What role can a modern negative information giving approach play in tobacco prevention?

A cluster-randomized controlled trial

EUSPR 2nd conference
Lisbon, 2011

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Funded by the German Lung Association
„ohne kippe” - a modern negative information giving approach

2h clinic-based workshop
- presentation about risks of smoking
- live lung endoscopy of a smokers lung
- interview with a lung cancer patient
Institute for Therapy Research Munich

Negative information in tobacco prevention, EUSPR 2011

Thoraxklinik am Universitätsklinikum Heidelberg
Starting point

• Development of substance abuse is multi-causal (Petraitis et al., 1998)
• Prevention approaches may be manifold, goals of different approaches may be different
• First evaluation study of the „ohne kippe“ („without cigarette“) intervention showed no effect on smoking behavior (Thorax, 2009)
• Ineffectiveness of negative information giving is common knowledge in prevention research (Bruvold, 1993, Tobler et al., 2000)
Starting point (2)

• Yet, in European schools universal prevention continues to be dominated by information approaches (Burkhart, 2011)
• Emotionally arousing intervention at lung clinic is highly requested by schools in the area and reaches about 10,000 students annually
• Methods are more sophisticated nowadays
• Methods are highly and controversially discussed by researchers, practitioners, parents
  – potential iatrogenic effects?
  – what kind of role can this approach play in tobacco prevention?
Research

- Warning label research
  - Graphic health warnings have emotionally arousing effects on youth (Bühler et al., 2007)

- Emotional activation is seen as an essential factor in therapy success (Whelton, 2004)

- Fear appeal research (de Hoog et al., 2007; Witte & Allen, 2000)
  - Fear appeals influence cognitive risk factors of tobacco use
Intervention model: Protection Motivation Theory

Vulnerability
(If I smoked or because I smoke, I could develop a serious disease.)

Perceived severity of health threat
(Most smokers develop a serious disease.)

Rewards for maladaptive response
(Smoking is fun. As a smoker, I am part of the group. Through smoking I can demonstrate my independence from my parents. etc)

Response efficacy
(If I remain a non-smoker or if I stop smoking, my risk for developing a serious disease decreases significantly.)

Self efficacy
(If I want to, I can remain a non-smoker or stop smoking.)

Response costs
(If I remain a non-smoker or if I stop smoking, I will have less fun and will be a kill-joy. Everybody will think I am still a kid.)

Threat appraisal

Protection motivation
(I intend to remain a non-smoker or to stop smoking.)

Volition intention
(Next time I am offered a cigarette, I will say no.)

Coping appraisal

Behavior

Expanded Protection Motivation Theory (Milne et al., 2002)
Hypotheses of the current study

- Adolescent smokers and non-smokers react to an emotionally arousing intervention
  - Personal relevance
  - Credibility
  - Emotional arousal

- The intervention affects
  - Variables derived from Protection Motivation Theory
  - Knowledge about smoking
  - Smoking image
  - But not tobacco use
Study design

Randomization

- Control group (5 schools)
- Treatment group III (4 schools)
- Treatment group II (4 schools)
- Treatment group I (5 schools)

Prevention booklet "Booklet"

Clinic visit "Clinic"

Cessation booklet

Quit briefing session smokers & non-smokers

Cessation program smokers

Cessation booklet

Quit briefing session smokers & non-smokers

Cessation program smokers

Data collection T0: Pretest, smokers & non-smokers

Data collection T1: Posttest 1, smokers & non-smokers

Data collection T2: Posttest 2, smokers & non-smokers

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Sample & Instruments

• 18 German schools (Haupt- & Realschule), Grades 7 to 9
• N = 930 eligible students
• Retention sample of n = 563 students analyzed (non-smokers at baseline)
• Age 13.1 (.85) years
• 275 (48,8%) female
• PMT scales
Pechmann et al., 2003
Results I - Reaction to intervention

<table>
<thead>
<tr>
<th></th>
<th>„Clinic“ (n=248)</th>
<th>„Booklet“ (n=235)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Relevance</td>
<td>2.81 (.11)</td>
<td>2.42 (1.08)</td>
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<tr>
<td>scale (1-4)</td>
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</tr>
<tr>
<td>Credibility scale</td>
<td>3.58 (.80)</td>
<td>3.23 (.95)</td>
</tr>
<tr>
<td>(1-4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Arousal</td>
<td>3.07 (.63)</td>
<td>2.62 (.75)</td>
</tr>
<tr>
<td>scale (1-4)</td>
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</table>

-In linear regression models, group membership significantly predicts ratings of

<table>
<thead>
<tr>
<th></th>
<th>Coeff. (95% CI)</th>
<th>t</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td>Personal Relevance</td>
<td>.37 (.12-.63)</td>
<td>3.06</td>
<td>0.007</td>
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<tr>
<td>Credibility</td>
<td>.34 (.14-.55)</td>
<td>3.56</td>
<td>0.002</td>
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<tr>
<td>Emotional Arousal</td>
<td>.45 (.20-.71)</td>
<td>3.79</td>
<td>0.001</td>
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</table>

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Results 2 - Follow-up

- Effects of intervention clinic visit on
  - Variables from Protection Motivation Theory
  - Knowledge about smoking
  - Smoking image

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>n</th>
<th>Clinic, mean (SD)</th>
<th>Booklet, mean (SD)</th>
<th>Coef. (95% CI)*</th>
<th>t</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>T0</td>
<td>T2</td>
<td>T0</td>
<td>T2</td>
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<tr>
<td>Threat appraisal</td>
<td></td>
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<tr>
<td>Perceived severity</td>
<td>536</td>
<td>5.52 (2.94)</td>
<td>6.44 (3.04)</td>
<td>6.24 (2.77)</td>
<td>6.65 (3.11)</td>
<td>.07 (-.90-1.04)</td>
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<tr>
<td>Personal vulnerability</td>
<td>492</td>
<td>3.93 (.62)</td>
<td>4.17 (.77)</td>
<td>3.94 (.69)</td>
<td>4.09 (.87)</td>
<td>.10 (-.10-.29)</td>
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<tr>
<td>Rewards for maladaptive</td>
<td>535</td>
<td>1.50 (1.35)</td>
<td>1.41 (1.66)</td>
<td>1.47 (1.32)</td>
<td>1.21 (1.13)</td>
<td>.19 (-.15-.53)</td>
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<td>response</td>
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<td>Coping appraisal</td>
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<tr>
<td>Response efficacy</td>
<td>532</td>
<td>4.13 (1.02)</td>
<td>4.25 (.97)</td>
<td>4.13 (1.03)</td>
<td>4.19 (1.04)</td>
<td>.06 (-.10-.22)</td>
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<td>Self efficacy</td>
<td>519</td>
<td>3.48 (.75)</td>
<td>3.53 (.72)</td>
<td>3.51 (1.08)</td>
<td>3.53 (.69)</td>
<td>.02 (-.10-.13)</td>
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<td>Response costs</td>
<td>535</td>
<td>2 (.92)</td>
<td>1.76 (.85)</td>
<td>2 (.94)</td>
<td>1.77 (.85)</td>
<td>-.02 (-.18-.14)</td>
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<tr>
<td>Intention</td>
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<td>Protection Motivation</td>
<td>507</td>
<td>3.69 (.79)</td>
<td>3.73 (.75)</td>
<td>3.74 (.69)</td>
<td>3.84 (.56)</td>
<td>-.11 (-.22-.00)</td>
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<td>Volition intention</td>
<td>519</td>
<td>3.65 (.81)</td>
<td>3.71 (.74)</td>
<td>3.71 (.68)</td>
<td>3.72 (.69)</td>
<td>.02 (-.12-.15)</td>
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<td>General cognitions</td>
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<tr>
<td>Knowledge</td>
<td>511</td>
<td>7.79 (3.21)</td>
<td>8.79 (3.52)</td>
<td>8.18 (3.34)</td>
<td>8.88 (4.31)</td>
<td>.06 (-1.23-.13)</td>
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<tr>
<td>Image</td>
<td>536</td>
<td>3.83 (2.21)</td>
<td>4.15 (2.14)</td>
<td>3.79 (2.16)</td>
<td>3.98 (2.32)</td>
<td>.18 (-.35-.71)</td>
</tr>
</tbody>
</table>

*Significance level: p < 0.05
Discussion

• Clinic based intervention is superior to booklet on dimensions of
  – Personal relevance
  – Credibility
  – Emotional arousal

• Clinic visit is not associated with effects on protection motivation variables, knowledge, and image 3 months later

• Why?
  – Ceiling effects in PMT variables
  – Intervention model not supported by data
SEM of intervention model for “Clinic” condition

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What role to play in tobacco prevention?

• Impact = Reach of target group x Effectiveness

• In schools, evidence-based measures are rarely implemented

• Ohne Kippe is very popular

• Ohne Kippe as an access strategy to schools to motivate them to implement effective behavioral or environmental measures
... thank you for your attention!

Contact: buehler@ift.de
e.g. Protection motivation

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