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Preliminary Validation of the Athlete Development Formulation Survey (ADFS)

Emily Dunn, Dior Anderson, Eleanor Langham-Walsh, Megan Lowery, Prof. Lew Hardy, Prof. Tim Woodman,
Dr Gavin Lawrence, Dr James Hardy, Dr Vicky Gottwald, Dr Ross Roberts & Dr Sam Oliver

Introduction

• Talent development is often measured through anthropometric factors, competition and motor performance tests (Gullich & Cobley, 2017).
• There is evidence that psychosocial factors are important in attaining international medals (Hardy et al., 2017).
• No one has yet compiled psychosocial factors important to athlete development into one practical tool.
• Aim of the study was to develop and undertake preliminary validation of the Athlete Development Formulation Survey (ADFS) using a non-traditional correlational method.

Method

Item Generation and Justification

• Initial pool of 190 items was generated from the manuscript of the Great British Medalists Project (Hardy et al., 2017) alongside items from existing questionnaires.
• Items were revised (Rust & Golombok, 2009).
• Two items per construct were generated or used from existing measures.

Instrument Construction

1. Life Experiences: environment of expectation and achievement (EEA); strong work ethic (SWE); highly competitive environment (HEC); mastery focus (MF); and outcome focus (OF).
2. Athlete Personality: difficulty with emotional expression (DWE); counterphobic attitude (CA); need to succeed (NS); need to avoid failure (NAF); selfishness; ruthlessness; perfectionistic concerns (PC); perfectionistic strivings (PS); socially prescribed perfectionism (SPP); and obsessiveness.
3. Athlete Behaviours: mastery focus; outcome focus; total preparation for competition (TPC); commitment to training (CT); and relative importance of sport (RIS).

Participants

Study 1
• 365 participants were recruited online through social media.

Life experiences

n = 117 (M hours training per week = 5.61, SD = 4.70; M years participating in sport = 7.35, SD = 7.27), Personality n = 122 (M hours training per week = 6.18, SD = 5.29; M years participating in sport = 7.35, SD = 7.27), Training Behaviours n = 123 (M hours training per week = 5.86, SD = 5.16; M years participating in sport = 9.50, SD = 7.08).

Study 2
• 66 participants (M = 30, F = 36) recruited in university lectures (M hours training per week = 7.00, SD = 3.37; M years participating in sport = 7.34, SD = 2.84).

Procedure and Analysis

• Each construct (2 items) were correlated with an existing measure (see results).
• Bivariate and disattenuated correlation, Cook's Distance (Cook, 1977) and attention questions (study 2) were used.
• Magnitude of correlations were reported with effect sizes (Cohen, 1988).

Results

Table 1. Correlations between ADFS Life Experiences Constructs and Previously Validated Measures

<table>
<thead>
<tr>
<th>ADFS Variables</th>
<th>WLOQ: Mastery</th>
<th>WLOQ: Work Ethic</th>
<th>WLOQ: Competitiveness</th>
<th>POSQ: Ego</th>
<th>POSQ: Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1</td>
<td>Study 2</td>
<td>Study 1</td>
<td>Study 2</td>
<td>Study 1</td>
<td>Study 2</td>
</tr>
<tr>
<td>Environment of expectation and achievement</td>
<td>0.51 ** (1.00)</td>
<td>0.37 ** (0.80)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong work ethic</td>
<td>-0.49 ** (0.63)</td>
<td>0.61 ** (0.79)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highly competitive environment</td>
<td>0.59 ** (0.73)</td>
<td>-0.49 ** (0.61)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outcome Focus</td>
<td>-0.36 ** (0.46)</td>
<td>-0.57 ** (0.62)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mastery Focus</td>
<td>0.19 (2.88)</td>
<td>0.42 ** (0.68)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Correlations between ADFS Personality Constructs and Previously Validated Measures

<table>
<thead>
<tr>
<th>ADFS Variables</th>
<th>POSQ: Ego</th>
<th>POSQ: Task</th>
<th>TQI</th>
<th>LASB</th>
<th>IOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1</td>
<td>Study 2</td>
<td>Study 1</td>
<td>Study 2</td>
<td>Study 1</td>
<td>Study 2</td>
</tr>
<tr>
<td>Life with Others</td>
<td>-0.49 ** (-0.53)</td>
<td>0.40 ** (0.48)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need for Order</td>
<td>0.31 ** (0.49)</td>
<td>-0.12 (0.24)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need to Succeed</td>
<td>-0.14 (0.36)</td>
<td>0.29 ** (0.50)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need for Ability</td>
<td>0.42 ** (0.50)</td>
<td>0.30 ** (0.50)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need to Avoid Failure</td>
<td>-0.37 ** (0.36)</td>
<td>0.52 ** (0.78)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need to Succeed</td>
<td>0.49 ** (0.48)</td>
<td>0.49 ** (0.48)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mastery</td>
<td>0.48 ** (0.48)</td>
<td>0.48 ** (0.48)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Preparation for Competition</td>
<td>0.35 ** (0.45)</td>
<td>0.30 ** (0.50)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commitment to Training</td>
<td>0.30 ** (0.45)</td>
<td>0.30 ** (0.45)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative Importance of Sport</td>
<td>0.30 ** (0.45)</td>
<td>0.30 ** (0.45)</td>
<td></td>
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</tr>
</tbody>
</table>

Discussion

• Consistent preliminary validation was shown across both studies with increased correlations when measurement error was accounted for.
• Lower strength correlations may be due to non-domain specific measures.
• Further validation is needed within a large elite athlete population across different sports.
• These studies are the first steps toward a practical psychosocial survey to examine important factors known to impact athlete development.
• In applied practice the ADFS could be used as part of multidisciplinary approach to measure and athlete development.

References