Promoting Responsible Drinking?
A Mass Media Campaign Affects Implicit But Not Explicit Alcohol-Related Cognitions And Attitudes

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Binge drinking

• binge drinking has become a serious problem (Kuntsche, Rhem, & Gmel, 2004; Wechsel et al., 2002)
  ➢ higher risk of strokes (Sundell et al., 2008)
  ➢ increased somatic complications (Stolle, Sack, & Thomasius, 2009)
  ➢ negative social consequences (Kraus, Baumeister, Pabst, & Orth, 2009; Rehm & Gmel, 1999)
  ➢ alcohol addiction (Stolle et al., 2009)
Mass Media Campaign

- title: “Alcohol? Know your limit”

- German Federal Central Office for Health Education (BZgA) in cooperation with the Organization of Private Medical Insurances (PVK)

- posters and advertisements in magazines, TV and cinema advertisements, health education programs in schools and public events
Campaign Posters

- he will completely lose control
- she will never forgive him
- he parties endlessly and wakes up in his own vomit

- she loses all inhibitions tonight
- he posts her naked on the Internet
- he parties till he drops and is in the ICU

- he is going to hit it off tonight and fails to pass his exam tomorrow
- she will get her act together
- he won’t just use his license
ja es waren vier, das vierte müsste ich jetzt suchen, ich lassse die drei, denn die sind ha alle gleich
Theoretical Background

(Aarts & Dijksterhuis, 2000; Bandura, 1977; Collins & Loftus, 1975; Goldman et al., 1991; Goldman, 1999; Rather et al., 1992)

- Consequences of behavior
  
  continuous experience of a certain consequence can result in

- Outcome expectancies
  
  strong cognitive association between expectancy and behavior

- Activation of behavior
Outcome expectancies have an impact on drinking behavior (Cranford et al., 2010; Goldman et al., 1987; Goldman et al., 1991)
Hypotheses

The posters of the mass media campaign should...

...decrease the perception of positive and increase the perception of negative alcohol-related outcome expectancies and lower drinking intentions

...should change the associative strength of positive outcome expectancies.
Study 1 - Participants

- 81 undergraduates (53 female)
- Age: 22.49 years ($SD = 2.46$)
- US standard drinks per week 3.79 ($SD = 3.03$)
Materials

• **Demographic questionnaire**
  - Age, gender
  - Drinking behavior

• **Outcome expectancies**
  - based on alcohol-related expectancy lists (Rather et al., 1992; Reich & Goldman, 2005)
  - 4 categories (1=no association; 9=highest association)
    - tension-reduction (Cronbach’s α = .62)
    - socially related (Cronbach’s α = .82)
    - health-related (Cronbach’s α = .55)
    - general negative (Cronbach’s α = .78)
Procedure

- Posters group
- Control group
- Drinking behavior
- Outcome expectancies T1
- Drinking intentions
- Outcome expectancies T2
- Drinking intentions
- Posters group
- Control group
- Drinking behavior
- Outcome expectancies T1
- Drinking intentions
- Outcome expectancies T2
- Drinking intentions
Results

outcome expectancies

F(3, 237) = 16.76, \eta^2_p = .17, p < .001
Results

outcome expectancies

F(3, 237) = 2.73, η² = .03, p < .05
Results

outcome expectancy response latencies

\[ F(3, 237) = 9.87, \eta_p^2 = .11, p < .001 \]
Results – posters group

outcome expectancy response latencies

<table>
<thead>
<tr>
<th>Category</th>
<th>T1</th>
<th>T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tension-reduction</td>
<td>1900</td>
<td>1700</td>
</tr>
<tr>
<td>Socially related</td>
<td>1800</td>
<td>1600</td>
</tr>
<tr>
<td>Negative</td>
<td>2100</td>
<td>2200</td>
</tr>
<tr>
<td>Health-related</td>
<td>1900</td>
<td>1800</td>
</tr>
</tbody>
</table>

$F(3, 237) = 2.29, \eta^2_p = .03, p < .08$
Results – control group

outcome expectancy response latencies

- tension-reduction
- socially related
- negative
- health-related

T1 T2
Discussion

• What did the posters do?
  – The posters did not change perceptions of outcome expectancies
  – They differentially changed associative strength of health-related outcomes and strengthened the association of negative and socially related outcomes
Discussion

- Posters seemed only to have an influence on the implicit level
- An often observed effect in intervention research (Wiers et al., 2005)
- Only a light drinking sample, which might explain the strong association of socially-related outcome expectancies
- Posters challenged health-related outcomes
- Strengthened the negative outcome associations
Attitudes

• Evaluation of an object
  – positive
  – negative
  – neutral

• Differentiation between implicit and explicit attitudes on a
  – theoretical
  – Methodological level
Implicit vs. Explicit attitudes

• **Theory** (Fazio, 1990; Gawronski & Bodenhausen, 2006)
  – Implicit = automatic activation by the mere presence of the attitude object
  – explicit = conscious reflection

• **Method** (Hofmann et al. 2005)
  – Implicit = reaction-time based, indirect measures
    ➔ tap into automaticity of implicit attitudes
  – Explicit = questionnaire method
Attitudes

Diagram showing the relationship between alcohol and various attitudes:
- Open-minded
- Relaxed
- Easygoing
- Vomit
- Headache
- Hangover
- Sociable
- Out of control

Positive and negative labels are indicated.
Hypotheses

The posters of the mass media campaign should...

...turn implicit attitudes toward alcohol into more negative ones

...should turn explicit attitudes toward alcohol into more negative ones
Study 2 - Participants

- 104 undergraduates (72 female)
- Age: 23.02 years ($SD = 2.95$)
- US standard drinks per week 4.64 ($SD = 4.05$)
Measuring explicit attitudes
– semantic differential (from 1 to 10)

➤ Alcohol consumption is ...
  – unpleasant – pleasant
  – good – bad
  – boring – fun
  – stupid - smart

(Houben & Wiers, 2007)
Materials
• Measuring implicit attitudes

alcohol vs. non-alcohol picture as prime for 200 ms.

measuring of response latencies when showing positive vs. negative words as targets

(Fazio et al., 1995; Fazio et al., 1986)
Materials

- alcohol vs. non-alcohol picture as prime for 200 ms.
- measuring of response latencies when showing positive vs. negative words as targets

(Fazio et al., 1995; Fazio et al., 1986)
Procedure

Posters group

Control group

Drinking behavior

Implicit attitudes T1

Explicit attitudes and drinking intentions

Implicit attitudes T2

Explicit attitudes and drinking intentions
Results – implicit attitudes

Difference score in ms

- T1
- T2

poster group  control group
Results - explicit attitudes

explicit attitudes

poster group

control group
Results – drinking behavior

Drinking behavior

- **Drinking intentions**
  - **Poster group**
  - **Control group**

- **Drinking rates**
  - **Poster group**
  - **Control group**
Discussion

• implicit attitudes turned into more negative ones
  • starting point for behavioral change (Houben, Havermans, & Wiers, 2010)

• no changes were found regarding explicit attitudes or drinking intentions
Discussion

• rejection of implicit attitudes as valid basis for explicit attitudes

• Low level of temporal consistency

Gawronski & Bodenhausen, 2006
General Discussion

Why did we find an effect on an implicit, but not explicit level?

– only one exposure
– less attention to textual information
– combination of arguments concerning positive and negative outcome expectancies
– participants were light drinkers ➔ did not associate the posters with themselves
General Discussion

Why did we find an effect on an implicit, but not explicit level?

– only one exposure
– less attention to textual information
– combination of arguments concerning positive and negative outcome expectancies

• participants were light drinkers
Positive vs. health-related outcome expectancies

• Warning labels as mass medium reach as many people as possible

• Outcome expectancies might be valuable in warning labels

• Health-related warnings = fear appeals
  – Behavioral change via fear induction (de Hoog, Stroebe, & de Wit, 2007)

• Positive-related warnings
  – Behavioral change via weakened positive associations
Participants

• 40 undergraduates (24 female)
• Age: 23.94 years ($SD = 3.18$)
• drinks per week 7.98 ($SD = 9.31$)
The warnings

Warning
Alcohol damages your brain

Warning
Alcohol makes you feel alone
Procedure

Health warning group

Social warning group

Drinking behavior

Implicit attitudes T1

Outcome expectancies

Explicit attitudes and drinking intentions

Alcohol damages your brain

Warning

Implicit attitudes T2

Outcome expectancies

Explicit attitudes and drinking intentions

Alcohol makes you feel alone

Warning
Results

outcome expectancies

\[ F(2, 76) = 3.53, \eta^2 = 0.09, p < .05 \]
Results

\[ F(1, 38) = 5.68, \, \eta_p^2 = 0.13, \, p < .05 \]
Results

\[ F(1, 38) = 4.32, \eta_p^2 = 0.10, p < .05. \]
Discussion

• Challenging health-related expectancies seems to have counterproductive effects

• Challenging positive expectancies seems to have effects in the intended direction

• Effects of a combination of both – positive and negative expectancies – might cancel each other out
Limitations

- self-reports for drinking behavior
- drinking intentions as indicator of future drinking behavior
- not assessed drinks per single occasion

→ All factors might result in differential effects of the posters
However...

• This was a first study to investigate the effectiveness of this mass media campaign
• Results provide first insights into the effectiveness of this campaign and should inspire further research in this field
Thank you for your attention!
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