Type 1 Diabetes and its Effects on Active/Inactive Goal Priming for Exercise

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Type 1 Diabetes and its Effects on Active/Inactive Goal Priming for Exercise

Kevin Seske
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Why is this Important?

- Exercise has many benefits
- Managing a chronic illness (long-lasting) can be difficult
- Priming is effective
Priming (In general)

- Achievement Goal Priming (Action Priming) (Gollwitzer, Sheeran, Trotschel, & Webb, 2011)
  - Inactive
  - Active
  - Exercise tasks (Albarracin, Hepler, & Tannenbaum, 2011)
Protection Motivation Theory (PMT)

- Cognitive mediation process of behavioral change with threat and coping appraisal (Plotnikoff, 2009)
- Perceived severity
- Perceived vulnerability
- Response Efficacy (Coping response)
- Self-Efficacy
PMT in Plotnikoff et al. (2009)

- Canadian adults with Type 2 Diabetes
- Intention and Self-Efficacy make a significant impact on behavior
- Provides framework
Action and Inaction Goals

- When one has a general *action* goal, they tend to carry out an *active* task.
- When one has a general *inaction* goal, they tend to carry out an *inactive* task.
- Priming these types of goals does what? (Bluemke, Brand, Schweizer, & Kahlert, 2010)
- Positive Associations
- Negative Associations
Why this study?

- How can individuals be motivated to exercise with a chronic illness?
- To determine whether goal priming (active or inactive) can be affected by a chronic disease (type 1 diabetes)
Hypotheses

- If actively primed to exercise, type 1 diabetes will *not* affect this priming.
  - Individuals will continue to exercise
- If inactively primed, type 1 diabetes *will* affect this priming.
  - Individuals will become active
Method and Measures

- Participants = enrolled in a general psychology course at Illinois Wesleyan University age 18 and over
- Completion of research experience is required for the course
- Action/Inaction Goal Priming Tasks
  - Active Priming: Jumping Jacks
  - Inactive Priming: Closing Eyes and Relaxing
<table>
<thead>
<tr>
<th></th>
<th>Chronic</th>
<th>Healthy</th>
<th>Active</th>
<th>Inactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>P2</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>P3</td>
<td></td>
<td>X</td>
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<td></td>
</tr>
<tr>
<td>P4</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Measures (Continued)

- PMT Questionnaire (Plotnikoff, 2009)
  - Perceived severity and vulnerability
    - EX: Getting further diabetes complications would be a very bad thing to happen to me (1-5 Scale)
  - Response efficacy
    - EX: For me, regular physical activity will keep me healthy (1-5 Scale)
  - Self-efficacy (level of confidence to exercise regularly)
    - EX: You feel stiff or sore (1-5 Scale)
  - Behavioral Intention
    - EX: (0-100%) Likelihood of getting regular physical activity within the next month?
Post-PMT Behavior Analysis

- Do you want to do the active task (walking) or the inactive task (napping)?

OR
Statistical Analyses

- 2 (priming: action, inaction goals) x 2 (illness: yes, no) between-subjects ANOVA
- Dependent Variable: Do you want to do the active task (walking) or the inactive task (napping)? (Participant’s intention?)
- Examines the influences of goal priming and a chronic illness on participant’s intention to exercise
Results

- \( N = 66 \) participants total
- Omnibus 2x2 Univariate ANOVA indicated that:
  - Significant Main Effect of Priming
    - \( F (1, 62) = 4.68, p = 0.03, \eta^2 = 0.07 \)
  - Marginal Main Effect of Illness
    - \( F (1, 62) = 3.29, p = 0.08, \eta^2 = 0.05 \)
  - Significant Priming x Illness Interaction Effect
    - \( F (1, 62) = 4.68, p = 0.03, \eta^2 = 0.07 \)
Results (Continued)

- To examine interaction better, two-way ANOVAs were conducted
- Compared behavioral choices between the two illness conditions (chronic, healthy) within each priming group (active, inactive)
- No illness condition effect for the actively primed group
- Significant illness condition effect within inactively primed group
  - $F(1, 32) = 8.54, p = 0.006$
Discussion (What does this mean?)

• Main Effect of Priming
  • If someone is actively primed, then more likely to be active
  • If someone is inactively primed, then less likely to be active

• Priming x Illness Interaction effect
  • For those who are inactively primed and given an illness, they will intend to exercise more than those who were inactively primed and not given an illness.

• Illness condition effect within inactively primed group
  • Supports interaction effect
Limitations and Future Research

- Total number of participants were relatively low
  - \(N = 66\)
- Participants hypothetically had diabetes
- Priming manipulation
  - Participants get primed for a *longer* period of time, then answer questionnaire, perform behavioral follow-up, etc. afterwards
The Puzzle Finally Makes Sense...

- Generally, if an individual is very active, then his/her exercise frequency will not be affected by type 1 diabetes should it enter his/her life unexpectedly.
### Table 1

<table>
<thead>
<tr>
<th>Sex for the Four Condition Groups</th>
<th>School Year for the Four Condition Groups</th>
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</thead>
<tbody>
<tr>
<td><strong>M (SD)</strong></td>
<td><strong>M (SD)</strong></td>
</tr>
<tr>
<td>Active/Chronic 1.53 (.514)</td>
<td>Active/Chronic 1.71 (.849)</td>
</tr>
<tr>
<td>Inactive/Chronic 1.69 (.480)</td>
<td>Inactive/Chronic 2.08 (1.32)</td>
</tr>
<tr>
<td>Active/Healthy 1.53 (.516)</td>
<td>Active/Healthy 1.80 (1.082)</td>
</tr>
<tr>
<td>Inactive/Healthy 1.60 (.507)</td>
<td>Inactive/Healthy 2.00 (1.13)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age for the Four Condition Groups</th>
<th>Race for the Four Condition Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M (SD)</strong></td>
<td><strong>M (SD)</strong></td>
</tr>
<tr>
<td>Active/Chronic 19.24 (.970)</td>
<td>Active/Chronic 4.65 (1.06)</td>
</tr>
<tr>
<td>Inactive/Chronic 19.62 (1.33)</td>
<td>Inactive/Chronic 4.54 (1.198)</td>
</tr>
<tr>
<td>Active/Healthy 19.47 (1.995)</td>
<td>Active/Healthy 3.60 (1.81)</td>
</tr>
<tr>
<td>Inactive/Healthy 19.27 (.961)</td>
<td>Inactive/Healthy 4.07 (1.62)</td>
</tr>
</tbody>
</table>
### Table 2

**PMT Measures Responses**

<table>
<thead>
<tr>
<th>Measure</th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived vulnerability</td>
<td>3.68 (0.98)</td>
</tr>
<tr>
<td>Perceived severity</td>
<td>4.53 (0.71)</td>
</tr>
<tr>
<td>Response efficacy</td>
<td>4.60 (0.57)</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>3.47 (0.75)</td>
</tr>
<tr>
<td>Participants’ intentions</td>
<td>1.45 (0.50)</td>
</tr>
</tbody>
</table>