Increasing physical activity using self-affirmation

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Overview

- Increasing physical activity
- Self-affirmation
- Consideration of Future Consequences
- Method and Results
- Implications for theory and practice
Physical Activity

- Being physically active lowers chance of developing coronary heart disease, cancer, Type 2 Diabetes

- Physical activity in UK population low; reduces from school age into adulthood  
  Slide 4

- UK government created campaigns like change4life  
  http://www.nhs.uk/change4life/Pages/WhyAdverts.aspx
Physical activity by age (England, 2003)

Proportion achieving the ‘5 x 30’ guideline (high summary activity levels)

- Men
- Women

Age group:
- 16-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75+

Percent
Encouraging Physical Activity

- Television campaigns are high profile but do not usually produce behaviour change.

- Interventions based on behaviour change theories tend to be more successful (Health Development Agency, 2004)
  - e.g., action plans, stating when, where and how to be more active, have been shown to increase physical activity (Sniehotta et al., 2006; Darker et al., 2010)
Health campaigns target motivation and tend to either try and:
- persuade people with arguments
- scare people with fear appeals

Ashford et al. (2010) report that persuasion is third worst method for changing self-efficacy

Ruiter et al. (2003) state that fear appeals lead to avoidant rather than adaptive coping
Defensive processing

- Persuasion and fear appeals may not work because the message prompts anxiety which activates defensive processes
  - ignore the message, denigrate the arguments

- For example, show a smoker the following image Slide 8 and you will likely produce defensive processing of the message
Smoking can cause a slow and painful death.
Why do defensive processes occur?

- Defensive processes occur for several reasons including protecting one’s view of self-concept.

- This is a big problem because those most at risk are also most likely to react defensively.

- How do we get people to acknowledge the need for behaviour change, without activating defensive processes?
Self-affirmation Theory (SAT: Steele, 1988)

- Steele (1988) proposes that people want to view themselves as morally correct.

- So telling people their behaviour is unhealthy can be counter-productive because the information threatens their sense of being a moral person and engages defensive processes.
Self-affirmation

Self-affirmation (SA) involves individuals affirming an important aspect of their self to maintain global positive self-image in the face of threats.

In this way SA, buffers the self against threatening aspects of information, allowing individuals to process the information without defensive processes interfering.
Self-affirmation applied to the self

- I just got a paper in Nature
- I’m not doing enough activity
- I buy my wife flowers all the time

- Work
- City
- Political Party
- Health
- Sport
- Family
Self-affirmation and defensive processing

- People who self-affirm...
  - Show increased risk perceptions & intentions to change behaviour (McQueen & Klein, 2006)
  - Rate counter-attitudinal messages as being higher quality (van Koningsbruggen & Das, in press)
  - Recall health recommendations better (Cooke, 2009)
SA as a way to motivate behaviour change

- SA should promote behaviour change as it allows individuals to maintain a global positive self-image in the face of threats.

- This should lead to adaptive coping.
Does SA promote behaviour change for health risk behaviours?

▶ NO

▶ SA does not reduce alcohol consumption (Harris & Napper, 2005) or cigarette consumption (Armitage et al., 2007)
Does SA promote behaviour change for health promotion behaviours?

- **YES**
- SA increased fruit & vegetable consumption (Epton & Harris, 2008)
- SA prompted people to take sunscreen samples (Jessop et al., 2009)
- SA increased completion of online test for Type II Diabetes risk (van Koningsbruggen & Das, 2009)
Study Aims

- Primary aim of present study was to apply SA to Physical Activity promotion

- Secondary aim was to test interaction between SA and considerations of future consequences

- Final aim was to compare prediction of activity by SA with prediction by previous activity, intention and PBC
Moderation of SA

- SA differentially effective in promoting behaviour change for health risk vs. health promotion behaviours (behaviour type as moderator)

- Alternatively, individual differences may affect the impact of SA on behaviour change (personality type)
Consideration of Future Consequences (CFC: Strathman et al., 1994)

- CFC = extent to which you think about the future
  - ‘I only act to satisfy immediate concerns, figuring the future will take care of itself’ (extremely characteristic—extremely uncharacteristic)

- Low CFC individuals prefer messages that emphasise short-term positive outcomes, high CFC individuals prefer messages that emphasise long-term positive outcomes (Orbell et al., 2004; Orbell & Hagger, 2006; Orbell & Kyriakaki, 2008)
Combining SA and CFC

In the present study, we decided to target low CFC individuals, so we developed a health warning that emphasised the short-term benefits of being more active.

Participants either affirmed or did not affirm then presented the message.
Theory of Planned Behaviour and Past activity

- Ajzen’s (1991) Theory of Planned Behaviour (TPB) has been shown to be a highly effective predictor of activity motivation and behaviour.

- Intention and PBC (self-efficacy) are both good predictors of activity (Godin & Kok, 1996, Darker et al., 2010).

- In addition, past activity is also an excellent predictor of activity (Norman et al., 2000).
The Theory of Planned Behaviour (Ajzen, 1991)

- Attitude
- Subjective Norm
- Perceived Control

Intention

Behaviour
TPB, past activity and SA

- Tested impact of SA on activity after controlling for effects of intention, PBC and past activity

- In addition, Epton & Harris (2008) showed that response-efficacy mediated effects of SA, so wanted to test the idea that TPB variables may act as mediators of SA
Study Hypotheses

- **H1**: SA participants will increase their activity over time more than NA participants

- **H2**: High CFC participants will engage in more activity over time than low CFC participants

- **H3**: CFC will interact with SA; low CFC should benefit more from SA than high CFC
Method

- 80 participants recruited from Aston University
- Completed CFC scale (Strathman et al., 1994) and Godin & Shepard (1985) Leisure Time Physical Activity questionnaire (LTPA)
- Randomly allocated to Self-affirm (N=40) or not affirm conditions (N=40)
- Completed manipulation check & TPB questionnaire
- One week later completed LTPA & TPB questionnaires via email
Self-affirmation manipulation

- Participants ranked values (i.e., equality) from 1-11 (1= most important)

- SA participants wrote an essay about their most important value and why it is important to them

- NA participants wrote an essay about their least important value and why it would be important to the average student
Manipulation Check

Manipulation check = 8 items including ‘Things I would like to change about myself’ – ‘Things I wouldn’t like to change about myself’ (-3 to +3)

SA participants had significantly higher scores ($M = 1.28; SD = 1.16$) compared with NA participants ($M = -0.45; SD = 1.80; t(1,78)= 5.08, p < 0.01$).
Analysis Plan

- 2 factor ANCOVA examining effects of affirmation condition (SA vs. NA) and CFC (Low vs. High) on activity at follow-up, with baseline activity as a covariate
- Independent groups t-tests to see if affirmation condition changes variables
- Regression of activity on SA, intention, PBC and baseline activity
Results

- SA participants engaged in significantly more activity one week after manipulation (M = 78.14) compared with NA participants (M = 44.39), $F(1,76) = 74.16, p = 0.00$

- Trend for low CFC participants to engage in more activity (M = 64.91) compared with high CFC participants (M = 57.35) $F(1,76) = 3.56, p = 0.06$

- No interaction between SA and CFC,
Fig 1: Impact of SA on activity at follow-up

Activity (LTPA score)

SA
NA

Low CFC
High CFC

p = 0.07
Fig 2: Activity levels over time

- Baseline
- One week

Legend:
- Low/SA
- High/SA
- Low/NA
- High/NA
Does SA affect motivational variables immediately?

<table>
<thead>
<tr>
<th>Variable</th>
<th>Self-affirmed</th>
<th>Non-affirmed</th>
<th>t (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline Activity</td>
<td>53.12</td>
<td>52.98</td>
<td>0.02 (0.98)</td>
</tr>
<tr>
<td>Attitude</td>
<td>5.21</td>
<td>4.74</td>
<td>1.71 (0.09)</td>
</tr>
<tr>
<td>Subjective Norm</td>
<td>4.04</td>
<td>4.09</td>
<td>-0.19 (0.85)</td>
</tr>
<tr>
<td>PBC</td>
<td>4.60</td>
<td>4.70</td>
<td>-0.29 (0.78)</td>
</tr>
<tr>
<td>Intention</td>
<td>4.34</td>
<td>3.81</td>
<td>1.35 (0.18)</td>
</tr>
</tbody>
</table>

Baseline activity results show that randomisation to condition was successful.
Does SA affect motivational variables one week later?

<table>
<thead>
<tr>
<th>Variable</th>
<th>Self-affirmed</th>
<th>Non-affirmed</th>
<th>t (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>5.61</td>
<td>4.57</td>
<td>3.97 (0.00)</td>
</tr>
<tr>
<td>Subjective Norm</td>
<td>4.30</td>
<td>4.14</td>
<td>-0.63 (0.53)</td>
</tr>
<tr>
<td>PBC</td>
<td>4.99</td>
<td>4.69</td>
<td>0.88 (0.38)</td>
</tr>
<tr>
<td>Intention</td>
<td>5.26</td>
<td>3.55</td>
<td>4.55 (0.00)</td>
</tr>
</tbody>
</table>
Do changes in variables mediate effects of SA?

- Following Epton and Harris (2008) we regressed activity one week later on affirmation and attitude, controlling for baseline activity.

- No evidence that attitude mediates effects of affirmation on activity.

- Also no mediation by attitude or intention at one week follow-up.
## Predicting Activity one week later

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention T1</td>
<td>0.03</td>
<td>0.68</td>
</tr>
<tr>
<td>PBC T1</td>
<td>0.01</td>
<td>0.91</td>
</tr>
<tr>
<td>SA vs. NA</td>
<td>-0.48</td>
<td>0.00</td>
</tr>
<tr>
<td>Low CFC vs. High CFC</td>
<td>-0.11</td>
<td>0.07</td>
</tr>
<tr>
<td>Baseline activity</td>
<td>0.72</td>
<td>0.000</td>
</tr>
<tr>
<td>Model</td>
<td>48.84</td>
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<tr>
<td>$R^2$</td>
<td>0.75</td>
<td>0.000</td>
</tr>
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</table>
Summary

- SA participants engaged in significantly more activity compared with NA participants

- CFC status did not predict activity or interact with SA

- SA increased attitudes immediately and one week later, and increased intention one week later; no evidence of mediation

- SA remained a significant predictor of activity after controlling for baseline activity, intention and PBC
Implications

- SA as driver of behaviour change
- SA effects moderated by CFC
- SA effects mediated by TPB variables?
SA promotes activity

- First study to apply SA to promote physical activity, results encouraging
- SA predicted activity after controlling for baseline activity, intention, PBC
- Supports past results which show that SA can encourage health promotion behaviours
- Finding requires replication with non-student sample, but is promising
SA & CFC

- SA had greatest impact on those who needed it most; low CFC engaged in less activity compared with high CFC, but this changed after SA

- SA is precise in its effects, and does not appear to have harmful side-effects, though NA perhaps not so good!

- Further tests of SA and CFC with other behaviours are warranted (McEachan et al., 2010)
SA impact mediated by TPB variables?

- SA increased attitudes and intentions; this is good news as attitudes are strong predictor of activity intentions (Hagger et al 2004), and intentions predict activity (Godin & Kok, 1996)

- No evidence that attitude or intention mediate effects of SA, but only have one week follow-up. The effects may occur later
Future Studies: Processes

- SA appears to affect attention (van Koningsbruggen & Das, in press; Klein & Harris, in press) and memory (Cooke, 2009)
- SA affects motivational variables from TPB and risk perceptions
- Need to understand why SA changes behaviour for health promotion behaviours but not health risk
Future Studies: Applications

- Most SA studies use leaflets, so need tests with other media (TV adverts, Websites); test the *generalisability* of effects

- Need more non-student samples, do not know if other populations will find affirming *acceptable*

- Combine SA with planning; motivational interventions more likely to prompt behaviour change when combined with plans (Milne et al., 2002; Prestwich et al., 2003; Darker et al., 2010)
The End!!!

For further information about this research please email:

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## Predicting Intentions one week later

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude T1</td>
<td>0.22</td>
<td>0.05</td>
</tr>
<tr>
<td>Subjective Norm T1</td>
<td>0.22</td>
<td>0.02</td>
</tr>
<tr>
<td>PBC T1</td>
<td>0.00</td>
<td>0.99</td>
</tr>
<tr>
<td>SA vs. NA</td>
<td>-0.42</td>
<td>0.00</td>
</tr>
<tr>
<td>Low CFC vs. High CFC</td>
<td>-0.01</td>
<td>0.88</td>
</tr>
<tr>
<td>Baseline activity</td>
<td>0.22</td>
<td>0.03</td>
</tr>
<tr>
<td>Model</td>
<td>9.70</td>
<td>0.000</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.40</td>
<td>0.000</td>
</tr>
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</table>