Self-esteem as moderator of the relationship between self-estimated general intelligence and psychometric intelligence

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Abstract

The goal of this study was to examine the moderating effect of self-esteem on the relationship between self-estimated general intelligence and psychometric intelligence. One hundred sixty seven students of university of Tehran (75 boys and 92 girls) were included in this study. All participants estimated general intelligence for themselves and they completed the Rosenberg self-esteem scale and WMTI test. Results showed that self-esteem significantly moderates the relationship between self-estimated general intelligence and psychometric intelligence. It can be concluded that estimating properties including intelligence is more similar to tested scores of intelligence with increasing self-esteem and this similarity decreases with reducing self-esteem.

1. Introduction

The topic of self-assessed or self-estimated intelligence has been the focus of some studies for more than 30 years. The first studies related to this issue have investigated gender differences in estimating intelligence (Furnham, Buchanan, 2005). In various countries from Malaysia (Swami, Furnham, 2010) to Spain (Pérez, González, Beltrán, 2010), Poland (Furnham, Wytykowskab, Petrides, 2005) and Iran (Furnham, Shahidi, Baluch, 2002), this context has been studied and it has been shown that men estimated their general intelligence significantly higher than women. Due to the impact of people's opinions about intelligence on their behavior and motivation, this area of research has gained a lot of importance (Chamorro-Premuzic, Furnham, Moutafi, 2004). Previous Studies have explored the determinants and validity of self-estimated intelligence (Ackerman and Wolman, 2007). Many studies have investigated the relationship between estimated intelligence and measured intelligence. In their study in 2004, Chamorro-Premuzic et al. have shown that the Correlation coefficient between estimated and psychometric intelligence scores is positive and significant. It is generally believed that people are approximately able to estimate their intelligence. On the other hand, this estimation can be influenced by personality characteristics. For example Neuroticism and Agreeableness (negatively), as well as Extraversion (positively) have been found to be significantly correlated with estimations of intelligence (Chamorro-Premuzic et al., 2004). Another variable that moderates the relationship between estimated intelligence and psychometric intelligence is gender role orientation and Stereotypical beliefs about gender. Hence, researches have shown that people with stereotypical beliefs about gender estimate their intelligence unrealistically and also individuals with feminine or masculine gender role orientation...
assess their intelligence higher or lower than their actual intelligence (Steinmayr, Spinath, 2009; Furnham et al., 2002).

As mentioned, a lot of variables influence on the relationship between estimated intelligence and psychometric intelligence. In present study, we investigated the moderating role of self-esteem. Although large volume of researches have been carried out concerning self-esteem (e.g., Huang, 2010; Pullman, Allik, 2008), there is no study about moderating role of self-esteem on the relationship between self-estimated general intelligence and tested intelligence. Self-esteem is one of the determinant factors of people's behavior and in fact, individuals' judgment about themselves affects how to deal with different issues. Self-esteem is generally regarded as an evaluation by which people express approval or disapproval of themselves and make subjective assessment about their personal worth or adequacy and self-acceptance (Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995). In late 1880, James proposed that self-esteem can be defined on the basis of the relationship between perceived self (real self) and ideal self. When the difference between perceived self and ideal self is low, people experience higher self-esteem.

Self-esteem is partly heritable, but it is also dependent to childhood and early life approval as well as self-belief generated through interaction with family, peers and other people (Baumeister, Campbell, Krueger, Vohs, 2003; Raevuor, Dick, Keski-Rahkonen, Pulkkinen, Rose, Rissanen et al., 2007). The results obtained from various studies showed that there is a significant relationship between self-esteem and academic achievement (Pullmann and Allik, 2008). Besides, those with high self-esteem who tend to possess clearer self-concepts are less vulnerable to depression and anxiety, and they are more likely to value positive affect. These people persist in the face of failure (Lyubomirsky, Tkach, Dimatteo, 2006). In contrast, individuals with low self-esteem may suffer isolation and depression; also they may show antisocial behaviors and aggression (Mackie, & Smith, 2002).

According to this introduction, considering the benefits of self-esteem, the purpose of this study was to test the role of self-esteem on the individuals’ assessment of their abilities. We hypothesized that self-esteem moderates the relationship between measured intelligence and estimated intelligence. In other words, self-esteem leads to a more realistic self-assessment of the people's intelligence.

2. Method

2.1. Participants

A total of 167 undergraduate students (92 females and 75 males) from the University Of Tehran were included in this study. The mean age of the sample was 21.76 years and standard deviation of it was 3.05 years. The students were asked to answer to WMTI test and complete the Rosenberg self-esteem scale (RSES). They also estimated their intelligence on the normal curve (Mean= 100, min=70, max= 140).

2.2. Measures

Rosenberg self esteem scale (RSES) - The RSES is a widely used 10-item global measure of self-esteem, "defined as ‘‘a favourable or unfavourable attitude toward the self” (Rosenberg, 1965, p. 15). Items are scored on a 4-point scale ranging from strongly agree to strongly disagree (e.g., “I feel that I have a number of good qualities”). Total scores range from 10 to 40, with higher scores representing more positive self-esteem. All versions of this scale have had high validity for different ethnic groups (Greenberger, Chen, Dmitrieva, Farruggia, 2003). The Cronbach's alpha coefficients for the scale were between 0.87 _ 0.89 (Salmela-Aro, Nurmi, 2007). The internal reliability of the modified RSES was a = 0.71 (Pullman, allik, 2008).

Wiener Matrizen Test für Iran (WMTI) – WMTI is a nonverbal and culture free test consisted of 28 questions. Each question has 8 options and only one option is correct. Moreover, this test is a kind of power and speed test that the time required for responding this it is 28 minutes. The original test, Wiener Matrizen Test (WMT), is an
intercultural test with 24 questions and was developed by Formann, Piszwarer (1979) in Austria. Ejei, (1980) performed WMT on Iranian students 14-18 years old. He making use of Rasch model standardized this original test into this age group and older ones with 28 questions. The correlation coefficient of WMTI and CFT-3 being r=0.85, with IST of Amthaver is r=0.85 and Cronbach's alpha coefficient having been reported 0.78 (Hakim-javadi, Ezhehei, 2004).

3. Results

Table 1 shows the correlation between self-esteem, self-estimated intelligence and psychometric intelligence.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
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</thead>
<tbody>
<tr>
<td>1. Self-esteem</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Self-estimated intel.</td>
<td>0.32*</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>3. Psychometric intel.</td>
<td>0.25*</td>
<td>0.34*</td>
<td>-</td>
</tr>
</tbody>
</table>

*P<0.01

As shown in table 1, the correlation coefficient between self-esteem and Self-estimated intelligence (r= 0.32, p< 0.01) is significant. Also the correlation coefficient between self estimated intelligence and psychometric intelligence is significant (r= 0.34, p< 0.01).

Table 2 shows the results of hierarchical multiple regressions for determining the moderating role of self-esteem in the relationship between self-estimated intelligence and psychometric intelligence.

<table>
<thead>
<tr>
<th></th>
<th>R</th>
<th>R²</th>
<th>Adj R²</th>
<th>ΔR²</th>
<th>ΔF</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>0.48</td>
<td>0.23</td>
<td>0.21</td>
<td>0.03</td>
<td>18.21</td>
<td>0.001</td>
</tr>
<tr>
<td>Model 2</td>
<td>0.292</td>
<td>0.062</td>
<td>0.27</td>
<td>6.39</td>
<td>0.001</td>
<td></td>
</tr>
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Model 1: predictor variables: self-estimated intelligence And self-esteem
Model 2: predictor variables: self-estimated intelligence, self-esteem and interaction effect

According to table 2, the results of regression analysis in Model 2 exhibits the relationship between self-estimated intelligence and psychometric intelligence after entering the moderating effect of self-esteem. By comparing model 1 and 2 it was found that self-efficacy increases $R^2$ to 0.062 which is a significant amount (ΔF = 18.21, P < 0.001). Model 2 shows that 6.2 percent of observed variance of intelligence scores was explained with moderating effect of self-esteem. So the relationship between actual and estimated intelligence becomes stronger when self-esteem increases. In other word with increasing self-esteem, estimated scores of intelligence become closer to real scores.

4. Discussion

The present study extended the major findings of previous studies on self-estimated intelligence. The main focus of this study was to investigate the moderating role of self-esteem on the relationship between psychometric and self-estimated intelligence. The results of this study fully confirm this hypothesis so that by increasing self-esteem, the relationship between tested intelligence and estimated intelligence became greater. Based on these findings, it can be concluded that there is a correlation between personality features and making use of potential abilities. So
that self-esteem helps people to have a realistic assessment of their abilities and thus be able to achieve suitable function in accordance with their capacities.

In addition, there are various studies considering personality– intelligence interactions. For example the study of Chamorro-Premuzic et al., (2004) showed that people with higher self-estimated Conscientiousness scores tended to score lower on intelligence tests. Also individuals with higher self-estimated Openness scores tended to give higher self-estimated intelligence scores. The study of Furnham, Thomas (2004) revealed specific personality dimensions such as Openness and Agreeableness to be relatively powerful predictors of estimated intelligence.

Other areas that investigators have studied considering estimating intelligence are related to the gender-role orientation. Rammstedt, Rammayer (2002) found a moderating effect of gender-role orientation on gender differences in factor scores and provided direct evidence for the notion that in male, but not in female, some self-estimates of specific aspects of intelligence are markedly influenced by gender-role orientation. Also their study revealed gender differences in self-estimated intelligence for the mathematical–logical and the artistic intelligence factor.

This study suggests paying more attention to the self-esteem of young people in the society and improving this self-esteem. This is because previous empirical studies have indicated that self-esteem is an important psychological factor influencing health and the quality of life. With the increasing of self-esteem, there appears a sense of empowerment and being valuable. Also there occur some positive changes in individuals such as academic achievement, increasing efforts to gain success, having high self-confidence, high persistence in activities and tendency to be healthier (Mann, Hosman, Schaalma, de Vries, 2004). In order for people to be able to use of the maximum capacity of mind and potential capabilities, they should have a positive attitude toward themselves and their environment. People who have higher self-esteem consider their strengths to be more than their weakness and they also show greater readiness for accepting positive evaluations of them. People with low self-esteem asses their intelligence unrealistically, which leads them to the lower performance in education, job and more generally in their life.

Considering all the benefits of self-esteem and excellences that people with high self-esteem show in their life, we realized in this study that a realistic self-estimated general intelligence depends on persons' self-esteem and therefore people who have an accurate estimation of their intelligence can perform more realistically in their daily activities.

References


