The Effect of X-Box Kinect Dance Game in University Students with Social Phobia, Anxiety and Depression Symptoms

Akarsu R[*]., Ozturk B[*]., Toraman MA[*]., Akpınar B[*].,

Temiz TN[*]., Gobul S[*].

[*]Biruni University Occupational Therapy Department

Abstarct

In the studies, it was seen that the age of onset of social phobia coincided with adolescence and continued with university education corresponding to the last stage of adolescence. Depression and anxiety were also seen as comorbidities in these university students. The difficulties experienced by university students during this period are important for their psychological, sociological and individual development and also affect their academic achievement.

The aim of this study was to investigate the effect of kinect play on university students with anxiety, depression and social phobia symptoms.

109 students in Biruni University aged between 18-24 were included in the preliminary assessment. Beck Depression Inventory, Beck Anxiety Inventory, Liebowitz Social Anxiety Inventory, WHOQOL-BREF-TR for quality of life and sociodemographic form were included in the evaluation. Twelve subjects with symptoms were included in the study. In Biruni University Virtual Reality Laboratory, groups of 4 were treated with Kinect dance games for 4 weeks, 2 times a week and 30 minutes in each session.
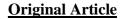
According to the results of statistical analysis at the end of 4 weeks; There was a statistically significant relationship between Beck Anxiety, Beck Depression and Liebowitz Social Anxiety Scale scores before and after intervention (p <0.05). There was a negative correlation between smoking and physical health parameter of quality of life scale (p <0.05).

As a result of our study, it was found that X-box Kinect dance game reduced symptoms and had positive effects in individuals with symptoms of social phobia, depression and anxiety.

Keywords: Social phobia, anxiety, depression, virtual reality, dance.

Introduction

In today's world where technological developments are advancing at a high speed, the effects of technology on other scientific fields are of great interest. Many researchers are diligently investigating their effects on human health. However, these studies mostly focus on the negative effects of technology on human health (1). University life is defined as the period in which the individual enters into a different social structure, begins to form his / her self,

and economic, social and cultural change is experienced rapidly (2).

Individuals who encounter different people with university life and have to establish relationships with them try to balance the existing economic resources and their needs (3). Together with university life, individuals enter into a significant change and strain in different areas of life emotionally, behaviorally and intellectually. Psychological symptoms such as relapse, anxiety and stress can be seen in an individual in such a period when the change is intense (4,5).

Social phobia (SAB) is a constant and constant fear that the individual will be embarrassed in the social environment in which he or she is worried that others may be judged by others.. According to DSM-IV, a person with social phobia exhibits escaping or avoiding behavior in feared social settings, or endures with intense anxiety or distress. The most important clinical feature is the unreasonable fear of being examined and evaluated by others (6). Social phobia is a psychiatric disorder that has attracted more and more attention from researchers and clinicians in recent years. As information about social phobia increases, it is understood that social phobia is seen more frequently than expected and causes serious difficulties in patients' lives. Epidemiological and community-based studies conducted in the USA have shown that social anxiety disorder, which affects 13% of the population, is the most common anxiety disorder and is the third most common psychiatric disorder after major depressive disorder and alcohol dependence (7). Turkey, which was constructed in 1996 Mental Health Profile of Turkey is often seen in adults, according to research social phobia was found to be 1.8% in the last 12

months (8). In three studies conducted in university students, the prevalence of social phobia was found to be between 9.8-22% (9,10,11). The number, type, frequency of avoidance, functionality level, sociodemographic characteristics, age of onset, life satisfaction, social skills, self-confidence differences, and different therapeutic interventions among social phobics led to the need to identify social phobia subtypes and this issue has continued to be controversial. However, the most widely accepted approach is the presence of common and specific subtypes. The specific type is defined for patients who fear and avoid one or more of the social situations, and the common type of SAD is defined for patients who fear and avoid many social environments. Patients with diffuse type SAD typically fear and avoid almost any environment that requires interpersonal relationships or that they think will be monitored by others (12-14).

Depression is the first burden of disability in our country with 10.7% in women and second in 6.4% in men. In addition, it ranks fourth in the first 10 diseases causing burden of disease (15). The World Health Organization, which expresses depression as a global crisis, stated that 20% of the mental disorders in Europe are depression-based (16). Doğan et al. Stated that depression is the most common psychiatric disease in the world and in our country, and the lifetime risk for major depressive disorder is 5-12% in men and 10-25% in women (17). In studies conducted for university students, it is stated that depression is the most important mental disorder seen in university students (18). Universities are institutions that offer young people a lot of social and cultural opportunities as well as acquiring a

profession. However, making new friends, leaving the family, decreasing social support, responsibility and violence due to loneliness, economic difficulties are the basis for the development of mental health disorders (19). Mowbray et al. Reported that depression and other mental problems are important health problems seen in university students (20).

Depression from mental symptoms can trigger many different problems that can reach suicide if no solution is found (21). Suicide is the second leading cause of death among young people between the ages of 15-29 in the world (22). Turkey is an important part of the college student population consists of young people thought to be in the range 15-29 years; depression is one of the major problems threatening this population (23). The fact that World Health Organization (WHO) devoted 2017 World Health Day (7 April) to combating depression also shows that depression is a dangerous problem in the world. WHO, while explaining that so many people have anxiety disorders, emphasized that these two disorders are generally seen together. (22). The type and intensity of anxiety may vary according to the circumstances of the individual. In addition to university exams; it is considered as a period where anxiety occurs intensely because it includes many stressful life events such as finding a job, choosing a spouse, economic problems and developing social relations (24,25,26). These life events for university youth increase the likelihood of creating anxiety in individuals and bring negative situations such as depression and suicide. As mentioned above, providing solutions for many problems such as social and economic problems faced by university students is important for academic success and student health. Therefore, in order to prepare protective and preventive programs for university students, it is necessary to determine which variables such as depression, anxiety and stress affect the adaptation of the individual.

The aim of this study was to investigate the effect of kinect play on university students with symptoms of social phobia, depression and anxiety.

Method

The study was conducted in Biruni University Virtual Reality Laboratory with 12 university students aged 18-24. Informed consent forms were signed by the participants. Ethical approval was obtained from Biruni University Non-Interventional Clinical Research Ethics Committee with decision no. 2019-26-01. The study was conducted between March and May 2019.

The sample of the study consisted of 12 university students who scored 36 and above on the Beck Anxiety Scale, 30-63 on the Beck Depression Scale and 80-95 on the Liebowitz Social Anxiety Scale. 12 students were played in Biruni University with X-Box (Kinect) game for 4 weeks 2 times a week for 4 minutes in groups of 30 minutes Just Dance. Xbox Kinect is a Microsoft-developed game console that runs single-player or multi-player games. Kinect, an additional product of the game console, has a technology that senses body movements and transfers these movements to the console as a joystick. Just dance kinect is a dance game that can be played with up to 4 people. SPSS 22.0 package program was used for statistical analysis. Intervention results and intergroup scores were analyzed using Wilcoxon Paired Two Samples Test and Mann Whitney-U test. Significance level was accepted as $p < 0.05$ in all statistical analyzes.

Results

Twelve university students (6 girls, 6 boys) aged between 18-24 years with symptoms of social phobia, anxiety and depression were included in the study. The mean age of the students was 20.9 ± 1.24 years. 7 students had social anxiety and anxiety, 6 students had social anxiety and depression, and 1 student had all symptoms.

According to the test results of 4 people who were included in our study after 4 weeks of intervention, anxiety, depression and social phobia symptoms decreased.

In the evaluations, the living environment was questioned as living alone and with the family and Beck Depression Scale scores were found to be significantly higher in the individuals living alone ($p < 0.05$).

When we look at the results of smoking data, it was found that significantly lower scores in the physical health parameter of the quality of life scale of smokers.

Table 1. Relationship between depression and living place

N=12	Beck depression inventory P value
Living place	0,042

Table 2. The relationship between smoking and quality of life

N=12	WHOQOL-BREF-TR (Physical fitness)
Smoking	0,034

When the relationship between the variables of gender, alcohol use and chronic disease was questioned, it was found that there was no statistically significant relationship in all scales ($p > 0.05$). There was a significant relationship between the Liebowitz Social Anxiety Scale scores and Beck Depression Scale scores in individuals with depression symptoms ($p < 0.05$).

Table 3. Relationship between Beck Depression Scale and Liebowitz Social Anxiety Scale

N:6	Liebowitz Social Anxiety Scale
Depression	0,042

There was a significant relationship between the Liebowitz Social Anxiety Scale scores and Beck Anxiety Scale scores in individuals with anxiety symptoms (p <0.05).

Table 4. Relationship between Beck Anxiety Scale and Liebowitz Social Anxiety Scale

N:7	Liebowitz Sosyal Kaygı Ölçeği
Anxiety	0,027

There was a statistically significant positive correlation between Beck Anxiety, Beck Depression and Liebowitz Social Anxiety Scale before and after intervention scores (p <0.05).

Table 5. Comparison of pre- and post-intervention scores

N:12	Pre-intervention		Post-intervention		
	Average	Min-max	Average	Min-max	P
Anxiety	14,95	10-61	13,36	10-56	0,017
Depression	8,63	10-43	7,71	10-40	0,004
Social Anxiety	19,75	94-152	18,03	92-145	0,005

Discussion

In the 1998 study by Lecrubier, individuals with social phobia scored significantly higher on the Beck Depression Scale than healthy controls. In a study conducted in the general population in the USA, the rate of comorbid major depression with social anxiety disorder was found to be 17%, while a study conducted in France found 33% comorbid major depression. In the same study, it was found that 75% of SAD patients had social anxiety at least one year ago and 15% had two episodes in the same year. An interesting finding of this study is that the rate of comorbid depression is significantly higher in SAD, which starts earlier than 15 years of age (32). As a result of the studies conducted by Stein and colleagues in 1999, the lifetime prevalence of social phobia and major depression was reported to be between 17-80%. Depression may occur in the course of the disease in social phobia individuals. Similarly, in the Westenberg 1998 study, the beginning of social anxiety disorder during adolescence, which is a turning point for individuals' social, educational and professional life, increases the negative effect of this disorder on individuals. It has been reported that there is a significant deterioration in the quality of life of the patients with social phobia and that their productivity is reduced. In the study, it was found that the diagnosis of comorbid depression increased disability in social phobia. Again in this study, it was shown that the presence of a comorbid depressive episode increased the severity of social phobia (33).

In our study, similar to these studies, a significant relationship was found between social phobia, depression and anxiety symptoms. Seven of the 12 people aged 18-24 years included in our intervention had social perturbation and anxiety symptoms, 6 had social anxiety and depression, and 1 had depression and anxiety symptoms. Similar to our results, Brien et al. (2014) found that traditional treatments, such as pharmaceuticals and psychotherapy, were effective in reducing anxiety symptoms, but were often costly and stigmatizing. In their study, they tested whether an ordinary type of video game could reduce the severity of anxiety symptoms of depressed individuals. They preferred video games to be fun, easy to play and popular, and as a result, they argued that video games had the potential to be effective in the treatment of depression symptoms (34). In another study, Engels et al. (2013) stated that playing video games has psychosocial benefits by combining the positive developmental and social psychological consequences of playing video games with insights of media psychology by focusing on four main areas: cognitive, motivational, emotional and social (35). In our study, it was found that Just Dance, which was chosen as X-box Kinect game, reduced the symptoms and had positive effects in university students with symptoms of social phobia, depression and anxiety. Especially Just Dance was found to be effective in communication between individuals and those who were involved in the intervention expressed it verbally.

There are effective studies in the literature that video games and Kinect games contribute to motor, cognitive, social, and psychological changes. In a study conducted in 2018, it investigated motor and cognitive skills, anxiety levels and changes in quality of life perception in parkinson's patients and divided 27 parkinson patients into 3 groups and identified them as Nintendo Wii, Xbox

Kinect and control group. Only those in the Nintendo Wii group showed improvement in gait tests, decreased anxiety levels, and improved memory and attention (36).

In another study on the utility of Kinect, Park et al. (2017) in a study of the effects of virtual reality training on motor functions using X-box Kinect in stroke cases, 20 patients with hemiplegic stroke were randomly assigned to the intervention group or control group. Participants in the intervention group (n = 10) received traditional 30-minute physical therapy and 30-minute VR training using Xbox Kinect games, and those in the control group (n = 10) received only 30-minute physical therapy. All interventions consisted of daily sessions over a 6-week period. Fugl-Meyer Assessment Berg Balance Scale (BBS), Timed Rise and Walk test and 10-meter Walk Test were performed at baseline and at the end, and the intervention duration lasted for 6 weeks. In conclusion, they demonstrated that the use of additional VR training with the Xbox Kinect game system as an effective therapeutic approach to improve motor function during stroke rehabilitation supports treatment (37). Our study was not based on motor and cognitive benefits, but rather focused on psychosocial effects and quality of life. The Xbox Kinect console was used in our study and it was fun and easy to pay attention to the ability to play in a group, especially when selecting the game.

Conclusion
According to the results obtained from the study; X-box Kinect Video games have positive effects on depression, anxiety and social phobia symptoms in university students. It was thought that the social interaction features of the game we used in our study may be related to reducing these symptoms. It is suggested that Just Dance and other games with motor, cognitive and psychosocial characteristics should be used in similar or different groups in our study and the relationship between motor, cognitive and psychosocial changes should be investigated. It may be advisable to increase the number of samples and to prefer games with different group activities.

References

1. Caplan SE (2010). Theory and measurement of generalized problematic Internet use: A two- step approach. Computers in Human Behavior, **26**, 1089–1097.

2. Gfellner BM, Cordoba AI (2017). Identity problems, ego strengths, perceived stress, and adjustment during contextual changes at university. Identity, 17(1):25-39. 2.

3. Ediz B, Özçakır A, Bilgel N (2017). Depression and anxiety among medical students: Examining scores of the beck depression and anxiety inventory and the depression anxiety and stress scale with student characteristics. Cogent Psychology, 4(1):1283829

4. Villatte A, Marcotte D, Potvin A (2017). Correlates of depression in first-year college students. Canadian Journal of Higher Education, 47(1):114-136.

5. Çoban AE, Karaman NG (2013). Üniversite öğrencilerinin umutsuzluk, kaygı ve ilişkilerle ilgili bilişsel çarpıtmaları. Bilişsel Davranışçı Psikoterapi ve Araştırmaları, 2(2):78-88.

6. Dilbaz N, Güz H (2001). Sosyal anksiyete bozukluğunun fenomenolojisi. Anksiyete Bozuklukları. Bilimsel Çalışma Birimleri Dizisi. Tükel R, Alkın T (ed), 4:185-212.

7. Kessler RC, McGonagle KA, Zhao S et al (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. Archives of General Psychiatry, 51, 8–19.

8. Kılıç C (1997). Türkiye Ruh Sağlığı Profili: Erişkin Nüfusla İlgili Sonuçlar. Türkiye Ruh Sağlığı Profili, Ön Rapor. Erol N, Kılıç C, Ulusoy M, Keçeci M, Şimşek ZT (ed.) Ankara, Aydoğdu Ofset, T.C. Sağlık Bakanlığı.

9. İzgiç F, Akyüz G, Doğan O et al (2000). Üniversite öğrencilerinde sosyal fobi yaygınlığı. Anadolu Psikiyatri Dergisi, 1(4):207-214.

10. Dilbaz N (2002). The prevelance of social phobia among the Turkish university students. XII. World Con gress of Psychiatry, Yokohama, August 24-29, 2002.

11. Kırpınar İ, Özer H, Coşkun İ ve ark. (1997). Erzurum'daki üniversite öğrencilerinde CIDI (DSM-III-R) ruhsal bozuklukların yaşam boyu ve 12 aylık yaygınlığı. Psikiyatri Psikoloji Psikofarmakoloji Dergisi, 4:253-265.

12. Boone ML, McNeil DW, Masia CL et al (1999). Multimodal comparisons of social phobia subtypes and avoidant personality disorder. Journal of Anxiety Disorders, 13(3): 271–292.

13. Eng W, Heimberg RG, Coles ME et al (2000). An empirical approach to subtype identification in individuals with social phobia. Psychological Medicine, 30(6): 1345–1357.

14. Heimberg RG, Holt CS, Schneier FR et al (1993). Spitzer RL. The issue of subtypes in the diagnosis of social phobia. Journal of Anxiety Disorders, 7(3): 249–269.

15. Başara B, Dirimeşe V, Özkan E, Varol Ö (2006). Sakatlığa Bağlı Kaybedilen Yaşam Yılları. Ünüvar N, Mollahaliloğlu S, Yardım N. Türkiye hastalık yükü çalışması. ,;13-14.

16. Spinney L (2009). European Brain Policy Forum : depression and the european society. Eur Psychiatry. ;24:550-551.

17..Doğan O, Gülmez H (1995). Ruhsal Bozuklukların Epidemiyolojisi. Sivas; 15.

18. Deveci SE, Ulutaşdemir N (2013). Açık Y. Bir Sağlık Yüksekokulu Öğrencilerinde Depresyon Belirtilerinin Görülme Sıklığı ve Etkileyen Faktörler. Fırat Tıp Dergisi. ; 18(2): 98-102.

19. Dyson R, Renk K. Freshman (2006). adaptation to university life: depressive syptoms stres and coping. Journal Of Clinical Psychology. 62:1231- 1244

20. Mowbray CT, Megivern D, Mandiberg J M (2006). Campus mental health services recommentations for change. American Journal Of Orthopsychiatry. 76:226-237

21. Kim YJ (2015). Study on the role of grit in Korean elderly suicide ideation. Advanced Science and Technology Letters ; 91:67-70.

22. World Health Organization (WHO) (2017). Depression: Let's Talk,. Retrieved from. http://www.who.int

23. Özdel L, Bostancı M, Özdel O, Oğuzhanoğlu NK (2002). Üniversite öğrencilerinde depresif belirtiler ve sosyodemografik özelliklerle ilişkisi. Anadolu Psikiyatri Dergisi; 3(3):155-161.

24. Villatte A, Marcotte D, Potvin A (2017). Correlates of depression in first-year college students. Canadian Journal of Higher Education 47(1):114-136.

25. Çoban AE, Karaman NG (2013). Üniversite öğrencilerinin umutsuzluk, kaygı ve ilişkilerle ilgili bilişsel çarpıtmalar. Bilişsel Davranışçı Psikoterapi ve Araştırmaları ; 2(2):78-88.

26. Temizel EA, Dağ İ (2014. Stres veren yaşam olayları, bilişsel duygu düzenleme

stratejileri, depresif belirtiler ve kaygı düzeyi arasındaki ilişkiler. Klinik Psikiyatri Dergisi 17(1):7-17.

27. Tegin B (1980). Depresyonda bilişsel süreçler: Beck modeline göre. Yayınlanmamış Doktora Tezi, Hacettepe Üniversitesi, Psikoloji Bölümü, Ankara

28. Hisli N (1988). Beck depresyon envanterinin geçerliği üzerine bir çalışma. Psikoloji Dergisi, 6:118-126

29. Beck AT, Epstein N, Brown G et al (1988). An inventory for measuring clinical anxiety: Psychometric properties. J Consult Clin Psychol, 56:893-897.

30. Ulusoy M, Şahin NH, Erkmen H (1998). Turkish version of the Beck Anxiety Inventory: Psychometric properties. J Cogn Psychother, 12:163-172

31. Dilbaz N, Güz H (2001b) Liebowitz sosyal kaygı ölçeğinin geçerlik ve güvenirliği. 37. Ulusal Psikiyatri Kongresi, İstanbul, 2-6 Ekim, 2001.

32. Lecrubier Y (1998) Comorbidity in Social Anxiety Disorder: Impact on Disease Burden and Management. J Clin Psychiatry, 59: 33-37.

33. Moutier CY, Stein MB (1999). The History, Epidemiology and Differential Diagnosis of Social Anxiety Disorder. J Clin Psychiatry, 60: 4-8.

34. Fish M,Russoniello CU,O'Brien K,(2014). "The Efficacy of Prescribed Casual Videogame Play in Reducing Symptoms of Anxiety:A Randomized Controlled Study), Games for Health Journal, Vol.3, No.5, 291-295.

35. Granic I, Lobel A, Engels RC (2014). The Benefits of Playing Video Games. American Psychological Association Vol. 69, No. 1, 66 –78 DOI: 10.1037/a0034857

36. Alves MLM, et al.(2018). Nintendo Wii™ Versus Xbox Kinect™ for Assisting People With Parkinson's Disease Percept Mot Skills". Percept Mot Skills.,125(3):546-565. doi: 10.1177/0031512518769204.

37. Park DS, et al. (2017)." Effects of Virtual Reality Training using Xbox Kinect on Motor Function in Stroke Survivors: A Preliminary Study" J Stroke Cerebrovasc Dis., 26(10):2313-2319.