

**Extended Abstract**

# Predicting High School Students' Problematic Internet Use in Terms of Religious Beliefs and Moral Maturity\*

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## Abstract

This study intends to reveal the relationships among high school students' problematic Internet use with their religious beliefs and moral maturity. Data has been collected using the Problematic Internet-Use Scale, Religious Belief Scale, Moral Maturity Scale, and personal information form; the participants consist of 389 high school students. The results of the analysis obtained by multiple linear regression analysis reveals that moral maturity is a significant predictor of problematic Internet use in high school students; no statistically significant relationship exists between students' level of religious belief and problematic Internet use. Therefore, individuals' moral maturity is considered as an important contribution for future studies and for guidance and counseling services in preventing problematic Internet use.

## Keywords

Problematic Internet use • Religious belief • Moral maturity • High school student • Internet

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The Internet serves many purposes, such as information sharing, academic research, entertainment, education, communication, and commerce. The frequency, duration, and purpose for using the Internet, which has become an outstanding component of modern human life, is considered to be an important criterion in the emergence and evaluation of problematic Internet use (Shaw & Black, 2008). Problematic Internet use, or Internet addiction, is generally defined by traits such as an unstoppable desire to excessively use the Internet, irritability and aggression emerge when the person is not connected to the Internet, time spent using the Internet cannot be controlled, time spent on the Internet gradually increases, and one's social and business lives become corrupted (Young, 1998, 2004). Although much time has been spent on defining this problem in the literature, full consensus has yet to be achieved on which concepts can define Internet addiction. Problematic Internet use (Caplan, 2002; Davis, Flett, & Besser, 2002; Shapira, Goldsmith, Keck, Khosla, & McElroy, 2000), Internet addiction (Young, 1998), and pathological Internet use (Davis, 2001; Morahan-Martin & Schumacher, 2000) are the primary concepts used to refer to this problem. In the current study, the concept of *problematic Internet use* has been preferred.

Studies on Internet users' psychological profiles have shown a positive correlation to exist between low self-esteem, social anxiety, loneliness, and depression with Internet addiction (Selfhout, Baranje, Delsing, Bogt, & Meeus, 2009; Sun et al., 2005). Whang, Lee, and Chang (2003) determined that Internet addicts show considerable signs of loneliness and depression compared to those who are not addicted to the Internet. Also, Internet addiction in young adults has been associated with psychological well-being and low self-esteem (Yen, Ko, Yen, Chang, & Cheng, 2009).

Problematic Internet use is regarded as a multidimensional syndrome composed of behavioral and cognitive aspects that unveil negative social, professional, and academic outcomes (Caplan, 2005). Kim and Davis (2009) expressed that problematic Internet use corrupts people's familial and professional living spaces by failing to control constant use (cited in Ceyhan, 2010). The Internet, which is an important area of life for people, has a strong effect on teenagers.

According to Yücel and Gürsoy (2013), teenagers mostly use the Internet in many areas such as doing homework, chatting with friends in their spare time, and researching answers on topics of interest, as well as for self-realization in an environment where they feel stronger. Internet abuse carries risks for adolescents' lives, while functional Internet use offers many opportunities for adolescents' development (Bayraktar, 2013). According to Taçyıldız (2010), adolescents attempt to express themselves in a virtual environment when they fail to process something, such as being unable to receive social support from family or friends, overcoming communication problems, or academic failure. In this case, the Internet can be perceived as an area of escape for adolescents.

When reviewing the relevant literature on problematic Internet, one observes that research, using demographic variables such as gender, age and education level (Niemz, Griffiths & Banyard, 2005; Siyez, 2014; Treuer, Fabian & Füredi, 2001; Yang & Tung, 2007), has attempted to discover the relationships among loneliness (Kraut et al., 2002; Sanders, Field, Diego, & Kaplan, 2000; Whang, Lee & Chang, 2003), low self-esteem (Armstrong, Philips, & Sailing, 2000), introversion and extroversion (Koch & Paratarelli, 2004), peer pressure and perceived social support (Esen, 2009), and depression (Bayraktar, 2001; Kim et al., 2006; Niemz et al., 2005; Whang et al., 2003; Yang & Tung, 2007; Young & Rodgers, 1998) with problematic Internet use.

The phenomenon of belief can simply be said to be as old as the history of mankind. Almost all individuals and communities in the progress of history have been attached to specific beliefs. These beliefs have an important function in meeting expectations, such as their requirements for interpreting life. Several studies in the literature have revealed that religion and religious beliefs greatly contribute to the integrity of one's personality; pious people, who have high levels of religious belief, can adapt better psychologically and are also understood to more easily cope with crises and crisis situations when facing traumatic experiences (Argyle & Beit-Hallahmi, 1997; Clark, 1961; Hood, Hill, & Spilka, 2009).

The phenomenon of belief, which has been discussed comprehensively, contains a sense of universal acceptance, connection, and verification. Even though used in the same sense as faith, the main concept of belief has a broader scope that includes knowledge, opinions, and faith (Hökelekli, 1998; Vergote, 1999). This study will focus on and research the religious aspect of belief. Religious belief relates to belief in a being with absolute sovereignty over people and the entire universe who is regarded by all to supernaturally have might and supreme power; it relates to the set of rules that regulate the relationships between that being and humans and also indicates the conditions of acceptance, rejection, and doubt for an individual in religious matters (Peker, 2000).

When reviewing the international literature, the concept of morality is used to express morals, which comes from the Latin *morales* and means character, state, custom, and movement. Longman's (Summers, 1995) dictionary defines moral as the difference between good and evil, the set of principles regarding right and wrong behaviors, and the ability to understand the difference between right and wrong. In the Islamic way of thinking, morality is primarily considered to be a competence and natural capability. In this regard, Al-Ghazali explains the concept of morality as a natural capability (the ability) settled in our souls that is the reason why actions come to light without need for mental effort (Kılıç, 2007). However, Ibn-i Sina, defines morality as having religious origins, as well as being a natural spiritual and mental ability (Çağrı, 1989).

Moral maturity refers to the totality of moral features and means being competent in terms of moral attitudes and behaviors to make sense of what is the most beneficial, necessary, and satisfactory. The concept of moral maturity can be explained by utilizing the concept of moral development. Individuals who develop using learning processes and several other factors are also expected to become mature.

Lickona (1991) argued that when evaluating moral maturity through individual qualifications, those who are responsible, fair, respectful, and reliable and who have empathy and self-control develop into good people; they face all laws and statutes as good citizens.

Kohlberg (1958) examined moral development by dividing it into stages: the pre-conventional level, which individuals respond under certain circumstances using rules established by others; the conventional level, where the expectations of family and people are at the forefront; and the post-conventional level, where individuals themselves define moral values and principles that are valid and applicable outside of the authority of the groups or people who hold these principles and separate from the individual's own identification with these groups (Çekin, 2013; Senemoğlu, 2001). When considering the issue in Kohlberg's taxonomy, one can say people's moral maturity occurs after the relevant developmental stages have been completed. Moral maturity means being competent and sufficient in terms of moral feelings, thoughts, judgments, attitudes, and behaviors. It manifests as a reaction to all amoral situations, and those who have these characteristics tend to have the capacity for empathy (Şengün & Kaya, 2007).

Problematic Internet use negatively affects adolescents' physical development and social lives; it can also lead to negative consequences in terms of mental health. Keeping in mind that this situation can affect both adolescents' school and family lives, the importance of determining and solving the issues related to problematic Internet use appears quite obvious. Problematic internet use in today's society has become a significant source of danger for adolescents and children, as well as many adults (Ceyhan, 2008). However, despite its negative consequences, one of the most frequently asserted findings related to Internet use in the literature is that people around the world pretty much use the Internet for many purposes, such as getting information, playing games, talking with friends, and studying (Davis, 2001).

Limited research exists in Turkey for determining the variables that predict problematic Internet use, and it is seen that these studies have been done only in recent years. Thus, a need for studies that determine the power of variables to predict problematic Internet use is thought to exist in Turkey. This study aims to analyze the religious and moral variables that predict problematic Internet use among high school students. Levels of religious belief and moral maturity were chosen as the

predictive variables for high school students' problematic Internet use. The study is considered to be significant for investigating the effect of students' religious beliefs and moral maturity levels on problematic Internet use. This study attempts to answer the question, "Do high school students' levels of religious belief and moral maturity affect their problematic Internet use?" as the main issue.

## Method

This study is a correlational research that aims to reveal the situation as it currently exists. The correlational survey method has been used to investigate the relationship between religious belief and moral maturity; it is used to determine the presence and amount of change among two or more variables (Karasar, 2012).

### Study Group

Simple random sampling was employed to form the study group, which consists of 389 high school students studying at several schools in the Beylikdüzü District of Istanbul during the 2015-2016 academic year. The students in the study group are composed of 224 (57.6%) female and 165 (42.40%) male students. In terms of education level, 90 (23.10%) are freshmen, 147 (37.80%) are sophomores, 125 (32.10%) are juniors, and 27 (6.90%) are seniors. Additionally, 121 (31.10%) students attend religious vocational high schools, 99 (25.40%) attend vocational high schools, and 169 (43.40%) attend Anatolian high schools; students' average age is 16.10 ( $SD = 0.94$ ).

### Data Collection Tools

The Religious Belief Scale, developed by Altemeyer and Hunsberger (2004), was used to determine high school students' religious belief levels. The Moral Maturity Scale, developed by Şengün and Kaya (2007), was used to determine high school students' moral maturity levels. The Internet Addiction Scale, developed by Young (1998), was used to determine students' problematic Internet use. Details of the measurement tools are presented below.

**Personal information form.** The study uses the personal information form as developed by the researcher to determine students' demographic features (gender, age, school type, income, and parents' education level).

**Religious Belief Scale.** The Religious Fundamentalism Scale, developed by Altemeyer and Hunsberger (2004), was adapted to Turkish by Kaya and Aydın (2011) in consideration of Islamic requirements. The measurement tool is a 5-point Likert-type and its answers include "strongly agree," "agree," "hesitant," "disagree," and "strongly disagree." The scale has 12 items, half of which are reverse statements in order to control response bias. Direct statements reflect positive beliefs, and

reverse statements reflect negative beliefs. The answers “strongly agree” to “strongly disagree,” which marked for direct statements, are scored respectively from 5 to 1, while for reverse statements they are scored from 1 to 5. Higher scores on the scale indicate higher levels of religious belief. The lowest obtainable score on the scale is 12, and the highest score is 60. Both the half-split test and Cronbach’s alpha coefficient for reliability for the Religious Belief Scale are 0.78. For validity testing, factor analysis (varimax) shows that factor loadings for items 1, 2, 4, 5, 7, 8, 9, 10, and 12 are clustered in the first factor (religious precepts), and items 3, 6 and 11 are in the second factor (categorical thinking). Furthermore, correlational coefficients between item scores and total score range from .25 to .68 and are found to be at significant levels ( $p < .01$ ). According to the results, the Religious Belief Scale can be described as valid and reliable. In the validity and reliability results of this study, the half-split test reliability coefficient is .82, and Cronbach’s Alpha is .87. The Religious Belief Scale can be said to be reliable in consideration of these results.

**Moral Maturity Scale.** This scale was developed by Şengün and Kaya (2007) and aims to measure individuals’ moral maturity levels. It is a 5-point Likert-type scale consisting of 66 items. The data collected for validity and reliability were obtained from 830 high school students in Samsun in May of 2007 using a randomly chosen sample. In order to determine the Moral Maturity Scale’s validity, expert opinions were first obtained. Factor analysis was performed for validity, and items are seen to be clustered in the first factor. In addition, item analysis shows the item-total score correlation coefficient to be significant ( $p < .01$ ). When analyzing the reliability of the Moral Maturity Scale, the coefficient for test-retest reliability was .84; for the half-split test reliability, .89; and for Cronbach’s alpha, .93. According to these results, the Moral Maturity Scale can be considered reliable and valid.

The scale’s items are answered as “Yes, always,” “most of the time,” “sometimes,” “rarely,” and “no, never.” The positive items are respectively scored from 5 to 1, whereas reverse items are respectively scored from 1 to 5. The scale has 47 positive and 13 negative items. The highest score that can be obtained from the scale is 300, and the lowest score is 60. Higher scores indicate higher levels of moral maturity, while lower scores show lower levels.

**Internet Addiction Scale.** This scale constitutes the diagnosis survey adapted by Young (1998) from the diagnostic criteria for pathological gambling in the American Psychological Association’s Diagnostic Service Manual (Version 4, 2000). The scale is a 6-point Likert-type whose answers are “never,” “rarely,” “sometimes,” “mostly,” “very often,” and “always.” These options are scored respectively from 0 to 5. Scores of 80 or higher indicate an “Internet addict;” scores from 50 to 79 indicate limited symptoms; and scores under 50 indicate no symptoms (Bayraktar, 2001).

The scale was translated by Bayraktar (2001), investigated by five instructors from Ege University's Faculty of Literature, and adjusted for suitability to adolescents between 12 and 17 years old. Cronbach's Alpha for the translated test is .93, and the Spearman-Brown value for reliability is .87.

### Data Analysis

The relationships among religious belief, moral maturity, and problematic Internet use were calculated by analyzing the Pearson and Spearman correlational coefficients. In order to examine the impact of religious beliefs and moral maturity on problematic Internet use, multiple linear regression analysis was performed. The number of participants has been suggested as needing to be five times greater than the number of independent variables (Meyers, Gamst, & Guarino, 2006). In this study, 389 participants took part, which is understood to exceed the recommended level of expectations. Certain assumptions must be met before starting multiple linear regression analysis. The assumptions for multiple linear regression (Büyüköztürk, 2014) can be expressed as follows: (a) the data must have multivariate normal distribution, (b) there needs to be a linear relationship between the independent variable and the predictor variables, (c) there mustn't be any multicollinearity problems among independent variables (high-level relationships).

Whether or not the multivariate normal distribution assumption  $\chi^2$  been met can be investigated by calculating Mahalanobis' distance (Büyüköztürk, 2014). Mahalanobis' distance for the study's data set were examined, and one of the observed data with a value greater than the  $\chi^2$  criteria was removed from the data set ( $p < .001$ ). Thus, the statistical processes have been performed over 388 students, and the assumption of normality for the multivariate data has been met. In addition, the skewness-kurtosis values have been checked for normal distribution of the dependent variables, and the values have been determined to range from +1.5 to -1.5. Tabachnick and Fidelle (2013) implied that data sets with skewness values between +1.5 and -1.5 fulfill the criteria of acceptability for normal distribution. Also, normal distribution is checked with the help of histograms, and excessive deviations have been determined in the scatter of normality.

Table 1  
*Skewness-Kurtosis Values*

	<i>N</i>	Skewness	Kurtosis
Religious Belief	388	-1.033	.791
Moral Maturity	388	-.526	.257
Problematic Internet Use	388	.885	.216

Whether or not the data set provides the assumption of linearity is tested by investigating the overall scatter diagram of dependent (problematic Internet use)

and predictor (religious beliefs, moral maturity) variables. According to the obtained results, scatter diagrams for standardized residual values and standardized predicted values reveal a linear relationship.

Another important assumption from the regression analysis is the absence of multicollinearity problems in the data set. Multicollinearity problems refer to high relationship levels ( $r > 0.90$ ) among independent variables (Çokluk, Şekercioğlu, & Büyüköztürk, 2010). Several methods have been recommended in the literature to test for multicollinearity problems. Some of these methods include calculating the variance inflation factor (VIF), condition indices (CI), tolerance values, and correlations among independent variables (Büyüköztürk, 2014; Çokluk et al., 2010). In this study, these four methods have been used for identifying whether or not multicollinearity exists. Values less than 10 for the variance inflation factor, than 30 for condition indices (CI), or equal to or greater than 0.20 for tolerance values indicate an absence of multicollinearity issues (Çokluk et al., 2010). Correlation between the independent variables is 0.24 in this study. The variables' variance inflation factor is 1.06, tolerance value is 0.94, and condition index is less than 30. In accordance with the obtained findings, one can say no multicollinearity issues exist among the independent variables.

The first analyses show that the data set provides the necessary assumptions for the multiple regression analysis. Accordingly, regression analysis was performed over data from the 388 participants.

## Findings

In order to test the relationship among high school students problematic Internet use and their levels of religious beliefs and moral maturity, the Pearson product-moment correlation coefficients for the variables were calculated. The results are presented in Table 2.

Table 2  
*Pearson Product-Moment Correlation Coefficients for the Relationships among Variables*

	X	SD	1	2	3
Religious Belief (1)	47.92	8.97			
Moral Maturity (2)	267.43	29.97	.242**		
Problematic Internet Use (3)	31.89	21.28	-.029	-.402**	

$N = 388$ , \*\* $p < .01$ .

When examining Table 2, a significant positive correlation is determined to exist between the variables of religious beliefs and moral maturity ( $r = .242, p < .01$ ), while no significant relationship was determined between problematic Internet use and religious belief ( $r = -.029, p > .01$ ); a negative significant relationship was determined to exist between problematic Internet use and moral maturity ( $r = -.402, p < .01$ ).

Multiple linear regression analysis was performed to identify the predictive power of religious beliefs and moral maturity on problematic Internet use among high school students. The results are presented in Table 3.

Table 3  
*Multiple Linear Regression Analysis Results Related to Religious Beliefs and Moral Maturity as Predictors of High School Students' Problematic Internet Use*

Variable	<i>B</i>	Standard Error $\beta$	$\beta$	<i>t</i>	<i>p</i>	Binary <i>r</i>	Partial <i>R</i>
Constant	103.226	9.461		10.911	.000		
Religious Belief	.171	.114	.072	1.507	.133	-.029	.077
Moral Maturity	-.297	.034	-.419	-8.738	.000	-.402	-.407
<i>R</i> = 0.408	<i>R</i> <sup>2</sup> = 0.166	$\Delta R^2$ = 0.162					
<i>F</i> <sub>(2, 385)</sub> = 38.376	<i>p</i> = .0000						

When examining Table 3, the variables of religious beliefs and moral maturity appear to explain approximately 17% ( $R^2 = 0.166$ ,  $\Delta R^2 = 0.162$ ,  $F_{(2, 385)} = 38.376$ ,  $p < .01$ ) of the total variance in high school students' scores for problematic Internet use.

According to the standardized regression coefficient ( $\beta$ ), the predictor variables' relative order of importance on problematic Internet use is moral maturity followed by religious beliefs. When examining the *t*-test results for the significance of regression coefficients, only the variable of moral maturity is seen to be a significant predictor of problematic Internet use. Religious belief does not significantly contribute to problematic Internet use. According to the regression analysis results, the regression equation for the prediction of problematic Internet use is given below.

$$PIU = 103.226 + 0.171 \text{ RELIGIOUS BELIEF} - 0.297 \text{ MORAL MATURITY} \quad (1)$$

## Discussion

This study attempts to find the underlying factors of problematic Internet use and intends to determine the extent to which high school students' levels of moral maturity and religious beliefs affect their problematic Internet use for this purpose. As a result, no significant relationship could be determined between religious beliefs and problematic Internet use. However, high school students' level of moral maturity has been identified as a significant predictor of problematic Internet use.

One can say that problematic Internet use has become a global problem in relation to the increase in Internet users. Most studies in the literature that predict problematic Internet use are about determining personal and interpersonal sensitivity factors. However, limited studies are available that have attempted to reveal the relationship between problematic Internet use and positive factors.

Almenayes (2015) investigated the relationship between piety and social media addiction in his study and found that religious beliefs are an important predictor

in two sub-factors of social media addiction. However, there was no meaningful relationships among the other sub-factors. He also determined that religious beliefs (a) protect the individual from the negative effects of social media, (b) allow one to control the time spent using social media, and (c) have no relationship with the compulsive feelings that emerges while using social media.

Charlton, Sog, Anh, and Chew (2013) examined the relationship between Internet addiction tendencies and religious beliefs in adolescents in their study and found a negative relationship between tendencies toward women's Internet addiction levels and religious beliefs of women. However, they could not find any relationship between men's piety levels and Internet addiction tendencies in their study.

Armfield and Holbert (2003) investigated the relationship between piety and Internet use in their study, finding that religious belief is a relatively weak predictor of Internet use compared to variables such as age, income, and education.

Short, Kasper, and Wetterneck (2015) aimed to investigate the relationship between religious beliefs and Internet use intended for pornography in their study and found a negative correlation between the frequency of Internet use intended for pornography and piety. In situations where individuals comply with their religious beliefs and spiritual values, the level of Internet use intended for pornography is near zero.

Zhang et al. (2014) aimed to investigate the relationship between problematic Internet use and universal virtues in their study and found that virtues such as reliability and honesty are important predictors of problematic Internet use.

As a result of this study, moral maturity is thought to have a significant predictive effect on high school students' problematic Internet use. Thus, when considering the findings of this study, the following recommendations can be given for future studies on problematic Internet use. Firstly and prominently neglected in the literature, studying positive factors over problematic Internet use is thought to be useful in predicting problematic Internet use. By taking into consideration the relationship between problematic Internet use and moral maturity, conducting individual and group studies for psychological counselors to develop moral maturity in school would be useful. Carefully maintaining values education in schools is also considered necessary.

The finding that moral maturity is a significant predictor of problematic Internet use, which arose as a result of the research, is thought to contribute to preventing and intervening in problematic Internet use.

As a result, individuals' moral maturity is thought to provide an important contribution both for performing psychological counseling services for the prevention of problematic Internet use and for future studies.

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