An Integrated Behaviour-Change Model for Physical Activity

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Overview

- Why is theory important?
- Integrated behaviour Change Model
  - Motivation and intention
  - Volition and planning
  - Implicit and automatic processes
- Translation and application
- Summary and the way forward

Why is theory important?
Answering the ‘what’ and ‘how’ questions

- Explanatory systems
  - Personal and social factors (‘what’)
  - Mechanisms responsible (‘how’)
  - Targets for intervention
- Pose questions/hypotheses
- Permits disconfirmation, rejection
- Avoids ‘hit and hope’ or ‘variable fishing expeditions’

Examples of Theories

- Self-efficacy/social cognitive theory (Bandura, 1963)
- Health belief model (Becker, 1974)
- Protection motivation theory (Rogers, 1975)
- Theory of interpersonal behaviour (1977)
- Theory of reasoned action (Fishbein & Ajzen, 1980)
- Self-determination theory (Deci, 1980)
- Transtheoretical model (Prochaska & DiClemente, 1982)
- Personality systems interaction theory (Kuhl, 1984)
- Theory of planned behaviour (Ajzen, 1985)
- Self-regulation theory (Bagozzi, 1990)
- Health action process approach (Schwarzer, 1992)
- The I-change model (De Vries et al., 1995)
- Model of goal-directed behaviour (Perugini & Conner, 2000)

The Integrated Behaviour Change (IBC) Model


Theories of Reasoned Action and Planned Behaviour

Source: Hagger, Chatzisarantis and Biddle (2002)

Meta-analysis

Source: Hagger, Chatzisarantis and Biddle (2002)

The theory of planned behaviour: Problems and solutions

c.f. Head & Noar (2014); Noar & Head (2014); Sniehotta (2014); Rhodes (2014); Rhodes & de Bruin (2013)
Theory of Planned Behaviour and Self-Determination Theory

- What are the origins of constructs like attitudes and perceived control?
- Can individual differences and needs-based motives predict beliefs from TPB?
- Self-determination theory may have the 'key'

Self-Determination Theory

<table>
<thead>
<tr>
<th>Type of Motivation</th>
<th>Defining Features</th>
<th>Self-Determined Motives (Intrinsic)</th>
<th>Non-Self-Determined Motives (Extrinsic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic Motivation</td>
<td>For choice, enjoyment, pleasure &amp; don't need reinforced</td>
<td>Identification</td>
<td>For external regulation</td>
</tr>
<tr>
<td>Introjection</td>
<td>For personal values like learning new skills, feelings of competence &amp; satisfaction</td>
<td>For avoiding guilt or gaining externally referenced approval</td>
<td></td>
</tr>
</tbody>
</table>

Theory of Planned Behaviour and Self-Determination Theory

- Can SDT assist in explaining the origins of TPB constructs?
- Cognitive theories begin their analysis [of behaviour] with a cognitive representation of some future desired state. What is missing, of course, is consideration of the conditions of the organism that make these future states desired

(Deci & Ryan, 1985, p. 228)

Self-Determined Motives ('INTRINSIC')
- For choice, enjoyment, pleasure & don't need reinforced

Non-Self-Determined Motives ('EXTRINSIC')
- For external regulation
- For avoiding guilt or gaining externally referenced approval

Theory of Planned Behaviour and Self-Determination Theory

- People distinguish between 'self-determined' and 'non self-determined' beliefs
- Classification analysis:
  - Appearance-related reasons = non self-determined (extrinsic)
  - Other reasons classified as self-determined (intrinsic)
- Significant correlation ($r = .27$) between self-determined motivation and dichotomous 'reasons' variable


McLachlan & Hagger (2011) Journal of Sport & Exercise Psychology

Theory of Planned Behaviour and Self-Determination Theory

- Self-determined motivation
- Social Norms
- Intention
- Behaviour

Theory of Planned Behaviour and Self-Determination Theory

- Motivational
- Volitional
- Action Planning

The Integrated Behaviour Change (IBC) Model

- Attitudes
- Implicit attitudes
- Subjective Norms
- Intention
- Exercise Behaviour

Motivation may be a necessary but not sufficient condition for behaviour. Many people state an intention, motive or desire to participate in exercise, but fail miserably to do so! The intention-behaviour 'gap' is imperfect.

<table>
<thead>
<tr>
<th>Inclined Abstainers</th>
<th>Unsuccessful Intenders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intender</td>
<td>Successfull (42%)</td>
</tr>
<tr>
<td>Non-intender</td>
<td>Successfull (2%)</td>
</tr>
</tbody>
</table>

Source: Rhodes & de Bruin (2013)

Planning and implementation intentions

You are more likely to exercise for at least 30 minutes per day if you say when ('if ...') and where ('then ...') you will exercise and stick to your plan. In the boxes below write down when and where you plan to exercise in the next week:

- If the clock strikes 12:30pm for lunch...
- Then... I will pick up my gym bag and go to the fitness centre
**Implementation Intentions**

Strong effects of simple plans

Sources: Gollwitzer & Sheeran (2006)
Hagger & Luszczynska (2014)

**The Integrated Behaviour Change (IBC) Model**


**The problem of past behaviour, habit and behaviour ‘change’**

Past Behaviour → Behaviour

Verplanken & Orbell (2003)
Gardner (2015)
Hagger, Rebar, Mullan, Lipp & Chatzisarantis (2015)

**Past behaviour, habit, and explaining behaviour change**

- Theories need to move beyond mere prediction – focus on “behaviour change”
- Theories need to explain past behaviour-future behaviour relations
- Need to make a distinction between past behaviour and habit or “automatic” processes
- How do habits form?

**Past Behaviour and Behaviour Change**

Source: Hagger, Chatzisarantis and Biddle (2002)

**Habit, past behaviour, and explaining change**

Process model of habit development

Intention → Exercise Behaviour → Habit
Habit, past behaviour, and explaining change

Process model of habit development

1. Habit
2. Behaviour
3. Intention
Source: Rebar & Hagger (2015) in submission

Implicitly Held Attitudes and Motivation

- Relatively recent addition to research in social cognition/motivation (e.g., Greenwald et al. 2002)
- Individuals hold beliefs and motives that are:
  - Not accessible consciously (Fazio, 1990)
  - Stored as 'knowledge structures' – schema (Henderson, Hagger, & Orbell, 2007)
  - Made active or salient by context or 'cues' (e.g., Bargh & Chartrand, 1999)
  - Impact action beyond awareness (e.g., Bargh, 1990)
- Lighting a cigarette, decision to exercise

The Implicit Association Task

<table>
<thead>
<tr>
<th>Good</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>Bad</td>
</tr>
<tr>
<td>Me</td>
<td>Not me</td>
</tr>
<tr>
<td>Intrinsic</td>
<td>Extrinsic</td>
</tr>
</tbody>
</table>


Explicit and Implicit Attitudes Predict Physical Activity

- Medium-sized effects of both forms of attitudes
- Correlation between two components of attitudes low

Implicit and Explicit Motives on Physical Activity

The Integrated Behaviour Change (IBC) Model

Promoting Physical Activity Behaviour Utilizing ‘existing networks’

Theoretical mediators of obesity interventions

The Integrated Behaviour Change (IBC) Model

Combining Pre- and Post-Decisional Strategies
Results

Physical activity behaviour


The Integrated Behaviour Change (IBC) Model


Priming implicit goals and attitudes

- Design: Prime condition: diet vs. ‘fattening’ food vs. control
- DV1: Recognising ‘diet’ in decision task
- DV2: Choosing healthy over unhealthy ‘parting gift’


Summary

- Theory is important to inform knowledge on predictors, mechanisms and processes of behaviour change
- Integrated behaviour change model proposes three processes leading to health behaviour
  - Motivational
  - Volitional
  - Implicit
- Model can be used to explain behaviour change
- Model can be used to guide interventions

Limitations and the way forward

- More evidence for integrated model is required (Hagger et al., 2009; Hagger & Chatzisarantis, 2015)
- Need to explicitly incorporate process of habit formation
- No role for emotion and affecting responses
- Model may apply to other health behaviours
- May be a specific form of a ‘tri-process’ framework (Hamilton & Hagger, in preparation)
- More experimental and intervention research needed (Mullan, Todd, Chatzisarantis, & Hagger, 2013)

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