ORİJİNAL ARAŞTIRMA ORIGINAL RESEARCH

Effect of Health Education on Healthy Lifestyle Behavior

Sağlık Eğitiminin Sağlıklı Yaşam Biçimi Davranışına Etkisi

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ABSTRACT Objective: In this study, we aimed to investigate whether "Health and Life" course improved the university students' healthy lifestyle behavior or not and to determine the most preferred educational method used during the course. **Material and Methods:** The research design was based on the principle of single group pretest-posttest pattern. The participants were 47 students who had attended "Health and Life" course in Izmir University of Economics at Fall semester of 2014-2015 educational year. Students completed a questionnaire, containing the Healthy Lifestyle Behavior-II Scale (HLSB-II) as well as additional questions about health behavior (11 items) and educational methods, in the first week of the course (pretest) and before the final exam (posttest). **Results:** The internal consistency coefficient consulted for the analysis of the HLSB-II scale reliability was determined as Crohnbach α: 0.93. Mean pretest scale score was 136.79±17.80, and posttest was 148.34±20.89. The difference between pretest and posttest was statistically significant by paired samples t-test ($p<0.05$). The highest mean score for the subcategories of the scale that contribute to the development of healthy lifestyle, was interpersonal relations (28.23±3.95/28.98±4.13), whereas the lowest mean score was physical activity (18.81±4.88/21.63±4.77). The "collaborative learning method-small group discussion after presentation" was found more useful educational method (41.3%) than the other methods as interactive method-question-answer (26.1%), lecturing (21.7%) and flipped classroom (10.9%). **Conclusion:** Education should be organized to improve the university students' understanding of three components of health and their lifestyle behavior, and small group discussions with the enhanced cooperative learning methods would be preferred.

Key Words: Education; health attitude; behavior; lifestyle

ÖZET Amaç: Bu çalışmada çeşitli eğitim yöntemlerinin uygulandığı "sağlık ve yaşam" dersinin öğrencilerin sağlıklı yaşam biçimi davranışlarını geliştirmeye etkisinin olup olmadığının araştırılması ve en çok tercih edilen eğitim yönteminin belirlenmesi amaçlanmıştır. **Gereç ve Yöntemler:** Araştırmamız tek grup öntest-sontest dizaynındadır. Çalışmanın evrenini 2014-2015 eğitim yılı güz dönemi "Sağlık ve Yaşam" dersine devam eden öğrenciler (n: 47 kişi) oluşturmuştur. Öğrencilere Sağlıklı Yaşam Biçimi Davranış (SYBD) Ölçeği-II yanında sosyo-demografik özellikler, sağlıklı yaşam biçimi davranışlarını etkilediği düşünülen bazı faktörlerin değerlendirilmesi ile ilgili sorular (11 madde) ile derste uygulanan farklı eğitim yöntemlerine yönelik soruları içeren anket formu eğitimin başladığı ilk hafta (öntest) ve final sınavı (sontest) öncesinde uygulanmıştır. **Bulgular:** SYBD-II Ölçeği Crohnbach alfa değeri 0,93 olarak bulunmuştur. Öğrencilerin eğitim başında SYBD Ölçeği-II genel ortalaması 136,79±17,80 puan iken, yarıyıl sonunda 148,34±20,89 olarak saptanmıştır. Eğitim öncesi ve sonrası sonuçları arasındaki fark eşleştirilmiş t-testi sonucuna göre anlamlı bulunmuştur ($p<0,05$). Sağlıklı yaşam tarzının geliştirilmesine katkıda bulunan davranışlar içerisinde en yüksek puan ortalamaları ölçeğin kişilerarası ilişkiler (28,23±3,95/28,98±4,13) alt boyutunda, en düşük ortalama ise fiziksel aktivite alt boyutunda (18,81±4,88/21,63±4,77) saptanmıştır. "İşbirlikli öğrenme yöntemleri-sunum ardından yapılan küçük grup tartışması" (%41,3) diğer eğitim yöntemlerinden (soru cevap %26,1, ders anlatma %21,7, tersine sınıf %10,9) daha yararlı bulunmuştur. **Sonuç:** Üniversite öğrencilerinin sağlığın üç bileşeninin önemini kavramaları ve sağlıklı yaşam biçimi davranışlarını geliştirmeleri için küçük grup tartışmaları ile zenginleştirilmiş işbirlikli öğrenme yöntemlerinin kullanıldığı eğitimler yapılabilir.

Anahtar Kelimeler: Eğitim; sağlık tutumu; davranış; yaşam biçimi

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Pursuant to the definition of the World Health Organization (WHO), health is the complete physical, mental and social well-being. The concept "improvement of health", the process of enhancing health levels, where individuals increase their control over the components of their own health, is defined in the WHO Bangkok Declaration (1993) as a branch of art and science which assists individuals to change their life styles in order to enable them to progress towards their optimal health status.

Health protection and improvement has long been considered as being the responsibility of the health profession, but later awareness grew that human health embraces not only physical health, but emotional and social health, which are known as components of health and is closely dependent on lifestyle. Healthy lifestyle is defined as the ability to control behaviors which may affect individuals' health, and to select behaviors which suit their own health conditions when planning their daily activities.[1]

For continuous development of an individual, awareness of self-health care is very important. University students are expected to be society's intellectual members, therefore it is important to increase their knowledge on keeping their health and developing a healthy lifestyle behavior. Individuals learn health risks, and how to protect themselves, but usually they are about the physical component not the whole. Learning begins with realizing the right behavior but there is a difference between saying and doing. People must change their daily life and behaviors to develop a healthy lifestyle, this is not so easy and needs real belief. Education can increase awareness of the three components of health (physical, mental, social) and improve healthy life behaviors.[2]

Educators and educational researches are questioning the effectiveness of entirely lecture-based methods recently. Despite innovations in technology and alternative methods referred by pedagogues, lecturing is still the primary educational method for teaching adults. Teachers have been understood that teaching is not only transferring information. If the aim of education is to engender understanding, educators should move from surface learning towards deep learning which needs to develop active and constructive processes. To achieve this goal, educators should head towards learner centered paradigm instead of teacher centered paradigm.[3]

Educational methods that can be applied in the classroom are diverse. These methods can be classified as classical method, interactive method, and active method. In the classical method students are totally passive. Lecturing is an example of classical method. In the interactive methods students are asked to participate the learning process. Question-Answer in class is an example of interactive method. Flipped classroom is an example of active learning method. In this method students are asked to study about the given topic from videos or textbooks as homework, when they come to the classroom they study in small groups to solve problems, cases or questions to foster deep learning.[3]

Izmir University of Economics prepared a course named "Health and Life", aimed to give students a different viewpoint on health issues, such as seeing health components as a whole, and taking personal responsibility. University students are important for society because of their potential to occupy higher statuses, and become role models. If each individual takes responsibility for healthy lifestyle behavior from early ages, they would affect their social networks (family, friends etc.) positively as role models and add a drop of improvement of public health.[4,5.]

In this study it is aimed to determine the effect of "Health and Life" course on healthy lifestyle behaviors of students, and to find out the most preferred educational method used in this course.

MATERIAL AND METHODS

The research design was based on the principle of single group pretest-posttest pattern with intra-group experimental set-up, pre-experimental model. The research sample comprises of 47 students taking the "Health and Life" course and volunteered to enter the study, in the fall semester of the 2014-15 academic year at Izmir University of

Economics. One student refused to join the study and didn't fill the questionnaire. The students were coming from various faculties other than health sciences. The 3 hours per week course continued for 16 weeks. Topics included physical health (physical activity, nutrition, protection against infections, habits, addiction, individual protection), emotional health (self-knowledge, emotional intelligence, overcoming stress) and social health (community health, occupational health, environmental health). The topics were given by four different educational methods. These methods were; classical method; lecturing", "interactive method; participating by asking questions", "active method; collaborative learning (discussion in small groups after giving initial information about the topic)" and "active method; flipped classroom (group discussion in the classroom after working on the topic outside class)".

The method applied for data collection was a questionnaire including Healthy Life Style Behavior Scale-II, which was developed by Walker, Sechrist and Pender (1987), and was revised in 1996[6,7], and questions about their daily life habits. The scale measures health-improving behaviors in relation to individual's healthy life style.[7] The study regarding the validity and reliability of the HLSB-II scale was performed.[6] Other questions were regarding smoking habits, daily water consumption and sleeping habits which were considered as healthy lifestyle behavior. Furthermore, one question was related to the effectiveness of the methods used during the education process.

The scale was comprised of 52 items and six sub-scales. Sub-scales were health responsibility, physical activity, nutrition, moral development, interpersonal relations and stress management. The scale was scored with the following rating: never (1), occasionally (2), frequently (3) and regularly (4). The lowest and highest possible scores were 52 and 208 respectively.[7]

In the study, the internal consistency coefficient consulted for the analysis of the Turkish form of HLSB-II scale reliability was determined as α: 0.93.

The data analysis performed using PASW statistics for Windows (SPSS, Inc. IBM) version 21.0. Statistical significance criterion was adopted as p=0.05. Independent variable was education and dependent variables were HLSB scores and habit changes. The results of HLSB scores were analyzed by Shapiro-Wilk test and it was determined as normal distributed. So, the statistical significance between pre and posttest scores were analyzed by parametric paired samples t-test, and between two groups were analyzed by students' t test. The mean and standard deviation was analyzed by frequency, the relation between parameters were analyzed by correlation.

The scope of this study is restricted to data from students studying in the fall semester of the academic year 2014/2015 at Izmir University of Economics.

RESULTS

The HLSB-II scale pretest average point of the students was determined as 136.79±17.80, and the posttest average point was determined as 148.34±20.89. This difference has been found to be significant ($p<0.05$).

Table 1 shows the results of the students HLSB-II and sub-scale points. It was determined that the differences between pretest and posttest points in all sub-scales (health responsibility, physical activity, nutrition, moral development, interpersonal relations and stress management) are statistically significant ($p<0.05$).

Table 2 shows the results about smoking habit. The percentage of non-smokers was 74.4% in the initial application, falling to 72.3% in the final application. In this study, no significant difference was determined between the sub-scale point averages of the smoking and non-smoking students, but the number of students "*believing that it is important to give up smoking as soon as possible"* increased in the posttest.

Table 3 shows the status in accordance with the pretest and posttest results of the water-drinking habits. In the study no significant correlation was determined between the water-drinking habits of the students and the sub-scales.

TABLE 1: HLSB-II and sub-scale scores.

	Pretest (Mean±SD) (min.-max.)	Posttest (Mean±SD) (min.-max.)
Health responsibility	20.40±4.23 (14-32)	23.79±4.75 (14-36)*
Physical activity	18.81±4.88 (9-29)	21.63±4.77 (10-32)*
Nutrition	21.40±3.81 (13-32)	23.83±4.31(13-35)*
Moral development	27.37±4.36 (16-36)	28.09±4.71(16-36)*
Interpersonal relations	28.23±3.95 (18-35)	28.98±4.13 (18-36)*
Stress management	20.58±3.28 (13-27)	22.02±4.1 (12-30)*
Total score	136.79±17.80 (98-186)	148.34±20.89 (99-198) *

* p<0.05.

TABLE 2: Change of smoking habit.

	Pretest (%)	Posttest (%)
1-9 cigarettes	11.6	14.9
10-20 cigarettes	9.3	12.8
More than 20 cigarettes	4.7	0
Not smoking	74.4	72.3
Total	100	100

Table 4 shows the pretest and posttest results of the daily sleeping habits. In the study no significant relation was determined between the daily sleeping habits of the students and the sub-scales.

Table 5 shows the pretest and posttest results of environmental protection behavior. Those agreeing with the propositions "*we are responsible for making our environment more livable", "I make effort to prevent the environmental pollution"* and *"I consume and save electricity and water considering the limited resources"* were increased significantly in the posttest.

In regard to the answers given to the final question about opinions regarding the used educational methods; students reported that "discussing in small groups after presentation" was the most useful technique. It is followed by "participating by asking questions", "only presentation (lecturing)", and, "group discussion in the classroom after working on the topic outside class (flipped classroom)" respectively. The results are shown in Table 6.

DISCUSSION

The total point average of healthy lifestyle behavior in previous studies are as follows: Zaybak and Fadıloğlu (2004) for university students 121.21, for

TABLE 3: Change of water-drinking habit.

	Pretest (%)	Posttest (%)
Up to 5 glasses	48.8	41.3
5-10 glasses	34.9	45.7
10-15 glasses	7	8.7
Over 15 glasses	9.3	4.3
Total	100	100

TABLE 4: Change of daily sleeping habit.

Sleeping hours	Pretest (%)	Posttest (%)
Up to 6 hours	25.6	15.2
6-8 hours	69.8	60.9
8-10 hours	4.7	23.9
Over 10 hours	0	0
Total	100	100

TABLE 5: Change of environmental protection behaviour.

The propositions	Pretest	Posttest
"we are responsible for making our environment more livable"	60.5%	76.6%
"I make effort to prevent the environmental pollution"	53.0%	68.1%
"I consume and save electricity and water considering the limited resources"	39.5%	59.6%

TABLE 6: Students opinions about the efficiency of the educational methods used in the course.

The educational methods	%
"discussing in small groups after presentation"	41.3
"participating by asking questions"	26.1
"only presentation (lecturing)"	21.7
"group discussion in the classroom after working on the topic outside class (flipped classroom)".	10.9

vocational school social programs 125.34±23.95.[8] In the study by Al-Kandari and Vidal (2007) at Kuwait nursing students the average point was found as 128.16 and in a study by Hawks, Madanat, Merill, Goudy, Miyagwa (2002) in the USA with Japanese nursing students an average of 125.76 was found.[9,10] In our study, the HLSB-II scale average points were higher than previous studies on university students; however, the results represent only a medium level of healthy lifestyle behavior, highlighting the need for further education in this area. The higher results of the students may be related to the high sociocultural level of the students and the interest of them, because this was an elective course.

The difference in our studies between the average of the pretest points and posttest points of all subscales of the HLSB-II has been found to be statistically significant ($p<0.05$). The most prominent change was in health responsibility subscale (from 20.40±4.23 to 23.79±4.75). In the studies of Cihangiroğlu, the average points of subscales of moral development, health responsibility and interpersonal relations were found to be high, in contrast to the average for physical activity habit.[11] In similar studies there is much variation in the groups in which the highest averages are obtained.[12, 13] In our study the highest averages were obtained in the subscales of interpersonal relations and moral development, and the lowest points in the subscale of physical activity. Considering the difference in the number of items included in the physical activity subscale, it can be understood that the point average is distinctively lower compared to the other subscales. There is therefore a need to motivate youth to increase their engagement in physical activity.

In the study of Cihangiroğlu (2011), average points in the HLSB-II and nutrition habit for smokers were found to be lower than for non-smokers ($p<0.05$).[11] Ayaz et al. (2005) determined that the nutrition subgroup points for non-smokers and former smokers is higher compared to smokers.[12] In another study on university students, no significant difference was found between students' HLSB and their cigarette consumption.[14]

In this study, no significant difference was found between the subscale average points of smoking and non-smoking students; therefore, smoking is not a significant determinant of overall attitudes to healthy lifestyle behavior. In this study, the rate of non-smoking students was particularly high, and there was a fall in the number of students smoking more than one pack daily subsequent to the course. Further, there was a rise in the number considering that it is necessary to give up.

The importance of water for a healthy life is indisputable. It changes depending on the life style and lived environment, and it is recommended to consume an average of 2-3 liters daily.[2] During our study, water consumption habits changed, the number drinking over 15 glasses and a maximum of 5 glasses reduced, while the number of drinking 5-15 glasses showed a significant increase. In the study, no significant statistical relations were found between water-drinking habits and the subscales.

The duration, time and quality of sleep are important for a healthy life. In the short term insufficient sleep causes many health problems i.e. fatigue, irritability and lack of focus, while long term deprivation leads to chronical diseases such as diabetes, hypertension, obesity, and may lead to shorter life expectancy. In the study of Aksoy and Uçar (2014), it was determined for the students that the HLSB-II median points increase in parallel to the reduction in the sleep duration.[13] Aksoy and Uçar (2014) consider that while 6-8 hour sleep is considered normal for young adults, the quality of the sleep is much more important than duration; in addition; they considered that those with shorter duration allocate more time for life activities, and consequently, their scale average points are higher.[13] Nonetheless, further studies have found no evidence of a relation between the scale median points and sleep duration, and the time at which sleep begins.[13] While in our study sleeping habit results showed that sleeping habits have moved towards expected durations. In the study, high responsibility subscale points were found for those up to 6 hours, and between 6-8 hours. No significant relation was determined in the other subscales.

Also the lived environment is important for a healthy life, and this was included as a component of the course. The posttest evaluation showed an improved awareness of the need to prevent pollution and to use energy sources responsibly. This finding shows that it is possible to develop an integrated approach to health through education. In accordance with these results, it is contemplated that establishing and implementing health-related education programs will improve students' healthy lifestyle behaviors. [15.]

During the Health and Life course, four educational methods were applied: lecturing, participating by asking questions, collaborative learning (discussion in small groups after giving initial information about the topic) and flipped classroom (group discussion in the classroom after working on the topic outside class). At the end of the semester, students reported that they mostly preferred the collaborative learning method (discussion with small groups after giving information about the topic), which ensured their active participation and cooperative learning. In this method, the information given at the beginning reduces the workload of the student, and the following small group study motivates them to utilize the information. In the flipped classroom method, students were requested to make a preliminary study of the sources provided, and they were expected to discuss the subject and to answer questions in small groups in the classroom. Thereafter, they presented their conclusions to the whole class. This method was less popular, perhaps because they were unaccustomed to this method or because they were resistant to mandatory study prior to the class. It was expected that students show initial resistance to student-centered education methods, which requires them to assume greater levels of responsibility.[16]

In accordance with these results, it is contemplated that establishing and implementing health-related education programs will improve students' healthy lifestyle behaviors.

CONCLUSION

This study has the potential to a guide of establishment of health development programs aiming improvement of university students' health.

In accordance with these results, we recommend the following steps to encourage students to adopt a healthy lifestyle:

- Integrating health-related educational activities into the curriculum,
- Determining by means of scientific studies, whether the provided education has beneficial effects on behaviour and habits, and making further efforts to support the adaption of changes if necessary,
- Developing educational and awareness-raising politics, not only in education institutions, but also for the general public,
- Determining personal and environmental negativities, and making the required improvements in order to minimize these,
- Increasing student's responsibility to converting knowledge about healthy lifestyles into behaviour and attitude.
- Implementing active learning methods into curriculum may be useful.
- The effectiveness of active learning methods in changing behaviour solely and how to deal with the resistance of the students in studying out of class can be investigated in future.

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