Effects of Playing Chess on Self-Esteem: A Case-control Pilot Study

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Introduction

Problem Statement

• Proficiency in chess needs considerable self-study apart from the actual playing hours. Chess requires a high level of concentration, which may affect an individual’s other activities.

• Despite these considerations, chess has been incorporated in many colleges with the idea that it may improve students’ general self-esteem and overall college performance involving academic, health, and social life. This research provides the preliminary indications whether such a correlation exists or not.

Objective

This pilot study investigated the effects of playing chess on the self-esteem of college students aged 18-40.

Hypothesis

Playing chess can be associated with positive effects on self-esteem.
Previous Literature

- **Chess** is a board game which simulates a battlefield and requires considerable amount of critical thinking, strategic decision making, risk-taking and patience.

- **Self-esteem** is dependent on individual’s beliefs, emotions, successes, failures and other environmental factors.

- Previous research indicates that students with higher self-esteem often work better in groups, display greater pro-social tendencies and are more easily accepted as leaders by their peers compared to students with relatively low self-esteem.

- Studies have also shown that people with higher self-esteem tackle failures more easily, take more initiatives, and are relatively happier (Roy, 2003).
Previous Literature

• Levy (1987) found that after a year of exposure, chess consistently promoted self-esteem in perceptually impaired children, and that their self-images improved dramatically.

• Women show lower chess-specific self-esteem than males (Maass, 2008).

• After participating in a school-based chess program, adolescents who exhibited self-centered and aggressive behaviors showed increased willingness to change their behaviors for the better (Korenman, 2009).
Materials and Methods

Participants (N=40) were graduate and undergraduate students from a public university in the United States who were categorized into two separate groups, cases and controls. The cases included anyone between the ages of 18-40 who played chess as a member of the college’s chess club or chess team; while the controls included anyone within the specified age-group who did not actively participate in chess, either as a hobby or professionally.

The Rosenberg Self-Esteem Scale, a 10-item Guttman scale, was used to assess global self-esteem i.e. how individuals perceived themselves overall (Rosenberg, 1965). In order to evaluate how favorably students perceived themselves in social groups in college, as well as the value and emotional significance of membership in these groups, the study used Luhtanen & Crocker’s Collective Self-Esteem Scale, which is a 16-item Likert scale (Luhtanen, 1992).
Data Description

The summary statistics of the sample population revealed that 67.5% of the participants were in the age group 18-23 years and 15% were in the age group 24-28. 32.5% of the sample were females. In terms of race, 35% were white and 30% were Asian, Hawaiian or Pacific Islanders; in terms of Grade Point Average (GPA) on a 4-point scale, 55% had a high GPA between 3.5-4.0, indicating a fairly young, male-dominated, academically high achieving group of people. The mean individual self-esteem score all participants was 22.85 and mean collective self-esteem score was 87.35.
Results

- There are no significant differences between the self-esteem scores of chess players and non-chess players.
- Among students with high GPA (3.5-4.0), chess players have higher self-esteem than those who are not chess players. However, high-achieving female chess players have lower self-esteem than high-achieving female non-chess players.
- Among students who did not play chess, those with high GPA (3.5-4.0) had lower self-esteem than those who had medium GPA (3.0-3.49).
- The signs of the variables remain consistent when the study alternatively uses global self-esteem scores and collective self-esteem scores as the dependent variables. This implies that if people perceive themselves more positively in social groups in college, they are likely to have a higher overall self-esteem.
Conclusions

- This pilot study did not find statistically significant evidence that playing chess is associated with higher self-esteem in college adults.
- The fact that among a group of academic high-achievers, female chess players have lower self-esteem relative to female non-chess players is consistent with previous study by Maass et al., which attributed this phenomena to the under-representation and under-performance of women in the chess world. Also, the apparent anomaly that among non-chess players, academic high achievers had lower self-esteem than average achievers may be explained by their differing accuracies to calibrate their own performance. A lower self-esteem score may not be necessarily harmful, as it can motivate people to try harder, ultimately leading to better results.
- As the nature of the data is correlational, a causal relationship or a direction of causality should not be assumed.
Acknowledgements

I sincerely thank Dr. Alexey Root for her valuable advice and guidance. I also thank the Office of Vice President of Research at the University of Texas at Dallas for funding this project through an Undergraduate Research Scholar Award.
**Questionnaires - Exhibit A**

**INSTRUCTIONS:** Please read the following questions carefully and mark √ in the appropriate box.

1. **Age (in years):**
   - 18-22
   - 23-28
   - 29-33
   - 34-40

2. **Sex:**
   - Male
   - Female
   - Prefer not to disclose

3. **Race:**
   - White (non-Hispanic)
   - African-American
   - Black (non-Hispanic)
   - Asian-Pacific Islander
   - Native Hawaiian (non-Hispanic)
   - Hispanic/Latino
   - Two or more races
   - Other (please specify)

4. **Current GPA:**
   - 3.5-4.00
   - 3.0-3.49
   - Less than 3.0
   - Prefer not to disclose

**INSTRUCTIONS:** Please mark √ beside the answer that best describes you:

5. **Do you play chess?**
   - a) NO, I do not play chess.
   - b) YES, I play chess. IF YOU REPLIED 'YES' PLEASE ANSWER THE FOLLOWING:
     - i. Approximately how many years have you played chess:
        - Less than 1 year
        - 1 to 5 years
        - 6 to 10 years
        - More than 10 years
     - ii. USCF rating (if applicable):
        - Unlimited
        - 1200-1800
        - 1801-2000
        - 2001-2200
        - 2201-2500
        - Above 2500
     - iii. FIDE rating (if applicable):
        - Unlimited
        - 1400-1800
        - 1801-2000
        - 2001-2200
        - 2201-2500
        - Above 2500
     - iv. Average number of hours you practice chess in a typical week:
        - 0-3
        - 4-6
        - 7-9
        - 10-12
        - More than 12 hours
     - v. Average number of tournaments you play in a typical year:
        - 0-3
        - 4-6
        - 7-9
        - 10 or more

6. **What other sports or games do you play? (please specify):**

7. **Average number of hours you spend on other sports or games in a typical week:**
   - 0-3
   - 4-6
   - 7-9
   - 10-12
   - More than 12 hours
Exhibit B
Morris Rosenberg’s (1989) Individual Self-Esteem Scale

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel that I am a person of worth, at least on equal plane with others</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>2. I feel that I have a number of good qualities</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>3. All in all, I am inclined to feel that I am a failure</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>4. I am able to do things as well as most other people</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>5. I feel that I do not have much to be proud of</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>6. I take a positive attitude towards myself</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>7. On the whole I am satisfied with myself</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>8. I wish I could have more respect for myself</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>9. I certainly feel useless at times</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>10. At times I feel I am no good at all</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
</tbody>
</table>
## Exhibit C

**Luhtanen & Crocker’s (1992) Collective Self-Esteem Scale**

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Disagree Somewhat</th>
<th>Neutral</th>
<th>Agree Somewhat</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am a worthy member of the social groups I belong to.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I often regret that I belong to some of the social groups I do.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Overall, my social groups are considered good by others.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Overall, my group memberships have very little to do with how I feel about myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I feel I don't have much to offer to the social groups I belong to.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>In general, I'm glad to be a member of the social groups I belong to.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Most people consider my social groups, on the average, to be more ineffective than other social groups.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>The social groups I belong to are an important reflection of who I am.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I am a cooperative participant in the social groups I belong to.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Overall, I often feel that the social groups of which I am a member are not worthwhile.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>In general, others respect the social groups that I am a member of.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>The social groups I belong to are unimportant to my sense of what kind of a person I am.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I often feel I'm a useless member of my social groups.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I feel good about the social groups I belong to.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>In general, others think that the social groups I am a member of are unworthy.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>In general, belonging to social groups is an important part of my self-image.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
Thank You!
References


