The International Journal of
INDIAN PSYCHOLOGY

Research Paper

The Relationship and Prediction Rate of Internet Sex Addiction with Body Dysmorphic Disorder (BDD) in Men

Mehrnaz Sheibani Noqabi[1]*, Gholamreza Ebrahimi-Nejad[2], Mohammad Toloue Arjmand[3], Morteza Modarres Gharavi[4]

ABSTRACT

There are several diagnostic labels for persistent and extreme sexual behavior, often referred to in the popular media as Internet sex addiction or cybersex addiction. Internet sex addiction is a type of engaging in dominant sexual behaviors, pornography, and cybersex that alienates people from their partners and reduces their feeling of sexual satisfaction. People who have a negative evaluation of their health and body image have Body Dysmorphic Disorder (BDD), which affects people's social communication. The present research was conducted to determine the relationship and prediction rate of Internet sex addiction with BDD. The current research is descriptive-correlation type. The subjects were 66 men with internet sex addiction criteria in the age group of 15 to 50 years in the Iranian population. The sampling method, the available sample, and the research tool has been Carnes' sexual addiction questionnaires and the Multidimensional Body-Self Relations Questionnaire (MBSRQ). Data analysis has been done using correlation tests and multiple regression analysis in SPSS. In this study, it was found that the lower and weaker assessment of health and body image among people, the percentage of internet sex addiction is higher among them.

Today, with technological progress and the use of Internet in the smartphones, the personal relationships of people in the virtual world with strangers, regardless of their places, are formed in a traumatic way. One of these traumas in the virtual world that cause problems on the personal, family, and social levels of real life of people is Internet sex addiction. This problem, as defined by Kimberly Young, includes viewing, downloading, and trading online porn and sex role games in adult rooms. Things such as copying, looking at pornographic photos with masturbation, reading or writing explicit sexual letters and

[1]Clinical Psychologist, Hypnotherapist, and Researcher, Mashhad, Iran
[2]Division of Behavioural Medicine and Clinical Psychology, Kerman University of Medical Science, Kerman, Iran
[3]Doctor of Medicine, and Clinical Psychologist, Mashhad, Iran
[4]Center for Psychiatric and Behavioral Science Research, Mashhad University of Medical Sciences, Mashhad, Iran
*Corresponding Author

stories, sending e-mails or ads with the aim of establishing sexual meeting, visiting sexy chat rooms and online romantic relationships with people, and interactive online activities is one of the activities of people suffering from this type of addiction (Young, 2008). The criteria of two related diagnoses are considered under the headings of internet addiction disorder and hypersexual disorder but are not included in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (Rosenberg et al., 2014). Due to the availability of the Internet in the new century, the percentage of Internet sex addiction is increasing (Seth, 2003). In virtual networks, users can have interactive online relationships for sexual purposes; due to the possibility of unlimited access to the Internet, young people enter the world of pornography whenever or wherever they want (Laaser, 2009). Devices equipped with the Internet have allowed people to encounter sexually explicit content, which has led to premature puberty and increased sexual excitement in adolescent males, and increased sexual relations in adolescent girls (Peter, & Valkenburg, 2006). Most of these products depict idealized sexual images and activities; so, the Internet by displaying unrealistic images and sexual fantasies is considered a highly sexual environment compared to other media (Som et al., 2022). Sexual addiction includes activities such as extreme masturbation, online pornography, and cybersex, which will lead to health dysfunction and financial and family losses (J Kuss et al., 2014). The concept of Internet sex addiction is used to describe those who obsessively seek online sexual experiences, and if they cannot satisfy their sexual impulses, their behavior is disturbed. Internet sex addiction can be a devastating disorder and threaten the marriage and family relationships of the affected person. Sexual addiction or hypersexual disorder is characterized by the compulsion to immediately satisfy the sexual need (Carnes, 2001). Dissatisfaction in the marital relationship with the spouse or sexual partner will be one of the complications of this type of addiction or one of its created factors. Sometimes a person even looks for scenes of unusual types of these relationships in the real world with his sexual partner. These movies and sexual imagery are basically role games with unrealistic imaginations and create multiple pleasures in their viewer mind. In real and face-to-face relationships with their sexual partners or spouses, people cannot achieve the pleasure imagined in their minds, and they will suffer dissatisfaction and frustration or diversities, which sometimes are problematic for them. Internet sex addiction is one of the hidden and destructive addictions of the family foundation and can cause family, social and occupational problems. On the other hand, people who cannot satisfy their sexual desires in person and in the real world, look for virtual communication. Poor self-image or body image is another factor that affects people's relationships. Body image was invented for the first time by Paul Schilder, an Austrian neurologist and psychoanalyst, and is the perception of person of their body in terms of aesthetics or sexual attractiveness and the idea that every person has of their body; They consider themselves beautiful and fitness or, on the contrary, is not satisfied with their appearance. According to Cash and Prozinski's definition, the attitude of a person towards body image includes parts of evaluation, cognitive and behavioral, and resultant of person's awareness of health. A person's feeling towards his physical appearance in the eyes of others or the cultural ideals, in which he lives, forms the person's body image (Schilder, 1935). Sometimes there is a gap between the physical reality and appearance of people and their body image. This means that sometimes a person's perception of his body image is much worse or much better than reality, and this affects his social relationships. These people may insist on having sex in total darkness, and do not allow certain parts of their body to be touched or seen, or seek unnecessary surgeries for their imaginary disabilities, which it can be a factor in choosing a person's Internet sexual relationship. The absence of a satisfactory body image makes a person suffer from body dysmorphic disorder, which the American Psychiatric Association has classified this

disorder in the category of obsessive-compulsive and related disorders (Khemlani-Patel, & Neziroglu, 2022). Patients with body dysmorphic disorder have mental preoccupations with imaginary defects in their appearance or face, and this mental preoccupation causes discomfort and destruction of important functional areas of the patient (Dziegielewski, 2014).

In a study, the relationship between the use of Internet pornography and the narcissism index was investigated. Time spent watching Internet pornography was positively correlated with participants' level of narcissism. Therefore, those who used Internet pornography had higher levels of all three criteria of narcissism (Kasper et al., 2015). Thoughts about body image are disturbed, pervasive and annoying. These thoughts and mental preoccupation cause disruption in the social and communication activities of a person. The fifth edition of the Diagnostic and Statistical Manual of Disorders classifies the body dysmorphic disorder in the obsessive-compulsive class, but this disorder is different from phobia and social anxiety (Diagnostic and Statistical Manoual of Mental Disorders, 2013). The most common starting age of this mental occupation is mostly in adolescence or early youth between 15 and 30 years old; most of the affected patients are unmarried and women are affected more than men (Sadock, & Sadock, 2008; Anthony, & Farella, 2014). Muscular dysmorphia is a subgroup of body dysmorphic disorder in which the affected person considers his body too small; this disorder is more common in men (Bjornsson et al., 2022). people with body dysmorphic disorder, in addition to thinking about imaginary defects in their body, frequently examine and compare perceived defects, which can lead to unusual routines to avoid social contact; usually, these people hide their preoccupation in the society, and they are also severely damaged in terms of education and job and suffer social disconnection (Phillips et al., 2005). There is a positive relationship between the use of social networks and the negative perception of self-image, so that communication with attractive peers in these networks increases the fear of body image (Hogue, & Mills, 2019). Since there is a positive and meaningful relationship between the use of social networks and negative body image, people with body dysmorphic disorder become more isolated by reducing social interactions, and to compensate for this isolation, they replace Internet communication and the use of social networks with physical presence in the community. Furthermore, it brings decrease in social support, internet addiction and increase the use of social networks (Tan, 2019). In body dysmorphic disorder, suicidal thoughts and attempts are high (Phillips et al., 2005). Social anxiety is the main factor influencing the use of online dating programs to obtain a sexual partner. Users of online dating programs have showed higher scores in the SAST (Sexual Addiction Screening Test) compared to non-users (Zlot et al., 2018). The results of a research regarding the relationship between the amount of using pornography in social media and ostentation and body comparison showed that boys and girls may be prone to body concerns related to pornography, but these concerns may not include body shaming (Maheux et al., 2021). Young people, who are more exposed to pornography, are more involved in sexually dominant behaviors, and this pornography distances them from their life partners and reduces their sense of sexual satisfaction (Wright et al., 2021). Those who have more sexual desire also have more addiction (Som et al., 2022). Research results showed that people of different ages chose different classifications of the type of pornographic content, such as sexual intercourse with partners of the opposite sex and fetishism, and types of violence or unusual behavior in pornographic scenes, but among these (soft pornography) and (sexual intercourse) had the highest search rate and popularity in different ages (Ballester-Arnal et al., 2022). It is worth mentioning that older age does not provide protection against online sex addiction, and age-related vulnerability may increase

the risks (Ševčíková et al., 2021). Sex addiction is more common among men than women. Among men, neuroticism is associated with a greater tendency to sexual addiction (Shimoni et al., 2018). Also, obsessive-compulsive symptoms of people who use the Internet to find a sexual partner can lead to sexual addiction in them (Levi et al., 2020). This article examines the relationship between Internet sex addiction and body dysmorphic disorder in men.

METHODOLOGY

The present research is correlation-relation research in which inferential statistics are used. Inferential statistical analysis includes Multivariate regressions and Pearson's correlation coefficient for the hypothesis test. The regression model according to the microscales of the research variables is multivariable, which the simultaneous method was used to enter the subscales of predictor variables, and SPSS-22 software was used to analyze the data.

The statistical population of the present research is men who have criteria for Internet sexual addiction from the population of Iran. The statistical sample of this research is 66 Iranian men who have filled the internet questionnaires of the research and have the criteria of sexual addiction. The sampling method in the current research is the available community.

Research tool
Sexual Addiction Screening-Test-Revised (SAST-R)

Carnes presented the second version of the Sexual Addiction Screening Test under the title of Sexual Addiction Screening-Test-Revised for screening of sex addicts. This test contains 45 yes or no questions. The test has a main part (the first 20 questions) and two subscale groups. The first group of subscales includes 4 subscales of internet sex addiction, a sexual scale for men, a sexual scale for women, and a sexual scale for homosexual men. The second group of subscales is research subscales that are used to diagnose and differentiate the main components of sexual addiction and include the subscales of mental preoccupations, lack of control, damage in relationships, emotional trauma and correlated characteristics.

Validity and reliability of internet sex addiction questionnaire

Carnes et al. using Cronbach's alpha method calculated the validity of this test in different groups, which were reported as: 82% for heterosexual men, 84% for women, and 89% for homosexual men. Internal consistency of this test was reported as: 81% of university women, 77% of nuns, 91% of sex addict women discharged from the hospital, 84% of university men, 88% of monks, 90% of sex addict men discharged from the hospital, and 96% of hospitalized sex addict men (Carnes et al., 2010).

The validity of the test through Cronbach's alpha, which was conducted by the researcher of the present study on 199 people for the Iranian population, was 90%, which indicates the high validity and reliability of this questionnaire in Iran (see Table 1).

Table No. 1 Reliability Statistics

No. of Questions	Cronbach's alpha
45	0.904

Multidimensional Body-Self Relations Questionnaire (MBSRQ)

Multidimensional questionnaire of individual's attitude to self- body image which includes 69 items and 10 subscales (including appearance evaluation (7 questions), appearance

orientation (12 questions), fitness evaluation (3 questions), disease orientation (5 questions), body satisfaction (2 questions), mental weight (2 questions) and preoccupation with excess weight (4 questions)) determine the type of evaluation of the person's body image from self. The questionnaire is a five-point Likert scale. Kash and Prozinski considered the attitude of the person from self-include to assessment, cognitive, behavioral, and person's awareness of health or illness.

Validity and reliability of the multidimensional questionnaire of person's attitude about his body image

The main parts of Brwon, Cash, and Mikulka questionnaire were examined and confirmed. Also, its reliability was reported to be 81% (Brown et al., 1990; Cash, & Pruzinsky, 1990). The validity and reliability of the body image questionnaire on 199 people from the Iranian population were examined by the researcher and its Cronbach's alpha coefficient was 85%, which indicates high reliability and internal consistency of this questionnaire (see Table 2).

Table No. 2 Reliability Statistics

No. of Questions	Cronbach's alpha
60	0.859

RESULTS

Table 3 shows the frequency of participants' age with sexual addiction criteria.

As can be seen in Table 3 and Figure 1, the highest age frequency of people with Internet sex addiction of statistical sample is in the young ages 1 and 2, i.e., the range (21 to 26 and 27 to 32 years old). That is, young people aged 21 to 32 had the highest frequency of sexual addiction.

Table No. 3 Frequency of Participant's age

Age	Frequency	Frequency Percentage	Cumulative Frequency
15-20	4	6.1	6.1
21-26	27	40.9	47.0
27-32	17	25.8	72.7
33-38	9	13.6	86.4
39-44	1	1.5	87.9
45-50	8	12.1	100.0
Total	66	100.0	-
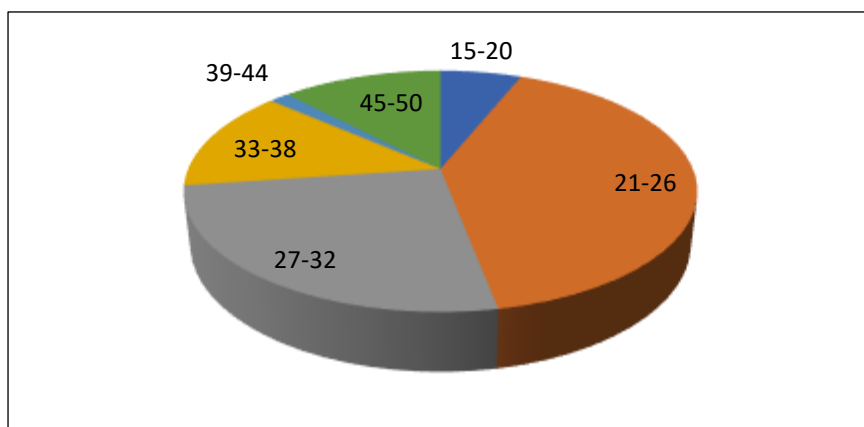
Figure No. 1 Participant's age

As shown in Table 4, the education of the participants in the level of diploma and under-diploma of 18 people is equivalent to 27.3%, the associate degree of 4 people is equivalent to 6.1%, the bachelor's degree of 28 people is equal to 42.4%, the master's degree of 11 people is equal to 16.7% and the doctorate degree of 3 people equal to 4.5%, which is a total of 66 people or 100% of the present sample, all have the criteria of internet sex addiction. Since the majority of the population with sexual addiction criteria is between the ages of 21 and 32, they are considered to be the educated youth.

As can be seen in Table 4 and Figure 2, the highest percentage of people with sexual addiction criteria of statistical sample with education is at the bachelor's level.

Table No. 3 Frequency of Participant's education

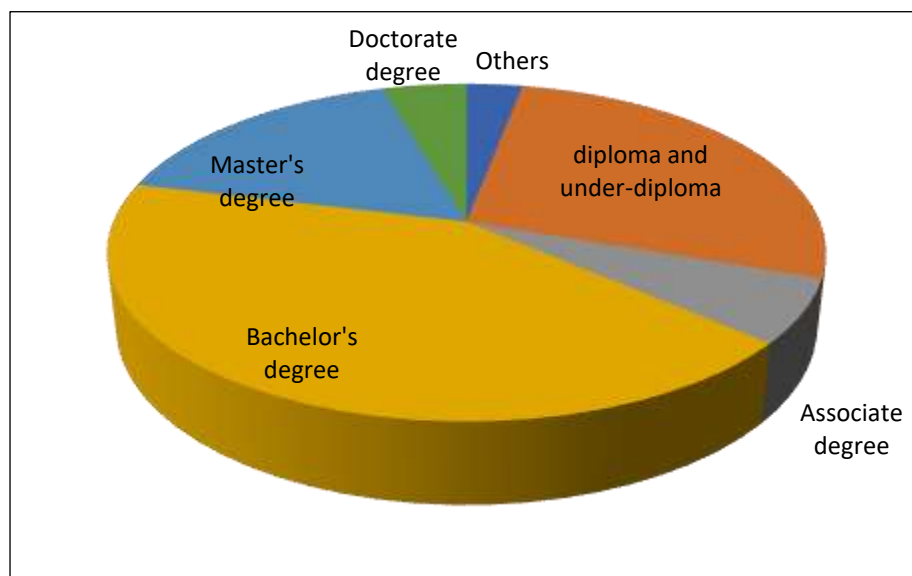| Education	Frequency	Frequency Percentage	Cumulative Frequency
diploma and under-diploma	18	27.3	27.3
Associate degree	4	6.1	33.4
Bachelor's degree	28	42.4	75.8
Master's degree	11	16.7	92.5
Doctorate degree	3	4.5	97.0
Others	2	3.0	100.0
Total	66	100.0	-

Figure No. 2 Frequency of Participant's education

Description of the percentage frequency of Internet sex addiction variable
The data in Table 5 and Figure 3 show that, the frequency percentage of the No option in the Internet sex addiction variable is 59.1% and the frequency percentage of the Yes option is 39.4%.

Table No. 5 Frequency percentage of Internet sex addiction variable

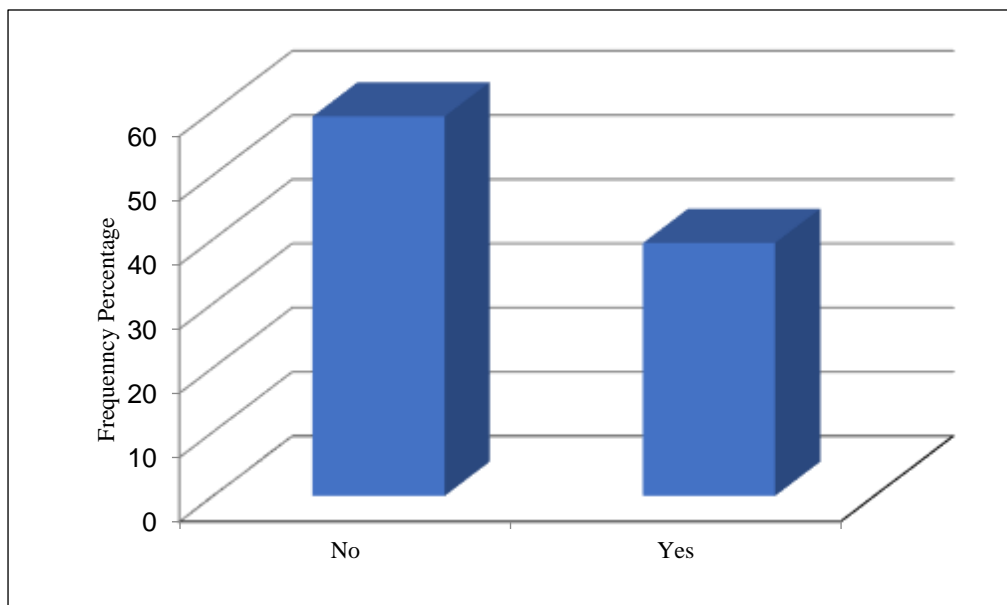|	Frequency	Frequency Percentage
No	39	59.1
Yes	26	39.4

Figure No. 3 Frequency percentage of Internet sex addiction variable

Description of the variable frequency of body dysmorphic disorder
The data in Table 6 shows that the frequency percentage of the body image variable of the option of completely disagree is 0%, somewhat disagree is 4.5%, no opinion is 30.3%, somewhat agree is 60.6% and completely agree is 3%.

Table No. 6 Frequency percentage of the body image variable

Scale	Frequency	Frequency Percentage
Completely disagree	0	0
Somewhat disagree	3	4.5
No opinion	20	30.3
Somewhat agree	40	60.6
Completely agree	2	3.0
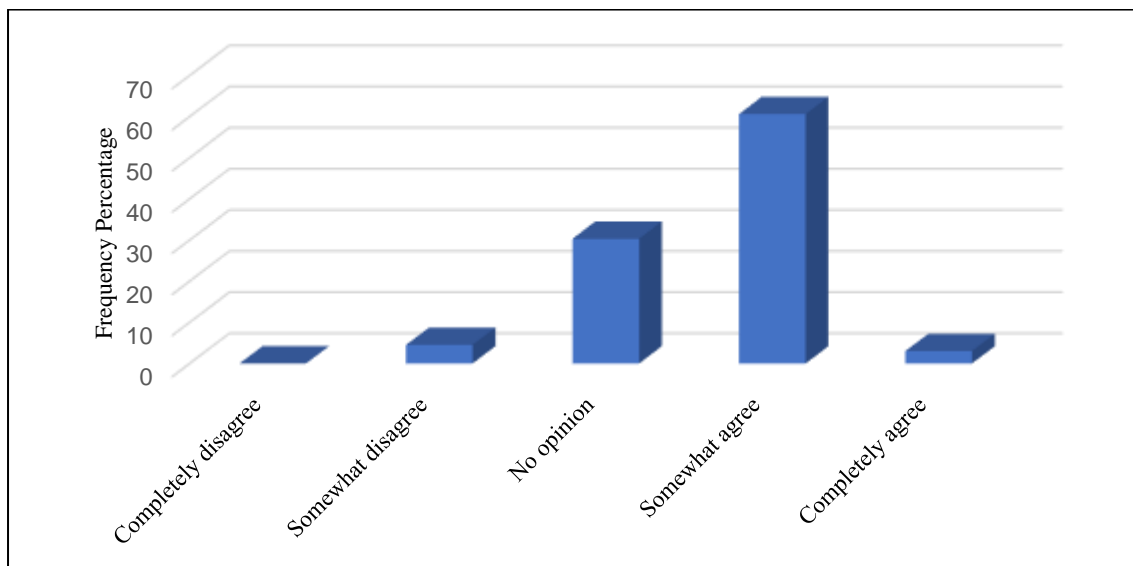
Figure No. 4 Frequency percentage of the body image variable

Kolmogorov-Smirnov test

The inferential statistics of this research include the Kolmogorov Smirnov test for the normality of the sex addiction score, and body dysmorphic disorder, as well as the investigation of research hypotheses and the results of regression tests. The data of Table 7 of the Kolmogorov Smirnov test scores for the normality of the sex addiction score shows the dysmorphic of the body. According to the data in the table, the variables of Internet sex addiction have a non-normal distribution. The non-parametric test is used in data that have non-normal distribution. The variable of body dysmorphic disorder is among the variables that have a normal distribution. In the present research, which is a correlation type, if one of the variables in a test has a non-normal distribution and the other has a normal distribution, non-parametric tests will be used in all the tests between these two variables.

Table No. 7 Kolmogorov-Smirnov test

Variable	Test statistic (Z)	Significance level (Sig)
Internet sex addiction	0.091	0.2
BDD	0.106	0.068

There is a relationship between Internet sex addiction and body image health assessment in men.

H_0: There is no relationship between Internet sex addiction and body image health assessment in men.

H_1: There is a relationship between internet sex addiction and body image health assessment in men.

According to the data in Table 8, there is a negative and indirect correlation at the level of -0.348% between Internet sex addiction and body image health assessment. According to the significance level obtained, the assessment of body image health has a moderate correlation with a significance level of 0.004%, which indicates the rejection of the null hypothesis and the confirmation of the research hypothesis that there is a relationship between Internet sex addiction and the assessment of body image health.

Table No. 8 Correlation of internet sex addiction with body image variable scale

Variable	Correlation	Significance level (Sig)
Body image health	-0.348	0.004

The main hypothesis

The variable of body dysmorphic disorder has an effect on internet sex addiction.

H_0: The variable of body dysmorphic disorder does not affect internet sex addiction.

H_1: The body dysmorphic disorder variable has an effect on internet sex addiction

The main hypothesis of this research is to determine the relationship and the effect between Internet sex addiction and body dysmorphic disorder. In fact, this hypothesis seeks to determine to what extent the variable of body dysmorphic disorder can predict the dependent variable of Internet sex addiction. Therefore, the causal regression model is used to understand this. How the variables enter the regression model and the obtained results can be seen in Tables 9 and 10.

Table No. 9 Correlation Coefficient and Coefficient of Determination

Correlation Coefficient (R)	Coefficient of Determination (R²)	Durbin Watson Statistic
0.666	0.443	1.947

Table 9 shows the correlation coefficient and determination coefficient between independent and dependent variables. Examining the independent variables shows that the health scale of the body dysmorphic disorder variable has a relatively decisive role in the explanation of the dependent variable (internet sex addiction). As can be seen, the independent variables are correlated with the dependent variable to the extent of (R = 666). The obtained determination coefficient also shows that 44% (R2=0.443) of internet sex addiction is depend on the mentioned independent variables. Since the value of Durbin Watson's statistic is close to 2 (Durbin-Watson=1.947(, it can be assured that the assumption of independence of the residuals has also been observed in the present regression analysis.

Table 10 examines the significance of the regression model, as it can be seen that the ratio of the regression mean square (268.593) is higher than the residual mean (11.428). Fisher's statistic (F) shows the difference between the means, which is equal to 23.503. Looking at the significance level of the model (sig=0.000), it is clear that this level of difference is significant and indicates the fact that the obtained regression model can significantly predict the dependent variable.

Table No. 10 Significance of the regression model (ANOVA)

	Sum square	Mean square	F	Sig
Regression	1611.556	268.593	23.503	0.000
Residual	2022.787	11.428	-	-

The results in Table 11 show the intensity and direction of the effect of the independent variables on the dependent. The independent variable of body image health (Beta = 0.001) influences the dependent variable and the direction of its effect is direct and positive. According to the significance level (sig = 0.990) that exceeds 0.05, it can be concluded that the effect of health assessment on body image is not significant.
According to Table 11, the intensity of the independent variable's effect on the dependent variable can be measured.

Table No. 11 Variables included in the regression equation and their influence coefficients

Variable	Standard Error	Beta coefficient (β)	Sig
Body image health	0.100	0.001	0.990

One of the assumptions of using regression is the normality of the distribution of residuals. Table 12 and Figure 5 show that the shape of the distribution of standardized residuals of regression is almost normal and there is a correlation between them and the expected standardized residuals. The distribution of points on the diameter of Figure 5 confirms this fact.

Table No. 12 Residual statistics

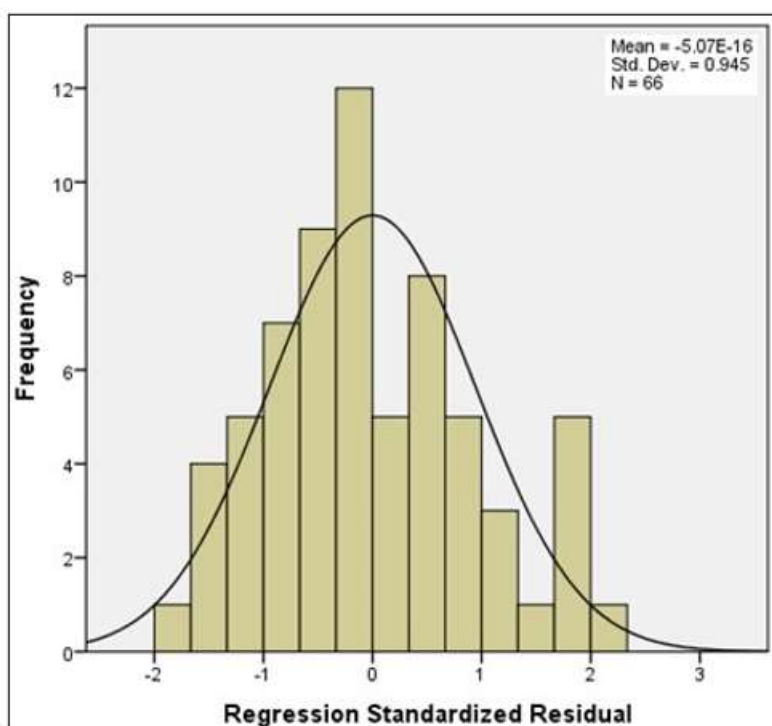|	Minimum	Maximum	Mean	Standard Deviation
Predicted	2.4976	23.3208	9.8333	4.64159
Residual	-5.36585	6.80838	0.0000	2.97369
Predicted standard	-1.580	2.906	0.000	1.000
Residual standard	-1.705	2.163	0.000	0.945

Figure No. 5 Histogram of Regression Standardized Residual

DISCUSSION

There is a relationship between Internet sex addiction and body dysmorphic disorder in men. According to the results, there is an indirect and significant correlation between Internet sex addiction and body image. Body image is one of the factors that have a significant effect on people's self-confidence. One of the factors that people turn to virtual world communication instead of real communication in the real world is that they do not have a proper self-concept and body image of themselves in their minds. In virtual communication, the appearance factor is somewhat lower in priority than in the real world. Therefore, most people with Internet sex addiction had a poor body image, and according to the results of the hypothesis test that there is an indirect and significant relationship between Internet sex addiction and body dysmorphic disorder, it concludes that the lower and weaker the assessment of health and body image is, the person has a body dysmorphic disorder and the percentage of internet sex addiction is more seen in them.

The results of this research show that the body dysmorphic disorder variable has a correlation of 66.6%, and 44.3% predict the level of internet sex addiction.

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