

Prediction of Hypnotizability Based on Attachment Style and Sensation Seeking among Psychology Graduates in Mashhad Iran

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ABSTRACT

In recent years, hypnosis has garnered growing attention in both clinical and research settings, particularly regarding its therapeutic applications. This study aimed to predict the degree of hypnotizability based on attachment style and sensation seeking among psychology graduates in Mashhad in 2020. The study utilized an applied research framework. A total of 33 participants were voluntarily selected from a pool of 60 individuals attending a hypnosis fundamentals workshop. Data collection instruments included the Collins and Read Adult Attachment Scale and a shortened version of Zuckerman's Sensation Seeking Scale. Hypnotizability was assessed using Spiegel's eye-roll test. Data was analyzed using SPSS version 21. Results revealed that among the sensation seeking subscales, Experience Seeking and Boredom Susceptibility significantly and positively predicted hypnotizability, whereas Disinhibition and Adventure Seeking did not show significant effects. Regarding attachment styles, while 35.4% of the variance in hypnotizability could be attributed to attachment style ($r = 0.354$), the overall predictive effect of attachment style was not statistically significant ($R^2 = 0.125$). These findings suggest a partial relationship between specific personality traits and hypnotic susceptibility.

1. INTRODUCTION

Hypnosis is a unique psychological state often described as a condition of heightened focus, suggestibility, and mental absorption, grounded in elements such as belief, expectation, and conviction (McGill, 2000). Human existence encompasses multiple dimensions—biological, psychological, social, and spiritual—which together define individual well-being (Sadr, 2006). Health, therefore, is a holistic concept, and preserving it has consistently been one of humanity's most pressing concerns. Across time, people have pursued numerous strategies—including scientific advancements, medical treatments, and behavioral techniques—to enhance well-being.

In today's fast-paced and anxiety-driven world, maintaining psychological health has become a central priority (Levine, 2003). The modern individual often seeks relief not through pharmacological solutions but through inner resilience and cognitive mastery. Techniques that facilitate mental regulation—such as mindfulness, meditation, and hypnosis—are gaining popularity for their effectiveness in non-invasive psychological intervention (Mollaei, 2010).

Among these, hypnosis stands out as a scientifically validated method for accessing the unconscious mind and modifying thought patterns. Given its growing relevance, this study aims to explore how individual differences—specifically attachment style and sensation seeking—influence a person's hypnotizability. Understanding these associations can help practitioners tailor hypnotic interventions and potentially improve therapeutic outcomes.

Mental health involves acquiring adaptive psychological and emotional coping strategies. It is often not external events that cause distress, but our interpretation of them. Negative internal dialogue and mental imagery can perpetuate cycles of anxiety, depression, and indecision (Jamalian, 2016). People frequently operate based on subconscious habits, internal beliefs, and self-perceptions—factors that hypnosis directly targets.

By investigating the relationship between hypnotizability and underlying personality traits such as attachment patterns and sensation-seeking tendencies, this research aims to contribute to the broader understanding of psychological resilience and mental regulation through hypnotic techniques.

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2. PROBLEM STATEMENT

The primary focus of this study is to investigate whether hypnotizability can be predicted based on two key personality traits: attachment style and sensation seeking, specifically among psychology graduates in Mashhad. In the context of contemporary challenges to mental health, there is increasing interest in nonpharmacological techniques for psychological well-being. Among these, mental and emotional regulation strategies—especially those involving cognitive restructuring and belief modification—have gained particular attention (Mollaei, 2010). These strategies center on the premise that altering internal language and self-image can significantly influence mental health outcomes. As language affects thought, and thought shapes language, changing the internal narrative may lead to a shift in behavior and emotional state.

A central question in this research is: *What mental image does individuals hold of themselves, and how might that influence their susceptibility to hypnosis?* Personality traits such as attachment style and sensation seeking are hypothesized to play a significant role in how individuals interpret the world and manage stress (Pourisyoun *et al.*, 2012). A person's self-concept—positive or negative—guides how they perceive their surroundings. As history has shown, many inventions and advancements were once mental images before they became reality. Inventors like Edison, the Wright brothers, and Walt Disney credited their accomplishments to creative visualization. Albert Einstein also emphasized the primacy of imagination over knowledge (Watkins, 1987, cited in Jamalain, 2016).

The human mind is composed of two distinct domains: the conscious mind, which governs logical thinking and sensory awareness, and the unconscious mind, which stores memories, regulates automatic bodily functions, and influences emotions and behavior. The unconscious mind is responsible for approximately 90% of an individual's behavior and personality (Greenleaf and Shpiegel, 1992). Crucially, it is highly susceptible to suggestion, especially when activated. One of the most effective ways to access the unconscious mind is through hypnosis, a psychological method that suspends conscious activity and enhances receptivity to suggestion and imagery.

Hypnosis allows for the modification of internal narratives, enabling individuals to replace maladaptive patterns with healthier alternatives. As a psychological tool, it operates through the mechanism of suggestibility—a key factor in determining its effectiveness (Greenleaf & Shpiegel, 1992). Hypnotic suggestibility, or hypnotizability, varies among individuals and may be linked to stable personality traits.

Two such traits are of particular interest: attachment style and sensation seeking. Attachment style, developed during childhood and shaped by early interactions with caregivers, significantly impacts interpersonal behavior and emotional regulation throughout life (Kaplan and Sadock, 2007; Bowlby, 1988). Similarly, sensation seeking, defined as a tendency to seek novel, complex,

and intense experiences, varies across individuals and is related to arousal thresholds and neural stimulation preferences (Reio, 2004). High sensation seekers are more prone to risk-taking and require greater sensory input to remain engaged, which may influence their responsiveness to hypnotic states.

The present study seeks to examine the predictive relationship between these traits and hypnotizability, thereby contributing to a deeper understanding of the psychological foundations of hypnosis.

3. METHODOLOGY

This study employed a descriptive–correlational research design, aimed at identifying potential predictive relationships between variables without manipulating them. Descriptive research seeks to capture existing conditions, beliefs, and trends in a given population (Delavar, 2013).

The study population consisted of all individuals (N = 60) who registered for a hypnosis workshop held at the Scientific–Applied Training Center of Welfare Services (Shokouh-e-Mehr) in Mashhad during 2020. From this group, a convenience sample of 33 participants voluntarily agreed to complete the study questionnaires. Upon enrollment in the workshop, attendees were invited to participate in the research, and those who consented were given a brief explanation of the study purpose, followed by distribution of the assessment tools.

Instruments used in the study included:

- Collins and Read Attachment Style Questionnaire (1990): A widely used tool to assess adult attachment patterns based on three primary dimensions—close, depend, and anxiety.
- Zuckerman Sensation Seeking Scale – Form V (1979): A 40-item scale designed to measure an individual's tendency toward high-risk, novelty-seeking behavior across four subscales: Thrill and Adventure Seeking, Experience Seeking, Disinhibition, and Boredom Susceptibility.

The validity of the Sensation Seeking Scale was confirmed through factor analysis, which explained 45.2% of the total variance. The internal consistency of the scale was evaluated using Cronbach's alpha, yielding a reliability coefficient of $\alpha = 0.61$ —acceptable for exploratory psychological research.

Participants completed both instruments under supervised conditions during the workshop. Additionally, hypnotizability was assessed using Spiegel's eye-roll test, a widely recognized method for estimating a person's susceptibility to hypnosis based on the degree of upward eye movement.

The collected data were analyzed using SPSS version 21, employing correlation and regression analyses to examine the relationships between attachment style, sensation seeking, and hypnotizability.

Here's a polished and academically styled version of the Discussion, Conclusion, and References sections of your research paper. I've refined language, clarified findings, improved coherence, and structured the discussion logically for academic publication.

This part of our paper is divided into two sections: descriptive and inferential statistics. In the first section, background variables are described using frequency distribution tables, and in the second section, the research hypotheses are examined and analyzed using multiple (multivariate) regression tests.

3.1. Descriptive Statistics

In this section, the descriptive and univariate statistics of the research background variables are analyzed.

Descriptive Statistics of Background Variables - Distribution of Respondents by Gender, as shown in Table below, the majority of respondents (75.8%) are female, and the smallest group (24.2%) are male.

Table 1. Frequency of Gender Variable

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	25	75.8	75.8	75.8
Male	8	24.2	24.2	100
Total	33	100	100	

Age Distribution of Respondents - Respondents' age was asked through an open-ended question. The age range in this study is from 22 to 58 years. For better description, respondents were grouped into 5 age categories, with descriptive statistics shown in Table 2.

Table 2. Frequency of Age Variable

Age Group	Frequency	Percent	Valid Percent	Cumulative Percent
Under 30	11	33.3	33.3	33.3
30 - 39	11	33.3	33.3	66.6
40 - 49	8	24.2	24.2	90.9
50 and above	3	9.1	9.1	100
Total	33	100	100	

As observed, the highest number of respondents (33.3%) are in the age groups under 30 and 30 to 39 years, and the lowest number (9%) are in the 50 and above group.

Distribution of Respondents by Education Level - Education was assessed by an open-ended question. Descriptive results of education level are in Table 3.

Table 3. Frequency of Education Variable

Education Level	Frequency	Percent	Valid Percent	Cumulative Percent
Bachelor's	8	24.2	24.2	24.2
Master's	20	60.6	60.6	84.8
Doctorate (PhD)	5	15.2	15.2	100
Total	33	100	100	

According to the above table, the majority of respondents (60%) hold a Master's degree, and the smallest group (15%) hold a Doctorate.

Statistical Indicators of Research Variable – this shows the count, minimum, maximum, mean, and standard deviation indices for all research variables and their dimensions.

Table 4. Statistical Indicators of Research Variables

Variable	Dimension	N	Min	Max	Mean	Std. Dev.
Sensation Seeking	Experience Seeking	33	1	9	5.27	1.79
	Adventure Seeking	33	2	8	5.58	1.58
	Boredom Susceptibility	33	2	7	4.39	1.08
	Disinhibition	33	2	6	3.76	1.17
	Total	33	11	26	19	2.86
Attachment Styles	Secure Attachment	33	14	29	22	3.92
	Avoidant Attachment	33	14	27	19.76	3.25
	Ambivalent/Anxious	33	8	21	14.76	3.67
	Total	33	42	75	52.56	6.33
Hypnotizability		33	1	6	3.48	1.22

According to the above table, among the dimensions of sensation seeking, adventure seeking has the highest mean (5.58), and among attachment styles, secure attachment has the highest mean (22).

3.2. Inferential Statistics

In this section, inferential analysis of independent variables with dependent research variables is carried out.

3.2.1 Prediction of Hypnotizability - Based on Sensation Seeking Components of Workshop Attendees (Hypothesis One)

To assess the prediction of hypnotizability based on sensation seeking components and given the interval measurement level, multivariate regression analysis is used. Before testing the hypothesis, assumptions of multivariate regression including normality of residuals, independence of residuals, and absence of multicollinearity among independent variables are checked.

3.2.2 Normality of Residuals (Hypothesis One)

Normality is assessed using histogram and probability plots shown below.

- Histogram shows the residuals follow the normal curve.
- The mean is close to zero, and standard deviation is close to one (0.935).
- Probability plot indicates residuals lie along the 45-degree line, confirming normality.

3.2.3 Homogeneity of Variance of Residuals (Hypothesis One)

Assessed by plotting residuals versus predicted values. The scatter plot shows no specific pattern, confirming homogeneity of variance.

3.2.4 Independence of Residuals and Multicollinearity (Hypothesis One)

Durbin-Watson test and tolerance and VIF indices are used.

Table 5. Durbin-Watson, Tolerance, and VIF Results (Hypothesis One)

Variable	Tolerance	VIF	Durbin-Watson
Experience Seeking	0.919	1.088	1.800
Adventure Seeking	0.944	1.060	
Boredom Susceptibility	0.980	1.020	

Variable	Tolerance	VIF	Durbin-Watson
Disinhibition	0.880	1.136	

Durbin-Watson statistics (1.800) is between 1.5 and 2.5, confirming residual independence. Tolerance values above 0.4 and VIF below 2.5 indicate no multicollinearity.

3.2.5 Model Fit (Hypothesis One)

Model fit, and simple linear regression tests are shown in Tables 6-7.

Table 6. Regression Model Summary

Std. Error of Estimate	Adjusted R ²	R ²	Correlation Coefficient
1.075	0.234	0.330	0.575

The correlation coefficient (0.575) indicates that 57.5% of hypnotizability variance can be predicted from sensation seeking components. R² = 0.330 means 33% of the observed variance in hypnotizability is explained by sensation seeking.

Table 7. ANOVA Results

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	15.923	4	3.981	3.449	0.021*
Residual	32.319	28	1.154		
Total	48.242	32			

Significance < 0.05 confirms the model is statistically significant.

ANOVA stands for Analysis of Variance. It's a statistical method used to compare the means of three or more groups to determine whether at least one group mean is significantly different from the others.

Table 9. Regression Coefficients

Dependent Variable:	Unstandardized Coefficients	Standardized Coefficients	Std. Error	Beta
Hypnotizability	B			
Constant	-1.178		1.321	-0.891
Experience Seeking	0.253	0.111	0.369	2.283

Dependent Variable:	Unstandardized Coefficients	Standardized Coefficients		
Hypnotizability				
Adventure Seeking	0.135	0.099	0.205	1.364
Boredom Susceptibility	0.169	0.127	0.212	1.328
Disinhibition	-0.125	0.119	-0.178	-1.047

Only experience seeking significantly predicts hypnotizability ($p = 0.030$).

4. DISCUSSION AND RESEARCH FINDINGS

The findings of this study highlight sensation seeking—specifically its subcomponents Experience Seeking and Boredom Susceptibility—as significant predictors of hypnotizability among psychology graduates attending a hypnosis workshop in Mashhad. A multivariate regression analysis was used to test this relationship. Assumptions of regression analysis, including residual normality, independence, and multicollinearity, were all satisfactorily met. The residuals were normally distributed, with a mean near zero and a standard deviation of 0.935, and aligned closely with the 45-degree line in the probability plot, confirming distributional assumptions (see Figures 1-2).

Figure 1. Histogram of Residuals for Prediction of Hypnotizability

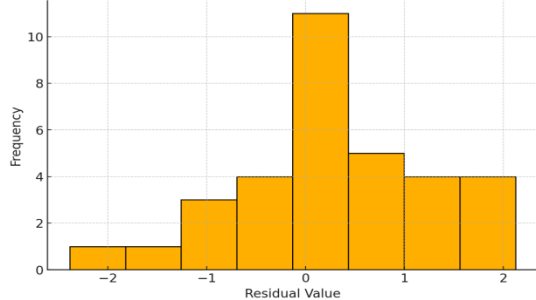
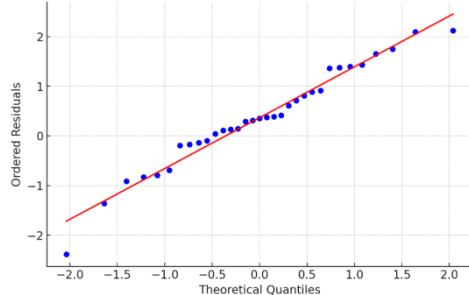


Figure 2. Normal Probability Plot of Residuals for Prediction of Hypnotizability



Regression analysis revealed that while the overall sensation seeking construct did not significantly predict hypnotizability ($p > 0.05$), two of its subscales—Experience Seeking ($\beta = 0.369$) and Boredom Susceptibility ($\beta = 0.360$)—were positively and significantly associated with hypnotizability. This suggests that individuals who are more open to novel experiences and more sensitive to monotonous or repetitive environments may also be more susceptible to entering hypnotic states. In contrast, Disinhibition and Thrill and Adventure Seeking did not exhibit statistically significant effects.

A second regression model explored the role of attachment styles in predicting hypnotizability. Results indicated no statistically significant relationships between secure, avoidant, or anxious/ambivalent attachment styles and hypnotizability ($p > 0.05$), despite a modest explanatory power ($R^2 = 0.125$). Among these, avoidant attachments showed a borderline t-value ($t = 1.736$, $p = 0.093$), suggesting a trend-level association that may warrant further exploration in larger samples.

In the third analysis, Spearman correlation coefficients were used to examine relationships between attachment styles and sensation seeking subscales. The only statistically significant correlation was observed between Secure Attachment and Thrill and Adventure Seeking ($r = 0.347$, $p = 0.048$), indicating that individuals with secure relational patterns may be more inclined toward physical adventure and excitement. Other correlations were not statistically significant, though some showed directionality that could inspire future research.

Table 10. Dependent Variable and Standardized and Unstandardized Coefficients

Predictor	B (Unstandardized Coef.)	Std. Error	Std. Beta (Standardized Coef.)	t-value	p-value
Dependent Variable: Hypnotizability					
Constant (Intercept)	1.940	1.843	—	0.999	0.326
Secure Attachment	-0.077	0.070	-0.246	-1.109	0.276
Avoidant Attachment	0.135	0.078	0.358	1.736	0.093
Anxious/Ambivalent Attachment	0.039	0.062	0.119	0.626	0.536

The intercept (constant) is not statistically significant ($p = 0.326$). Avoidant Attachment is the closest to significance ($p = 0.093$) with a positive beta (0.358), suggesting a moderate positive relationship with hypnotizability, but it does not reach the conventional 0.05 threshold. Secure Attachment and Anxious/Ambivalent Attachment have no significant relationship with hypnotizability ($p > 0.05$). None of the attachment styles significantly predict hypnotizability in this model.

These findings reinforce prior theoretical and empirical work suggesting that personality traits, particularly those linked to neurocognitive arousal and emotional regulation, are associated with hypnotic responsiveness (Sadock & Sadock, 2011). The presence of high hypnotizability has been linked to increased responsiveness to ideational and emotional suggestions—hallmarks of therapeutic hypnosis (Spiegel & Greenleaf, 1992).

Table 11. The regression coefficients for predicting hypnotizability based on attachment styles

Predictor	B (Unstandardized Coef.)	Std. Error (Standardized Coef.)	Beta (Standardized Coef.)	t- value	Sig. (p-value)
Constant	1.940	1.843	—	0.999	—
Secure Attachment	-0.077	0.070	-0.246	1.109	—
Avoidant Attachment	0.135	0.078	0.358	1.736	—
Anxious/Ambivalent Attachment	0.039	0.062	0.119	0.626	—

Notes: The table is missing explicit p-values (“Sig.” column), but from the t-values and earlier info, significance seems low. The constant’s t-value (0.999) is below 2, so it’s likely not significant. Avoidant Attachment has the highest positive beta (0.358) and t-value (1.736), close but probably not significant at $p < 0.05$. Secure Attachment shows a negative relationship, but not statistically significant. Anxious/Ambivalent Attachment shows a weak positive effect, not significant.

4.1. Clinical Context (based on your partial sentence)

In clinical settings, assessing hypnotizability in relation to attachment styles might help understand how individual differences affect susceptibility to hypnosis.

In clinical settings, assessing hypnotizability may guide the selection and tailoring of hypnotherapeutic interventions. This assessment can also shed light on how patients relate to themselves and others, and whether they may benefit more from suggestive or insight-oriented methods. Therapists who emphasize cognitive restructuring and guide suggestion through hypnosis may find particular success with patients who score higher on sensation seeking dimensions.

Table 12. Correlation Coefficients and Significance of the Relationship Between Attachment Styles and Excitatory Styles of People Referring to the Hypnosis Training Workshop

	Correlation Coefficient	Correlations					
		دلبستگی ایمن	دلبستگی اجتنابی	دلبستگی دو سو گرا	گریز از بازاری	مایل پذیری	مادر اجوی
دلبستگی ایمن	1.000	.002	-.209	-.034	.086	.347	-.073
	Sig. (2-tailed)	.993	.243	.853	.640	.048	.688
	N	33	33	33	33	32	33
دلبستگی اجتنابی	-.002	1.000	-.247	-.177	.336	-.019	.142
	Sig. (2-tailed)	.993	.167	.324	.060	.918	.431
	N	33	33	33	33	32	33
دلبستگی دو سو گرا	-.209	-.247	1.000	-.204	-.098	-.121	-.017
	Sig. (2-tailed)	.243	.167	.255	.595	.503	.924
	N	33	33	33	33	32	33
گریز از بازاری	-.034	-.177	-.204	1.000	.093	.048	-.011
	Sig. (2-tailed)	.853	.324	.255	.612	.789	.990
	N	33	33	33	33	32	33
مایل پذیری	.086	.336	-.098	-.093	1.000	.081	.262
	Sig. (2-tailed)	.640	.060	.595	.612	.660	.148
	N	32	32	32	32	32	32
مادر اجوی	.347	-.019	-.121	.048	.081	1.000	.049
	Sig. (2-tailed)	.048	.918	.503	.789	.660	.788
	N	33	33	33	33	32	33
تجربه طلبی	-.073	.142	-.017	-.011	.262	.049	1.000
	Sig. (2-tailed)	.688	.431	.924	.950	.148	.788
	N	33	33	33	33	32	33

Correlation coefficient significance) =Sig=p-value

5. CONCLUSION

Given the growing relevance of hypnosis in psychological treatment, understanding the factors that influence hypnotizability is critical. This study explored the predictive roles of attachment style and sensation seeking on hypnotizability among psychology graduates. The findings suggest that while attachment styles do not significantly predict hypnotic susceptibility, certain components of sensation seeking namely, Experience Seeking and Boredom Susceptibility—are positively associated with hypnotizability.

These insights are valuable for both clinical and theoretical purposes. Clinicians may consider integrating personality assessments to better understand which clients are more amenable to hypnosis-based interventions.

Moreover, these results suggest that hypnotizability may not be entirely fixed; it may be shaped or enhanced by modifying individuals' cognitive and emotional patterns.

Although the observed effects were moderate, their implications for future research are significant. Further investigations with larger, more diverse samples and longitudinal designs are recommended. Additionally, exploring the interaction of other personality variables—such as openness to experience, trait absorption, or emotional intelligence—may yield a more comprehensive model of hypnotic responsiveness.

6. ABBREVIATIONS

STEM Science, Technology, Engineering and Mathematics

UniSA University of South Australia

UC University of Canberra

ANOVA stands for Analysis of Variance.

7. CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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