Locus of Control, Self-Efficacy and Grit among Athletes and Non-athletes

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ABSTRACT: The study compared locus of control, grit and self-efficacy in athletes and non-athletes. The study also examined the relationship between locus of control, grit and self-efficacy in athletes and non-athletes. The sample consisted of 100 non-athletes (33-males and 67-females) and 100 athletes (70-males and 30-females), playing various individual sports such as javelin throw, shot put, long jump, hammer throw, triple jump, discus throw, and hurdles from Chennai city in the age range of 18-25 years. Participants were administered the Rotter's Locus Of Control Scale (Rotter, 1966), The General Self-Efficacy Scale (Schwarzer and Jerusalem, 1992) and Grit-S Scale (Duckworth and Quinn, 2009). Pearson's Product Moment Correlation was used to find the relationship between variables. Independent samples t-test was computed to examine if there were any significant differences in locus of control, self-efficacy and grit among athletes and non-athletes. Findings revealed that there was a significant difference in locus of control among athletes and non-athletes. Athletes had an internal locus of control. No significant differences emerged in self-efficacy and grit among athletes and non-athletes. There was a significant positive relationship between self-efficacy and grit. No significant relationship emerged between locus of control and grit and locus of control and self-efficacy.

Key Words: Locus of control, Self-Efficacy, Grit, Athletes and Non-athletes

Introduction
Grit in athletes
What makes a good athlete? People have often asked this question. Swapna Barman's historic performance in the Asian Games in 2018 is a story of grit and inspiration in the face of adversity. She was the first person in Indian history to win 5 gold medals for India. Swapna Barman won the gold medal in the women's heptathlon, which is a track and field combined event made up of seven events. The dream of becoming a world champion was the only driving force for Swapna Barman, but she had to undergo many hardships and her struggles included having an extra toe on each foot, and economic constraints. Two days prior to the 2018 Asian Games she suffered from a severe tooth pain, but this did not distract her from her dream of becoming a world champion. She participated in the competition with a tape on her cheeks to alleviate the pain. Swapna was so determined that even the severe pain did not distract her from her goal. She exhibited passion and perseverance towards her long-term goals of becoming a world class champion and won the gold medal. Swapna Barman is an example of true grit. The term Grit has been defined as "The passion and perseverance for long-term goals" (Duckworth, Peterson, Matthews & Kelly, 2007). According to Duckworth "achievement is the product of talent and effort, the latter a function of the intensity, direction and duration of one's exertions towards a long-term goal." Elumaro (2016) investigated grit, personality traits and sporting achievements in one hundred and forty two sportsmen and women (mean age= 24.7). The participants completed the Grit Scale (Duckworth, Matthews & Kelly 2007) and the Big Five Inventory-10 (Rammstedt & John, 2007). The levels at which participants played their sports was used as a measure of achievement. The results revealed that grit was a predictor of sporting achievement. Larkin etal (2015) conducted a study on sports specific engagement in three hundred and eighty five elite youth soccer players. The Short Grit Scale (Duckworth & Quinn, 2009) was used in this study. It was found that grittier players significantly spend more time in sport-specific activities including competitions, training, play, and work towards their sporting goals. It was also found that grittier players also performed better than less gritty players on sport specific perceptual- cognitive assessments.

Locus of Control in athletes
Rotter (1966) referred to locus of control as an individual’s perception about the underlying main causes of events in his or her life. It is an essential facet of personality. He conceptualized locus of control into two distinct forms: internal locus of control versus external locus of control. Individuals with an internal locus of control believe that events occur because of their own behavior, whereas those with an external locus of control believe that events are dependent on luck, chance, or other people. Athletes with an external locus of control are more likely to externalize the cause of failure. During a poor performance they
might blame the coach, the referee, the opponent team, and the playing conditions. Whereas an athlete with an internal locus of control is more likely to take responsibility for his or her performance and will look inward and ask himself or herself what they could have done better to improve their performance. Ara and Imamipour (2015) investigated locus of control and hardiness in one hundred and eighty skilled and novice female Taekwondoka athletes from Tehran who were divided into three groups- sixty-skilled athletes, sixty-semiskilled athletes and sixty- novice athletes. The participants completed the Hardiness questionnaire (Kobasa, 1979), Rotter’s Internal and External Locus of Control (Rotter, 1966). One way ANOVA was computed to analyze the data. The results revealed that when compared to semi skilled and novice athletes, skilled female athletes exhibited more internal locus of control and higher hardiness.

Self-efficacy in athletes

Self-efficacy is defined as ones belief in one’s ability to successfully to perform a behavior. Individuals with a high level of self-efficacy are more likely to put more effort to successfully perform a specific task. Self-efficacy is an important psychological construct in sports. Different studies point to a significant positive relationship between self-efficacy and athletic performance. Imagining oneself winning against an opponent has been shown to enhance efficacy and competitive performance (Garza & Feltz, 1998). Mulazimoglu et.al (2016) examined self-efficacy and athletic performance in eighty three football players and found that there was a positive correlation between athletic performance and self-efficacy perception levels.

Objectives of the study:

The objectives of the study were as follows:
1. To compare locus of control, grit and self-efficacy in athletes and non-athletes.
2. To examine the relationship between locus of control, grit and self-efficacy in athletes and non-athletes.

Hypotheses:

In order to investigate the objectives of the study and after examining the review of literature, the following hypotheses were formulated.
1. There will be no significant difference in locus of control between athletes and non-athletes.
2. There will be no significant difference in self-efficacy between athletes and non-athletes.
3. There will be no significant difference in grit between athletes and non-athletes.
4. There will be no significant relationship between locus of control and grit among athletes and non-athletes.
5. There will be no significant relationship between locus of control and self-efficacy among athletes and non-athletes.
6. There will be no significant relationship between self-efficacy and grit among athletes and non-athletes.

Method

Participants:

The sample comprised of 200 athletes and non-athletes, of which 100 were athletes (70 - males and 30- females) and 100 non-athletes (33- males and 67- females) ranging between 18- 25 years. The sampling method used for the present study was purposive sampling for the selection of athletes and convenience sampling for the selection of non-athletes.

Procedure:

The researcher approached two sports academies in Chennai city who train athletes in various individual sports such as javelin throw, shot put, long jump, hammer throw, triple jump, discus throw, and hurdles. The purpose of the study was explained to the coach. Permission was obtained from the coach to conduct the study. 100 athletes in the age range of 18-25 who participated in individual sports such as shot put, long jump, hammer throw, triple jump, discus throw and hurdles at state, national and international level agreed to participate in the study. The purpose of the study was explained to the athletes and informed consent was taken from them. They were then administered the Locus of Control Scale, General Self-Efficacy Scale and Grit- S. Confidentiality of responses was guaranteed to the participants. To collect data from female non-athletes the researcher approached an arts and science college for women in Chennai city. Permission was obtained from the teachers to collect data. The purpose of the study was explained to the students and 67 female students from two different classes volunteered to participate in the study. They
were then administered the three questionnaires. For male non-athletes, the snowball sampling was used and the questionnaire was sent to 33 males.

**Research design:**
Ex Post facto research design was chosen.

**Instruments:**
1. **Rotter’s Locus Of Control Scale.**
   
   Locus of Control Scale (Rotter, 1966) was used to measure the Locus of Control of the participants. The scale is a measure of control beliefs. The scale consists of 29 forced choice items in which 6 are filler items. For each statement the participants have to select the statement that they agree with the most. The Rotter’s Locus of Control scale has good psychometric properties. Rotter’s Locus of Control has moderate to large correlation with Marlowe-Crowne Social Desirability Scale the correlation range between -0.41 to -0.12. Test-retest reliability estimates for Rotter’s Locus of Control scale range between 0.49 and 0.83. Internal consistency estimates for Rotter’s Locus of Control Scale range between 0.65 and 0.79. A higher score indicates External Locus of Control and a lower score indicates Internal Locus of Control.

2. **The General Self-Efficacy Scale (GSE).**
   
   The General Self Efficacy Scale (Schwarzer and Jerusalem, 1992) was used to measure the perceived self-efficacy and it measured how the individual copes with daily hassles and adaptation after experiencing stressful life events. Perceived self-efficacy facilitates goal-setting, effort investment, persistence in the face of barriers and recovery from setbacks. The scale consists of 10 items. Respondents have to answer each item on a 4 point Likert scale ranging from 1= Not at all true to 4= Exactly true. Where 1= Not at all true, 2= Hardly true, 3= Moderately true, 4= Exactly true. The General Self-Efficacy Scale has good psychometric properties and shows promise as a measurement of perceived self-efficacy. The General Self Efficacy Scale is positively correlated with favourable emotions, optimism, and work satisfaction. Negative coefficients were found for depression, stress, health complaints, burnout and anxiety. Cronbach’s Alphas ranged between 0.76 and 0.90.

3. **Grit-S Scale.**
   
   The Short Grit-S Scale (Duckworth and Quinn, 2009) is a measure of trait-level perseverance and passion for long-term goals. It consists of eight items selected from the original Grit Scale (Grit-O, Duckworth, Peterson, Matthews and Kelly, 2007) which has twelve items. Respondents have to answer each item on a 5-point Likert scale ranging from very much like to not like me at all. The Grit Scale has good psychometric properties. Among adults, the Grit-S was associated with educational attainment and fewer career changes. Among adolescents, the Grit-S longitudinally predicted GPA and, inversely, hours watching television. Among cadets at the United States Military Academy, West Point, the Grit-S predicted retention. Among Scripps National Spelling Bee competitors, the Grit-S predicted final round attained, a relationship mediated by lifetime spelling practice. The Grit-S has good internal consistency r=0.59

3. **Personal data sheet:**
   
   A personal data sheet was used to collect the demographic information such as initial, age, educational qualification and the level of participation in sports.

**Statistical analyses:**
- Pearson’s Correlation co-efficient was used to investigate the relationship between locus of control, self-efficacy and grit.
- Independent samples t-test was used to examine the differences in locus of control, self-efficacy and grit among athletes and non-athletes.

**RESULTS AND DISCUSSION**

Table I: Means, Standard Deviations, and ‘t’ value for locus of control between athletes and non-athletes.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>‘t’ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletes</td>
<td>100</td>
<td>10.330</td>
<td>2.322</td>
<td></td>
<td>3.954**</td>
</tr>
<tr>
<td>Locus of control</td>
<td>Non-athletes</td>
<td>100</td>
<td>11.680</td>
<td>2.502</td>
<td></td>
</tr>
</tbody>
</table>

**p<0.01**
It can be observed from the results that there is a significant difference in locus of control between athletes and non-athletes, $t$ (198) = 3.954, $p<0.01$. The results show that non-athletes had higher locus of control ($M= 11.680$, $SD= 2.502$) than athletes ($M= 10.330$, $SD= 2.322$). Athletes have an internal locus of control when compared to non-athletes. Athletes are more likely to believe that they have control over the events that take place in their life. They believe that their behavior is guided by their personal decisions and efforts. This finding confirms a previous finding by Sidhu and Arora (2014) who compared locus of control in athletes and non-athletes and found that athletes exhibited internal locus of control. Therefore, the null hypothesis which states that “There will be no significant difference in locus of control between athletes and non-athletes” is not accepted.

Table II: Means, Standard Deviations, and $t$ value for self-efficacy between athletes and non-athletes.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>$t$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-efficacy</td>
<td>Athletes</td>
<td>100</td>
<td>26.250</td>
<td>5.616</td>
<td>1.734 NS</td>
</tr>
<tr>
<td></td>
<td>Non-athletes</td>
<td>100</td>
<td>27.620</td>
<td>5.553</td>
<td></td>
</tr>
</tbody>
</table>

NS- Not Significant

It can be observed from the results that there is no significant difference in self-efficacy between athletes and non-athletes, $t$ (198) = 1.734. The mean scores obtained by athletes ($M= 26.250$, $SD= 5.616$) did not significantly differ from the mean scores obtained by non-athletes ($M= 27.620$, $SD=5.553$). Contradictory findings were reported by Mukherjee et.al (2014) who compared self-efficacy among athletes and non-athletes and found that athletes had higher self-efficacy than non-athletes. Therefore, the null hypothesis which states that “There will be no significant difference in self-efficacy between athletes and non-athletes” is accepted.

Table III: Means, Standard Deviations, and $t$ value for Grit between athletes and non-athletes.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>$t$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grit</td>
<td>Athletes</td>
<td>100</td>
<td>24.660</td>
<td>4.013</td>
<td>1.423 NS</td>
</tr>
<tr>
<td></td>
<td>Non-athletes</td>
<td>100</td>
<td>23.870</td>
<td>3.836</td>
<td></td>
</tr>
</tbody>
</table>

NS- Not Significant

Results revealed that there is no significant difference in grit between athletes and non-athletes, $t$ (198) = 1.423. The results seems to indicate that when compared to non-athletes ($M= 23.870$, $SD= 3.836$), athletes ($M= 24.660$, $SD= 4.013$) do not differ significantly in their levels of grit. Contradictory findings were reported by Shrivastava and Mishra (2016) who compared grit in sports persons and non-sports persons and surprisingly found that non-sports persons exhibited higher levels of grit. Therefore, the null hypothesis which states that “There will be no significant difference in grit between athletes and non-athletes” is accepted.

Table IV: Pearson's Product Moment correlation between locus of control and grit.

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locus of control</td>
<td>200</td>
<td>0.102 NS</td>
</tr>
<tr>
<td>Grit</td>
<td></td>
<td>0.102 NS</td>
</tr>
</tbody>
</table>

NS -Not Significant

A Pearson product moment correlation was computed to assess the relationship between locus of control and grit and it was found that the correlation between locus of control and grit was not significant, $r$ (198) = 0.102. The results indicate that there is no significant relationship between locus of control and grit. This seems to indicate that locus of control is not linked to grit. Therefore, the null hypothesis which states that “There will be no significant relationship between locus of control and grit among athletes and non-athletes” is accepted.
Table V: Pearson’s Product Moment correlation between locus of control and self-efficacy.

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locus of control</td>
<td>200</td>
<td>0.032 NS</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NS-Not Significant</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The correlation coefficient between locus of control and self-efficacy is not significant, \( r (198) = 0.032 \). The results indicate that there is no significant relationship between locus of control and self-efficacy. In the present study, it is apparent that locus of control is not linked to self-efficacy. Therefore, the null hypothesis which states that “There will be no significant relationship between locus of control and self-efficacy among athletes and non-athletes” is accepted.

Table VI: Pearson’s Product Moment correlation between self-efficacy and grit.

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-efficacy</td>
<td>200</td>
<td>0.223**</td>
</tr>
<tr>
<td>Grit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>**p&lt; 0.01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The correlation coefficient between self-efficacy and grit is significant, \( r (198) = 0.223, p<0.01 \). This indicates that there is a significant positive relationship between self-efficacy and grit. Thus it can be inferred that as self-efficacy increases grit also increases. Students who have the belief that they can solve their problems and cope with adversity if they put the necessary effort and try hard enough also tend to be more grittier. In the study it has emerged that self-efficacy is positively correlated with passion and perseverance towards long term goals. Therefore, the null hypothesis which states that “There will be no significant relationship between self-efficacy and grit among athletes and non-athletes” is not accepted.

Conclusions

The study compared locus of control, self-efficacy and grit among athletes and non-athletes. The study also examined the relationship between grit, locus of control and self-efficacy. The following were the conclusions of the study.

1. There was a significant difference in locus of control between athletes and non-athletes. Athletes had an internal locus of control compared to non-athletes.
2. There was no significant difference in self-efficacy between athletes and non-athletes.
3. There was no significant difference in grit between athletes and non-athletes.
4. There was a significant positive relationship between self-efficacy and grit among athletes and non-athletes.
5. There was no significant relationship between locus of control and grit among athletes and non-athletes.
6. There was no significant relationship between locus of control and self-efficacy among athletes and non-athletes.

Limitations

1. The study was conducted only on 100 athletes and 100 non-athletes.
2. The study was restricted only to athletes who participated in individual sports such as javelin throw, shot put, long jump, hammer throw, triple jump, discus throw, and hurdles. Athletes who participated in team sports such as volleyball, cricket, hockey and basketball were not included in the study.
3. The study was limited to students in the age group 18-25 years from Chennai city.

Suggestion for further research

1. A larger sample can be studied.
2. The study can be carried out on athletes who participate in team sports.
3. Other psychological variables such as resilience, self-esteem, optimism and burnout can be investigated.

References