Vizyoner Dergisi

Süleyman Demirel Üniversitesi Vizyoner Dergisi, Yıl: 2025, Cilt: 16, Sayı: 45, 53-68.
Süleyman Demirel University Visionary Journal, Year: 2025, Volume: 16, No: 45, 53-68.

ISSN: 1308-9552

ARAŞTIRMA MAKALESİ / RESEARCH ARTICLE

HEALTHY LIFESTYLE SCALE (HELIS): A SCALE DEVELOPMENT RESEARCH*

SAĞLIKLI HAYAT TARZI ÖLÇEĞİ (SHTÖ): BİR ÖLÇEK GELİŞTİRME ARAŞTIRMASI

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ABSTRACT

The purpose of the study is to create a viable and trustworthy instrument for evaluating people's attitudes and actions on leading healthy lives. This methodological and psychometric study is conducted with 760 individuals who agreed to participate in the survey in the province of Yozgat. In the scale development process, an item pool is created with 74 items. After content validity, the number of items is reduced to 43. Psychometric properties and analyses of the scale (item analysis, exploratory factor analysis, confirmatory factor analysis, convergent and divergent validity statistics, Cronbach Alpha internal consistency coefficient, dependent sample t-test, and intraclass correlation) are used. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) are conducted in separate samples. The Cronbach Alpha value of the scale iss 0.960, which is above the accepted limit. In the four-factor structure, 68.40% of the total variance is explained. In EFA, factor loadings for 34 items are between 0.621 and 0.937. After CFA, it is determined that the scale consisted of 32 items and four sub-dimensions. The results of the study show that HELIS is a valid and reliable scale that can be used to assess attitudes and behaviors related to healthy living in adult individuals.

Keywords: Health, Healthy Life, Healthy Lifestyle, Validity and Reliability.

JEL Classification Codes: I10, I15, I18, I19.

ÖZ

Bu araştırmada, bireylerin sağlıklı hayat tarzına yönelik tutum ve davranışlarını değerlendirmek için geçerli ve güvenilir bir aracın geliştirilmesi amaçlamıştır. Metodolojik ve psikometrik olan bu araştırma, Yozgat'ta çalışmaya katılmayı kabul eden 760 bireyle gerçekleştirilmiştir. Ölçek geliştirme sürecinde araştırmacı tarafından 74 maddeden oluşan bir madde havuzu oluşturmuştur. Kapsam geçerliliğinin ardından madde sayısı 43'e indirgenmiştir. Ölçeğin psikometrik özellikleri ve analizleri için (madde analizi, açımlayıcı faktör analizi, doğrulayıcı faktör analizi, yakınsak ve ıraksak geçerlilik istatistikleri, Cronbach Alpha iç tutarlılık katsayısı, bağımlı örneklem t-testi ve sınıf içi korelasyon) kullanılmıştır. Açımlayıcı Faktör Analizi (AFA) ve Doğrulayıcı Faktör Analizi (DFA) ayrı örneklemlerde gerçekleştirilmiştir. Ölçeğin Cronbach Alpha değeri 0,960 olup kabul edilen sınırın üzerindedir. Dört faktörlü yapıda toplam varyansın %68,40'ı açıklanmıştır. AFA'da 34 madde için faktör yükleri 0,621 ile 0,937 arasındadır. DFA sonrasında ölçeğin 32 madde ve dört alt boyuttan oluştuğu belirlenmiştir. Araştırma sonuçları SHTÖ'nün, yetişkin bireylerde sağlıklı hayat ile ilgili tutum ve davranışları değerlendirmede kullanılabilecek geçerli ve güvenilir bir ölçek olduğunu göstermektedir.

Anahtar Kelimeler: Sağlık, Sağlıklı Hayat, Sağlıklı Hayat Tarzı, Geçerlik ve Güvenirlik.

JEL Sınıflandırma Kodları: I10, I15, I18, I19.

* For the study the approval of ethical committee no 146823 dated 20.06.2023 was taken from the Ethical Committee, Yozgat Bozok University.

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Makale Geliş Tarihi / Received : 13.06.2024
Makale Kabul Tarihi / Accepted : 27.12.2024

https://doi.org/10.21076/vizyoner.1496574

Süleyman Demirel Üniversitesi Vizyoner Dergisi, Yıl: 2025, Cilt: 16, Sayı: 45, 53-68.
Süleyman Demirel University Visionary Journal, Year: 2025, Volume: 16, No: 45, 53-68.
ISSN: 1308-9552

GENİŞLETİLMİŞ ÖZET

Amaç ve Kapsam:

Sağlık, insan yetişkinliğinin en önemli bileşenlerinden biridir ve bireyin hakkı, kişisel gelişimin, kişisel ve kamusal hayata aktif katılımın garantisidir (Ismailovna, 2022, s. 252). Sağlığın, kişinin nasıl yaşadığı ne yediği ne işle meşgul olduğu, işte ve sosyal yaşamında kendisi için nezih ve rahat bir yaşam tarzını nasıl organize edebileceği ile doğrudan ilişkili olduğu söylenebilir. Sağlık, aynı zamanda uzun bir yaşamın da garantisidir. Sağlıklı bir hayat tarzı, her insanın ruhsal, zihinsel, manevi ve fiziksel niteliklere sahip olmaya çalışması anlamına gelmektedir (Abdullayeva, 2023, s. 43). Alan yazında yapılan incelemelerde sağlıklı hayat konusunu farklı örneklemlerde ele alan örneğin; adölesanlar (Kudubeş ve Bektaş, 2020, s. 6), ebeveyneler (Karagöz ve Ilıman, 2019, s. 60), gebeler (Yılmaz ve Karahan, 2019, s. 511-512) ve öğrenciler (Bahar vd., 2008, s. 6-7) üzerinde duran ölçme araçlarına rastlanılmış ancak bireylerin sağlıklı hayat tarzlarını bütüncül bir şekilde ele alan bir ölçme aracına rastlanılmamıştır. Bu da araştırmanın özgün yanını ortaya koymaktadır. Bu araştırmanın getireceği en önemli katkı bireylerin sağlıklı hayat tarzlarının belirlenmesi ile alan yazına geçerli, güvenilir bir sağlıklı hayat tarzı ölçeği kazandırmaktır. Araştırmanın bir diğer amacı ise alan yazında var olan ölçeklere kıyasla daha az soru maddeli ve standart yapıda bir ölçme aracı elde etmek ve böylece farklı değişkenler ile ölçeğin araştırmacılar tarafından kullanımını sağlamaktır.

Yöntem:

Araştırma metodolojik tasarım tipindedir. Araştırmanın kuramsal evreni Türkiye'de İç Anadolu Bölgesi'nde yaşayan, çalışma evreni ise belirlenen araştırma ölçütlerine uyan ve ulaşılan bireylerdir. Araştırmanın evrenini çalışmaya alınma ölçütlerine uyan Yozgat merkezindeki 18 yaş ve üzeri bireyler oluşturmaktadır. Araştırmanın örnekleminin belirlenmesinde ise, kolayda örnekleme tercih edilmiştir. Yozgat merkezin toplamda 109.197 (TÜİK, 2022) nüfusu bulunmaktadır. Örnekleme alınma ölçütleri; 18 yaş ve üzeri araştırmaya katılmaya gönüllü olma şeklinde belirlenmiştir. Araştırma, katılmayı kabul eden 760 birey ile yapılmıştır. Alan yazında, ölçek geliştirme, geçerlilik ve güvenirlik araştırmalarında madde sayısının 5 ile 10 katı örneklem büyüklüğünde çalışılan örnekler olduğu belirtilmektedir (Watkins, 2018, s. 223) Bu çalışmada taslak ölçek madde sayısı 43'dür. Veriler 01.07.2023-31.12.2023 tarihleri arasında araştırmacının çevresinde irtibatta olduğu kişilerden çevrimiçi anket kullanılarak Google.doc, WhatsApp ve sosyal medya yardımıyla toplanmıştır. Ayrıca araştırmacıların online olarak anketi ulaştırdığı kişilerden yine çevreleri ile paylaşmaları ve katılımcıların gizliliğini korumak için anketi isimsiz olarak doldurmaları istenmiştir.

Bulgular:

Çalışmaya dahil olan bireylerin %55,7'sinin kadın, %71,6'sının evli, %44,1'inin 31-40 yaş aralığında ve %61,5'inin üniversite mezunu, %72,8'inin bir kamu kurumunda çalıştığı, %37,5'inin "Düzenli spor yapıyor musunuz?" ifadesine "bazen" yanıtını verdiği, %51,4'ünün düzenli beslendiği, %84,1'inin kronik bir hastalığı olmadığı ve %62,4'ünün sağlığını genel anlamda iyi olarak değerlendirdiği tespit edilmiştir (Tablo 1). Kapsam ve içerik eş değerliliği için, hazırlanan Türkçe form araştırmacı dışında ölçek geliştirme, geçerlilik ve güvenirlik üzerine deneyimi olan 14 uzman akademisyen tarafından değerlendirilmiştir. Lawshe tekniği (1975, s. 570) ile kapsam geçerlik indeks (KGİ) değeri 0,92'dir. Ölçek maddelerine yönelik KGİ değeri 0,85 ile 1,00 arasında değişmektedir (Tablo 2). Ölçek maddelerinin niteliğini ve ayırt ediciliğini belirlemek için madde analizi yapılmıştır. 34 maddelik SAHTÖ ölçeğindeki maddelerin düzeltilmiş madde-toplam korelasyon katsayıları r>30'dur (Tablo 2, Şekil 2). Yapı geçerliliği için öncelikle AFA (temel bileşen analizi/varimax rotasyonu) uygulanmıştır. Ölçekte madde faktör yükleri 0,50'nin altında kalan 9 madde analiz dışı bırakılmıştır. Ölçeğin Kaiser-Mayer- Olkin (KMO) testi ve Bartlett küresellik testi yapılmıştır. KMO değeri 0,90 ve küresellik testi sonucu yaklaşık Ki-kare test değeri 11063,812 (df = 561, p< ,001) olarak bulunmuştur. Ölçek madde faktör yük değerleri 0,621 ile 0,937 arasında değişmektedir ve ölçek maddeleri için öz değer katsayısı 1'in üzerinde olan ve toplam varyansın %68,40'ını açıklayan dört faktör altında toplanmıştır. Yakınsak geçerlilik istatistiklerinde birleşik güvenirlik [composite reliability (CR)] CR>70 ve ortalama açıklanan varyans [averege virance extracted (AVE)] CR>AVE'dir. Iraksak geçerlilik için maksimum paylaşılan varyansın karesi [maximum squared variance (MSV)], paylaşılan varyansın karesinin ortalaması [average shared squared variance (ASV)] ASV<AVE'dir. Ayrıca güvenirlik hesaplanmasında maximum güvenirlik (maximal reliability) düzeyi katsayısını belirten MaxR(H)>70'dir (Tablo 4). Bununla ilgili bir diğer önemli bulgu da (MaxR(H)>CR'dir (Tablo 4). Bu araştırma için ölçek güvenirlik katsayısı iki ayrı örneklem için ayrı ayrı hesaplanmıştır. AFA soncunda birinci örneklem için ölçek geneli 0,920 iken ikinci örneklem için DFA sonucu 0,960'dır (Tablo 5). Ölçeğin kararlılığı test-tekrar test yöntemi ile değerlendirilmiş ve sınıf içi korelasyon katsayısı [intraclass correletion coefficients (ICC)] hesaplanmıştır. SHTÖ'nün ortalama ölçüm ICC'si 0,907 olup güven aralığı [confidence interval (CI)] 0,836 ile 0,947 arasındadır (F = 10,744, p < 0,001).

Sonuç ve Tartışma:

Bu araştırmanın amacı Sağlıklı Hayat Tarzı ölçeğinin geliştirilmesi, psikometrik özelliklerinin test edilmesi ve bireylerde SHTÖ'yü etkileyen faktörlerin değerlendirilmesidir. Çalışmada araştırmacı tarafından geliştirilen SHTÖ'nün geçerliliği ve güvenirliği sağlanmış olup, toplamda 32 madde ve Spor Aktivitesi, Sağlığı Koruma ve Geliştirme, Sağlık ve Beslenme ve Kişilerarası İlişkiler, Maneviyat ve Stres Yönetimi olmak üzere dört alt boyuttan oluşmaktadır. Kavramsal olarak bu araştırma, alan yazına ve bu yönde çalışma yapmak isteyen araştırmacılara bireylerin sağlıklı hayat tarzı tutum, davranış ve algılarına ilişkin düzeylerinin belirlenmesinde katkı sağlayacağı düşünülmektedir.

1. INTRODUCTION

Health is one of the essential components of human adulthood and the individual's right, a guarantee of personal development active participation in private and public life (Ismailovna, 2022, p. 252). A person's lifestyle, including what they eat, how active they are, and how well-organized their social and professional lives are, all have a direct impact on their health. A long life is also assured by good health. Everybody attempts to have spiritual, mental, physical, and spiritual traits in order to lead a healthy lifestyle (Abdullayeva, 2023, p. 43).

Living a healthy lifestyle lowers the chance of developing a major illness or passing away too soon. A healthy lifestyle is also a set of health-promoting behaviours. Activities including "exercise, nutrition, regular living, health responsibilities, interpersonal relationships, adequate sleep, hygiene, stress management and avoiding bad habits" are among the most well-known components of a healthy lifestyle and are considered measurable dimensions (Menakaya & Menakaya, 2022, p. 1; Mei et al., 2023, p. 2; Bal et al., 2022, p. 12). For people who are under medical supervision, maintaining a healthy lifestyle is very important. Early adoption of a healthy lifestyle will lower the incidence of disease and its consequences over time (Zehravi et al., 2022, p. 60). A healthy lifestyle is seen as an essential factor in health, creates physical and mental comfort, activates the immune system of individuals, strengthens the general health status and provides protection from chronic diseases and disease incidence (Bal et al., 2022, p. 12).

Cocerham, one of the theorists interested in healthy lifestyle, argues that a person's preferences for a healthy lifestyle are influenced by his/her social position. These inclinations result from his or her position and structural standing. Due to its advantages, healthy lifestyle is one of the new lifestyle niches that has recently attracted the attention of academics and intellectuals. The goal of a healthy lifestyle is to prevent high-risk behaviors and encourage healthy ones. By making changes to mental and behavioral components, one can ensure and improve their health by paying attention to lifestyle and health (Ahmadi, 2020, p. 202).

A healthy lifestyle model also regulates and accelerates the establishment of healthy relationships and exemplary behaviour between people (Rustamovich, 2022, p. 236). Scientists estimate that a healthy lifestyle accounts for 51.6% of human health, genetics accounts for 20.5%, the environment accounts for 19.3%, and the health system accounts for 8.6%. A person can be said to have a healthy lifestyle if they actively exercise or lead an active life in their daily life, take care of their health, organise their eating, working or resting routines correctly, and avoid harmful habits while following hygiene rules (Abdullayeva, 2023, p. 44).

Individual psychology serves as the foundation for the theoretical frameworks employed in this study. Often, a healthy lifestyle is portrayed as a collection of independently constructed behaviours. The elements of a healthy lifestyle are defined independently of each other; the only common feature is the maintenance of health. Hence, lifestyle is characterized in terms of the behavioral patterns that an individual should adhere to. (Brivio et al., 2023, p. 1).

In the examinations conducted in the literature, measurement tools that address the issue of healthy life in different samples, for example, adolescents (Kudubeş & Bektaş, 2020, p. 6), parents (Karagöz & Ilıman, 2019, p. 60), pregnant women (Yılmaz & Karahan, 2019, p. 511-512) and students (Bahar et al., 2008, p. 6-7), but no measurement tool holistically addresses individuals' healthy lifestyles. This reveals the original aspect of the research. The most important contribution of this research is to determine the healthy lifestyles of individuals and to provide a valid and reliable healthy lifestyle scale to the literature. Another aim of the research is to obtain a measurement tool with fewer numbers and a standardized structure compared to the existing scales in the literature and, thus, to ensure the use of the scale by researchers with different variables. The study's methodology aims to create a data gathering instrument for assessing adults over 18's healthy lifestyle choices.

2. METHOD

2.1. Type of Research

The research is of methodological design type.

2.2. Population and Sample of the Research

The theoretical population of the research is the individuals living in the Central Anatolia Region in Turkey, and the study population is the individuals who meet the research criteria and are reached. The study population

comprises individuals aged 18 and over in Yozgat province who meet the inclusion criteria. In determining the sample of the research, convenience sampling was preferred. Yozgat Centre has a total population of 109.197 (TUIK, 2022). The criteria for inclusion in the sample were determined as being 18 years of age and above and volunteering to participate in the study. The research was conducted between July 2023 and December 2023. 760 people who volunteered to engage in the study were involved. The literature states that in scale development, validity, and reliability studies, there are examples of sample sizes 5-10 times the number of scale items (Watkins, 2018, p. 223).

Data collection tools and data collection: During the scale development, the Information Form and HELIS Draft were used to obtain the data related to the study.

Information Form: It consists of 10 questions determined by the researcher considering the purpose of the study. There were items related to defining the characteristics of individuals such as age, gender, marital status, education level, type of institution where they work, regular sports, regular nutrition, whether they have chronic diseases, whether they smoke or not, and evaluating their health in general.

HELIS Draft: The statements in the healthy lifestyle scale are in the form of a seven-point Likert scale ranging from 'always' (7 points) to 'never' (1 point). All of the statements in the scale are positive. There is no reverse item. The 74-item draft scale was reduced to 43 items after content validity and re-evaluation by the researchers. While the scores obtained in the evaluation of the scale show that the scores toward healthy lifestyle decrease as the scores decrease, high scores show that the perception of individuals toward healthy lifestyle increases.

2.3. Research Procedure

The scale items were created, and then the validity and reliability of the scale to assess people's levels of healthy lifestyle were tested. This research was conducted in two phases.

First Stage: Creation of Scale Items

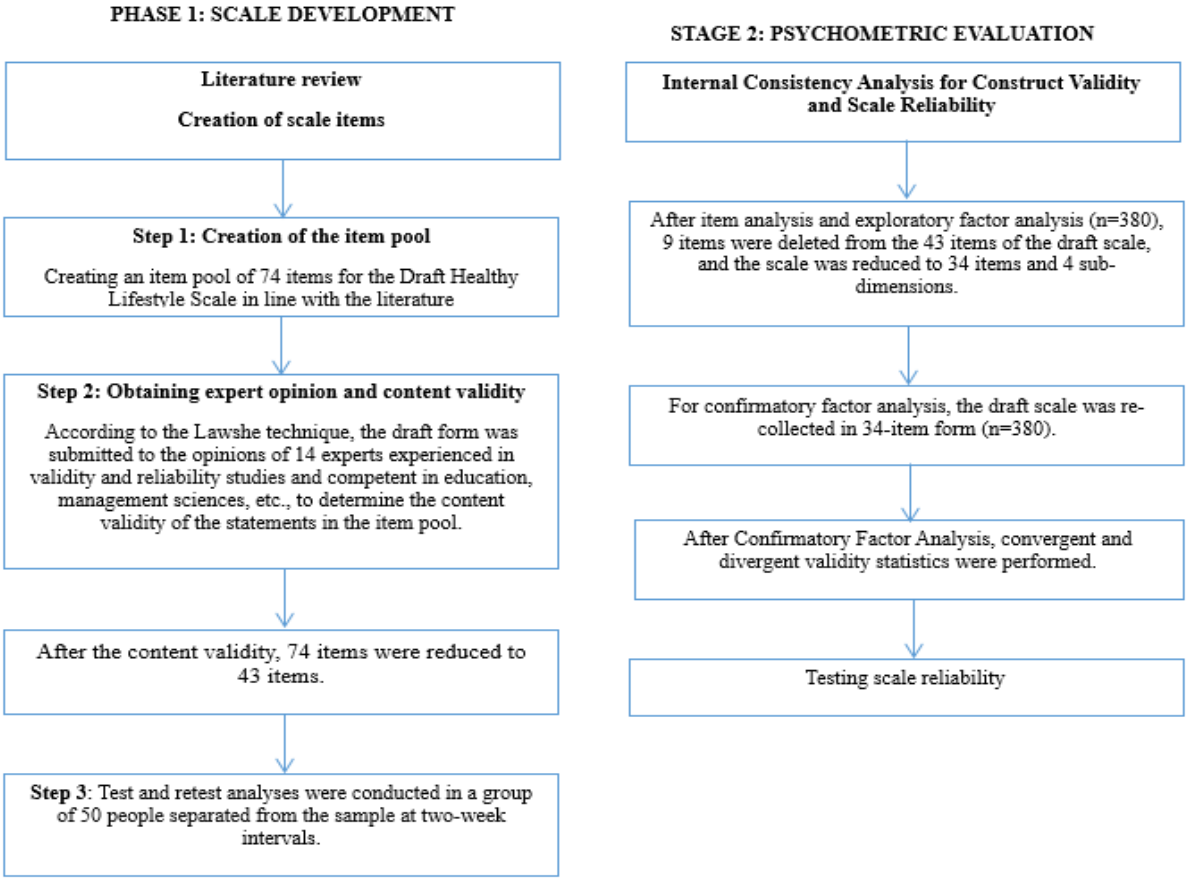
At this stage, scientific publications on the concept of a healthy lifestyle in individuals were analyzed. Based on the studies published on the subject (Bahar et al., 2008; Karagöz & Ilıman, 2019; Bal et al., 2022; Abdullayeva, 2023; Brivio et al., 2023), a pool of 74 items was created for the Draft HELIS. To determine the content validity of the statements in the item pool and whether they represent the area they aim to measure, the draft form was sent to 14 experts who are knowledgeable in the fields of management and health management and have experience with validity and reliability studies. The experts' opinions were then evaluated using Lawshe's (1975, p. 570) technique.

Second Stage: Testing the Validity and Reliability of the Scale

At this stage, 43 items were found sufficient in content validity, and the HELIS Draft was applied. A psychometric evaluation of the forms collected from the individuals was performed. In the psychometric evaluation, firstly, item analysis was performed, and the relationships between the items and the relationship items with the whole scale were analyzed. In the next step, EFA was applied to observe under which groups the scale items were included, which factors occurred in the background, and to determine the factor structure (Watkins, 2018, p. 2019-220). The scale's factor structure was revealed by analyzing the factor loading structures of the items.

For the 43-item form of the Draft Healthy Lifestyle Scale, data were first collected from 380 participants, and EFA was performed. After EFA, the draft scale form was reduced to 34 items. CFA was conducted to test the validity of the draft scale. In the 34-item draft scale, 380 participants were collected for the second time for CFA. After CFA, convergent and divergent validity analyses were applied to the HELIS Draft. Internal consistency analyses were performed for the reliability of the measurements obtained from the sample. Finally, for the time invariance analysis, the scale was administered to a group of 50 participants separated from the sample twice at a two-week interval. The steps followed during the research are shown in Figure 1.

Figure 1. Scale Development Process Flowchart



2.4. Data Collection

The data were collected between 01.07.2023 and 31.12.2023 by using an online questionnaire with the help of social media, Google.doc and WhatsApp. In addition, the people to whom the researcher delivered the questionnaire online were asked to share it with their circles and to fill out the questionnaire anonymously to protect the confidentiality of the participants. In test-retest studies, the minimum sample size is 30 to estimate reliability (Tavşancıl, 2019, p. 19) accurately. At this stage, 50 individuals who agreed to complete the scale twice participated. The scale was administered to these participants via WhatsApp at two-week intervals. In order to maintain their anonymity, the participants were instructed to match the first application with the second at this point by entering a number or pseudonym on the forms. It took ten to fifteen minutes for each participant to finish the data gathering instrument.

2.5. Data Evaluation

AMOS 24 (Scientific Software International, Skokie, IL, USA) and IBM SPSS Statistics Version 26 (IBM Inc., Armonk, NY, USA) were used to analyze the data. The data were analyzed using descriptive statistics (number, age percentage, mean, standard deviation), correlations (Pearson product-moment correlation), and psychometric tests (content validity ratio (CVI), item-total correlation, Kaiser Meyer Olkin [KMO] adequacy measure and Bartlett's test of sphericity, EFA and CFA, internal consistency coefficient, convergent and divergent validity statistics).

The Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's sphericity test were used prior to EFA to determine whether the variables' relationships and the appropriateness of the sampling were appropriate for factor analysis. The following fit indices were used to test the model fit in CFA ($\chi 2$/df= chi-square /degrees of freedom, GFI =

Goodness of Fit Index, AGFI= Adjusted Goodness of Fit Index, NFI=Normalized Fit Index, IFI= Incremenral Fit Index, TLI= Trucker-Lewis Index, CFI= Comparative Fit Index, RMSEA= Root mean square error of approximation, RMR= Root Mean Square of the Mean Square of the Estimation Errors. Then convergent and divergent validity tests were applied (CR= Composite Reliability, AVE= Average Variance Extracted, MSV= Maximum Shared Squared Variance, ASV= Average Shared Squared Variance, (MaxR(H))=Maximal Reliability). To assess the scale's internal consistency, the Cronbach Alpha coefficient was calculated. Using the test-retest method, the temporal stability of the scale was evaluated and the intraclass correlation coefficient (ICC) was calculated.

2.6. Ethical Dimension of the Research

The research was approved by the Social and Human Sciences Ethics Committee at Yozgat Bozok University (Approval date and number: 20.06.2023; Decision No: 04/34). Strengthening the reporting of observational studies in epidemiology (STROBE) principles were followed in this study. The participants were informed that this study was carried out voluntarily, that the research had no damaging features, and that the data obtained would be used anonymously in scientific publications. In the questionnaire application, the purpose of the study was given first, and then the filling tab of the questionnaire was activated. The participants were advised by the researchers that they can decline participation in the study or leave it at any time.

3. FINDINGS

3.1. Participants' Characteristics

It was determined that 55.7% of the individuals were female, 71.6% were married, 44.1% were in the 31-40 age range, 61.5% were university graduates, 72.8% worked in a public institution, 37.5% answered "sometimes" to the statement "Do you exercise regularly?", 51.4% ate regularly, 84.1% did not have a chronic disease, and 62.4% evaluated their health as generally good (Table 1).

Table 1. Socio-Demographic Information of the Individuals

Socio-Demographic Information		n	%
Gender	Female	423	55.7
	Male	337	44.3
Marital Status	Married	544	71.6
	Single	216	28.4
Age	20-30 years	258	33.9
	31-40 years	335	44.1
	41-50 years	132	17.4
	51 Years and Over	35	4.6
Education	Pre-Licence	91	12
	University	467	61.5
	Master's Degree	150	19.7
	PhD	52	6.8
Type of organisation you work for	Public	553	72.8
	Private	60	7.9
	Not Working	147	19.3
Do you do sports regularly?	Never	116	15.3
	Rare	263	34.6
	Sometimes	285	37.5
	Frequently	67	8.8
	Always	29	3.8

Socio-Demographic Information		n	%
Do you eat regularly?	Yes	391	51.4
	No	155	20.4
	Sometimes	214	28.2
Do you have a chronic disease?	Yes	121	15.9
	No	636	84.1
Do you smoke?	Yes	185	24.3
	No	575	75.7
How do you evaluate your health in general?	Poor	13	1.7
	Medium	236	31.1
	Good	474	62.4
	Very Good	37	4.9

3.2. Content Validity

For scope and content equivalence, the prepared Turkish form was evaluated by 14 expert academicians who have experience in scale development, validity and reliability, in addition to the researcher. CVI is 0.92 with the Lawshe (1975, p. 570) technique. The CVI for the scale items ranged between 0.85 and 1.00 (Table 1).

3.3. Item Analysis

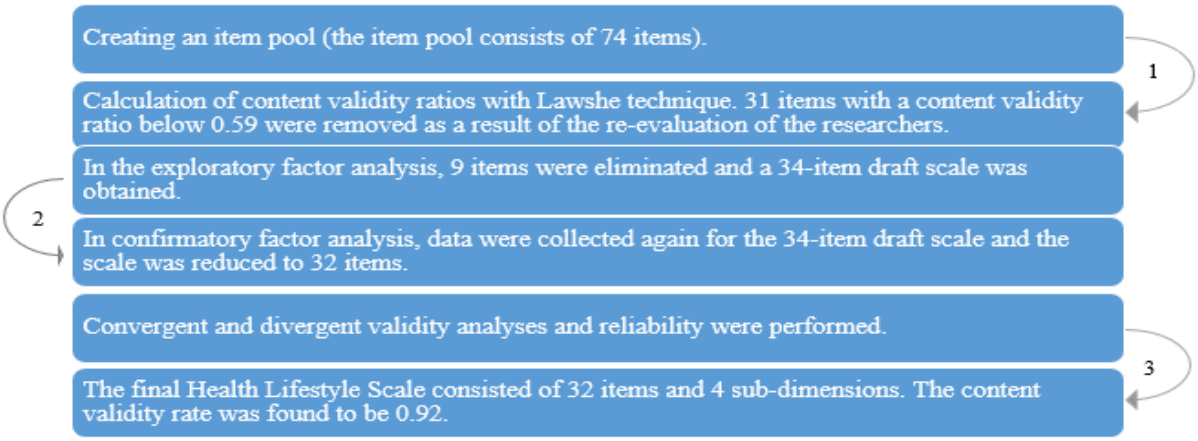
To ascertain the scale items' discrimination and quality, item analysis was done. The adjusted item-total correlation coefficients of the HELIS items in the 34-item scale were r>30 (Table 2; Figure 2).

Table 2. HELIS Item Analysis and EFA Factor Loadings (n=380)

Scale Items	CVI	Corrected Item-Total Correlation	Article Removed Cronbach Alpha Coefficient	Factor 1	Factor 2	Factor 3	Factor 4
HELIS_1	1.00	.677	.932	.621			
HELIS_2	0.85	.704	.931	.663			
HELIS_3	0.92	.850	.917	.877			
HELIS_4	0.92	.905	.911	.937			
HELIS_5	0.85	.873	.914	.834			
HELIS_6	0.92	.822	.919	.782			
HELIS_7	0.85	.694	.931	.659			
HELIS_8	1.00	.670	.938		.682		
HELIS_9	1.00	.704	.939		.737		
HELIS_10	0.85	.811	.930		.850		
HELIS_11	1.00	.885	.926		.921		
HELIS_12	1.00	.797	.931		.820		
HELIS_13	0.92	.834	.929		.871		
HELIS_14	0.85	.707	.937		.705		
HELIS_15	0.92	.681	.938		.678		
HELIS_16	1.00	.884	.926		.909		

Scale Items	CVI	Corrected Item-Total Correlation	Article Removed Cronbach Alpha Coefficient	Factor 1	Factor 2	Factor 3	Factor 4
HELIS_17	1.00	.733	.926			.722	
HELIS_18	0.85	.749	.925			.708	
HELIS_19	0.92	.767	.924			.760	
HELIS_20	0.85	.737	.926			.738	
HELIS_21	0.85	.811	.921			.816	
HELIS_22	1.00	.785	.923			.763	
HELIS_23	0.92	.729	.926			.678	
HELIS_24	0.92	.780	.923			.741	
HELIS_25	1.00	.664	.930			.666	
HELIS_26	0.85	.696	.922				.733
HELIS_27	1.00	.693	.922				.717
HELIS_28	0.85	.768	.918				.776
HELIS_29	0.85	.823	.914				.845
HELIS_30	1.00	.766	.918				.781
HELIS_31	1.00	.652	.925				.656
HELIS_32	0.92	.806	.916				.831
HELIS_33	0.85	.725	.920				.742
HELIS_34	1.00	.707	.922				.701
Self-value				10.375	6.029	4.369	2.484
Variance Explained				30.514	17.735	12.849	7.305
Variance Explained (Overall)				68.400			

Figure 2. Validity and Reliability Process in The Elimination of Scale Items



3.4. Construct Validity

First, to ensure construct validity, EFA (principal component analysis/varimax rotation) was used. Nine items with factor loadings less than 0.50 were removed from the study due to the scale. KMO test and Bartlett's sphericity test of the scale were performed, and KMO value was found to be 0.90 and Approx Chi-Square= 11063.812 (df = 561, p< .001). Scale item factor loadings ranged between 0.621 and 0.937, and the scale items were grouped under four factors with eigenvalue coefficients above 1, explaining 68.40% of the total variance.

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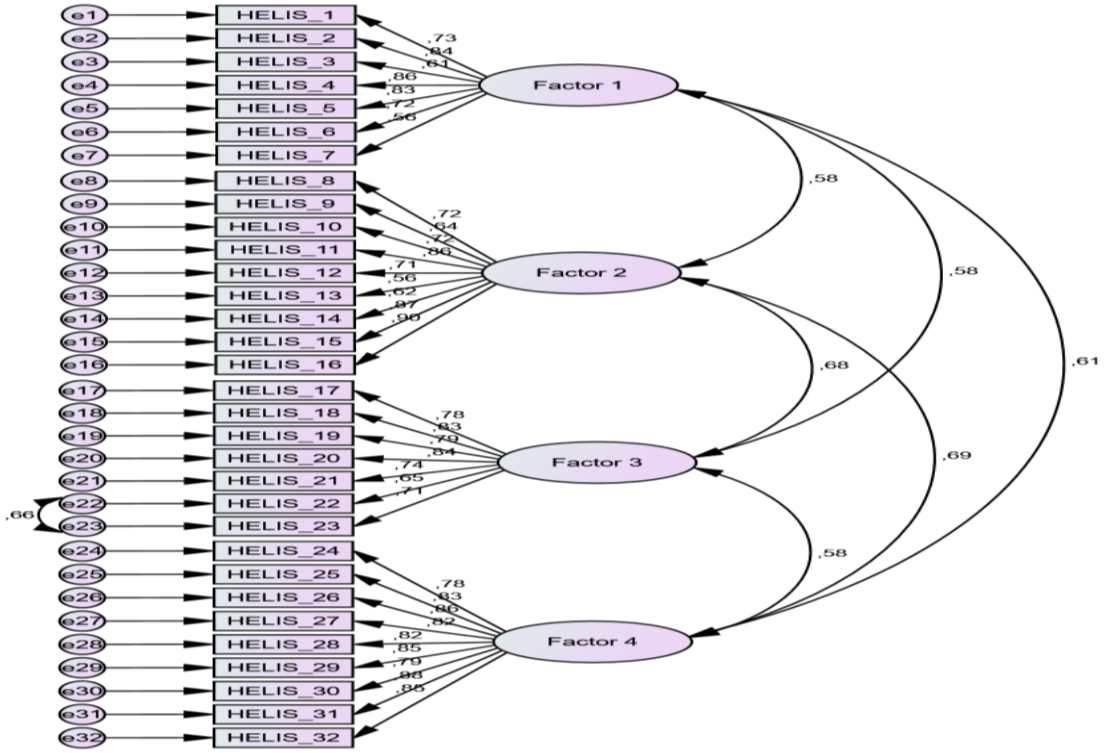
ISSN: 1308-9552

The fit of the scale structure that emerged from EFA was assessed using CFA. The initial measurement revealed that the CFA model fit values were below the level of excellent fit (Measurement I; Table 2). In the scale evaluated in terms of standardized factor loadings before proceeding to the second measurement, 2 items in the Factor 3 dimension with factor loadings below 0.50 were excluded from the analysis, and the second measurement results were obtained (Second Measurement; Table 2). In line with the modification suggestions, error covariance was assigned between e22 and e23 in the Factor 3 dimension (Figure 3).

Figure 3. HELIS CFA Model



Subscale factor loadings were found as Factor 1 > 0.57, Factor 2 > 0.56, Factor 3 > 0.71 and Factor 4 > 0.79 (Figure 1). As a result of the second measurement, the desired fit indices AGFI, IFI, TLI, CFI (>0.95); good fit RMR, RMSEA (<0.080), χ2/df (<5); GFI, NFI (>0.90) values are at acceptable fit level (Table 3).

Table 3. HELIS CFA Test Results and Model Fit Indices (n=380)

Criteria	χ 2 /df	RMR	GFI	AGFI	NFI	IFI	TLI	CFI	RMSEA
Good Fit	≤2	≤.05	≥.95	≥.95	≥.95	≥.95	≥.95	≥.95	≤.05
Acceptable	≤5	≤.08	≥.90	≥.90	≥.90	≥.90	≥.90	≥.90	≤.08
I.Measurement	3.456	.082	.898	.926	.932	.924	.945	.934	.085
II.Measurement	2.160	.072	.926	.956	.940	.955	.963	.954	.065

Convergent and divergent validity statistics are a recommended approach for assessing concept validity. CR>70 and CR>AVE in convergent validity statistics. MSV, ASV<AVE for diverging validity. Furthermore, Table 4 presents another significant finding: MaxR(H)>CR.

Table 4. Convergent and Divergent Validity Statistics (n=380)

Variables	CR	AVE	MSV	ASV	MaxR(H)	ISS	HPP	SA	HN
ISS	0.953	0.694	0.477	0.397	0.955	0.833			
HPP	0.915	0.551	0.477	0.426	0.938	0.691	0.742		
SA	0.895	0.555	0.377	0.349	0.916	0.614	0.581	0.745	
HN	0.906	0.582	0.462	0.377	0.913	0.579	0.680	0.577	0.763

The factors were named "Factor 1 Sports Activity (SA), Factor 2 Health Protection and Promotion (HPP), Factor 3 Health and Nutrition (HN), and Factor 4 Interpersonal Relations, Spirituality and Stress Management (ISS)" according to the content they specified (Table 4).

3.5. Reliability

For this study, the scale reliability coefficient was calculated separately for two different samples. While the EFA result for the first sample was 0.920, the CFA result for the second sample was 0.960 (Table 5). In addition, MaxR(H)>70, which indicates the maximum reliability level coefficient in the reliability calculation (Table 4).

Table 5. Reliability Analysis Results of the Healthy Lifestyle Sketch Scale

	I. Sample (n=380)			II. Sample (n=380)		
	EFA Result			CFA Result		
Variables	**Cronbach Alpha Value**	**Skewness**	**Kurtosis**	**Cronbach Alpha Value**	**Skewness**	**Kurtosis**
SA	.933	.319	-.228	.887	-.073	-.065
HPP	.940	-1.153	.081	.910	-1.329	1.250
HN	.932	-.428	-.008	.912	-.525	.008
ISS	.928	-.838	.693	.953	-1.182	.553
HELIS	.920	-.197	-.229	.960	-.876	.537

3.6. Criterion Validity

The test-retest method was used to evaluate the scale's stability, and ICCs were calculated. HELIS's mean internal consistency coefficient (ICC) was 0.907, with a confidence interval (CI) ranging from 0.836 to 0.947 ($F = 10.744$, $p < 0.001$). In the sub-dimensions, ICC measurements were 0.879 for SA (95% CI = 0.787-0.931, $F = 8,273$ $p < 0.001$), 0.916 for HPP (95% CI = 0.851-0.952, $F = 11.857$, $p < 0.001$), 0.902 (95% CI = 0.826-0.944, $F = 10.154$, $p < 0.001$) for HN and 0.821 (95% CI = 0.685-0.899, $F = 5.593$, $p < 0.001$) for ISS. The correlation analysis results are shown in Table 6, where the scale scores of the two measurements demonstrated a statistically significant and positive link ($p<0.01$).

Table 6. 95% CI Test-Retest Results of HELIS (n=50)

Variables	**M ± SD first**	**M± SD second**	**95% CI**				
			ICC	**Lower bound**	**Upper bound**	**F**	**p**
SA	4.20±0.10	4.36±0.09	.879	.787	.931	8.273	<0.001
HPP	4.16±0.12	4.52±0.10	.916	.851	.952	11.857	<0.001
HB	4.60±0.08	4.84±0.05	.902	.826	.944	10.154	<0.001
ISS	4.35±0.14	4.76±0.09	.821	.685	.899	5.593	<0.001
HELIS	4.15±0.07	4.47±0.05	.907	.836	.947	10.744	<0.001

4. DISCUSSION

This study aims to develop the HELIS scale, test its psychometric properties, and evaluate the factors affecting HELIS in individuals. Since there is no similar scale in the literature, no comparison was made with similar scales. Therefore, the data obtained from the study were evaluated in line with the criteria in the literature. Scales must be evaluated in terms of their "validity," which is recognized as a measure of how well they accurately capture the trait they are trying to capture without confounding it with other features, and their "reliability," which is recognized as a measure of how consistently measurement values occur. When research is carried out using scales that do not meet the acceptable levels of validity and reliability, statistical tests lose power and measurements can lead to incorrect judgments (Çiftçioğlu & Seren, 2022, p. 7). At this stage, one or more options, such as writing essays consisting of open-ended questions, conducting focus group interviews, utilizing similar scales in the literature, or reviewing the literature on the subject, can be utilized. The literature was consulted in this study when developing the item pool.

Content validity analysis tests the extent to which the scale items cover the area to be measured (Çiftçioğlu & Seren, 2022, p. 7). In this study, 14 experts were consulted for the content validity index. As a result of the analysis, according to the Lawshe (1975, p. 570) technique, the content validity index for 14 experts was 0.59 (Wilson et al., 2012, p. 203). After the 31 items below this value were eliminated due to expert opinion, the content validity ratios for the remaining items in the draft scale were between 0.85 and 1.00 (Lawshe, 1975, p. 570). When the 31 eliminated items were evaluated with the other items, it was seen that they were similar to the other items, and some items covered the same content or were meaningful from a different perspective.

High correlation coefficients suggest that the relevant item is appropriate for the measured theoretical construct when the correlation relations between the items in the scale and sub-dimensions and other items in the sub-dimensions and the entire scale are assessed (Karaman, 2023, p. 48). Different values can be given in item analysis as the lower limit of item-total correlation coefficients. Since the inclusion of low-valued items in the scale will decrease the scale-wide internal consistency coefficient, it is recommended to leave items with a total item correlation coefficient (≥0.30) (Yaşlıoğlu, 2017, p. 75). The scale's item correlation values for this investigation were found to range from 0.652 to 0.905. These findings demonstrated the homogeneity and interrelatedness of the items (Tavşancıl, 2019, p. 19).

In scale creation procedures, factor analysis is one of the most often used approaches to assess the construct validity of the scale. In the literature, it has been reported that explanatory factor analysis should be used in scale development studies if a previously developed structure is not foreseen (Karaman, 2023, p. 47-48). However, exploratory factor analysis defines the variables' factor structure or model (Shrestha, 2021, p. 4). In this direction, EFA was applied. As a result of EFA, the KMO value is 0.90. If the KMO value takes a value above 0.80 in the literature, it shows it is at an excellent level (Marofi et al., 2020, p. 3). In addition, the KMO value shows the adequacy of the sample size. The sample size is adequate according to the value obtained (Watkins, 2018, p. 223).

Another stage of EFA is to pay attention to the explained variance value. When this value is obtained between 0.40-0.60, it shows that conformity in terms of the literature is ensured (Çokluk et al., 2014, p. 216). The explained variance value for this study is 68.40%. The factor structure of the scale was found to be grouped under four factors as a consequence of EFA. Since the items gathered under the first factor are the items that include individuals' sports activity status, the factor is named "sport activity," since the items gathered under the second factor are the expressions that include health protection and development status, the factor is named as "health protection and development" since the items gathered under the third factor are the items that include health and nutrition perceptions, the factor is named as "health and nutrition," and finally, the items in the fourth factor are the items that include individuals' interpersonal relationships, spirituality, and stress management status, the factor is named as "interpersonal relationships, spirituality, and stress management." Scale item factor loadings ranged between 0.621 and 0.937. The literature states that item factor loadings above 0.50 are considered significant in practice (Karaman, 2023, p. 50). It was discovered that the scale sub-dimensions' skewness and kurtosis values were normally distributed (Tabachnick & Fidell, 2018, p. 68-69).

It is recommended that CFA should be conducted in order to test the model that emerged after the exploratory factor analysis and to determine how well the model fits the data (Effendi et al., 2019, p. 235). The scale model specified within the framework of the criteria of EFA was created in CFA. Model fit index criteria were taken into consideration in the evaluation of CFA. There are many goodness-of-fit indices and no clear consensus on which ones should be reported (Seren et al., 2018: 31). χ 2 /sd, RMR, GFI, AGFI, NFI, IFI, TLI, CFI, and RMSAE results were reported as the most commonly used fit indices in this study (Kwon and Marzec, 2016, p. 450). The analysis's findings showed that, as a result of CFA, the model fit values fell inside the intended range (Kwon & Marzec, 2016, p. 450; Wang et al., 2020, p. 747).

After CFA, convergent and divergent validity statistics should be provided in order to decide whether a scale is finally usable. The degree of agreement between several indicators of the same construct is measured by convergent validity. The degree to which a measure does not correlate with other measures that are thought to diverge is known as divergent validity (Shrestha, 2021, p. 4). It is recommended that CR>AVE and AVE>50 for convergent validity (Hair et al., 2011, p. 145; Kwon and Marzec, 2016, p. 450). In addition, the CR value should be greater than 0.70 (Hair et al., 2011, p. 145). For this study, it was determined that AVE was more significant than 0.50, and CR coefficients were also greater than AVE values. It is stated in the literature that convergent validity is also achieved in other alternatives. In divergent validity, ASV<AVE and MSV<AVE (Nikkhah et al., 2018, p. 3). In line with the relevant values, it is seen that ASV<AVE and MSV<AVE conditions are met for this

study. If the Cronbach Alpha coefficient takes a value between 0.80-1.00, it shows the scale has high reliability (Tavşancıl, 2019, p. 19). For this study, the Cronbach Alpha value was calculated separately for two samples. The Cronbach Alpha coefficients were 0.920 in the first sample for EFA and 0.960 in the second sample for CFA. Cronbach Alpha coefficients have a high level of reliability for both samples (Tavşancıl, 2019, p.19).

Test-retest reliability analyses and intraclass correlation values in the construct whose validity and reliability were examined in the produced scale were taken into consideration in scale development studies to demonstrate the scale's invariance over time (Çelebi Çakıroğlu & Seren, 2022, p.708). For the test-retest, it is recommended that 30 individuals be re-measured at two-week intervals. Consideration should be given to the dependent sample t-test and intraclass correlation values in order to ascertain the difference between the two measurements (Alpar, 2018, p. 544-546). In this study, 50 people were taken for two measurements to increase the reliability of the study. It was determined that there was no statistically significant difference between the two tests because they were performed on the same group at least two weeks apart. The two measurements' scale scores showed a statistically significant and positive link (r: 0.907; $p<0.01$), according to the correlation analysis. The scale can be used in light of the analysis and results.

5. LIMITATIONS

Since the study sample was determined non-probabilistically, the validity and reliability findings are limited to this sample. It is important to test the scale's validity and reliability using various samples. The fact that the answers given to the questionnaire are instant answers is among the limitations of the study. Another limitation of the study is that the data were collected from a certain age group.

6. CONCLUSION

The reliability and validity of the Healthy Lifestyle Scale created by the researcher of the study have been proven. It consists of 32 items in total and four sub-dimensions: Sports Activity, Health Protection and Promotion, Health and Nutrition and Interpersonal Relations, Spirituality and Stress Management (Supplement 1). From a conceptual standpoint, this study adds to the body of knowledge and supports future research in this area to ascertain people's levels of attitudes, behaviors, and perceptions related to healthy living. It is recommended that validity and reliability studies be conducted for HELIS in different cultures. In this direction, the findings obtained in this study can be strengthened. This scale can be applied to adults aged 18 and over. By comparing the results obtained in this study with future studies, suggestions can be made for the development of a healthy lifestyle.

In addition, in order to contribute to the literature, no significant difference was found between having a chronic disease, smoking and general health status assessment and healthy lifestyle. It can be stated that these variables do not affect the validity and reliability of the scale. Therefore, it can be said that these variables do not affect the healthy lifestyle of individuals. However, significant differences related to these variables may be found in other studies or in different sample groups. Thus, in other studies, these variables can be evaluated and compared with the scale.

DECLARATION OF THE AUTHOR

Declaration of Contribution Rate: The author contributes the study on his own.

Declaration of Support and Thanksgiving: No support is taken from any institution or organization.

Declaration of Conflict: There is no potential conflict of interest in the study.

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Süleyman Demirel University Visionary Journal, Year: 2025, Volume: 16, No: 45, 53-68.
ISSN: 1308-9552

Appendix 1. Healthy Lifestyle Scale

	Never	*Almost Never*	*Rarely*	*Occasionally*	*Frequently*	*Usually*	*Always*
Sport Activity							
1) I walk regularly for my health.							
2) I do sports regularly to protect my health.							
3) Sports activities make me feel energized.							
4) I direct my lifestyle according to my sports habits.							
5) I set goals to perform weekly sports activities.							
6) I do sports to eliminate stressful situations in my life.							
7) Regular sport is good for my mental health.							
Health Protection and Promotion							
1) I am careful not to smoke.							
2) I take care not to consume alcohol.							
3) I take care not to use addictive substances (such as drugs and pills).							
4) I consult my physician in case of any illness.							
5) I use my medicines in line with my physician's instructions.							
6) I try to visit my family doctor regularly.							
7) I follow health-promoting programs, activities, health-related information and developments on social media.							
8) I try to avoid a lifestyle (negative behaviors) that may negatively affect my health.							
9) I care about my health and participate in activities to protect and improve it.							
Health and Nutrition							
1) I pay attention to what I eat for a healthy life.							
2) I watch my consumption of sugary foods to avoid gaining weight.							
3) I try not to eat late at night.							
4) I prefer to eat low-carbohydrate and low-calorie meals such as vegetables.							
5) I take into account the recommendations of experts on nutrition.							
6) I take care not to eat out.							
7) I take care to avoid fast food (ready-to-eat) style nutrition.							
Interpersonal Relations, Spirituality and Stress Management							
1) I think that life has a purpose.							
2) I try to live life in a cheerful way.							
3) I pay attention to establishing good relationships with people.							
4) I spare time for my close friends.							
5) I make arrangements in my daily life to spend time with my family.							
6) I look for solutions to prevent stressful situations.							
7) I do activities that will benefit me in my free time (such as reading books, listening to music, traveling, socializing, etc.).							
8) I attach importance to spiritual development in order to continue my life in a healthy way.							
9) I pay attention to my mental health as well as my physical health.							

Appendix 2. Sağlıklı Hayat Tarzı Ölçeği

	Hiçbir Zaman	*Hemen Hemen Hiç*	*Nadiren*	*Ara Sıra*	*Sık Sık*	*Genellikle*	*Her Zaman*
Spor Aktivitesi							
1) Sağlığım için düzenli yürüyüş yaparım.							
2) Sağlığımı korumak için düzenli spor yaparım.							
3) Spor aktiviteleri kendimi enerjik hissettirir.							
4) Spor alışkanlıklarıma göre yaşam biçimime yön veririm.							
5) Haftalık spor aktiviteleri gerçekleştirmek için hedefler belirlerim.							
6) Hayatımda stres oluşturan durumlardan kurtulmak için spor yaparım.							
7) Düzenli spor yapmak ruh sağlığıma iyi gelir.							
Sağlığı Koruma ve Geliştirme							
1) Sigara kullanmamaya dikkat ederim.							
2) Alkol tüketmemeye dikkat ederim.							
3) Bağımlılık yapan maddeleri (uyuşturucu ve hap gibi) kullanmamaya dikkat ederim.							
4) Herhangi bir hastalıkta hekimime başvururum.							
5) İlaçlarımı hekimimin yönlendirmesi doğrultusunda kullanırım.							
6) Aile hekimime düzenli olarak gitmeye çalışırım.							
7) Sosyal medyada sağlığı geliştirici programları, etkinlikleri, sağlıkla ilgili bilgi ve gelişmeleri takip ederim.							
8) Sağlığımı olumsuz etkileyebilecek bir hayat tarzından (olumsuz davranışlardan) kaçınmaya çalışırım.							
9) Sağlığıma önem verir, sağlığımı koruyacak ve geliştirecek etkinliklere katılırım.							
Sağlık ve Beslenme							
1) Sağlıklı bir hayat için yediklerime dikkat ederim.							
2) Kilo almamak için şekerli gıda tüketimine dikkat ederim.							
3) Geç saatlerde yemek yememeye çalışırım.							
4) Sebze gibi düşük karbonhidratlı ve düşük kalorili yemekler yemeyi tercih ediyorum.							
5) Beslenme konusunda uzmanların önerilerini dikkate alırım.							
6) Dışarıdan yemek yememeye dikkat ederim.							
7) Fast food (hazır yemek) tarzı beslenmekten uzak durmaya dikkat ederim.							
Kişilerarası İlişkiler, Maneviyat ve Stres Yönetimi							
1) Hayatın bir amacı olduğunu düşünürüm.							
2) Hayatı neşeli bir şekilde yaşamaya dikkat ederim.							
3) İnsanlarla iyi ilişkiler kurmaya dikkat ederim.							
4) Yakın arkadaşlarıma zaman ayırırım.							
5) Ailemle vakit geçirmek için günlük yaşantımda düzenlemeler yaparım.							
6) Stres verici durumları önlemek için çözüm yolları ararım.							
7) Boş zamanlarımda kendime iyi gelecek (kitap okuma, müzik dinleme, gezme, sosyalleşme vb. gibi) aktiviteler yaparım.							
8) Sağlıklı bir şekilde yaşamıma devam etmek için manevi gelişime önem veririm.							
9) Fiziksel sağlığım kadar ruhsal sağlığıma da dikkat ederim.							