Dicle Üniversitesi Sosyal Bilimler Enstitüsü Dergisi

DÜSBED

Yıl / Year: Ekim 2021, Sayı / Issue: 28, Sayfalar / Pages: 292-307

Araştırma Makalesi / Original Article

Received / Alınma: 26.05.2021 Accepted / Kabul: 13.09.2021

RELATIONSHIPS BETWEEN HEALTH LITERACY, HEALTHY LIFE STYLE AND RATIONAL DRUG USE

Fuat YALMAN[1]

Mehmet Emin YAŞAR[2]

Abstract

The main purpose of this study is to evaluate the health literacy, healthy lifestyle and rational drug use behaviors of the society and to determine the structural relationships between health literacy, healthy lifestyle and rational drug use. A descriptive research design was used in the study. The population of the study consisted of patients and their relatives who received health services from two family health centers operating in the city center of Düzce. The data were collected by face-to-face questionnaire technique. Convenience sampling method was preferred. The total number of questionnaires evaluated and used in data analysis is 384. The findings obtained with explanatory and confirmatory factor techniques show that the validity of the model is ensured. The construct validity revealed by the explanatory factor analysis was also confirmed by the confirmatory factor analysis. Because the alpha (α) coefficient is equal to 0.945 where $0.80 \leq \alpha < 1.00$, the scale is considered highly reliable. The ensured validity and reliability shows the existence of a structural relationship between health literacy, healthy life style and rational drug use.

Keywords: Health Literacy, Healthy Life Style, Rational Drug Use, Structural Equation Modeling.

[1]Dr. Öğr. Üyesi, Düzce Üniversitesi İşletme Fakültesi Sağlık Yönetimi Bölümü, E-posta: fuatyalman@duzce.edu.tr, ORCID: 0000-0002-1041-1837

[2]Öğretim Görevlisi, Bingöl Üniversitesi Sağlık Bilimleri Fakültesi İş Sağlığı ve Güvenliği Bölümü, E-posta: meyasar@bingol.edu.tr, ORCID: 0000-0001-8133-2946

SAĞLIK OKURYAZARLIĞI, SAĞLIKLI YAŞAM BİÇİMİ VE RASYONEL İLAÇ KULLANIMI ARASINDAKİ İLİŞKİ

Öz

Bu çalışmanın temel amacı, toplumun sağlık okuryazarlığı, sağlıklı yaşam biçimi ve akılcı ilaç kullanımı davranışlarını değerlendirmek ve sağlık okuryazarlığı, sağlıklı yaşam biçimi ve akılcı ilaç kullanımı arasındaki yapısal ilişkileri tespit etmektir. Araştırmada tanımlayıcı araştırma deseni kullanılmıştır. Araştırmanın evrenini Düzce il merkezinde faaliyet gösteren iki aile sağlığı merkezinden sağlık hizmeti alan hasta ve hasta yakınları oluşturmuştur. Veriler yüz yüze anket tekniği ile toplanmıştır. Kolayda örnekleme yöntemi tercih edilmiştir. Değerlendirmeye alınan ve verilerin analizinde kullanılan toplam anket sayısı 384'tür. Açıklayıcı ve doğrulayıcı faktör analizi teknikleri ile elde edilen bulgular, modelin geçerliliğinin sağlandığını göstermiştir. Açıklayıcı faktör analizi ile ortaya konulan yapı geçerliliği, doğrulayıcı faktör analizi ile de doğrulanmıştır. Alfa (α) katsayısı 0,80 ≤ α < 1,00 arasında ve 0,945'e eşit olduğundan, ölçek oldukça güvenilir olarak kabul edilmiştir. Geçerlik ve güvenirliğin sağlanması, sağlık okuryazarlığı, sağlıklı yaşam tarzı ve akılcı ilaç kullanımı arasında yapısal bir ilişkinin varlığını göstermektedir.

Anahtar Kelimeler: Sağlık Okuryazarlığı, Sağlıklı Yaşam Biçimi, Rasyonel İlaç Kullanımı, Yapısal Eşitlik Modellemesi.

INTRODUCTION

In a modern society, health literacy is a concept related to the capacity of people to meet complex health demands (Kickbusch et al., 2013, s. 18). Health literacy defines how people understand the information about health and health services and apply this information to their lives to make decisions (Australian Commission on Safety and Quality in Health Care, 2014, s. 2). There are two ways to conceptualize health literacy. The first of these is a risk factor and the other is something valuable. As a risk factor, health literacy fits best in clinical settings and focuses on improved communication between doctors and patients. Valuable things, on the other hand, refer to a set of skills needed in everyday life to make decisions that affect a person's health (Nutbeam, 2008, s. 2077). Health literacy is considered an important factor in improving an individual's health level (Berkman et al., 2011, s. 99). Inadequate health literacy skills are associated with worse health outcomes (Berkman et al. 2011, s. 100) and poorer health care utilization (Rudd, 2015). Better health literacy meets positive health outcomes with health-friendly environments, effective policies, effective promotional efforts, better self-care and health care outcomes with less risk, and lower health costs (Raynor, 2012, s. 2).

Healthy life style is the activity that individuals undertake to protect or improve their health and to prevent health problems or to obtain a positive body image. Healthy life style is not only limited to healthy people who try to stay that way, but also includes physically disabled people and those with chronic illnesses who try to control or minimize their ailments through positive healthy behaviors such as diet, exercise and avoiding smoking (Cockerham, 2005, s.53).

Rational drug use requires patients to consume drugs in accordance with their clinical needs and at doses which meet their individual needs for a sufficient period of time with the minimum cost for themselves and their communities (World Health Organization, 2012). In addition, health lifestyle behaviors are accepted as behavioral patterns that individuals believe and practice in order to stay healthy and protect themselves from diseases. Health-related quality of life refers to how individuals subjectively evaluate their own well-being and their ability to perform physical, psychological and social functions (Wang et al., 2008, s.7).

Rational drug use plays a crucial role in the success of treatment processes. Considering that drug use is also related to individuals' decision-making mechanisms, rational drug use and health literacy are known to cause a variety of problems worldwide levels should be considered together (Desalegn, 2013, s.3; Abacıgil et al., 2019, s.65). In the literature, it was emphasized that individuals with sufficient level of health literacy; possess sufficient level of health knowledge, benefit from health services effectively and they positively contribute to the quality of life, health services, patient loyalty and reduce the cost of healthcare services, whereas, individuals with insufficient level of health literacy are at higher risk of getting sick, have low level understanding of medical treatment methods, benefit less from healthcare services, have higher hospitalization frequency, as a result they cause an increase in healthcare costs (Kanj & Mitic, 2009, s. 23). Similarly, it has been found that individuals with adequate health literacy levels are more active in exhibiting behaviors aimed at improving their health, consume less tobacco and alcohol, do more physical activity and have a more regular eating habits (Abel, 2007, s.43; Baker et al., 2004, s.217).

It has also been stated that individuals with low health literacy have lesser ability to understand health risks, evaluate different medical treatment options, and comply with recommendations regarding health care (U.S. Department Of Health And Human Servıces Office of Disease Prevention and Health Promotion, 2007). Also inadequate health literacy; it was emphasized that it may cause an increase in the number of hospitalizations, an increase in the use of emergency care services, less preference for preventive health services, insufficient or irregular use of medicines, inability to manage chronic diseases, inability to understand health-related messages and unnecessary waste of resources in health expenditures (Geboers et al., 2015, s. 8). Likewise, it has been observed that individuals with low health literacy exhibit lesser preventive health care behaviors such as performing pap smear and mammography tests, regular dental check-ups, regular follow-ups of their vaccinations, and also increase their

healthcare expenses by making unnecessary hospital visits (Safer & Kenan, 2005, s. 465; De Walt et al., 2007, s. 26; Entwistle & Williams, 2008, s. 100). Low level of health literacy has been shown to cause poor understanding of health information, difficulties in performing procedures and instructions and problems in accessing health services (Nielsen-Bohlman et al., 2004). It was also shown that, insufficient health literacy level is associated with serious health consequences that may lead to insufficient health knowledge, not implementing adequate preventive health services, inability to access and use health services, increased errors in disease management and medication use, and increase in the incidence of chronic diseases and mortality (Parker et al., 1995, s. 538; Howard et al., 2005, s. 373). Another study also examined the relationship between healthy lifestyle behavior and health outcomes and showed that it plays an important role in both morbidity and mortality (Blaxter, 1990). In the same study, the lower morbidity rate and lifespan are found to be positively correlated with lifestyles considered important (Belloc & Breslow, 1972, s. 421).

In summary, increasing the level of health literacy and ensuring that the society receives the right health services at the right time and from the right institution is a desirable goal for both patients and healthcare providers. Unnecessary, excessive, under or improper use of health services prevents patients from receiving quality health services, causing long waiting times and unnecessary examinations. In addition, resources allocated for health services are wasted, the expected improvement in health indicators cannot be achieved and the motivation of service providers decreases (Akbulut, 2015). Furthermore, it has been determined that health literacy has a statistically significant and positive effect on patient loyalty (Baydaş et al., 2020, s. 131). In this study, we aimed to determine the structural relationships between health literacy, healthy life style and rational drug use. The fact that such a study has not been encountered in the health sector and health services field before adds originality to the study and in terms of preparing a ground for the formation of a healthier and more conscious society, the increased health literacy levels will also develop the healthy lifestyle behavior and rational drug use behavior levels of the society. In addition, this study is aimed to be a pioneer for the future studies to be carried out by expanding its scope.

1. RESEARCH HYPOTHESIS DEVELOPMENT

It was reported that the individuals with sufficient level of health literacy have adequate level of health knowledge, they are the people who benefit from health services effectively, they positively contribute to the increase in the quality of life, quality of health service and patient loyalty and at the same time reduce the cost of healthcare services whereas the individuals with

insufficient level of health literacy are at higher risk of getting sick, have lower levels of understanding of treatment methods, benefit less from healthcare services, have higher hospitalization frequency, as well as increase healthcare costs (Kanj & Mitic, 2009, s. 23). Similarly, it has been found that individuals with adequate health literacy levels are more active in exhibiting behaviors aimed at improving their health, consume less cigarette and alcohol, do more physical activity and have a more regular eating habits (Abel, 2007, s. 43; Baker et al., 2004, s. 217). Hence, the basic hypothesis developed in this direction is as follows:

H_1: "There is a statistically significant relationship between health literacy, healthy life style and rational drug use".

2. METHODS

2.1. Ethical Approval

Prior to conducting the study, we obtained informed consent from the participants. This research was carried out with the ethical approval of University Scientific Research and Publication Ethics Committee (Date: 27.08.2020, decision no: 2020/171). Quantitative research methodology was used because it is suitable for the purpose and main problem of the research and the analysis of the data set was performed by using SPSS and AMOS statistical analysis programs.

2.2. Participants

Both male and female individuals, and aged 18 to 75 years, were able to respond to the questionnaire and were eligible for the study. Data collection carried out by society-based survey at the family health centers operating in the city center of Düzce. Participants were voluntarily participate in a face-to-face questionnaire. A total of 384 individuals took part in the research. Of the full sample, 32% were women (n=123) and 68% men (n=261).

2.3. Research Design and Procedure

The society-based cross-sectional study design was used at the family health centers operating in the city center of Düzce. This study was conducted between 10 September and 30 December 2020 by collecting weekly face-to-face data from the participants. Face-to-fece consent was received from all the participants before they completed the questionnaire. Furthermore, it should be known that since a sampling method that will fully represent the universe was not

used in the research, it cannot be generalized to the society and is limited to the people who are researched.

2.4. Measurements of Variables

In order to determine the health literacy levels of the participants; The European Health Literacy Survey (HLS-EU) utilized the health literacy questionnaire form developed by the HLS-EU Consortium within the scope of the European Health Literacy Project 2009-2012 (HLS-EU Consortium, 2012). To determine the health literacy of the participants in the research; The European Health Literacy Survey (HLS-EU), a 28-question questionnaire developed by the HLS-EU Consortium within the scope of the European Health Literacy Project 2009-2012, as it is suitable for measuring the level of health literacy at the global level due to its structural and contextual characteristics form was prepared by taking an example. While preparing the healthy lifestyle behavior scale; the studies of Bahar et al. (2008) and Duran et al. (2018) were used. Finally, the scale of attitude towards rational drug use was used from scale forms developed by Çelebi (2018) and Demirtaş (2018).

2.5. Data Analysis

SPSS and AMOS statistical analysis programs were used together for the analysis of the data set within the scope of the research. Firstly, the reliability analysis was performed on the data. Following this, in accordance with the purpose of the research, the coded data were examined in terms of variance, mean, frequency and percentage values, which represent descriptive analysis in terms of demographic characteristics. Then, explanatory factor analysis and confirmatory factor analysis were performed. Criteria for determining structural equation modelling analysis model fit and measurement invariance were based on conventional standards (Munro, 2005; Brown, 2006; Byrne, 2001). Specifically, adequate model fit for a confirmatory factor analysis model was defined by a chisquare/df value < 5, Root Mean Square Error of Approximation (RMSEA) value ≤ 0.10, Comparative Fit Index (CFI) ≥ 0.90, Incremental Fit Index (IFI) values ≥ 0.90, Tucker Lewis index (TLI) values ≥ 0.90, Goodness of Fit Index (GFI) values ≥ 0.85 and Standardised Root Meansquared Residual (SRMR) ≤ 0.08.

3. RESULTS

3.1. Demographic Findings

A total of 384 participants' responses were considered for analysis of this study. It can be seen that 32% were females and 68% males were the respondents for this study, 74.5% were 26 to 45 age. Participants about two thirds (60.3%) had postgraduate education levels. Most

respondents were officer (65.2%). Other occupations such as employee, retired, housewife, self-employment, student, unemployed, private sector employee, other accounted for 4.1%, 3%, 6.7%, 1.8%, 3.4%, 4.8%, 8.8% and 2.3% respectively.

3.2. Descriptive Findings Related to Factors

In the research, reliability measurement was made by calculating the Cronbach Alpha coefficient for each structure. The health literacy factors, which constitute the variables of the study, were subjected to reliability analysis with 25 questions, healthy life style factors with 22 questions, and rational drug use factors with 19 questions. Reliability coefficients for the variables are given in Table 1.

Table 1. Reliability Analysis Results

Variable Names	**Cronbach's Alpha Coefficient**
Health Literacy (HL)	0,907
Healthy Life Style (HLS)	0,864
Rational Drug Use (RDU)	0,890

Therefore, considering all dimensions, it is seen that the reliability of the study is quite high.

3.3. Findings Regarding the Explanatory Factor Analysis/Structural Equation Modeling

Explanatory factor analysis was performed on the data constituting the participants' health literacy levels, healthy life style and rational drug use. The analyzes performed in this direction are given below.

Table 2. Health Literacy Level-Explanatory Factor Analysis Results

Factors	Variables	Factor Loads	Variance Explained	Eigen Value
Functional Health Literacy	item3	,718	33,763	8,204
	İtem2	,685		
	İtem1	,674		
	item5	,600		
	item4	,583		
	item7	,561		
	item6	,483		
Critical Health Literacy	item10	,694	6,579	1,570
	item16	,678		
	item17	,627		
	item9	,596		
	item14	,535		
	item12	,526		
	item11	,463		
Cognitive Health Literacy	item28	,738	5,198	1,289
	item27	,660		
	item26	,567		
Experiential Health Literacy	item24	,728	4,812	1,218
	item23	,661		
	item25	,596		
	item18	,483		
Interactive Health Literacy	item20	,699	4,113	1,021
	item21	,690		
	item19	,565		
Evaluation Criteria	Kaiser-Meyer-Olkin Value: 0,918 Chi-Square Value: 3680,501 Barlett Value: 0,000 Extraction Method: Principal Components Rotation Method: Varimax Total Variance Explained: 54,465			

The result of Bartlett test is significant since p (sig) = 0.000 <0.05 for the data subjected to factor analysis to determine the sub-variables of health literacy factors. That is, there are high correlations between variables and it means that the data came from multiple normal distribution. The result is perfect, as the KMO coefficient is 0.918. For this reason, sample size is sufficient for research.

Table 3. Healthy Life Style -Explanatory Factor Analysis Results

Factors	**Variables**	**Factor Loads**	**Variance Explained**	**Eigen Value**
Balanced diet	item15	,789	28,440	6,477
	item14	,686		
	item13	,647		
	item12	,616		
	item16	,581		
	item18	,429		
Physical Activity	item2	,803	8,257	1,822
	item6	,765		
	item3	,620		
	item1	,556		
Compatibility	item22	,759	7,214	1,587
	item19	,697		
	item21	,674		
	item20	,592		
Interpersonal Relationships	item8	,691	5,551	1,221
	item4	,687		
	item11	,664		
	item5	,663		
Spiritual Development	item9	,746	4,959	1,091
	item10	,637		
	item17	,588		
	item7	,478		
Evaluation Criteria	Kaiser-Meyer-Olkin Value: 0,864 Chi-Square Value: 2690,372 Barlett Value: 0,000 Extraction Method: Principal Components Rotation Method: Varimax Total Variance Explained: 55,445			

The result of the Bartlett test is significant since p (sig) = 0.000 <0.05 for the data subjected to factor analysis in order to determine the sub-variables of healthy life style factors. That is, there are high correlations between variables and it means that the data came from multiple normal distribution. The result is perfect as the KMO coefficient is 0.864. For this reason, sample size is sufficient for research.

Table 4. Rational Drug Use -Explanatory Factor Analysis Results

Factors	**Variables**	**Factor Loads**	**Variance Explained**	**Eigen Value**
Correct Use	item2	,780	35,858	6,813
	item1	,757		
	item4	,695		
	item5	,680		
	item3	,550		
Conscious Use	item23	,759	7,054	1,340
	item25	,717		
	item21	,642		
	item26	,590		
	item22	,564		
Safe Use	item16	,776	6,546	1,244
	item17	,744		
	item18	,694		
Effective Use	item10	,768	5,971	1,134
	item13	,596		
	item12	,591		
	item11	,534		
Evaluation Criteria	Kaiser-Meyer-Olkin Value: 0, 897 Chi-Square Value: 2670,849 Barlett Value: 0,000 Extraction Method: Principal Components Rotation Method: Varimax Total Variance Explained: 55,428			

The result of the Bartlett test is significant since p (sig) = 0.000 <0.05 for data subjected to factor analysis to determine the sub-variables of behavioral factors for rational drug use. That is, there are high correlations between variables and it means that the data came from multiple normal distribution. The result is perfect as the KMO coefficient is 0.897. For this reason, sample size is sufficient for research.

3.4. The Results of the Measurement Model

It was assumed that the reasoning between the variables in the research model can be explained. Confirmatory factor analysis was performed to test the validity of the scales used, and the structure of all scales were verified. Figure 1 shows the confirmatory factor analysis results and goodness of fit values regarding the health literacy level, healthy life style and rational drug use (Figure 1).

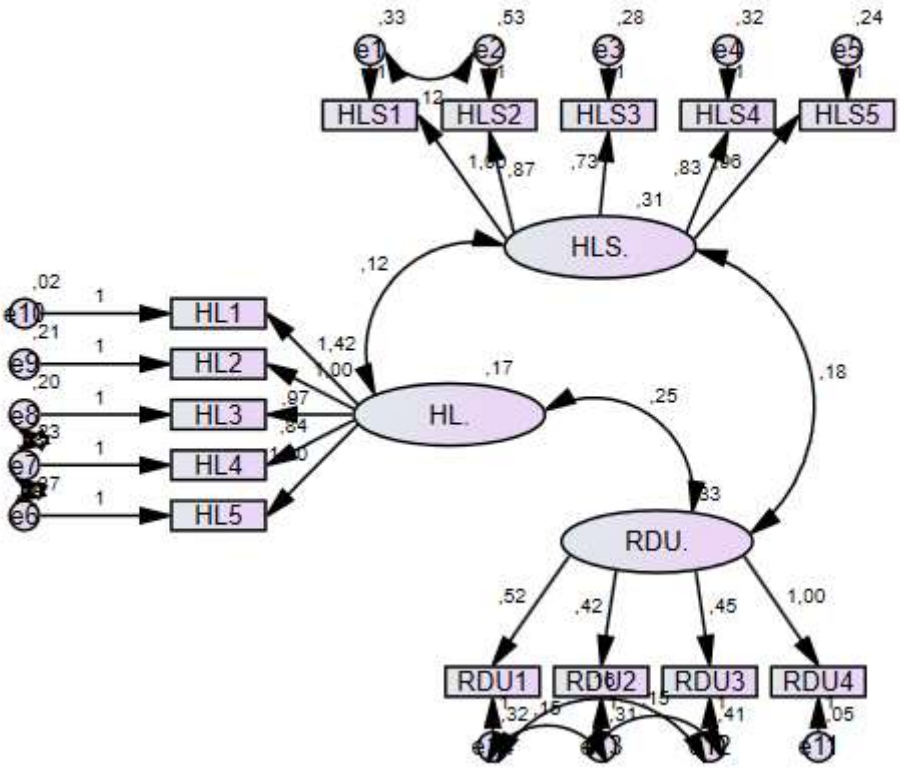

Figure 2. The Results of the Full Model

HL: Health Literacy; HLS: Healthy Life Style; RDU: Rational Drug Use

[(X^2/df: 3.999; GFI: 0.902; NFI: 0.910; CFI: 0.931; RMR: 0.040; TLI: 0.907; IFI: 931)]

The values of X^2/df, RMR, GFI, NFI, IFI, TLI, CFI given above show that the model fit is achieved. There is no limit to the values to look at. Reported values may vary according to the values that the researcher wants to draw attention to. The fit values for the created model are given below. In addition, the explained variances and reliability of the factors calculated to determine the validity and reliability of the path analysis are given in Table 5.

Table 5. Research Model SEM Results

Effects	Structural Relations	Estimate	Critical Rate (C.R.)	p
Correlations	HLS<-->HL	,528	6,436	***
	HLS<-->RDU	,559	7,419	***
	HL<-->RDU	1,058	9,503	***

The construct validity revealed by the explanatory factor analysis was also confirmed with the confirmatory factor analysis. The reliability coefficient was found as Alpha = 0.945. Because, $0.80 \leq \alpha < 1.00$, the scale is highly reliable. Ensuring the validity and reliability shows the

existence of a structural relationship between health literacy, healthy life style and rational drug use. In addition, because the validity and reliability are ensured, "the scale of relationship between health literacy, healthy life style and rational drug use" can be used as a guiding scale to measure the relationships and expectations between health literacy, healthy life style and rational drug use.

Table 6. Model fit measures

Measure	Estimate	Threshold	Interpretation
CMIN/DF	3.999	Between 1 and 5	Acceptable range
NFI	0.910	≥0.90	Within range
CFI	0.931	≥ 0.85	Within range
IFI	0.931	≤ 0.08	Within range
GFI	0.902	0.89-0.85	Within range
RMR	0.040	<0.08	Within range

As seen in Table 6, the results obtained show that the fit indices of the proposed research model are at an acceptable level of fit. Findings obtained by explanatory factor analysis and path analysis show that the construct validity of the model is ensured.

CONCLUSION AND DISCUSSION

The society-based cross-sectional study design was used at two family health centers operating in the city center of Düzce. The study was conducted on patients and their relatives who receive health services from family health centers operating in the city center of Düzce. This study was conducted between 10 September and 30 December 2020 by collecting weekly face-to-face data from the participants. The results obtained from the research are given below:

By conducting confirmatory factor analyzes; it was observed that the relationships between health literacy, healthy life style and rational drug use have an acceptable index of fit. In the reliability analysis performed for all variables, it was found that the reliability levels of the scales were high.

Jin et al. (2008, s. 269) previously reported that a high level of health literacy contributed to therapeutic compliance. Marvanova et al. (2011, s. 488) reported that people with lower health literacy had lesser understanding of medication regimen. It was estimated that individuals with diabetes who found it difficult to understand information about health, had higher odds of being physically inactive and having unhealthy dietary habits (Friis et al., 2016, s. 6). Also, in the study conducted by Abacıgil et al. (2019, s. 65), it was determined that informing physicians about previously used medications/health problems, informing healthcare professionals about food/drug allergies; use of medications for the adequate period of time, consulting to a

physician when a side effect occurs and using drugs with physicians' recommendation increase, as the health literacy level increases. Similarly, low health literacy was shown to have a negative effect on patient adherence to medical treatment and management of diseases, lead to insufficient knowledge about diseases and thus, is associated with higher hospitalization, morbidity and premature death (Kickbusch & Maag, 2008, s. 204).

In addition, health literacy increases the ability of individuals to understand their current health status and participate in treatment processes, manage chronic diseases, and benefit from preventive services. Thus, individuals become stronger in taking responsibility for their own health (Nielsen-Bohlman et al., 2004). Altsitsiadis et al. (2012, s. 14), as health literacy increases, the behaviors of taking sunscreen precautions against skin cancer also increase; Cho et al. (2008, s. 1809), as health literacy increases, the use of preventive services increases; Pagan et al. (2012, s. 132) reported that women with sufficient health literacy had a higher rate of having mammography in the last two years.

The findings obtained with the explanatory and confirmatory factor analyzes show that the construct validity of the model is ensured. The construct validity revealed by the explanatory factor analysis was also confirmed by the confirmatory factor analysis. The reliability coefficient was found as Alpha = 0.945. Since this value is between $0.80 \leq \alpha < 1.00$, the scale is highly reliable. Ensuring validity and reliability shows the existence of a structural relationship between health literacy, healthy life style and rational drug use. In addition, because the validity and reliability are provided for the "relationship scale between health literacy, healthy life style and rational drug use", "the scale of the relationship between health literacy, healthy life style and rational drug use" can be used as a guiding scale to measure the relationships and expectations.

REFERENCES

Abacıgil, F., Turan, S. G., Adana, F., Okyay, P., & Demirci, B. (2019). Rational use of drugs among inpatients and its association with health literacy. *Meandros med dent j, 20* (1), 64-73. https://doi.org/10.4274/meandros.galenos.2018.35119

Abel, T. (2007). *Cultural capital in health promotion*. In Health and Modernity: The Role of Theory in Health Promotion. Eds: McQueen, DV, Kickbusch I, New York: Springer.

Akbulut, Y. (2015). *The evaluation of health literacy in terms of health expenditures and health services utilization*. Ankara University Faculty of Health Sciences. Ankara: Ankara University Press.

Altsitsiadis, E., Undheim, T., De Vries, E., Hinrichs, B., Stockfleth, E., & Trakatelli, M. (2012). Health literacy, sunscreen and sunbed use: an uneasy association. *Br j dermatol*, *167*(2), 14-21. https://doi.org/10.1111/j.1365-2133.2012.11082.x

Australian Commission on Safety and Quality in Health Care (2014). Health literacy: Taking action to improve safety and quality. Sydney: ACSQHC, 2014. ISBN: 978-1-921983-61-0.

Bahar, Z., Beser, A., Gördes, N., Ersin, F., & Kıssal, A. (2008). Healthy life style behavior scale II: a reliability and validity study. *Journal of cumhuriyet university school of nursing, 12*(1), 1-13.

Baker, D. W., Gazmararian, J. A., Williams, M. V., Scott, T., Parker, R. M., Green, D., Ren, J., & Peel, J. (2004). Health literacy and use of outpatient physician services by Medicaremanaged care enrollees. *J gen ıntern med, 19*(3), 215–220. https://doi.org/10.1111/j.1525-1497.2004.21130.x.

Baydaş, A., Yalman, F., & Yaşar, M. E. (2020). The mediating role of health literacy in the effect of health service quality on patient loyalty. *International journal of contemporary economics and administrative sciences*, 10(1), 131-150. ISSN: 1925 – 4423

Belloc, N. B., & Breslow, L. (1972). Relationship of physical health status and health practices. *Preventive medicine, 1*(3), 409-421. https://doi.org/10.1016/0091-7435(72)90014-X.

Berkman, N. D., Sheridan, S. L., Donahue, K. E., Halpern, D. J., & Crotty, K. (2011). Low health literacy and health outcomes: an updated systematic review. Ann intern med, 155(2), 97-107. https://doi.org/10.7326/0003-4819-155-2-201107190-00005

Blaxter, M. (1990). *Health and lifestyles.* Tavistock/Routledge, London. http://dx.doi.org/10.4324/9780203393000.

Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. New York: Guilford Press.

Byrne, B. M. (2001). *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. Mahwah, NJ: Lawrence Erlbaum Associates.

Cho, Y. L. K., Lee, S. Y. D., Arozullah, A. M., & Crittenden, K. S. (2008). Effects of health literacy on health status and health service utilization amongst the elderly. *Soc sci med, 66*, 1809-1816. https://doi.org/10.1016/j.socscimed.2008.01.003

Cockerham, W. C. (2005). Health lifestyle theory and the convergence of agency and structure. *Journal of health and social behavior*, *46*(March), 51–67. https://doi.org/10.1177/002214650504600105

Çelebi A. (2018). Development of Parental Attitude Scale Towards Rational Drug Use. Doctorate Thesis, Ataturk University Institute of Health Sciences, Erzurum.

De Walt, D. A., Dilling, M. H., Rosenthal, M. S., Pignone, M. P. (2007). Low parental literacy is associated with worse asthma care measures in children. *Ambul pediatrics, 7*(1), 25–31. https://doi.org/10.1016/j.ambp.2006.10.001

Demirtas, Z., Dagtekin, G., Saglan, R., Alaiye, M., Onsuz, M. F., Isıklı, B., Kılıc, F. S., & Metintas, S. (2018). Validity and Reliability of Rational Drug Use Scale. *ESTUDAM journal of public health,* 3(3), 37-46. URI: http://hdl.handle.net/11684/1578

Desalegn, A. A. (2013). Assessment of drug use pattern using WHO prescribing indicators at Hawassa University teaching and referral hospital, south Ethiopia: a cross-sectional study. BMC Health Serv Res, 13: 170. http://www.biomedcentral.com/1472-6963/13/170

Duran, Ü., Ogut, S., Asgarpour, H., & Kunter, D. (2018). Evaluation of the health personnel's healthy lifestyle behaviors. *Adnan menderes university faculty of health sciences journal, 2*(3), 138-147.

Entwistle, V., & Williams, B. (2008). Health literacy: The need to consider images as well as words. *Health expectations, 11*(2), 99-101.

Friis, K., Vind, B. D., Simmons, R. K., & Maindal, H. T. (2016). The Relationship between Health Literacy and Health Behaviour in People with Diabetes: A Danish Population-Based Study. *Journal of diabetes research*, 2016, 7823130. https://doi.org/10.1155/2016/7823130.

Geboers, B., Brainard, J. S., Loke, Y. K., Jansen, C. J., Salter, C., & Reijneveld, S. A. et al. (2015). The association of health literacy with adherence in older adults, and its role in interventions: a systematic meta-review. BMC public health, 15, 1091. https://doi.org/10.1186/s12889-015-2251-y

Howard, D., Gazmararian, J. A., & Parker, R. (2005). The impact of low health literacy on the medical costs of Medicare managed care enrollees. *The American journal of medicine, 118*(4), 371-377. https://doi.org/10.1016/j.amjmed.2005.01.010

Jin, J., Sklar, G. E., Min, S. O., & Chuen, L. S. (2008). Factors affecting therapeutic compliance: a review from the patient's perspective. *Ther clin risk manag, 4*, 269–286. https://doi.org/10.2147/tcrm.s1458

Kanj, M., & Mitic, W. (2009). Consultants to the eastern mediterranean region, world health organization. Health Literacy And Health Promotion Definitions, Concepts And Examplesin The Eastern Mediterranean Region Individual Empowerment Conference Working Document, 16, 1-46.

Kickbusch, I. P. J., Apfel, F., & Agis, T. (2013). Health Literacy: The Solid Facts, 1st edition. Copenhagen: World Health Organisation Regional Office for Europe.

Kickbusch, I., & Maag, D. (2008). Health Literacy. In International Encyclopedia of Public Health. Edited by: Kris H, Stella Q. Academic Press, 3, 204-211.

Marvanova, M., Roumie, C. L., Eden, S. K., Cawthon, C., Schnipper, J. L., & Kripalani, S. (2011). Health literacy and medication understanding among hospitalized adults. *J hosp med, 6*(9), 488–493. https://doi.org/10.1002/jhm.925

Munro, B. H. (2005). *Statistical methods for health care research*. Philadelphia: Lippincott Williams & Wilkins.

Nielsen-Bohlman, L., Panzer, A. M., & Kindig, D. A. (2004). *Health literacy: A prescription to end confusion*. Committee on Health Literacy, Institute of Medicine of The National Academies. Washington DC: The National Academies Press. https://www.nap.edu/read/10883/chapter/1

Nutbeam D. (2008). The evolving concept of health literacy. Soc sci med, 67(12), 2072–2078. https://doi.org/10.1016/j.socscimed.2008.09.050

Pagan, J. A., Brown, C. J., Asch, D. A., Armstrong, K., Bastida, E., & Guerra, C. (2012). Health literacy and breast cancer screening among Mexican American women in South Texas. *J cancer educ*, *27*(1), 132-137. https://doi.org/10.1007/s13187-011-0239-6

Parker, R. M., Baker, D. W., Williams, M. V., & Nurs, J. R. (1995). The test of functional health literacy in adults. A new instrument for measuring patients' literacy skills. *Journal of general medicine, 10* (10), 537-541. https://doi.org/10.1007/bf02640361

Raynor D. T. (2012). Health Literacy. British medical journal, 344, 1-2. https://doi.org/10.1136/bmj.e2188

Rudd R. E. (2015). The Evolving Concept of Health Literacy: New Directions for Health Literacy Studies. Journal of communication in healthcare, 8(1), 7-9. https://doi.org/10.1179/1753806815Z.000000000105.

Safer, R. S., & Kenan, J. (2005). Health literacy: The gap between physicians and patients. *Am fam physician, 72*(3), 463–468. PMID: 16100861

U.S. Department Of Health And Human Servıces Office of Disease Prevention and Health Promotion. (2007). Quick Guide to Health Literacy And Older Adults, Washington.

Wang, H. M., Beyer, M., Gensichen, J., & Gerlach, F. M. (2008). Health-related quality of life among general practice patients with differing chronic diseases in Germany: cross sectional survey. BMC public health, 8, 246. https://doi.org/10.1186/1471-2458-8-246.

World Health Organization (2012). The Pursuit of Responsible Use of Medicines: Sharing and Learning from Country Experiences. WHO/EMP/MAR/2012.3. Geneva Switzerland: WHO.