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Article *in* International Journal of Mental Health and Addiction · July 2023

DOI: 10.1007/s11469-023-01118-7

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ORIGINAL ARTICLE

The Relationship Between Social Media Addiction, Happiness, and Life Satisfaction in Adults: Analysis with Machine Learning Approach

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Accepted: 12 July 2023

Abstract
This study was conducted to determine the relationship between social media addiction, happiness, and life satisfaction in adults. This descriptive and cross-sectional study was conducted on 15/03/2022–30/12/2022 with 1008 adult individuals in Turkey. "Personal Information Form," "Bergen Social Media Addiction Scale," "Oxford Happiness Scale Short Form," and "Satisfaction with Life Scale" were used to collect data. Data were analyzed using SPSS 22.0, AMOS V 24.0, G*Power 3.1, R programming language 4.1.3 programs. As the level of social media addiction increases, life satisfaction (β=−0.235, p<0.05) and happiness (β=−0.290, p<0.05) levels decrease. It was found that life satisfaction had a mediating role in the effect of social media addiction on happiness (β=−0.139, 95% confidence interval=−0.186/−0.096). It was determined the structural equation model. The best performing algorithm for predicting the happiness variable was elastic net regression. When the contributions of the variables to the model are calculated with Shapley values (Shapley Additive Explanations (SHAP)), the most important variables that should be in the model to predict the happiness variable are life satisfaction and social media addiction variables. As the level of social media addiction increases, life satisfaction and happiness levels decrease. Longitudinal studies on social media addiction are recommended.

Keywords Social media addiction · Happiness · Life satisfaction · Adults · Machine learning

With the introduction of internet technology to people's cell phones, the internet has become widely used in the world. This situation increases the use of social media daily (Halverson et al., 2016). Social media is a tool that allows individuals to create, share, and search content (Kim, 2017; Smock et al., 2011), as well as communicate and collaborate with each other (Pempek et al., 2009). The time spent on the internet on a daily basis is

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a determining factor in social media addiction. The increase in this time is an indication that social media addiction has increased and some deterioration in life functionality has occurred with the weakening of the individual's relations with their social environment (Çiftçi, 2018). Ünal and Deniz describe social media addiction as a psychological problem that affects the individual cognitively, emotionally, and behaviorally, which leads to repetition in conflicts and problems in the individual's ability to deal with life areas such as private, work, social, and emotional situations (Tutgun-Ünal & Deniz, 2016). Social media addiction also leads to emotional exhaustion by spending emotional energy (Zivnuska et al., 2019).

Happiness is defined as a person's positive emotions outweighing their negative emotions. In other words, happiness is the set of feelings that a person expresses as good (Doğan, 2013; Eryılmaz, 2016). In general, happiness is defined as a biological and psychological state that every person strives to achieve throughout her life, which causes satisfaction when she reaches material and spiritual satisfaction, and creates human relations (Aluş & Selçukkaya, 2015). In some studies, it has been determined that the level of happiness decreases as social media addiction increases in individuals (Kutlu et al., 2016; Pittman & Reich, 2016).

Another variable associated with social media use is life satisfaction. Life satisfaction is a concept based on individual evaluation that clarifies the positive judgments and satisfaction levels of individuals about their life experiences and conditions (Diener et al., 1985). Life satisfaction is also defined as the cognitive expression of human happiness (Diener et al., 1999). In the literature, it is seen that there is a negative relationship between social media addiction and life satisfaction (Ayyıldız & Şahin, 2022; Kutlu et al., 2016; Longstreet & Brooks, 2017; Sun & Zhang, 2021). People can use social media to avoid negative moods and dissatisfaction with their lives. In other words, excessive use of social media to manage emotions can be seen as a strategy (Kumpasoğlu et al., 2021). It has been determined that as social media addiction increases, life satisfaction decreases in individuals (Pittman & Reich, 2016).

There are many approaches to life satisfaction, which is one of the components of happiness (Çevik & Korkmaz, 2014). Some of these approaches are bottom-up-top-down approach (Kozma & Stones, 1980), purposive approach (Çevik & Korkmaz, 2014), and activity approach (Çevik & Korkmaz, 2014). The bottom-up-top-down approach is a very popular one in contemporary psychology. According to the bottom-up approach, the individual determines the happiness in his life by evaluating the periods when he is happy for himself and when he is not. According to this approach, the combination of happy moments creates a happy life (Kozma & Stones, 1980). According to the top-down approach, when the individual is happy, she gets more satisfaction from her own life (Kozma & Stones, 1980). In the activity approach, it is argued that the happiness of the individual stems from his own activities. According to the purposive approach, satisfied needs lead to happiness and unsatisfied needs lead to unhappiness (Çevik & Korkmaz, 2014). Longstreet and Brooks stated in their study that a higher level of happiness corresponds to a higher life satisfaction (Longstreet & Brooks, 2017).

Some studies associate individuals' social media addiction with life satisfaction and happiness (Ansari et al., 2016; Li et al., 2015). However, since studies in which the characteristics of adults in terms of these three concepts are determined and the relationship between them is revealed are limited, it is thought that this study will contribute to the literature and support other studies to be conducted. This one was done to determine the relationship between social media addiction, happiness, and life satisfaction in adults. With this study, the effect of social media addiction and life satisfaction on the happiness level of individuals has been revealed,

and it has also been supported by the structural equation model, which is one of the important models in the literature, and the machine learning approach, which is an up-to-date approach.

Hypotheses of the study:

H_1: There is a significant relationship between social media addiction and life satisfaction.

H_2: There is a significant relationship between social media addiction and happiness.

H_3: There is a significant relationship between life satisfaction and happiness.

H_4: Life satisfaction has a mediating role in the effect of social media addiction on happiness.

Methods

In this study, the quantitative-cross-sectional-descriptive survey design method was used. It was conducted with 1008 individuals between 15/03/2022 and 30/12/2022 and done to determine the relationship between social media addiction, happiness, and life satisfaction in adults.

Population and Sample of the Study

The population of the study consists of individuals aged 18 and over living in Turkey. The minimum number of individuals to be included in the sample was calculated as 384 using the formula of unknown population ($n=t$ 2.p.q/d 2) with a 95% confidence interval (d=0.05), t=1.96, p=0.5, and q=0.5. In our study, 1008 individuals were included. In the post hoc power analysis conducted in line with the results obtained from 1008 participants, the power of our study was calculated to be 99% at a 95% confidence level with a medium effect size (Cohen, 1988). STROBE guidelines were used in reporting this research article (Vandenbrouckel et al., 2007).

Inclusion Criteria

All individuals who agreed to participate in the study were 18 years or older, did not have a disease that would prevent them from completing the questionnaire, and volunteered to participate in it.

Exclusion Criteria

Individuals who refused to participate in the study and those who left the study data incomplete or did not complete the questionnaire and scale questions completely were excluded from the study.

Type of Study

Data Collection Tools

"Personal Information Form," "Bergen Social Media Addiction Scale," "Oxford Happiness Scale Short Form," and "Satisfaction with Life Scale" were used as data collection tools.

Personal Information Form

The personal information form prepared by the researchers consisted of 6 questions (age, gender, family type, mother's education level, father's education level, and monthly income).

Bergen Social Media Addiction Scale

The Bergen Social Media Addiction Scale developed by Andreassen and colleagues (Andreassen et al.) consists of six items (Andreassen et al., 2016). Its Turkish language adaptation was conducted by Demirci (2019). Each item in the scale meets six basic addiction criteria: mental occupation, mood change, tolerance, withdrawal, conflict, and failed quit attempts. The scale is answered on a 5-point Likert-type scale ranging from (1) very rarely to (5) very often. The score obtainable from the scale varies between 6 and 30. There are no reverse items in it. An increase in the score on the scale indicates an increase in social media addiction. The internal consistency of the scale was found to be 0.83 (Demirci, 2019). In our study, Cronbach's alpha value came out as 0.80. Social media addiction scale was included as an independent variable in the study, and its construct validity was tested with confirmatory factor analysis. According to the results of the analysis, the fit indices were determined as x^2/df =2.966, RMSEA=0.044, CFI=0.99, GFI=0.99, AGFI=0.97, IFI=0.99, and TLI=0.98 and the structure of the scale was confirmed (Karagöz, 2019).

Oxford Happiness Scale Short Form (OHS-SF)

The adaptation of the OHS-SF developed by Hills and Argyle (2002) was conducted by Doğan and Akıncı Çötok (2011). The OHS-SF consists of 7 items and is a 5-point Likert-type scale. Items 1 and 7 are reverse-coded. High scores obtained from the scale indicate that happiness level scores are high. The scale consists of one dimension. The internal consistency coefficient of the scale was 0.74 and the test-retest reliability coefficient was 0.88. A high score on the scale indicates that the happiness level of the individual is high. In our study, Cronbach's alpha value came out as 0.72. Oxford happiness scale was included as the dependent variable in the study. The construct validity of the scale was tested by confirmatory factor analysis. According to the results of the analysis, the fit indices were determined as x^2/df=4.247, RMSEA=0.05, CFI=0.96, GFI=0.98, AGFI=0.96, IFI=0.96, and TLI=0.96 and the structure of the scale was confirmed (Karagöz, 2019).

Satisfaction with Life Scale

The Satisfaction with Life Scale (SWLS) was developed by Diener et al. to determine the life satisfaction levels of individuals (Diener et al., 1985). The scale was adapted to Turkish language by Dağlı and Baysal (2016). The life satisfaction scale is a one-dimensional and 5-item 5-point Likert-type measurement tool. The scoring of the statements in the scale is as follows: I do not agree at all (1), I agree very little (2), I agree moderately (3), I agree to a great extent (4), and I completely agree (5). Cronbach alpha coefficient of the scale adapted to Turkish language is 0.88. In our study, Cronbach's alpha value was 0.82. Satisfaction with Life Scale was included as the dependent variable in the study, and its construct validity was tested by

confirmatory factor analysis. According to the results of the analysis, the fit indices were determined as x^2/df=3.134, RMSEA=0.04, CFI=0.99, GFI=0.99, AGFI=0.98, IFI=0.98, and TLI=0.98 and the structure of the scale was confirmed (Karagöz, 2019).

Data Collection

A total of 1008 individuals participated in the study. The information obtained from the participants per the principles of data confidentiality was taken by gaining informed consent from each participant. Participants were asked to approve this form before starting the study.

Data Evaluation

The analysis of the research data was performed using SPSS 22.0, AMOS V 24.0, G*Power 3.1 statistical package programs. The significance level (p) was taken as 0.05 for statistical tests. The tests used in the SEM model evaluation of the data are given in Table 1. Analyses for the estimation of the happiness variable were performed with the R programming language version 4.1.3. While performing the analyses, ggplot2, hrbrthemes, hexbin, and GGally packages were used for graphics; SHAPforxgboost and xgboost packages were used for shap graphics. In order to apply and compare machine learning methods, 10-fold cross validation method was applied with caret package. In the caret package used for the cross validation method, knn for K nearest neighbor regression (KNN), svmRadial for support vector machine regression (SVM), avNNet for artificial neural network

Table 1 Statistical methods used in data analysis

Features evaluated	Statistical methods
Determining the conformity of the data to normal distribution	• Skewness coefficient • Coefficient of kurtosis
Determination of descriptive characteristics	• Percentage distribution • Frequency distribution
Determining the relationships between variables and creating a model	• Structural equation modeling (maximum likelihood estimation)
Evaluation of model fit	• Fit indices - Adjusted Chi-Square Statistic (X^2/Sd) - Fit Index (GFI) - Adjusted Fit Index (AGFI) - Comparative Fit Index (CFI) - Root Mean Square Error of Approximation (RMSEA) - Incremental Fit Index (IFI)
Model assumption analysis	• Multiple normal distribution - Skewness value - Kurtosis value - Distance Mahalonobis • Multiple linear connection - Tolerance value - Variance growth factor (VIF)
Ensuring the validity of measurement tools	Confirmatory Factor Analysis (Fit indices)
Ensuring the reliability of measurement tools	Cronbach's alpha coefficient

regression (ANN), rf for random forest (RF), xgbLinear for XGBoost, rpart for Decision Tree regression (CART), and glmnet for Regression (REG) functions were used to determine the best performance of the methods. Alpha value between (0,1) represents elastic net mixing parameter values. If Alpha is 0, it is Ridge regression and if Alpha is 1, it is Lasso regression. Lambda is the strength of the penalty on the coefficients.

Structural Equation Modeling (SEM)

In this section, a structural equation model was constructed and tested to determine the relationship between social media addiction, the independent variable of the study, and life satisfaction and happiness, the dependent variable of the study.

Assumption Analyses

SEM is a multivariate statistical method that offers the opportunity to test multiple relationships at the same time and calculates the causality relationship between variables by modeling (Collier, 2020; Gürbüz, 2019). There are pre-assumption tests for SEM analysis. These are:

- Adequacy of sample size
- Variables having multiple normal distribution
- Lack of multicollinearity between variables
- Absence of outliers

When the assumptions were examined, it was determined that the study was in the over 200 sample class (Collier, 2020), which is considered a large sample volume for structural equation modeling with a sample size of 1008. In looking at the multiple normal distribution of the variables, kurtosis and skewness values were examined. For multiple normal distribution, the skewness value should be between −2 and +2, and the kurtosis value should be between −10 and +10 (Collier, 2020). The skewness value was found to be in the range of −0.341 to 0.001; the kurtosis value was found to be in the range of −0.565/−0.111; and multiple normal distribution was provided for the variables. Many parameters are examined for multicollinearity between variables. In the field of nursing, tolerance and variance inflation factor (VIF) are among the values examined (Lee & Lee, 2022; Mottaghi et al., 2019; Yoon et al., 2021). In the study, a tolerance of 1.00–0.940 (>0.10) and a VIF value of 1.000–1.063 (<10) were determined for the dependent and independent variables. According to these value ranges, the conclusion was that there was no multicollinearity between the dependent and independent variables. While determining outliers, Mahalanobis distance and p1/p2 values were examined, and no outlier was found.

Reliability Analyses of the Scales

Before testing the SEM model, the reliability of the variables gets tested. In the study, the reliability of the variables was tested by determining Cronbach's alpha coefficient (>0.60) (Hu & Bentler, 1999; Karagöz, 2019) values of the scales. It was determined that Cronbach's alpha coefficients of the measurement tools were between 0.72 and 0.82.

Ethical Principles of the Study

Approval for the research was obtained from the Scientific Research and Publication Ethics Committee of a university (Date and Number: 01.03.2022-42263). The individuals who would participate in the study were informed face-to-face about the purpose of the study, the method, the time they would allocate for the study, that participation would not cause any harm, and that participation was completely voluntary, and their consent was obtained. The Helsinki Declaration on Human Rights was adhered to throughout the study to protect individual rights.

Limitations and Generalizability of the Study

This study can only be generalized to the group in which the research was conducted. In the study, the order of the scales and the situation in which the data were collected may be due to method bias.

Results

It was found that 68.1% of the individuals who participated in the study were female, 71.7% lived in nuclear families, 38.4% had illiterate mothers, 36.7% had literate fathers, 68.8% had incomes equal to their expenses, and the mean age of the individuals was 35.01±12.12 (years) (Table 2).

Following the assumption analyses and the determination that the measurement tools were valid and reliable, a structural equation model was established to determine the relationship between the scales (Figs. 1 and 2). It was determined that the model created in accordance with the hypotheses was compatible, and the model fit indices were within the desired limits as x^2/df=3.480, RMSEA=0.05, CFI=0.93, GFI=0.95, AGFI=0.93, and IFI=0.93 (Karagöz, 2019) (Table 3).

Model results:

H_1: There is a significant relationship between social media addiction and life satisfaction. The hypothesis was confirmed (p<0.05), and hypothesis H_1 was accepted (Fig. 3 and Table 4). As the level of social media addiction increases, life satisfaction decreases.

H_2: There is a significant relationship between social media addiction and happiness. and H_2 hypothesis was accepted (Fig. 3 and Table 4). As the level of social media addiction increases, the level of happiness decreases.

H_3: There is a significant relationship between life satisfaction and happiness. The hypothesis was confirmed (p<0.05), and hypothesis H_3 was accepted (Fig. 3 and Table 4). As life satisfaction increases, happiness level increases.

H_4: Life satisfaction has a mediating role in the effect of social media addiction on happiness. The hypothesis was confirmed (p<0.05), and hypothesis H_4 was accepted (Fig. 3 and Table 4).

Age, gender, family type, monthly ıncome, mother education, father education, social media addiction, and life satisfaction variables were used for the estimation of happiness variable. In the prediction model, the most accurate parameter value was determined for 7 algorithms by applying 10-fold cross validation. In order to find the most accurate parameter value, the data set was divided into 70% train and 30% test data and the methods were

Table 2 Descriptive characteristics of individuals (n=1008)

Demographic characteristics		n	%
Gender	Male	322	31.9
	Female	686	68.1
Family type	Nuclear family	723	71.7
	Extended family	285	28.3
Mother's education level	Illiterate	387	38.4
	Literate	140	13.9
	Primary Education	321	31.8
	Secondary Education	114	11.3
	Higher Education	46	4.6
Father's education level	Illiterate	85	8.0
	Literate	81	36.7
	Primary Education	370	36.3
	Secondary Education	366	10.5
	Higher Education	106	8.4
Monthly income status	Income less than expenses	299	29.7
	Income equal to expenses	693	68.8
	Income higher than expenses	16	1.6
	$\overline{X}$±SD (Min-Max)		
Age (years)	35.01±12.12 (19–69)		

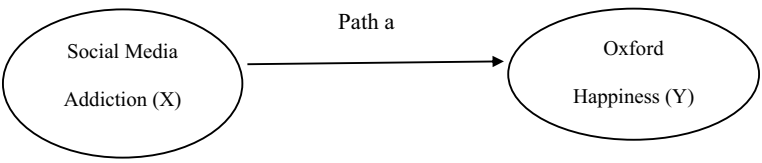

Fig. 1 Simple effect model

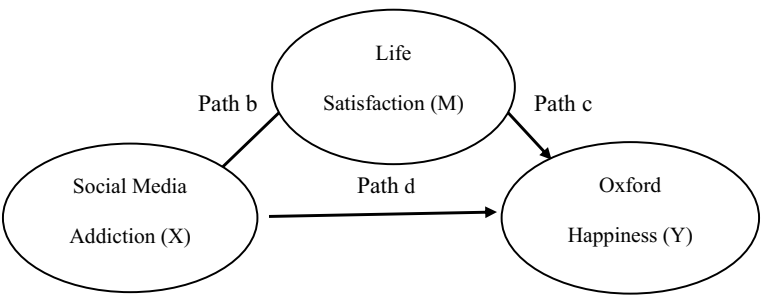

Fig. 2 Structural equation model predicted between social media addiction, life satisfaction, and happiness

Table 3 Fit Index values of the model

Fit Index	Research model	Normal value	Acceptable value
χ^2/sd	3.480	<2	<5
GFI	0.95	>0.95	>0.90
AGFI	0.93	>0.95	>0.85
IFI	0.93	>0.95	>0.90
CFI	0.93	>0.95	>0.90
RMSEA	0.05	<0.05	<0.08

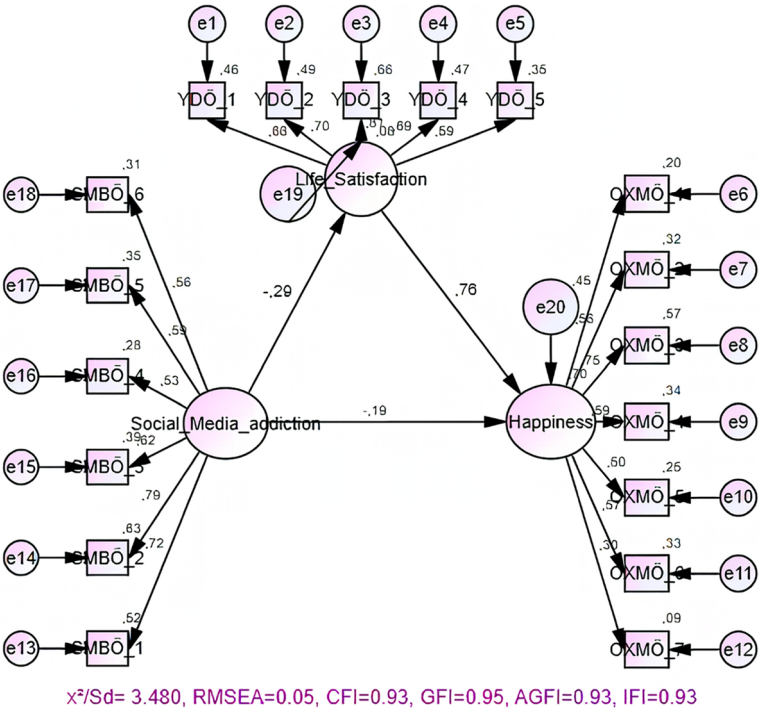

Fig. 3 SEM diagram showing the relationship between social media addiction, life satisfaction, and happiness

compared. There are 708 observations in train data and 300 observations in test data. In order to determine the most accurate parameter value of the algorithms, train data was estimated and shown in Fig. 4.

Figure 5 shows the comparison metrics (RMSE, MAE) for the best parameter values. Figure 2 shows the RMSE and MAE values obtained as a result of estimating the most accurate metric values obtained with the train data with the test data. When the metric values are analyzed, although every model except the REG model produces close and successful predictions, the REG model gives the most accurate result. Since the alpha parameter value that gives the most accurate result in the REG model is 0.6, elastic net regression

Table 4 The relationship between social media addiction, life satisfaction, and happiness of individuals

	Result variables			
	Life satisfaction		Happiness	
	B	S.H.	*β*	S.H.
Social media addiction (path a)			-0.290	0.033
R^2			0.178	
Social media addiction (path b)	−0.235	0.032		
R^2	0.083			
Life satisfaction (path c)			0.591	0.051
Social media addiction (path d)			−0124	0.022
R^2			0.697	
Effects	*β*		95% confidence interval (Lower bound–upper bound)	
Total effect	−0.263		−0.343/−0.185	
Direct effect	−0124		−0.179/−0.073	
Indirect effect	−0.139		−0.186/−0.096	

was used (Fig. 2). *R*^2 values of the methods: ANN 0.4382699, CART 0.3698576, KNN 0.4179933, RF 0.3969341, SVM 0.4184988, XGBoost 0.2974995, and REG 0.4405418.

A prediction table can be created for the REG method. In Fig. 6, we can see the test data predicted by the REG model with red lines. The blue lines are the actual test data. Visually, we can say that the closer the red lines are to the blue lines, the more successful the prediction model is.

In order to predict the happiness variable, all variables were compared with the performance of machine learning algorithms. It was then found that the best performing algorithm was elastic net regression. The contributions of these variables to the model were calculated with Shapley values (Shapley Additive Explanations (SHAP)). The SHAP values of the variables in the best performing model were examined to avoid bias in terms of comparison in the performance criterion. SHAP (Shapley Additive Explanations) values show the contribution or importance of each variable in the estimation of the model. As can be seen in the graph, the most important variables that should be in the model to predict the happiness variable are life satisfaction and social media addiction variables (Fig. 7).

Discussion

In our study, we aimed to determine the effect of social media addiction on happiness and life satisfaction in adults. In this section, the findings are discussed in light of the literature.

In our study, there is a significant relationship between social media addiction and life satisfaction. As the level of social media addiction increases, life satisfaction decreases. The result of this study supports the conclusion of Longstreet and Brooks (2017) that social media addiction has significant effects on life satisfaction and that social media addiction is a factor that reduces individuals' life satisfaction. In the study conducted by Brailovskaia et al. (2021), the result of this study also supports the conclusion that there

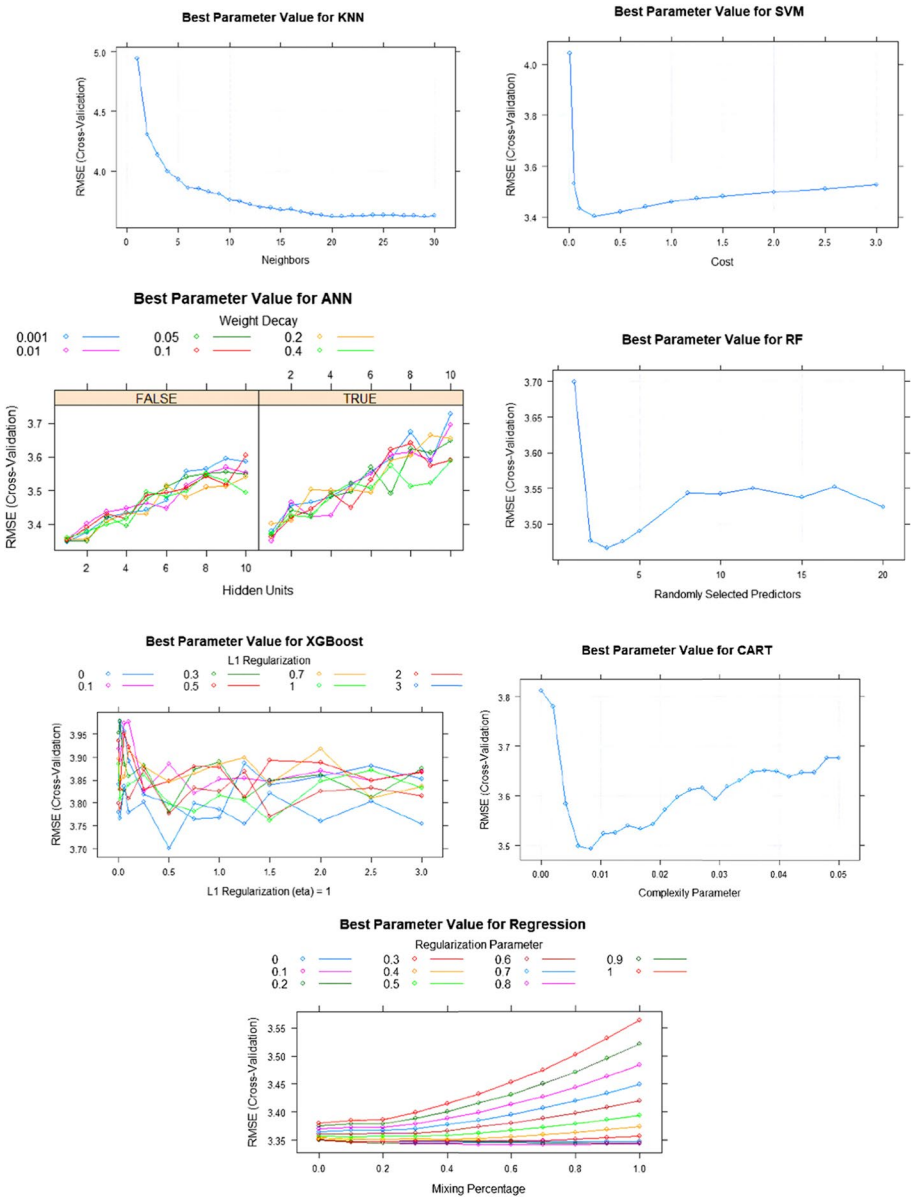

Fig. 4 KNN, SVM, ANN, RF, XGBoost, CART, and REG algorithms models used for the estimation of happiness variable

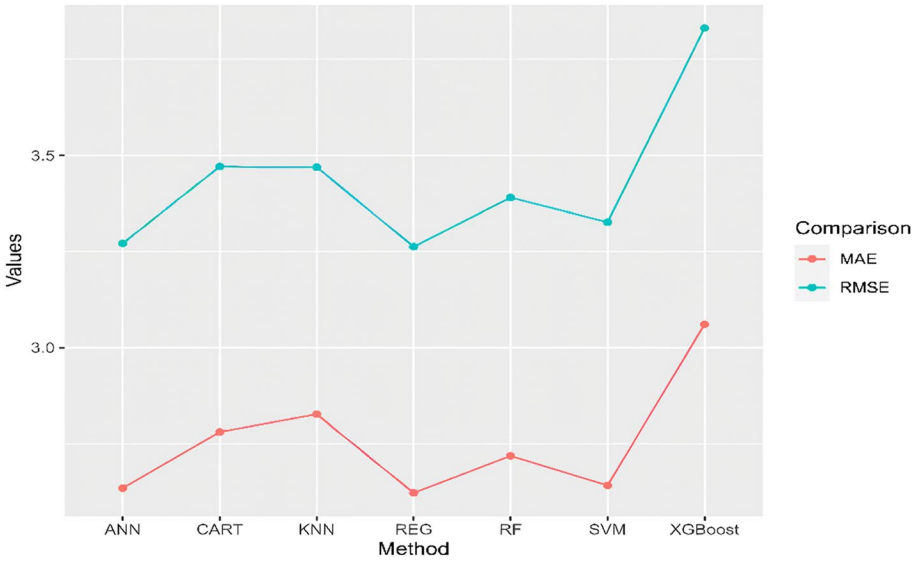

Fig. 5 The metric values of the methods according to the estimation of the test data

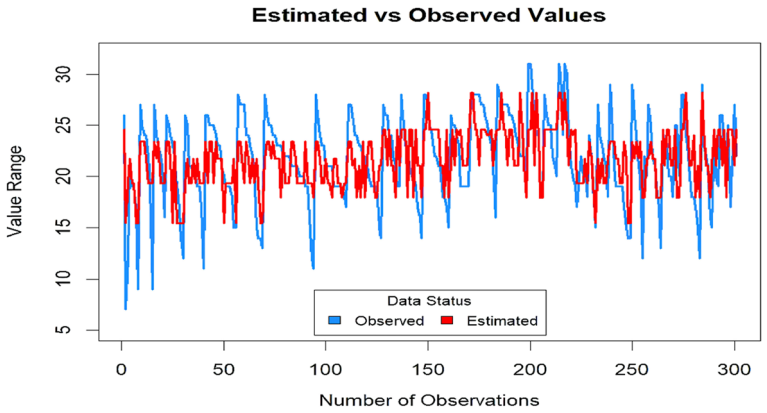

Fig. 6 Happiness prediction with REG method

is an inverse relationship between social media addiction and life satisfaction. In addition, in the study conducted by Boer et al. (2020) examining the intensive and problematic social media use and well-being of adolescents in twenty-nine countries, the result of this study is consistent with the result that problematic social media users are at a lower welfare level in all areas compared to non-problematic users in terms of all countries. In addition to these studies, in another study conducted by Marttila et al. (2021), it was determined that social media addiction is negatively related to life satisfaction in the first place. In some studies, they found a negative significant relationship between internet addiction and life satisfaction (Batıgün & Kılıç, 2011; Caplan, 2005; Dilsiz & Kandemir, 2020; Esen & Siyez, 2011; Hinsch & Sheldon, 2013; Morsünbül, 2014).

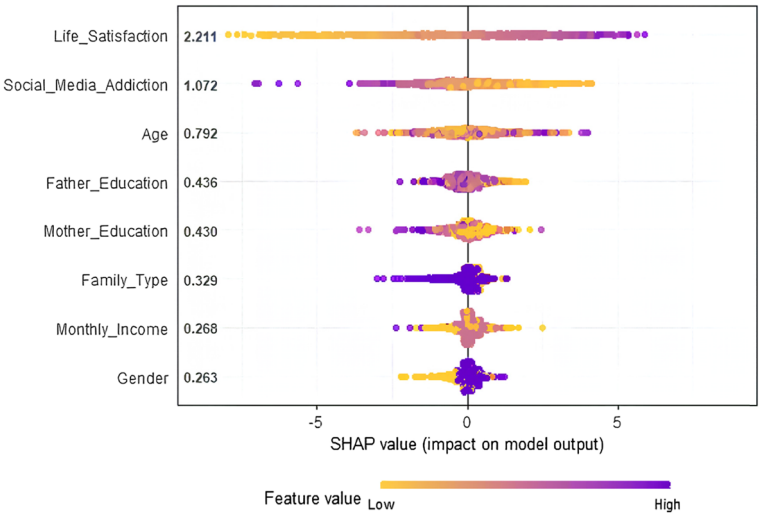

Fig. 7 Determining the contributions of variables to the model for happiness estimation with Shapley values (SHAP plot according to the most accurate parameter values estimated in the xgboost method (lambda = 0.5, alpha = 3, eta = 1, nrounds = 1000))

The increasing use of social media in recent years may cause psychological, physical, and social media addiction problems in people. It has been revealed that social networks, which significantly affect the lives of individuals, can also affect the life satisfaction of social individuals. Life satisfaction can be said to be the positive values and thoughts that people give to their own lives in general. Since social media addiction has a negative meaning and life satisfaction has a positive meaning, it has been observed that social media addiction, which is negative, has effects on life satisfaction. According to Kara (2017), in recent years, the fact that people want to use social networks to spend a fun time, in general, brings along some negative situations such as envy, individualization, and hopelessness. This situation can also affect individuals' life satisfaction depending on social media.

A significant relationship between social media addiction and happiness is present in our study. As social media addiction increases, the level of happiness decreases. Studies report that the concept of happiness is subjective and that social media addiction increases relative happiness and well-being, but pushes young people away from social life and isolates them, therefore creating unhappiness in the long term (Shek & Yu, 2016). Similar results were found in the literature (Balcı & Kocak, 2017; Eroğlu & Bayraktar, 2017; Ford & Mauss, 2014; Süler, 2016).

In our study, the hypothesis that life satisfaction has a mediating role in the effect of social media addiction on happiness was confirmed. Ford and Mauss (2014) mentioned three main features between being happy and social media. The first is that the feeling of unhappiness is felt more when the need to be happy cannot be met, the second is that the path to happiness is not known, and the third is the negative consequences of constantly focusing on happiness and striving for happiness (Ford & Mauss, 2014). The feeling of life satisfaction and happiness is confused with the behaviors of freedom and acceptance in social media. Freedom and constantly waiting for the admiration of others and wanting the continuity of this are completely contrary to the concept of "happiness." It is seen that individuals who achieve happiness on social media cannot be happy in real life (Frison &

Eggermont, 2017). When the research conducted by Balcı and Koçak considering the life satisfaction of individuals is evaluated, it reveals a negative relationship between happiness levels and frequency of social media use and indirectly active internet use (Balcı & Kocak, 2017). As the happiness levels of internet users increase based on their life satisfaction levels, a decrease in the duration of their social media use manifests itself. In light of the findings, individuals with low levels of happiness, depending on their level of life satisfaction, use social media more frequently daily because it is a habit. In addition, in their study, while their happiness levels increase linearly as their life satisfaction levels increase, there is a regression and decrease in the frequency of social media use to evaluate leisure time (Balcı & Kocak, 2017). Considering our study findings and the studies previously conducted, it shows that social media addiction negatively affects the happiness level and life satisfaction of individuals.

Happiness levels of individuals can be affected by many factors. In this study, the effect of social media addiction, which is an important problem of today, was examined and the effect of life satisfaction on happiness was revealed. It has been revealed that individuals should pay attention to the variables that affect the level of happiness while paying attention to these two variables. In addition, it has been determined that they should give importance to social media addiction and happiness in the category of variables that can affect happiness in studies on happiness.

Conclusion

As the level of social media addiction increases, life satisfaction and happiness levels decrease. Longitudinal studies on social media addiction are recommended. Longitudinal studies on social media addiction are recommended. In this study, happiness has been estimated by using variables with machine learning approach. The best estimation was made with elastic net regression model from machine learning approaches. It is also recommended to make predictions with new machine learning approach models to be added to the literature.

Acknowledgements We thank all adult participants who participated in the study.

Author Contribution Study design: Çiftci Necmettin, Yıldız Metin. Data collection: Çiftci Necmettin, Yıldız Metin. Data analysis: Çiftci Necmettin, Yıldız Metin. Manuscript writing: Çiftci Necmettin, Yıldız Metin

Declarations

Ethics Approval All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Approval was obtained from Muş Alparslan University Scientific Research and Publication Ethics Committee for the research (Date and Number: 01.03.2022-42263) was performed. Verbal consent to participate in the research was obtained from the individuals by giving information about the purpose of the research, the method, the time they would spare for the research, and by declaring that participating in the research would not do any harm and that the participation was completely voluntary.

Consent to Participate Voluntary consent was obtained from the participants participating in the study.

Consent for Publication Publication permission was obtained from the participants.

Conflict of Interest The authors declare no competing interests.

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