Exercise Motivation and Subjective Well-Being: A Study with Self-Determination Theory

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Promoting psychological well-being through exercise...

Thus, can we say:
- You should do exercise in order to... feel better...

Continuum of behaviour regulation

Basic Psychological Needs Underlying Optimal Motivation and Well Being

Subjective Well-Being and Exercise: Feel-Good Factor

Exercise makes me feel good

Psychological Well-Being and Exercise: Mechanisms

Exercise

Subjective well-being

Physiological
- Beta-endorphin;
- Serotonin;
- Catecolamins...

Psychosocial
- Time-out hypothesis
- Social Support
- Motivation
  - Amotivation
  - External
  - Introjected
  - Identified
  - Integrated
  - Intrinsic
Purpose

- Analyze the association between motivational constructs from Self-Determination Theory and depression, anxiety and stress.

- Hypothesis: Controlling for exercise level, more internal, self-determined forms of exercise motivation are associated with lower psychological distress.

Methods

- Participants: Convenient sample of 715 subjects (458 women, 27.3±9.0 years).
- Measures:
  - Exercise weekly frequency (assessed with one single item).
  - Sedentary (19.5%), insufficiently active (34.2%, 1-2/w), sufficiently active (41.6%, 3-6/w) and extremely active (4.8%, >6/w).
  - Depression, Anxiety and Stress Scale (DASS: Lovibond & Lovibond, 1995).
  - Internal consistency: .65<α<.88

Group comparison:

<table>
<thead>
<tr>
<th>Exercise motivation</th>
<th>Stress</th>
<th>Depression</th>
<th>Anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sedentary</td>
<td>4.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Insufficiently Active</td>
<td>5.0</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Sufficiently Active</td>
<td>6.0</td>
<td>7.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Extremely Active</td>
<td>7.0</td>
<td>8.0</td>
<td>8.0</td>
</tr>
</tbody>
</table>

Note: The letters above columns represent Tukey's post-hoc.

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<td>7.0</td>
<td>8.0</td>
</tr>
<tr>
<td>Extremely Active</td>
<td>8.0</td>
<td>9.0</td>
</tr>
</tbody>
</table>

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Intercorrelations

<table>
<thead>
<tr>
<th></th>
<th>Stress</th>
<th>Depression</th>
<th>Anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amotivation</td>
<td>.12 **</td>
<td>.27 ***</td>
<td>.27 ***</td>
</tr>
<tr>
<td>External</td>
<td>.16 ***</td>
<td>.26 ***</td>
<td>.29 ***</td>
</tr>
<tr>
<td>Introjected</td>
<td>.26 ***</td>
<td>.28 ***</td>
<td>.26 ***</td>
</tr>
<tr>
<td>Identified</td>
<td>.09 *</td>
<td>.02</td>
<td>.01</td>
</tr>
<tr>
<td>Intrinsic Motivation</td>
<td>-.02</td>
<td>-.09 *</td>
<td>-.12 **</td>
</tr>
</tbody>
</table>

Simplex pattern, with higher values of stress, depression and anxiety associated with higher values of the more negative behavioural regulations. Conversely, stress, depression and anxiety were negatively associated with intrinsic motivation.

Associations with Stress

<table>
<thead>
<tr>
<th>Exercise Level</th>
<th>Stress</th>
<th>Amotivation</th>
<th>External</th>
<th>Introjected</th>
<th>Identified</th>
<th>Intrinsic Mot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adj. R²=8.6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Discussion notes:
- Introjected had the stronger association.
- Exercise was negatively associated (sedentary was coded with 0 and extremely active with 3 in the data file).
**Associations with depression**

<table>
<thead>
<tr>
<th>Type</th>
<th>Adjusted R²</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amotivation</td>
<td>2.4%</td>
<td>.17***</td>
</tr>
<tr>
<td>External</td>
<td>6.2%</td>
<td>.25***</td>
</tr>
<tr>
<td>Introjected</td>
<td>1.3%</td>
<td>-.11**</td>
</tr>
<tr>
<td>Intrinsic</td>
<td>0.7%</td>
<td>.09*</td>
</tr>
</tbody>
</table>

**Depression**

Adj. R² = 13.7%

F(4,641) = 26.63, p<.001

**Discussion notes:**
- Stronger predictive power than in the stress model
- Less self-determined regulations were positively associated with depression
- Introjected had the stronger association
- Exercise had a smaller predictive power than in the stress model

**Summary of results**

- Exercise level is positively associated with psychological well-being and more self-determined behaviour regulations
- Less self-regulated types of motivation were associated with higher psychological distress, even when controlling for exercise level
- Introjected regulation was particularly predictive of depression, stress and anxiety
- Intrinsic motivation did not contribute to subjective well-being beyond exercise level

**Promoting psychological well-being through exercise...**

- Thus, can we say:
  - You should do exercise in order to... feel better...

**Discussion**

- Exercise does not always make one feel better (note: limited measure of exercise)
- In introjected regulation a person is motivated by internally imposed controls and self-esteem contingencies
  - Exercise is done by guilt; thwart its psychological benefits (Edmunds et al., 2007)
  - Not being able to exercise decreases well-being more intensely (Berger & Motl, 2001)
  - Exercise is being socially driven (McCabe & Ricciardelli, 2003)
Limitations and Implications

Limitations
- Did not control for gender differences
- Only one measure of SDT constructs
- Psychological distress vs. well-being measures
- Exercise was assessed by self-report
- No mediation analysis

Implications
- Assure that people take on exercise that they can self-regulate in a autonomous fashion, to promote the feel-good factor