patient's diabetes self-management.
The research revealed a gender-based difference in terms of eating habits and physical activity. According to the results, males have the tendency to eat more sweets and carbohydrates but they are physically more active. In contrary, females were more likely to avoid and skip the planned physical activity. Although females had better dietary practices, they were less satisfied about their self-care [Figure 3]. Analysis of these findings proved that physical activity is a main factor taken into consideration when the patients evaluate their own diabetes self-care.
Furthermore, the BMI-based difference in terms of physical activity showed that majority of obese and overweight patients avoid physical activity. This result ties well with previous studies wherein high percentage of obese and overweight patients was found to be associated with insufficient physical activity.
This study unexpectedly showed insignificant association between BMI and eating habits. Overall, the discussed results reinforce the importance of physical activity which explained why the percentage of obese and overweight subjects was high.
The study confirmed the effect of seminar attendance on diabetic patients' lifestyle and according to the findings, almost half of the patients who attended seminars quit smoking. At the same time the patients who had the chance to attend seminars were quite few compared with the ones who didn't. This highlights the fact that very few seminars are being held in Famagusta, therefore patients have less chance to attend. It is also possible that patients may not be willing to attend.
When comparing the research results with the previous ones, it must be pointed out that the study findings are compatible with the previous research results except for: eating habit didn't show significant difference among patients with different BMI, however a previous study in Algeria regarding eating habits of type 2 diabetes patients showed a significant difference. Furthermore, previous results regarding gender-based difference showed that men have higher self-efficacy regarding their diabetes self-care, because they have better dietary practices. In this study the findings revealed that men seem to have better self-care but this was due to the fact that they are physically more active.
The limitations of the present study include: **(1)** patients were in hurry to enter the doctor's office therefore some of them were filling the questionnaire without reading it carefully.

(2) Some patients refused to respond to the BMI part consequently 2 were missing. **(3)** Other research groups were distributing in the hospital at the same time, so patients who filled questionnaire for other groups refused to participate in this study, because they found it boring or they were thinking that it is the same questionnaire they filled. **(4)** Turkish language was a limitation for foreigner research group members because it was necessary to communicate with the patients.

In conclusion, diabetes is a multifactorial condition but some factors are more dominant among patients in particular regions. Physical activity and gender are found to be dominant factors that affect diabetic patients' self-care in Famagusta. It is recommended to hold diabetes seminars in Famagusta, Northern Cyprus and to encourage patients to attend these seminars. Moreover, creating physical activity facilities for diabetic patients should be taken into consideration. This will inspire all the diabetic patients especially the elderly ones to exercise and workout more.

6. REFERENCES

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7. APPENDICES

Permission email from Dr. Andreas Schmitt:

From: Schmitt Andreas
Sent: Wednesday, November 15, 2017 5:48 AM
To: 'Tala Ka'
Subject: AW: asking for a Permission

Thanks for making everything clear. I appreciate your kind response and explanations.

Please find attached the DSMQ in English language together with a scoring information. Additionally, I am sending you the Turkish translation which was developed by a research group from the Netherlands for research with Turkish immigrants. I could also provide you some contacts from Turkish research groups who are currently working with the DSMQ in Turkish patients samples/on a Turkish validation of the DSMQ.

Please note that we also developed a revised version which I am sending you for your consideration; however, there hasn't been a paper publication related to these changes.

I am also attaching some papers of interest for you.

Research tool (DSMQ) validation:

"Diabetes Self-Management Questionnaire (DSMQ). The DSMQ consists of 16 items covering five different aspects of diabetes self-management. All items are formulated as behavioural descriptions from the person's point of view (examples below). Respondents rate the extent to which each description applies to them on a four-point Likert scale (3–'applies to me very much' to 0–'does not apply to me'), referring to the previous eight weeks (full contents are provided inS1 Table). Item scores are transformed so that higher scores indicate more desirable self-management behaviour (requiring reverse-scoring of negatively-keyed items) and summed/transformed to five scale scores with ranges from 0 to 10 (scoring is explained in detail elsewhere [21]). The scales reflect patients' dietary control(4 items; e.g.'The food I choose to eat makes it easy to achieve optimal blood sugar levels'),medication adherence(2 Assessing Diabetes Self-Management with the DSMQ PLOS ONE | DOI:10.1371/journal.pone.0150774 March 3, 2016 3/12 items; e.g.'I tend to forget or skip my diabetes medication'),blood glucose monitoring(3 items; e.g.'I check my blood sugar levels with care and attention'),physical activity(3 items; e.g.'Iam less physically active than would be optimal for my diabetes') andphysician contact(3 items; e.g.'I keep all doctors' appointments recommended for my diabetes treatment'). Its validation study supported the DSMQ's reliability and validity [21]; in the present study, reliability coefficients were observed as follows (Cronbach'sα; stratified by scale): dietary adherence 0.79; medication adherence 0.75; blood glucose monitoring 0.83; physical activity 0.74; appointment adherence 0.72." [14]

Consent Form (only in Turkish):

Doğu Akdeniz Üniversitesi
Bilimsel Araştırma ve Yayın Etiği Kurulu
Sağlık Etik Alt Kurulu

BİLGİLENDİRİLMİŞ GÖNÜLLÜ OLUR FORMU

ARAŞTIRMANIN ADI: "Kuzey Kıbrıs, Gazimağusa'daki Tip-2 Diyabet Hastalarının Öz-yönetim Faaliyetlerinin Değerlendirilmesi"

Bu form ile "Kuzey Kıbrıs, Gazimağusa'daki Tip-2 Diyabet Hastalarının Öz-yönetim Faaliyetlerinin Değerlendirilmesi" isimli çalışmada yer almak üzere davet edilmiş bulunmaktasınız. Bu çalışma, araştırma amaçlı olarak yapılmaktadır ve katılım gönüllülük esasına dayalıdır. Araştırmaya katılıp katılmama kararı tamamen size aittir. Sizinle ilgili tüm bilgiler gizli tutulacaktır. Araştırmanın sonunda, kendi sonuçlarınızla ilgili bilgi istemeye hakkınız vardır. Araştırma bitiminde elde edilen sonuçlar, sizin kimliğiniz hiçbir şekilde açıklanmadan, tamamen saklı tutularak ilgili literatürde yayınlanabilecektir.
Araştırmaya katılma konusunda karar vermeden önce araştırma hakkında sizi bilgilendirmek istiyoruz. Katılmak isteyip istemediğinize karar vermeden önce araştırmanın neden yapıldığını, bilgilerinizin nasıl kullanılacağını, çalışmanın neleri içerdiğini, olası yararları ve risklerini ya da rahatsızlık verebilecek yönlerini anlamanız önemlidir. Lütfen aşağıdaki bilgileri dikkatlice okumak için zaman ayırınız. Araştırma hakkında tam olarak bilgi sahibi olduktan sonra ve sorularınız cevaplandıktan sonra eğer katılmak isterseniz, sizden bu formu imzalamanız istenecektir. Şu anda bu formu imzalasanız bile istediğiniz herhangi bir zamanda bir neden göstermeksizin araştırmayı bırakmakta özgürsünüz. Aynı şekilde araştırmayı yürüten araştırmacı çalışmaya devam etmenizin sizin için yararlı olmayacağına karar verebilir ve sizi çalışma dışı bırakabilir. Çalışmaya katılmakla parasal bir yük altına girmeyeceksiniz ve size de herhangi bir ödeme yapılmayacaktır. Bu araştırma, *Yrd. Doç. Dr. A. Bülent Sezgin* sorumluluğu altında yapılmaktadır.

Araştırmanın Konusu ve Amacı:

Bilindiği üzere diyabet dünyada birçok kişiyi etkileyen ve düzenli bakım gerektiren bir hastalıktır. Araştırmanın konusu ise bu temelden yola çıkarak oluşturduğumuz tip-2 diyabetlilerin kendi hastalıkları üzerinde sağladığı kontrolün değerlendirilmesidir.

Bu araştırmanın amacı tip-2 diyabet ile yaşayan kişilerin öz-yönetimleri hakkında daha fazla bilgi edinmek ve yaşam standartlarının yükseltilmesine katkıda bulunmaktır.

Önemi ise, Kuzey Kıbrıs'ta yürütülen az sayıdaki diyabet araştırmalarından biri olmasıdır. Netice itibariyle ülkemizdeki tip-2 diyabet kontrolünün aydınlatılması da amaçlarımız doğrultusundadır.

Araştırmanın Yöntemi:

Araştırma anket sorularından oluşmaktadır. Dağıtımı Gazimağusa Devlet Hastanesi'nde ve DAÜ Sağlık Merkezi'nde gerçekleştirilmekte olup, 1 ay içerisinde tamamlanması planlanmıştır. Nisan 2018'de ise toplanan verilerin işlenme ve değerlendirilmesine başlanacaktır.

Anket sonunda arzu edenlere diyabet ile ilgili broşür dağıtılacak, danışabilecekleri yetkili kişi ve kurumların numaraları verilecektir. Böylece bilgi ve farkındalığı artırarak topluma fayda sağlayacağına inanıyoruz.

Soru, Daha Fazla Bilgi ve Problemler İçin Başvurulacak Kişiler :
Gereksiniminiz olduğunda aşağıdaki kişi ile lütfen iletişime geçiniz.

Adı : Yrd. Doç. Dr. A. Bülent Sezgin
Görevi : Araştırma Danışmanı
Telefon: +90 533 881 1221

Gönüllünün / Katılımcının Beyanı:

Bu araştırma ile ilgili yukarıdaki bilgiler bana aktarıldı ve ilgili metni okudum Yukarıdaki bilgileri ilgili araştırmacı ile ayrıntılı olarak tartıştım ve kendisi bütün sorularımı tatmin olacağım şekilde cevapladı.
Bu bilgilendirilmiş olur belgesini okudum ve anladım. Araştırmaya katılmam konusunda zorlayıcı bir davranışla karşılaşmış değilim. Eğer katılmayı reddedersem, bu durumun bana herhangi bir zarar getirmeyeceğini de biliyorum. Araştırma sırasında herhangi bir neden göstermeden araştırmadan çekilebilirim. Ayrıca araştırmacı tarafından araştırma dışı da tutulabilirim. Araştırma için yapılacak harcamalarla ilgili herhangi bir parasal sorumluluk altına girmiyorum. Bana da herhangi bir ödeme yapılmayacaktır.
Araştırmadan elde edilen benimle ilgili kişisel bilgilerin gizliliğinin korunacağını biliyorum. Araştırma sırasında herhangi bir bilgi, soru sorma ihtiyacım olduğunda *Yrd. Doç. Dr. A. Bülent Sezgin* ile iletişim kurabileceğimi biliyorum.
Bana yapılan tüm açıklamaları ayrıntılarıyla anlamış bulunmaktayım. Bu koşullarla söz konusu araştırmaya kendi rızamla, hiç bir baskı ve zorlama olmaksızın, gönüllülük içerisinde katılmayı kabul ediyor ve bu onay belgesini kendi hür irademle imzalıyorum. Araştırmacı, saklamam için imzalı bu belgenin bir kopyasını bana teslim etmiştir.

Gönüllü/Katılımcı
Adı, soyadı:
Adres:
Tel:
İmza:
Tarih:

Görüşme Tanığı
Adı, soyadı:
Adres:
Tel:
İmza:
Tarih:

Araştırmacı
Adı soyadı, unvanı:
Adres:
Tel:
İmza:
Tarih:

Questionnaire tool (English):

Evaluation of Self-Management Activities of the Patients with Type-2 Diabetes in Famagusta, North Cyprus

SECTION-A: GENERAL / DEMOGRAPHICAL QUESTIONS

1. Gender: ☐ Male ☐ Female

2. Year of birth: _____

3. At what age you were diagnosed? ____

4. Height: …… m **Weight:** ……. kg **BMI:** …… kg/m^2 (to be calculated by researchers)

5. Please specify your educational status.

- ☐ Primary-school
- ☐ Secondary-school
- ☐ High-school
- ☐ Associate Degree
- ☐ Technician's Degree
- ☐ Bachelor's Degree
- ☐ Master's Degree
- ☐ PhD/Doctorate

6. Are you currently using tobacco products? (Cigarette, nargile/waterpipe/shisha, etc.)

- ☐ Yes
- ☐ No
- ☐ Quit

7. Do you have any first degree relative (sibling, parent, grandparent, uncle, aunt) with diabetes?

- ☐ Yes, please specify: _____
- ☐ No
- ☐ I don't know

8. Have you ever attended diabetes seminar or educational meeting on diabetes?

- ☐ Yes, I attended
- ☐ No, I didn't attend
- ☐ I don't remember

SECTION-B: Diabetes Self-Management Questionnaire (DSMQ, developed by Dr Andreas Schmitt)

The following statements describe self-care activities related to your diabetes. Thinking about your self-care over the **last 8 weeks**, please specify the extent to which each statement applies to you.	applies to me very much	applies to me to a consider-able degree	applies to me to some degree	does not apply to me
1. I check my blood sugar levels with care and attention. ☐ *Blood sugar measurement is not required as a part of my treatment.*	☐3	☐2	☐1	☐0
2. The food I choose to eat makes it easy to achieve optimal blood sugar levels.	☐3	☐2	☐1	☐0
3. I keep all doctors' appointments recommended for my diabetes treatment.	☐3	☐2	☐1	☐0
4. I take my diabetes medication (e. g. insulin, tablets) as prescribed. ☐ *Diabetes medication/insulin is not required as a part of my treatment.*	☐3	☐2	☐1	☐0
5. Occasionally I eat lots of sweets or other foods rich in carbohydrates.	☐3	☐2	☐1	☐0
6. I record my blood sugar levels regularly (or analyse the value chart with my blood glucose meter). ☐ *Blood sugar measurement is not required as a part of my treatment.*	☐3	☐2	☐1	☐0
7. I tend to avoid diabetes-related doctors' appointments.	☐3	☐2	☐1	☐0
8. I do regular physical activity to achieve optimal blood sugar levels.	☐3	☐2	☐1	☐0
9. I strictly follow the dietary recommendations given by my doctor or diabetes specialist.	☐3	☐2	☐1	☐0
10. I do not check my blood sugar levels frequently enough as would be required for achieving good blood glucose control. ☐ *Blood sugar measurement is not required as a part of my treatment.*	☐3	☐2	☐1	☐0
11. I avoid physical activity, although it would improve my diabetes.	☐3	☐2	☐1	☐0
12. I tend to forget to take or skip my diabetes medication (e. g. insulin, tablets). ☐ *Diabetes medication/insulin is not required as a part of my treatment.*	☐3	☐2	☐1	☐0

13. Sometimes I have real 'food binges' (not triggered by hypoglycaemia).	☐3	☐2	☐1	☐0
14. Regarding my diabetes care, I should see my medical practitioner(s) more often.	☐3	☐2	☐1	☐0
15. I tend to skip planned physical activity.	☐3	☐2	☐1	☐0
16. My diabetes self-care is poor.	☐3	☐2	☐1	☐0

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Our survey finished. Thank you for participating! ☺

Questionnaire tool (Turkish):

Kuzey Kıbrıs, Gazimağusa'daki Tip-2 Diyabet Hastalarının Öz-yönetim Faaliyetlerinin Değerlendirilmesi

BÖLÜM-A: GENEL / DEMOGRAFİK SORULAR

1. Cinsiyet: ☐ Erkek ☐ Kadın

2. Doğum yılı: _____

3. Kaç yaşında diyabet tanısı aldınız? ____

4. Boy: …… m **Ağırlık:** ……. kg **BMI:** …… kg/m^2 (araştırmacılar tarafından doldurulacak)

5. Eğitim durumunuzu lütfen belirtiniz.

- ☐ İlkokul
- ☐ Ortaokul
- ☐ Lise
- ☐ Ön-lisans
- ☐ Teknisyen
- ☐ Lisans
- ☐ Master
- ☐ PhD/Doktora

6. Yakın bir zamanda tütün ve tütün ürünleri kullandınız mı? (Sigara, nargile, vb.)

- ☐ Evet
- ☐ Hayır
- ☐ Bıraktım

7. Birinci derece akrabalarınızdan (kardeş, anne, baba, nine, dede, amca, dayı, hala, teyze) diyabet hastası olan var mı?

- ☐ Evet, lütfen belirtiniz: _____
- ☐ Hayır
- ☐ Bilmiyorum

8. Daha önce hiç diyabet semineri ve ya diyabet üzerine eğitici bir toplantıya katıldınız mı?

- ☐ Evet, katıldım
- ☐ Hayır, hiç katılmadım
- ☐ Hatırlamıyorum

BÖLÜM-B: Diabetes Self-Management Questionnaire, Turkish version (DSMQ-T)

	Aşağıdaki ifadeler diyabetinizle ilgili olan öz bakım aktivitelerini tanımlar son. Sekiz hafta boyunca öz bakımınızı düşünerek, her bir ifadenin size ne ölçüde uyduğunu lütfen belirtiniz.	Bana çok uyuyor	Bana önemli ölçüde uyuyor	Bana biraz uyuyor	Bana hiç uymuyor
1	Kan şekeri seviyemi özenle ve dikkatle kontrol ederim. ❑ *Kan şekeri ölçümü tedavimin bir parçası olarak gerekli değildir.*	❑ 3	❑ 2	❑ 1	❑ 0
2	Yemek için seçtiğim yiyecek uygun kan şekeri seviyesine ulaşmayı kolaylaştırır.	❑ 3	❑ 2	❑ 1	❑ 0
3	Şeker hastalığı tedavim için önerilen tüm doktorların randevularına giderim.	❑ 3	❑ 2	❑ 1	❑ 0
4	Reçetede verilen diyabet ilaçlarımı alıyorum (örnek: insülin, haplar) ❑ *Diyabet ilaçları / insülin tedavimin bir parçası olarak gerekli değildir.*	❑ 3	❑ 2	❑ 1	❑ 0
5	Bazen bol miktarda tatlı ya da karbonhidrat açısından zengin olan diğer besinlerden tüketiyorum.	❑ 3	❑ 2	❑ 1	❑ 0
6	Düzenli olarak kan şekeri seviyemi kaydediyorum. (ya da kan şekeri ölçüm cihazı ile değer tablosunu analiz ediyorum). ❑ *Kan şekeri ölçümü tedavimin bir parçası olarak gerekli değildir.*	❑ 3	❑ 2	❑ 1	❑ 0
7	Doktorların diyabetle ilgili randevularından kaçınma eğilimindeyim.	❑ 3	❑ 2	❑ 1	❑ 0
8	Düzenli fiziksel aktivitelerde bulunuyorum en uygun kan şekeri seviyesine ulaşabilmek için.	❑ 3	❑ 2	❑ 1	❑ 0
9	Doktorum ya da diyabet uzmanı tarafından verilen diyet önerilerini sıkı bir şekilde takip ediyorum.	❑ 3	❑ 2	❑ 1	❑ 0
10	Kan şekeri seviyemi iyi bir kan şekeri kontrolü sağlamak için yeteri kadar sık kontrol etmiyorum. ❑ *Kan şekeri ölçümü tedavimin bir parçası olarak gerekli değildir.*	❑ 3	❑ 2	❑ 1	❑ 0
11	Fiziksel aktiviteden kaçınıyorum, halbuki diyabetime faydalı olabilir.	❑ 3	❑ 2	❑ 1	❑ 0
12	Diyabet ilaçlarımı unutmaya ya da atlamaya meyilliyim (örnek: insülin, haplar). ❑ *Diyabet ilaçları / insülin tedavimin bir parçası olarak gerekli değildir.*	❑ 3	❑ 2	❑ 1	❑ 0
13	Bazen aşırı yemek yeme krizlerim oluyor. (hipoglisemi / düşük şeker oranı tarafından tetiklenmeyen).	❑ 3	❑ 2	❑ 1	❑ 0

14	Diyabet bakımım ile ilgili olarak doktorumu(doktorlarımı) daha sık görmeliyim.	❑ 3	❑ 2	❑ 1	❑ 0
15	Planlı fiziksel aktiviteleri geçiştirme eğilimindeyim.	❑ 3	❑ 2	❑ 1	❑ 0
16	Benim diyabet öz bakımım zayıftır.	❑ 3	❑ 2	❑ 1	❑ 0

This Turkish version of the DSMQ was developed by Dr. Maaike Gerards, University of Amsterdam, the Netherlands, in 2014 – contact: maaike.gerards@slz.nl (updated contact email: m.c.gerards@amc.uva.nl)

Anketimiz bitmiştir. Katılımınız için teşekkürler! ☺