Cukurova Medical Journal
ÇUKUROVA ÜNİVERSİTESİ TIP FAKÜLTESİ

Cukurova Med J 2019;44(3):984-990
DOI: 10.17826/cumj.492113

ARAŞTIRMA / RESEARCH

Exercise behaviors and insomnia levels of individuals with chronic diseases

Kronik hastalığı olan bireylerin egzersiz davranışları ve uykusuzluk düzeyleri

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Cukurova Medical Journal 2019;44(3):984-990.

Abstract

Purpose: This study aimed to review the exercise behaviors and insomnia levels of individuals with chronic diseases.

Materials and Methods: This descriptive study was conducted with 100 participants. The exercise behaviors of individuals with chronic diseases were evaluated with a questionnaire prepared by the researchers.

Results: It was determined that 72% of the participants had no energy to exercise, 63.1% of the participants exercised to stay healthy, 84.3% of the participants walked as a form of exercise with 45.7% of these participants walking with friends. According to the findings, the insomnia level point average of the individuals with chronic diseases was 17.37+4.78 and they suffered from insomnia at a clinical level.

Conclusion: It was found that the insomnia levels of individuals with chronic diseases were at a clinical level, they do not exercise due to tiredness and the most preferred exercise type was walking.

Keywords: chronic disease, exercise behavior, insomnia level

Öz

Amaç: Çalışmada kronik hastalığa sahip olan bireylerin uykusuzluk şiddeti ve egzersiz davranışlarının araştırılması amaçlanmıştır.

Gereç ve Yöntem: Bu araştırma kronik hastalık tanısı alan 100 hasta ile yapıldı. Kronik hastalığa sahip olan bireylerin egzersiz davranışları araştırmacılar tarafından hazırlanan soru formu ile değerlendirilmiştir.

Bulgular: Çalışmaya katılan bireylerin % 72.0'inin egzersiz yapacak kadar gücünün olmadığı /yorgun oldukları saptandı. Çalışmaya katılanların % 63.1'i sağlıklı olmak için egzersiz yaptığı, kronik hastalığa sahip bireylerin ise; %84.3'ünün egzersiz çeşidi olarak, yürüyüş yaptığı, yaptıkları bu egzersiz aktivitelerine ise; %45.7'sinin arkadaşları ile yaptığı belirlenmiştir. Çalışmada kronik hastalığa sahip bireylerin uykusuzluk şiddetinin puan ortalamasının 17.37+4.78 olduğu bu durumda klinik düzeyde insomnia yaşadıkları belirlenmiştir.

Sonuç: Kronik hastalığa sahip bireylerin, uykusuzluk şiddetinin klinik boyutta olduğu, kronik hastalığa sahip bireylerin çok yorgun oldukları için egzersiz yapmadıkları, en çok tercih edilen egzersiz çeşidinin ise yürüyüş olduğu belirlenmiştir.

Anahtar kelimeler: Kronik hastalık, egzersiz davranışı, uykusuzluk şiddeti

INTRODUCTION

Chronic diseases are defined as the conditions that emerge as the result of pathological changes, necessitate special training for the rehabilitation of patients with these diseases and require at least six months of medical care, observance and control[1]. These diseases can be cardiac diseases, life-threatening diseases such as cancer as well as diseases that can be controlled such as diabetes, chronic kidney failure and hypertension. Due to the aging populations and increasing life expectancy, the burden of the diseases gradually increases and chronic diseases constitute a large share of these diseases[2]. It has been stated in national reports that seven out of 10 diseases that lead to death in Turkey

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Geliş tarihi/Received: 04.12.2018 Kabul tarihi/Accepted: 16.02.2019 Çevrimiçi yayın/Published online: 08.09.2019

are chronic diseases[3]. As can be seen in the data, chronic diseases have extensive prevalence causing the individual to enter into a new physical, psychological and social process and a decrease in the individuals' life quality, productivity, length of life and financial state. Physical and mental limitations, sleeping problems and pain caused by the diseases decrease the patients' independence, restrict their social activities and negatively affect their daily life[1]. Insomnia is one of the problems that negatively affects the lifecycle of the individual[4].

As sleeping can be defined as the temporarily stopping of biological and mental activities, it can also be defined as a temporary unconsciousness state in which the person can easily be awakened via emotional or any type of stimulant[4]. Sleeping is an irrevocable obligation just like eating, drinking and breathing. Adequate sleep duration is a genotype and can vary for each person with the average sleep duration being between 6 to 8 hours for adults. In a study conducted in Turkey it was found that 75% of the society sleep for 7-8 hours, 10% of the society sleep less than 6 hours and elderly people wake up early and cannot sleep after 05.00 am. It should be noted that sleep duration varies from person to person[4].

Physiological, mental and environmental factors can damage sleep quality and duration. In addition, chronic diseases are among the factors that cause changes in regular sleep routines. Sleep problems are frequently seen in patients with cardiovascular system, gastrointestinal system and endocrine system diseases[4,5].

Wolinska et al. analyzed the effects of chronic diseases such as hypertension, diabetes, atherosclerosis, depression on insomnia and reported that there is a significant relationship between these two variables[5]. Aktaş et al. conducted a study in Turkey and found that the presence of chronic diseases negatively affects sleep quality due to sleep-onset insomnia, sleep interruptions, the medications used in relation to the chronic disease[6]. In a survey by Kiper et al., it was revealed that rheumatoid arthritis negatively affects sleep quality and that the sleep quality of people with rheumatoid arthritis is poor.

All movements performed by the skeletal muscles are defined as exercise behaviors[7]. Exercise behaviors that are beneficial for the diagnosis and treatment of diseases increase people's life quality[8]. There is hard evidence showing that exercise decreases the risk of mortality, coronary heart disease, obesity, high blood pressure, strokes, metabolic syndrome, type 2 diabetes and breast-colon cancer. Furthermore, exercise improves cardio-respiratory and muscular endurance, bone health and cognitive functions. Exercise behaviors have an increasing effect on sleep quality and a reducing effect on sleep disorders. It was observed that exercising for more than one hour a day increases sleep duration. Exercises with lower intensities also have positive effects on sleep[9]. According to the findings of a study conducted, exercise helps to ease into sleep, ensures deep sleep and provides the feeling of being rested. Feng et al. (2014) conducted a study in China and emphasized that intense physical activity and spending too much time in front of screens are associated with the decrease in high sleep quality and increase in depression[10].

It is well known that chronic diseases are associated with insomnia and that exercise behaviors are effective on sleep quality. This descriptive study aimed to review the exercise behaviors and insomnia levels of individuals with chronic diseases.

MATERIALS AND METHOD

The data were obtained from 100 patients who appealed to a public hospital due to a chronic disease diagnosis between March and May 2018. This study used the Insomnia Severity Index and an introductory information form that was prepared by researchers as well as a questionnaire form that included 14 questions to measure the exercise behaviors of the participants. Verbal consent was obtained from the participants. The questionnaire forms were filled in by face to face meeting method by the researchers, with each of the interviews taking approximately 5 minutes. Permission was obtained from the Ethical Committee before the start of the study. Written permission was received from the relevant institution before the study started. The participants were informed about the subject of the study and the verbal consent of the participants was obtained

The population of this study was composed of individuals who appealed to a public hospital due to a chronic disease between March and May 2018. A total of 100 individuals who had a chronic disease, had adequate communication skills, didn't use any kind of sleeping pills, had mental competence and accepted to participate in the study were included in this study. For the selection of the participants, the

simple random sampling method was chosen. The questionnaire forms were applied by face to face meeting method by the researchers, with each of the interviews taking a total of 5 minutes.

Measures

The Introductory Information Form includes the introductory information of the patients. A questionnaire form that evaluates exercise behaviors and Insomnia Severity Index were used to collect the data for this study.

Information Form

The information form that was prepared by the researchers in accordance with the literature was comprised of 11 questions about age, gender, marital status, number of children, educational background and the chronic disease of the participant.

Exercise Questionnaire Form

This form that evaluated the exercise behaviors of the participants included 14 questions about the exercise types and exercise behaviors of the participants.

Insomnia Severity Index

This scale, which was developed to determine the symptoms of insomnia, can be used in the normal screening and clinical evaluation of insomnia. The Index is a five-point Likert scale that includes 7 items. Each of the items is graded between 0 and 4 points and the total point varies between 0 and 28. The points between 0 and 7 on the scale show insomnia at a clinically insignificant level; points between 8 and 14 show subthreshold insomnia; points between 15 and 21 show moderate clinical insomnia and points between 22 and 28 show severe clinical insomnia. A reliability and validity study was performed by Boysan et al. (2010). The scale is both as the self-notification tool and a tool that can be used by the carer (partner/parent) or the clinician to carry out an evaluation. Internal consistency coefficient of the scale was found as 0.79 [11]. The Cronbach alpha internal consistency coefficient of insomnia level scale was 0.941 for this study.

Statistical analysis

The data were evaluated in SPSS 21.0 (Statistical Package of Social Science) program. After the Kolmogorov-Smirnov test, it was found that the variables showed parallelism with the normal distribution in the statistical analysis. Besides the descriptive statistics (average, standard deviation, frequency), the t-test was used for the evaluation of the data between two groups in independent groups and ANOVA was used for the evaluation of data among more than two groups. Post-hoc Tukey test and Cronbach's alfa reliability analysis were used to determine the group that caused the difference. The results were obtained at $\alpha = 0.05$ significance level.

RESULTS

As is seen in Table 1, the average age of the participants was found as 50.50±17.51. From the total participants, 59% (n: 59) were female while 41.0% (n: 41) were male. In terms of occupation, 40% of the participants were housewives, 29% were laborers, 17% were retired and 14% were civil servants. 27% of the participants were the primary school graduates, 26% were literate, 23% were secondary school graduates, 15% were high-school graduates, 6% were university graduates and 3% were illiterate. In terms of their marital status, 69% of the participants were married while 31% were single. The number of children of 86% of the participants varied between 1 and 5 while the number of children for the remaining 14% of the participants varied between 6 and 8. In terms of the chronic diseases of the participants, 26% had HT, 23% had DM, 11% were asthmatic, 10% had HT+DM, 10% had COPD, 9% had cardiological problems, 6% had CRF and 5% had R.A. 80% of the participants had been suffering from a chronic disease for 10 years while 20% of them had a chronic disease for more than 10 years. 61% of the participants were subjected to dietary limitations due to their chronic disease. 95% of the individuals were on regular medication.

As is seen in Table 3, 77% of the participants said "yes" while 23% of them said "no" when asked if they had a an appropriate area to exercise in. It can be seen that 4.08% of the participants exercise every day and 95.9% of them exercise 1-2 days a week. 81.1% of the participants (n:43) exercise for 45 min-1 hour a day while 18.8% (n: 10) exercise for 1.5 hours a day. 45.7% (n: 38) of the participants exercise with their friends; 42.1% (n:35) exercise alone and 12.0% exercise with their families. 49.3% (n:41) of the individuals exercise in the evenings, 38.5% (n:32) prefer to exercise in the morning and 12.0% (n:10) exercise at noon.

When asked what kind of exercise they did, 84.3% (n:70) of the participants answered "walking", 9.63% (n:8) answered "jogging" and 6.02% (n: 5) answered "cycling". 85.9% (n:73) of the participants exercise

outdoors, 8.2% (n:7) exercise at home and 5.9% (n:5) exercise indoors. With regards to the reasons for exercising, 63.1% (n:53) exercise to stay healthy, 10.7% exercise to maintaining their current weight, 8.3% (n:7) exercise to meet new people, 7.1% exercise to enhance their physical appearance. 72.0% (n:72) of the participants do not exercise because they have no energy; 18% (n:18) have no desire to exercise and 10% (n:10) have no time to exercise. When asked how they feel when they exercise, 60% (n: 60) of the participants replied that they feel energetic/happy while 40% (n:40) feel tired and unhappy. 67.0% (n:67) of the participants sleep for 2-6 hours a day while 33.0% (n:33) sleep for 7-9 hours a day. 41.0% (n:41) of the participants evaluated their sleep quality as "bad", 44% (n:44) evaluated theirs as "average" and 15% (n:15) evaluated theirs as "good". About the question called 'Are you constantly having insomnia problem?', 73.3% (n:73) of them said 'yes'; 24% (n:24) of them said 'not totally'; 3% (n:3) of them said 'no'.

Table 1. Sociodemographic attributes of individuals with chronic diseases

	X ± SS		**Min –Max**
Age	50.50±17.51		33-96
	n	**%**	
Gender			
Female	59	59.0	t : .388
Male	41	41.0	p : .614
Occupation			
Civil Servant	14	14.0	
Laborer	29	29.0	
Retired	17	17.0	f : .829
Housewife	40	40.0	p: .829
Educational Background			
Illiterate	3	3.0	
Literate	26	26.0	f: .945
Primary School Graduate	27	27.0	p : .467
Secondary School Graduate	23	23.0	
High School Graduate	15	15.0	
University Graduate	6	6.0	
Marital Status			
Married	69	69.0	t : -0.20
Single	31	31.0	p : .984
Number of Children			
1-5	86	86.0	t :-1.12
6-8	14	14.0	p:.498
What chronic disease do you have?			
Hypertension (HT)	26	26.0	
Diabetes Mellitus (DM)	23	23.0	
HT + DM	10	10.0	
Cardiological Problems	9	9.0	
COPD	10	10.0	
Asthma	11	11.0	
Rheumatoid Arthritis (R.A)	5	5.0	f :1.66
Chronic Kidney Failure (CRF)	6	6.0	p : 0.79
How many years have you had a chronic disease?			
1-10 years	80	80.0	t :0.66
11-20 years	20	20.0	p :.947
Are there any dietary restrictions due to your chronic disease?			
Yes	61	61.0	t :1.57
No	39	39.0	p : .119
Are you on regular medication?			
Yes	95	95.0	t :.944 p :.348

Table 2. Assessment of the exercise habits of the individuals

	N	%	X ± SS
Do you have an appropriate area to exercise in?			
Yes	77	77.0	17.68±4.98
No	23	23.0	16.30±3.97
How often do you exercise?			
Everyday	2	4.08	1.6 ± 0.15
1-2 days a week	47	95.9	37.6±2.14
How many hours a day do you exercise?			
45min-1hour	43	81.1	15.5±4.60
1.5 hours	10	18.8	9.52±3.38
Who are you most likely to do your exercise with?			
Friends	38	45.7	17.1±4.62
Family	10	12.0	15.50±1.24
Nobody	35	42.1	16.0±4.20
What time of the day do you exercise?			
Morning	32	38.5	18.0±4.19
Noon	10	12.0	16.6±3.80
Evening	41	49.3	15.5±4.35
What kind of exercise do you do?			
Walking	70	84.3	16.1±4.45
Cycling	5	6.02	18.5±3.53
Jogging	8	9.63	19.5±4.50
Where do you exercise?			
Indoors	5	5.9	19.40±3.64
Outdoors	73	85.9	16.58±4.41
At Home	7	8.2	17.0±4.86
Why do you exercise?			
To stay healthy	53	63.1	16.73±4.63
To enhance their physical appearance	6	7.1	15.0±4.85
To maintain my current weight	9	10.7	17.1±5.15
To meet new people	7	8.3	18.14±2,47
To reduce stress and for better mental health	9	10.7	17.1±5.14
What is your reason for not exercising?			
I do not have enough time / I'm very busy	10	10.0	23.3±2.12
I do not have the energy to exercise / I am very tired	72	72.0	32.1±3.14
I have no desire to exercise	18	18.0	21.3±2.08
How do you feel when you exercise?			
Energetic / happy	60	60.0	17.4±4.98
Tired / unhappy	40	40.0	17.2±4.51
How many hours a day do you sleep?			
2-6	67	67.0	18.35±5.39
7-9	33	33.0	16.65±4.19
How do you evaluate your sleep quality?			17.94±4.51
Poor	41	41.0	18.7±3.40
Average	44	44.0	13.2±1.02
Good	15	15.0	f: 9.33 p : 0.000
Do you suffer from insomnia?			
Yes	73	73.0	f: 7.30
No	3	3.0	p: 0.01
Not exactly	24	24.0	

The average insomnia level point scores of the participants are 17.37+4.78 (range : 7-28). The point scoring system of the scale is as follows: 0-7 = insomnia at clinically insignificant level; 8-14 = auxiliary dam of insomnia; 15-21 = clinical insomnia (bland); 22-28 = clinical insomnia (severe). According to these findings, it was found that the participants experienced insomnia at a medium level[12].

DISCUSSION

Sleep is an essential requirement for humans. Insufficient sleep becomes a threat for the health and causes a decrease in cognitive, psychomotor and emotional functions[13]. It is reported that 80% of elderly people may suffer from at least one sleeping problem. Serious sleeping problems significantly increase the risk of mental and physical disorders. Both qualitative and quantitative changes start to occur in the structure of sleep as people become older. These changes begin with irregularities in the sleep rhythm causing elderly people to sleep and wake up earlier. All these changes are the reasons for the disruption of the sleep quality of elders. Chronic diseases are among the other reasons for the disruption of the sleep quality[14].

It is known that most chronic diseases negatively affect the quality of life. In addition, insomnia is a frequently encountered problem among individuals with chronic diseases. This is why exercise is suggested as a beneficial way for general sleep hygiene[15,16]. The literature confirms the relationship between exercise and sleep[17-19]. Physical activity decreases the risk of the development of chronic diseases by controlling body weight and other mechanisms. According to the studies in the literature, physical activity in elderly people has positive effects on the balance, endurance, sleep, social life, mood and mental functions[20]. In parallel to the literature, the present study shows that the presence of chronic diseases negatively affects sleep quality. According to the findings of this study, individuals with chronic diseases experience clinical insomnia at medium severity. Furthermore, the medications individuals with chronic diseases take may have negative effects on sleep [21]. It is reported in a study that was conducted in abroad that there is a negative relationship between the presence of a chronic disease and the sleep quality[22]. With reference to a study that was performed in Turkey that there is a statistically significant relationship between a chronic disease and poor sleep quality[23]. The study by Youngstedt et al. emphasized that exercise that is performed in the afternoon and towards the evening increases the quality of sleep, however exercise that is done in the morning does not have an effect on the quality of sleep[24]. Karadağ et al. conducted a study on individuals with coronary heart disease and found that a regular and planned personal exercise program implemented in addition to medication and a suitable diet during treatment increases the quality of the patient's life and decreases mortality.[25].

Including the individuals with chronic diseases in this study was one of the limitations. The absence of a control group was another limitation in this study. The control group was not created because the present study aimed to examine the sleep and exercise behaviors only in individuals with chronic diseases.

Therefore, it can be suggested that people with chronic diseases must receive the required health care services by being screened for sleep quality. It is clear that exercise is essential for optimal health when the linear relationship between exercise and the medical condition is considered. It is possible to achieve good health by exercising at levels suggested in exercise programs. Regular exercises that are performed may be sufficient to maintain and promote health. Regular exercise is associated with decreasing mortality and is important in terms of primary and secondary prevention of several chronic diseases. In this study it was found that sleep quality of the participants was poor and their exercise behaviors were quite inadequate.

Yazar Katkıları: Çalışma konsepti/Tasarımı: KSÜ, ET; Veri toplama: ŞE, EG; Veri analizi ve yorumlama: EG, ET; Yazı taslağı: ET; İçeriğin eleştirel incelenmesi: EG, ET; Son onay ve sorumluluk: KSÜ, ŞE, ET, EG; Teknik ve malzeme desteği: -; Süpervizyon: KSÜ; Fon sağlama (mevcut ise): yok.
Bilgilendirilmiş Onam: Katılımcılardan yazılı onam alınmıştır.
Hakem Değerlendirmesi: Dış bağımsız.
Çıkar Çatışması: Yazarlar çıkar çatışması beyan etmemişlerdir.
Finansal Destek: Yazarlar finansal destek beyan etmemişlerdir.
Author Contributions: Concept/Design : KSÜ, ET; Data acquisition: ŞE, EG; Data analysis and interpretation: EG, ET; Drafting manuscript: ET; Critical revision of manuscript: EG, ET; Final approval and accountability: KSÜ, ŞE, ET, EG; Technical or material support: -; Supervision: KSÜ; Securing funding (if available): n/a.
Peer-review: Externally peer-reviewed.
Conflict of Interest: Authors declared no conflict of interest.
Financial Disclosure: Authors declared no financial support

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