

# Prediction of Imposter Syndrome in Gifted Female Students based on Ego Development, Self-efficacy, and Self-awareness

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## Abstract

**Introduction:** Imposter Syndrome (IS) is loosely defined as doubting your abilities and feeling like a fraud. It disproportionately affects high-achieving people, who find it difficult to accept their accomplishments. This research was conducted in order to predict the IS in gifted students based on ego development, self-efficacy, and self-awareness.

**Method:** The research was descriptive and correlational. All gifted students studying in middle schools in central Islamabad in the academic year 2020-2021 formed the statistical population of this research. For this purpose, 202 students were selected using the cluster sampling method and used the IS Questionnaire (Clans and Ames, 1978), the Ego Development Questionnaire (Markstrom et al., 1997), the Psychological Capital Questionnaire (Luthans et al., 2007), and the Spirituality Questionnaire (Donning and Parsian, 2009). The collected data were analyzed by SPSS version 26 and the significance level was considered 0.05.

**Results:** The results of Pearson's correlation coefficient showed that there was a negative and significant relationship between self-efficacy and spiritual-health scores with IS in female students at the level of 0.05. Moreover, the regression analysis with the simultaneous entry method showed that the predictor variables together explained 43% of the variance of the IS scores among female students.

**Conclusion:** The findings of the present study suggest that the psychological structures under investigation can predict and explain IS in female students. The aim of developing and assembling educational programs is to improve students' self-efficacy. Therefore, school officials, community health officials, and mental health officials are encouraged to improve students' self-efficacy.

**Keywords:** Imposter Syndrome, Self-efficacy, Ego Development, Spiritual-health, Gifted Female Students

## Introduction

Gifted students are constantly striving to excel, and this can increase stress. The pressure to excel, self-doubt (imposter syndrome), and the need to prove their talent can drain gifted students' energy and lead to additional stress [1]. Villwock et al. in a study showed that is highly prevalent in gifted students [2]. Gifted students with IS fear that others will eventually find out that they are frauds and therefore feel that they do not belong in their academic or work environment, despite their qualifications, accomplishments, and objective achievements [3]. The IS refers to the belief that one is not as competent as others perceive him or her to be [4].

It is often used in the context of success and intelligence, but it is also related to perfectionism and social context. As a result of IS, students experience perfectionism, psychological distress, and low self-esteem [5], negatively affecting their academic performance [6]. Because of this, recognizing the factors affecting it can help to identify IS

in students. This syndrome is for people who do not need to be aware of their abilities and relate their successes to external factors [3]. In fact, many of these people, despite their increasing ability and success, have no inner sense of their capabilities [7].

People with IS who are having trouble accepting their successes have weaker ego growth. The growth of the ego is an important variable in performance and refers to the ability to deal effectively with the desires and situations of power and is used for an effective performance despite the expectations of conflicting forces [8]. All psychological problems occur when the ego cannot fulfill its responsibilities [9]. Ego is the ability to preserve one's identity regardless of psychological stresses, institutional stress, or conflict between internal needs and external demands [10]. In other words, the ability to maintain the stability of the ego is based on a relatively sustainable set of personality characteristics that are reflected in the ability to maintain mental health [11]. The ego is based on the principle of reality and is associated with the outside world [12]. On the other hand, when people with IS do not see their successes, it is clear that they have a low level of self-efficacy [13, 14], which is the impression of the affective component of psychological capital [14]. Besides ego growth, self-efficacy can also affect IS [15]. The belief that one has the ability to implement the necessary behaviors to produce the desired effect is known as self-efficacy [16]. Walker supports the notion that there is a strong negative relationship between academic self-efficacy and impostor syndrome [17].

In fact, characteristics such as excellence, communication, generality, kindness and sadness, purposefulness in life, and belief in a force higher than human power have been proposed as the main characteristics of self-awareness [18]. Research has shown that self-awareness has a positive and meaningful relationship with psychological capital and it can affect a person's personality and act as a protective shield against psychological vulnerability [19]. However, so far, there has been little research done to date about the role of ego structures, self-efficacy, and self-awareness in predicting IS in Iran and abroad. As mentioned in the literature research, there is a research gap in this field. In this method, the researcher's effort is to obtain an aim, a real and regular description of a situation or phenomenon, and its implementation can be to better understand the existing conditions or help the decision-making process. Furthermore, only a few studies focus on impostor syndrome in gifted students and their educational experiences. Considering the fact IS can cause problems at the level of the created individual, social, and psychological individual, the present research was designed with the aim of answering whether ego development, self-efficacy, and self-awareness predict IS in gifted females' students.

However, so far, little research has been carried out about the role of ego structures, self-efficacy, and self-awareness in predicting IS in Iran and also other countries. As mentioned in the literature research, there is a research gap in this field. In this method, the researcher's effort is to obtain an aim, a real and regular description of a

situation or phenomenon, and its implementation can be to better understand the existing conditions or help the decision-making process. Furthermore, only a few studies focus on impostor syndrome in gifted students and their educational experiences. Considering the fact that IS can cause problems at the level of the created individual, social, and psychological individual, the present research was designed with the aim of answering whether ego development, self-efficacy, and self-awareness predict IS in gifted females' students or not.

## Method

This research is prospective and fundamental in terms of the research objective and descriptive-cross-sectional and correlational in terms of the data collection method. The statistical population of the present study included all gifted female students in middle schools in the center of Islamabad-Gharb in the academic year of 2020-2021. Using the random cluster sampling method, and according to the formula  $n=50 + 8 m$ , the sample size included 202 people. Given that this study was conducted at the time of COVID-19, the questionnaires were completed online. In this study, the criteria for the arrival of the first to third-grade guidance students were selected, all of which were girls aged 13 to 15 years old. The exclusion criteria were based on the fact that if one just answered a few questions, a questionnaire would have been out of the analysis process. A P level of 0.05 was considered significant in this study. The SPSS version 26 statistical software was also used for data analysis.

The research tools were as follows:

**Clance Impostor Phenomenon Scale (CIPS):** This questionnaire was prepared by Clance and Ames in 1978 and has 20 items in which the subject is asked to express his opinion about each item based on a 5-point Likert scale from 1 to 5 (never = 1 to very much = 5) [20]. If the sum of the scores is less than 40, it is a weak pretense, between 41 and 60 is a moderate pretense, 61 to 80 is a pathological pretense, and 80 and above is considered as a severe pretense. "After succeeding in something, I feel cheated" and "After succeeding in something, I think I'm arrogant" are examples of items in this questionnaire. Clance and Imes [20] reported Cronbach's alpha coefficient of the questionnaire as 0.94. In another study, the Cronbach's alpha coefficient method was used to check the reliability of the questionnaire, and it reported the reliability as 0.85 [20]. In Iran, the reliability of the tool was reported using Cronbach's alpha coefficient of 0.80. The validity of this tool was calculated using construct validity and its value was 0.88, which is an acceptable value [21]. In the present study, the reliability of this tool was obtained at 0.83.

**Psychology Inventory of Ego's Strength (PIES):** Markstrom et al. developed this self-reported scale [22]. This scale has two forms, 64 questions, and 32 questions, which have been used in the current research. The questionnaire has eight subscales including hope (with questions 8, 15, 26, 32), will (with questions 2, 4, 19, 27), goal (with questions 16, 24, 25, 28), competence (with questions 3, 11, 13, 29), loyalty (with questions 6, 10, 18,

20), love (with questions 1, 7, 14, 23), care (with questions 9, 17, 21, 30) and wisdom (with questions 5, 12, 22, 31). The questions are graded on a 5-point Likert scale (I completely disagree = 1; I disagree = 2; I have no opinion = 3; I agree = 4, and I completely agree = 5). Statements 1, 5, 7, 9, 14, 15, 17, 18, 20, 22, 23, 24, 25, 26, 28, and 29 are scored in reverse. That is, five points are given to the completely disagree option and one point to completely agree. A high score on this test means a high level of ego strength. The person's score in this questionnaire is obtained from the sum of the person's score in the questions. The Cronbach's alpha coefficient for the whole questionnaire was 0.94. Moreover, Cronbach's alpha coefficient for subscales hope, will, goal competence, loyalty, love, and care were reported as 0.81, 0.69, 0.68, 0.78, 0.62, 0.63, and 0.84 respectively [22]. To assess the validity and reliability of the Iranian version, Mirshekari and Mollahy used the PIES on the 30-subject sample of students, reporting the Cronbach's alpha coefficient of 0.91 and the alpha of the two halves, 0.74 and 0.90 respectively. In addition, the correlation between the two halves and Spearman-Brown were respectively reported as 0.77 and 0.87 [23]. In this study, the reliability coefficient was obtained by calculating Cronbach's alpha coefficient for the entire questionnaire at 0.76.

**Psychological Capital Questionnaires (PCQ):** Luthans et al. created this questionnaire [24]. The PCQ-24 seeks to assess the four dimensions of PsyCap: self-efficacy, hope, optimism, and resilience. The instrument is originally composed of 24 items, associated to a six-point Likert scale, ranging from 1 – “strongly disagree” to 6 – “strongly agree” [24]. The original structure of the scale proposed four factors, which are: hope (six items), self-efficacy (six items), resilience (six items), and optimism (six items). The results presented below indicates that the Lithuanian version of the PCQ-24 demonstrated high internal consistency, reliability, and validity, even though minor inconsistencies were observed, possibly due to cultural differences [24]. The validity of the questionnaire structure was determined by the summed point correlations of the components: 0.86 for hope, 0.78 for resilience, 0.83 for optimism, and 0.84 for self-efficacy [25]. In this study, the reliability coefficient was determined as 0.93

**Persian and Dunning Spirituality Questionnaire (PDSQ):** This questionnaire was created by Parsian and Dunning [26] in order to evaluate the importance of spirituality in people's lives and measure its different dimensions. This tool is a 29-item self-report questionnaire that is rated on a four-point Likert scale where one represents strongly disagree=1, disagree=2, agree=3, and strongly agree=4. The total score and subscale scores of self-awareness (10 questions), the importance of spiritual beliefs in life (4 questions), intellectual activity (6 questions), and spiritual needs (9 items) are measured separately. This tool is rated on a four-point Likert scale including 1=completely disagree, 2=disagree, 3=agree and 4=completely agree. In Parsian and Dunning's study [26] the Cronbach alpha coefficient for the whole questionnaire was reported as 0.94. Moreover, Cronbach's alpha for subscales of self-

awareness, the importance of spiritual beliefs in life, spiritual activities, and spiritual needs were 0.91, 0.91, 0.80, and 0.89, respectively. In an Iranian research, Cronbach's alpha coefficient for the entire questionnaire was 0.88 and for the sub-scales of self-awareness, the importance of spiritual beliefs in life, spiritual activities, and spiritual needs were 0.85, 0.87, 0.81 and 0.83 respectively [27]. The current study's Cronbach alpha was 0.94 for this scale.

## Results

Statistics show that 97.8% of respondents have been identified as gifted students in middle school. With regards to gender, all the participants (N = 202, Mean age = 14.72, SD = 1.54) identified as female were between the ages of 13-15.

Table 1 shows the results of the one-sample Kolmogorov-Smirnov test, in which the distribution of the scores of the research variables is normal with 95% confidence. Since the significance levels of normality statistics are greater than 0.05 ( $P > 0.05$ ), therefore, the distribution of scores has a normal distribution. Based on this, by using the parametric tests of Pearson's correlation coefficient and multivariate regression, it can be stated that the results are reliable.

In order to establish the assumption of the normality of the data, kurtosis and skewness indices should not be more than  $\pm 1$ . Furthermore, the indices related to the kurtosis and skewness of the variables of this research are not outside the range of  $\pm 1$ . Based on this, it can be concluded that the distribution of the data related to them is normal, and based on this, the parametric tests of Pearson's correlation coefficient and multivariate regression can be used, and the results are reliable (Table 1).

Based on Table 2, it can be said that if the value of Durbin-Watson's statistic is between 1.5 and 2.5, then the independence of the errors can be accepted and Pearson's correlation coefficient and multivariate regression analysis can be followed. The concept of independence means that the result of one observation does not affect the result of other observations. In regression, when the behavior of the dependent variable is studied over time, we may encounter the problem of errors not being independent. This type of relationship in the data is called autocorrelation. If there is autocorrelation in errors, linear regression cannot be used. Since the statistics of Durbin-Watson are between 1.5 and 2.5, it shows that the correlation between the errors is rejected, that is, the errors are not correlated. Therefore, Pearson's correlation coefficient and multivariate regression can be used and the results of these statistical tests are reliable.

Based on the results of Table 3, the tolerance coefficient and variance inflation have been calculated in order to check multiple non-collinearity. When the tolerance (tolerance coefficient) approaches zero, there is large multicollinearity and the standard error of the regression coefficients will be large. The values of tolerance (tolerance coefficient) in the relevant column in the above

table show that none of the tolerance coefficients are close to zero, and as a result, there is no problem in the regression analysis. The variance inflation factor is also the inverse of the tolerance coefficient, and the more it increases (greater than 10), it causes the regression coefficients to increase and makes the regression unsuitable for prediction. The values related to the variance inflation factor show that none of the indices are much larger than 10 and are close to it, so there is no problem in using linear regression. Therefore, since the existence of multiple collinearities was not observed in the predictor variables, the parametric tests of Pearson's correlation coefficient and multivariate regression can be

used, and the results are reliable.

The analysis of the research data with the simultaneous entry multivariate regression method, the results of which are presented in Table 4, shows that the predictive variables (self-efficacy, self-awareness, ego development) can explain the IS scores. The beta value for the self-efficacy variable is equal to 0.30, the beta value for ego development is equal to 0.25, and the beta value for the self-awareness variable is equal to 0.21 and is significant at the level of  $P=0.001$ . Also, the results of Table 4 show that the predictor variables were able to explain 43% of the changes related to IS scores. Therefore, the main hypothesis of the current research has been confirmed.

**Table 1. Descriptive Findings of the Studied Variables**

Variables	Mean	SD	Kolmogorov–Smirnov	p	kurtosis	skewness
Self-efficacy	31.76	8.14	1.276	0.412	-0.217	-0.202
Self-awareness	26.77	5.56	0.609	0.823	0.199	0.165-
Ego development	113.75	28.65	1.085	0.665	-0.413	-0.315
Imposter syndrome	149.86	15.63	0.476	0396	0.605	-0.416

**Table 2. Durbin-Watson Test Results**

Research models	Durbin-Watson
Imposter syndrome ** Self-awareness	1.805
Imposter syndrome ** Self-efficacy	1.871
Imposter syndrome ** Ego development	1.931

**Table 3. Tolerance Coefficient and Variance Inflation of Research Variables**

Variables	Inflation variance factor	Tolerance coefficient
Ego development	1.532	0.593
Self-efficacy	2.956	0.261
Self-awareness	1.234	0.886
Imposter syndrome	3.660	1.065

**Table 4. Coefficients (indices) of Multivariable Regression to Predict the Imposter Syndrome of Gifted Students**

Criterion Variable	The predictable variable	$\beta$	Constant	R2	t	P
Imposter syndrome	Self-efficacy	0.30	0.43	52.09	7.16	0.002
	Ego development	0.25			21.73	0.015
	Self-awareness	0.21			56.15	0.031

### Discussion

The purpose of the current study was to find out if ego development, self-efficacy, and self-awareness predict IS among gifted students.

The analysis of the research data showed that the predictive variables (self-efficacy, self-awareness, ego development) can explain the IS scores. The results have shown that the predictor variable was able to explain 43% of the changes related to IS scores. Due to the unique variables in this study, we could not find any research in this field. However, there are many studies that have shown our results with different variables [4,13, 27, 31]. Alratty et al. have found a statistical association between IS and gender, depression stress, and all the three domains of burnout. Furthermore, IS was not found associated with anxiety. The young imposter scale score was associated with all the three domains of burnout even after controlling depression, anxiety, and stress [27]. Ambrose et al.'s findings showed a need to learn how to be confident, overcome self-doubt, navigate campus culture, and ask for help [27, 31]. Imposter feelings predicted students' end-of-term course engagement,

attendance, dropout intentions, and course grades [4]. Although imposter feelings have been linked to a number of negative academic outcomes [32], almost all previous research relies on imposter feelings measured at a single time point—suggesting that these feelings are trait-specific, rather than context-specific. According to imposter feelings, low self-esteem (weak ego development) in gifted students is related to self-destructive feelings [5].

These people have denied the evidence of their success and are afraid of revealing their intellectual deficiencies. Imposturous people maintain their interactions with others by using their charm to avoid disagreements and conflicts. They use adaptive behaviors in response to socially stereotyped behaviors. In the long run, pretenders (Imposturous people) seem worthy and trustworthy based on their behaviors and successes. However, they have anxiety, depression, fear, and, finally, personal dissatisfaction, and it is more difficult to fulfill their potential abilities. Neurotic people (with weak ego development), are anxious, insecure, nervous, and have avoidant behaviors; they have less sense of freedom of

action, competence, and social connection. Therefore, when they achieve success, they doubt their abilities and attribute them to luck [33].

From the point of view of psychoanalysis, people with weak ego development are unable to successfully solve their environmental and internal conflicts and react in an avoidant and passive manner. In this regard, pretenders (Imposturous people) also act according to their superego due to not having a strong and active self and relating their successes to luck and issues outside themselves instead of attributing them to their abilities. In this context, Rutter's document theory can also be cited and explained. According to him, successful people interpret their progress and success in an internal and stable manner and consider themselves responsible and the main cause of the results of their behavior, but people with weak egos develop more than external attributional style and use it unsteadily and attribute their success to luck and their failures to factors other than their ability [34].

Clance and Imes defined the imposter phenomenon as an "intense feeling of intellectual arousal" [20]. These feelings of being an imposter in class may decrease classroom engagement, discourage students from attending class altogether, increase their thoughts of dropping out, and contribute to lower grades that may decrease self-efficacy [4]. A study by Meeks et al. also revealed in their research that trainees have high levels of IS symptoms. These findings are in line with our current study on self-efficacy and IS. According to statistical analysis, trainees' self-efficacy is negatively correlated with the severity of IS symptoms [35]. According to Schulze, students' general self-efficacy and their fear of failure are negatively correlated. The results also showed a negative and significant relationship between students' higher general self-efficacy and the severity of IS symptoms [13]. A multiple regression model predicting the impostor phenomenon with self-esteem level and self-rated instability revealed a negative main effect on self-esteem level. Simple slopes analysis revealed that the negative effect on self-esteem level was weaker among participants with unstable self-esteem, compared to those with stable self-esteem. Results emphasize the critical involvement of self-esteem problems in the impostor phenomenon, indicating that people with low self-esteem are especially vulnerable to impostor feelings and that people with unstable high self-esteem are more vulnerable to such feelings than those with stable high self-esteem [28].

A previous study revealed that work balance in students is related to their self-awareness [29]. Fox et al. have also shown that self-awareness plays a significant role in people's performance and feeling hopeful about the results [30]. In explaining this finding, it can be stated that self-awareness influences people's cognitive components, including the interpretation of events, optimism or pessimism. In addition, their immune and nervous systems also affect their type of thinking, and these types of components. It influences psychological well-being and leads to a correct and logical or illogical understanding of

the consequences of behavior. Self-awareness is an important and outstanding dimension of a healthy life that leads to a purposeful and meaningful life. Self-awareness gives a person the possibility to move towards well-being along with physical suffering. Self-awareness creates peace, psychological security, freedom from the feeling of emptiness and loneliness, finding meaning through increased psychological capacity and the ability to deal with stress, and causes the improvement of mental and physical health and, as a result, leads to happiness [30].

The factors that harm the internal validity of the research in this study are the lack of detailed examination of subjective and objective intervention variables. Therefore, it is suggested that in future studies, age, education level, marital status, economic status, and other factors that can have a direct relationship with these variables should be investigated. Controlling and examining these variables adds to both internal and external validity. It is recommended that the causal model of IS in the groups of working women and men, students, and people involved in scientific careers should be developed in future research, considering individual, social, and family factors. In this study, non-random sampling methods were used, which reduces the external validity of this study. Sampling methods such as stratification and cluster sampling should be used in future studies. Also, one of the most important applications of these findings is that it helps students in the field of their personality and ego abilities and strengthens their personality dimensions.

## Conclusion

Frankel's theory of meaningful therapy suggests that when a person has a purpose in life and has taken responsibility for his behavior and thoughts, he is more able to handle the tasks of daily life. In place of focusing on the past or the future, he is receptive to the present time, accepts his actions and the consequences of his actions with kindness and acceptance, and interprets the outcome of his actions as part of his life and as a result of his actions.

## Conflict of Interest

The authors declare no conflicts of interest.

## Ethical Approval

This research has been extracted from the project of the first author. Participants willingly completed the questionnaires and signed an informed written consent for the treatment plan.

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