European Conference on Health Communication
Zurich, 13 – 15 November 19

Book of Abstracts

Organized by the Department of Communication and Media Research (IKMZ).
# Table of Contents

**Programme** ........................................................................................................................................... 1

**Top Submission Panel** .................................................................................................................................. 1

- Time online, time with friends: How do they influence depressive symptomatology over time? A random-intercept longitudinal panel model on adolescents in Switzerland .................................................. 2

- Searching for health: Doctor Google and the shifting dynamics of the middle-aged and older adult patient-physician interaction .................................................................................................................. 12

- The influence of type of narrative voice and addressing style on reactance to health campaigns .......................................................................................................................................................................................... 15

**Panel 1: Media’s social responsibility** ........................................................................................................... 26

- Lack of context? Frequency and normative orientation of reporting on diagnostic tests ................................ ...................................................... 27

- Journalism and Paedophilia: Background on the media coverage of a stigmatized minority 33

- Preventing imitation suicides: Evaluation of media guidelines on responsible reporting on suicide by German journalists Implications for designing awareness campaigns ................................................................................. 37

- Momo is a ‘NoNo’ – How media depictions of the suicide game Momo challenge affect their viewers on YouTube .................................................................................................................................................. 43

**Panel 2: Social influence, control, and action** ................................................................................................. 48

- The ambivalent role of social aspects in health promotion. Findings from a two-study formative research project examining health information sources and determinants of physical activity among older adults in Germany ...................................................................................................... 49

- Explaining gender differences in risk behavior by gender-specific normative peer group influences ........................................................................................................................................................................ 53

- The impact of watching movies and series on children’s BMI and the moderating role of perceived parental food rules. A longitudinal study ................................................................................................................................. 60

- “You just have to trust them”: The role of digitally networked action for people with Thyroid disease ........................................................................................................................................................................... 66

**Panel 3: Social dimension of mental health** ...................................................................................................... 72

- Stigmatization of mental health: The role of social contexts .............................................................................. 73

- Online social connectedness and anxiety among older adults ..................................................................................... 77

- “Control yourself and don’t trust anybody!”: A moderated mediation model of impulsivity, social anxiety, and dispositional trust and their relationship to smartphone use and addiction in young adults ........................................................................................................................................ 90
Interpersonal support in dyads decrease feelings of depression and increase health: A longitudinal application of the APIMeM ................................................................. 97

Panel 4: Health communication campaigns and concepts ......................... 103
Vaccine hesitancy in the elderly – a challenge for evidence-based health campaigns: Results from two evaluation surveys ................................................................. 104
Reducing smokers’ unrealistic optimism via targeted content in a national antismoking campaign in Switzerland: A field study ................................................................. 108
Furthering fear-appeal models: Describing the role of decisional balance on EPPM outcomes ................................................................................................................. 113
Framing as a concept for health communication: A systematic review ................................................................. 119

Poster Session ........................................................................................................ 124
More information is needed by pacemaker patients with remote follow-up ........ 126
How vaccination messages affect risk perceptions, reactance, attitudes, and intentions in younger and older adults: The interplay of message framing and evidence type .......... 131
Female readers’ attitudes towards blogging mothers of children with a disability and the influence of perspective taking ............................................................................. 137
The role of communication as a resource for coping and resilience in families: A qualitative analysis ........................................................................................................ 143
Influence of single case descriptions on stigmatization of ‘the mentally ill’: Recipients’ identification and exemplars’ social support as factors ......................................... 148
Communication issues between generations in Swiss hospitals with special emphasis on Generation Y ........................................................................................................ 157
Protective factors of perceived stress in adolescence: A moderated mediation model of self-esteem, adaptive coping, and social support ..................................................... 161
It’s all about the focus: Varying the person affected by risky driving behavior in texting and driving PSAs .................................................................................................... 168
My health is valuable: Evidence-based health information for hard-to-reach groups .... 173
Identification and typology of influencers on Twitter: The case of cancer prevention .... 178
Responsibility frames in health communication: A systematic review of their representation and effects ........................................................................................................ 184
Health information in the digital era: How to measure the digital health literacy .......... 189
### Panel 5: Talking about health issues ................................................................. 194

- The health narratives of online inquiries to the University Hospital Zurich: An automated content analysis ................................................................. 195
- The impact of language use on social support exchange in an online breast cancer discussion group ................................................................. 206
- Visual facilitation for health-related interpersonal communication ................................................................. 209
- Elders’ social networks and the communication of chronic pain ................................................................. 217

### Panel 6: User comments, virtual patients, and health information seeking ..... 220

- When multi-resistant bacteria are more vivid than we want them to be – how vividness in online user comments affects risk perception ................................................................. 221
- Empowered, but not fully empowered: A cluster analysis of online health community users’ individual and collective empowerment ................................................................. 226
- Can a virtual patient help clinicians to improve their communication skills? Development and pilot-evaluation of an interactive, computer-simulated virtual patient-based eLearning ................................................................. 232
- First steps to a European perspective on health information seeking behaviors ................................................................. 238

### Panel 7: Social aspects of health literacy and self-empowerment ............... 244

- Individuals’ locus of control and perceived level of self-empowerment as derived from pharmaceutical advertising: Do consumers’ responses from individualistic and collectivistic countries vary? ................................................................. 245
- Health literate organizations in primary care settings in Zurich - A pilot project ................................................................. 250
- How to foster health-related self-efficacy? An analysis of interconnections between social, health and informational inequalities ................................................................. 253
- Health-literacy of emergency department patients with non-urgent conditions: An aspect of social inequality in patients’ emergency and health information behavior ................................................................. 258

### Panel 8: (Un)healthy media effects ................................................................. 263

- News reporting about media effects on suicide: A content analysis of German media coverage on the Werther- and the Papageno-effect ................................................................. 264
- Brain doping on journalists’ prescription? Perception and influence of media reporting on pharmacological cognitive enhancement ................................................................. 269
- Is binge-watching addictive? Differential effects of motives for TV-series use on the relationship between excessive media consumption and media addiction ................................................................. 275
- The Alzheimer case: Perceptions, knowledge, and the acquisition of information about Alzheimer’s disease by the general public (50+) in Flanders ................................................................. 280
Panel 9: Social media and health technologies .......................................................... 285

How healthy are health posts on Instagram? A content analysis of #healthyliving and #healthylifestyle posts ........................................................................................................ 286

What’s there to like? Testing the causal effects of alcohol posts on Facebook on drinking behavior .......................................................................................................................................................... 290

Do satirical Instagram posts influence social norms and the acceptance of compulsory vaccination? .................................................................................................................................................................. 293

“Do I really need to walk another 1,346 steps?” The role of self-tracking technologies between norm-setting socializing agents and topics of conversation ........................................ 298

Panel 10: Health professionals’ communication ....................................................... 303

Patient-centered communication for cancer treatment decision-making in the Internet age: Best practice strategies, doctor’s main role(s), and communication goals ........................................ 304

The health care system from patient’s view: Relevance of different health care settings for health communication .......................................................................................................................... 308

Health professional communication in social media and digital literacy. Findings from a systematic review .......................................................................................................................................................................... 312

Why do we trust health professionals and does it make a difference for health information seeking behaviors ................................................................. 319
13 November 2019

09:00 – 15:30  **DGpuK Doktorandenworkshop**  
*RAA-E-30*  
**Mentors:**  
Matthias Hastall (Dortmund)  
Constanze Rossmann (Erfurt)  
Markus Schäfer (Mainz)  
Freya Sukalla (Leipzig)  
**Participants:**  
Anna Freytag (Hanover)  
Miriam Jaspersen (Hanover)  
Antonia Markiewitz (Munich)  
Winja Weber (Erfurt)

16:30 – 18:00  **YECREA Round Table**  
The responsible conduct of research: The ethical challenges and considerations in health communication studies  
**Speakers:**  
Matthias Hastall (Dortmund)  
Tanja Kamin (Ljubljana)  
Solveig Lena Hansen (Göttingen)

19:00  **Get-together**  
Restaurant “Commihalle”, Stampfenbachstrasse 8

14 November 2019

08:30 – 09:00  **Registration**  
Foyer

09:00 – 09:15  **Welcoming**  
RAA-G-01

09:15 – 10:15  **Keynote**  
RAA-G-01  
Rajiv N. Rimal (Baltimore)  
*Social norms as sources of both influence and health communication refraction: Why and how the company you keep matters so much*

10:15 – 10:45  **Coffee Break**  
Foyer

10:45 – 11:40  **Top Submission Panel**  
RAA-G-01  
Chair: Julia C. M. van Weert (Amsterdam)
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:45 – 13:00</td>
<td><strong>Parallel Sessions</strong>&lt;br&gt;Panel 1: Media’s social responsibility&lt;br&gt;Chair: Markus Schäfer (Mainz)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Panel 2: Social influence, control, and action&lt;br&gt;Chair: Gert-Jan de Bruijn (Amsterdam)</td>
<td></td>
</tr>
<tr>
<td>13:00 – 14:00</td>
<td><strong>Lunch</strong></td>
<td>Foyer</td>
</tr>
<tr>
<td>14:00 – 15:15</td>
<td><strong>Parallel Sessions</strong>&lt;br&gt;Panel 3: Social dimension of mental health&lt;br&gt;Chair: Matthias Hastall (Dortmund)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Panel 4 (open): Health communication campaigns and concepts&lt;br&gt;Chair: Anna Wagner (Augsburg)</td>
<td></td>
</tr>
<tr>
<td>15:15 – 16:15</td>
<td><strong>Poster Session &amp; Coffee Break</strong></td>
<td>Foyer</td>
</tr>
<tr>
<td>15:45 – 16:15</td>
<td><strong>Business Meeting DGPuK FG Gesundheitskommunikation</strong>&lt;br&gt;Chairs: Doreen Reifegerste (Erfurt) &amp; Markus Schäfer (Mainz)</td>
<td></td>
</tr>
<tr>
<td>16:30 – 17:45</td>
<td><strong>Parallel Sessions</strong>&lt;br&gt;Panel 5: Talking about health issues&lt;br&gt;Chair: Hanneke Hendriks (Amsterdam)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Panel 6 (open): User comments, virtual patients, and health information seeking&lt;br&gt;Chair: Constanze Rossmann (Erfurt)</td>
<td></td>
</tr>
<tr>
<td>18:00 – 18:30</td>
<td><strong>Business Meeting ECREA TWG Health Communication</strong>&lt;br&gt;Chairs: Doreen Reifegerste (Erfurt), Thomas N. Friemel (Zurich) &amp; Julia van Weert (Amsterdam)</td>
<td></td>
</tr>
<tr>
<td>19:15</td>
<td><strong>Conference Dinner</strong>&lt;br&gt;Restaurant “Haus zum Rüden”, Limmatquai 42</td>
<td></td>
</tr>
</tbody>
</table>
15 November 2019

09:00 – 10:15  Parallel Sessions
Panel 7: Social aspects of health literacy and self-empowerment
Chair: Anne-Linda Camerini (Lugano)

Panel 8 (open): (Un)healthy media effects
Chair: Andreas Fahr (Fribourg)

10:15 – 10:45  Coffee Break
Foyer

10:45 – 12:00  Parallel Sessions
Panel 9: Social media and health technologies
Chair: Sabrina Kessler (Zurich)

Panel 10: Health professionals’ communication
Chair: Hao Nguyen (Zurich)

12:05 – 13:05  Keynote
Kathleen Beullens (Leuven)
How social media use impacts offline health behaviors

13:05 – 13:15  Farewell
RAA-G-01

13:15 – 14:15  Lunch
Foyer
Top Submission Panel

14 November, 10:45 – 11:40
Room RAA-G-01
Chair: Julia C. M. van Weert (Amsterdam)

Marciano, Laura; Schulz, Peter J.; Camerini, Anne-Linda (Lugano)
*Time online, time with friends: How do they influence depressive symptomatology over time? A random-intercept longitudinal panel model on adolescents in Switzerland*

Huisman, Martijn; Biltereyst, Daniël; Joye, Stijn (Ghent) (student paper)
*Searching for health: Doctor Google and the shifting dynamics of the middle-aged and older adult patient-physician interaction*

Möri, Michelle; Siegenthaler, Perina; Ort, Alexander (Fribourg) (student paper)
*The influence of type of narrative voice and addressing style on reactance to health campaigns*
Time online, time with friends: How do they influence depressive symptomatology over time? 
A random-intercept longitudinal panel model on adolescents in Switzerland

Laura Marciano¹*, Peter J. Schulz¹, Anne-Linda Camerini²

Background

The human need for social connection is rooted in our biology and lasts throughout our lives. Human beings experience distress when social connections are lacking or damaged and, since social pain shares the same neural emotional response of physical pain (Cacioppo, 2008; Holt-Lunstad, 2018), being socially isolated has a disruptive effect on both psychological and physical well-being. In particular, psychosocial stress, caused by social rejection and negative quality of relationships, increases the risk for depression, especially during adolescence (Slavich & Irwin 2014). In Switzerland, depression is the third most prevalent disease, and 36% of younger populations have higher rates of depressive symptoms (Schuler & Burla, 2012), with girls being more affected (Thapar et al., 2012). From a biological point of view, individuals with high social connections show lower reactivity to stressors, i.e. lower release of stress-related hormones, leading experts to talk of “social buffering” against stress reactivity (Gunnar & Hostinar, 2015).

The social buffering effect has been widely studied, and a recent meta-analysis underlined how social support is an important protective factor against depression (Gariepy et al., 2016), although the source for an effective social support varies across lifetime. A good relationship with caregivers remains a potent social buffer during childhood. However, as individuals switch into puberty and start to spend more time with peers, peer relations become increasingly important and adolescents’ lives become more focused on social networks outside home (Brown & Larson, 2009). Nowadays friendships are established and maintained both offline, e.g., at school, and online, e.g., through social media, which are listed as the first leisure activity of Swiss adolescents (Süss et al., 2018). A systematic review (Wu et al., 2016) showed that adolescents use the cyberspace to interact and connect with school peers and friends, due to the always accessible features of social media platforms. Hence, time online can be seen as an “extended space for socialization”, where offline connections are maintained and further developed and, this way, enhance social capital. However, adolescents who are over-connected with online friends are frequently incapable to handle real-life relations and experience more often loneliness (Wu et al., 2016). Yet, evidence on the relationship between social media use and depression remains mixed (Baker & Algorta, 2016; Huang, 2017), and studies on (early) adolescents are scarce. A recent study on 10’904 UK teens found an association between social media use and depression, which is stronger for girls (Kelly et al., 2018). Considering the increasing time adolescents spend online and on social media platforms (Süss et al., 2018), it is now critical to investigate how time online influences time with friends in the long run, and how the two are causally linked depressive symptomatology.

¹ Faculty of Communication Sciences, Università della Svizzera Italiana, Switzerland
Additionally, given that girls are at higher risk of depression, it is important to comprehend the moderating role of gender.

**Aim**

This study aims to explore the longitudinal and reciprocal relationships among time online, time with friends, and depressive symptoms in a sample of early adolescents in Switzerland. We hypothesize that time with friends has a protective effect against depression, though the role of time online in augmenting or decreasing time offline with friends and/or depression is to be explored.

**Methods**

**Sample**

We used data, collected through a paper-and-pencil questionnaire, from wave 3 (2016), 4 (2017), and 5 (2018) of an ongoing longitudinal study on adolescents attending one of 37 middle schools in Canton Ticino. The analytical sample includes 949 students (M_{age1} (SD) = 11.39 (.56), 51.4% female) who participated in all three waves.

**Measures**

Self-report measures include (M and SD are reported in Table 1):

*Time online* was measured with two questions: “How much time do you usually use the smartphone [Internet] on a typical school day?”. Answers ranged from 0 “never” to 8 “5 or more hours” (r_{t2} = .670, p < .001; r_{t3} = .706, p < .001; r_{t3} = .786, p < .001).

*Time with friends* was assessed with the following question: “On a typical school day, how much time do you usually spend with friends outside school?”. Answers ranged from 0 “never” to 8 “5 or more hours”.

*Depression* was measured with seven items from the Center for Epidemiological Studies Depression Scale for Children (CES-DC; Roberts et al., 1990). Response options ranged from 0 “not at all” to 3 “a lot” (α_{t1}=.87; α_{t2}=.90; α_{t3}=.90).

**Statistical analysis**

Preliminary analyses included a normality check of data distribution, computation of correlations and mean differences over time, testing for measurement invariance, and calculation of intra-class correlation coefficients (ICCs). Finally, to disentangle within- and between-person level effects over time, a RI-CLP model (*Figure 1*) was fitted following the instructions by Hamaker, Kuiper, and Grasman (2015) and using the LAVAAN package in R software. MLR was used to fit the model and missing data were handled using FIML estimation. Different goodness of fit indices were evaluated to assess model fit (i.e. CFI, RMSEA, and SRMR). Eventually, gender was included as a moderator.
Results and Discussion

Bivariate correlations (Table 1) revealed significant relationships among almost all variables. Additionally, the three variables showed a significant linear increase over time (Tables 2-3-4 and Figures 1-2-3), with gender being a significant moderator. ICCs indicated high between-person variance for time online (ICC=.316), time with friends (ICC=.358), and depression (ICC=.261). The RI-CLP model (Figure 4) showed an excellent model fit: $\chi^2 = 24.44$, $df = 18$, $p = .141$, CFI=.995, RMSEA=.021, 90% CI [.000, .039], SRMR=.027.

At the between-person level, we found a significant positive correlation between overall depression and time online ($r = .487$, $p < .001$), depression and time with friends ($r = .451$, $p < .001$), and time online and time with friends ($r = .442$, $p < .001$). The correlation between these random intercepts indicate that, overall, students who spend more time online, experience higher levels of depression, and spend more time with friends show also, overall, higher levels of depression and more time spent online and with friends.

At the within-person level, we found significant and positive autoregressive effects over time for all three variables, indicating variability in online and offline activities as well as depression in adolescence typical for this developmental phase (Eccles et al., 1993). The examination of cross-lagged effects revealed that the within-person deviation from the own expected scores in time with friends at T1 as well as T2 predict deviation from one’s own expected scores in depression at T2 as well as T3 ($\beta_{t1-t2} = -.068$, $p = .045$; $\beta_{t2-t3} = -.072$, $p = .045$). In other words, time with friends decreases depressive symptomatology over time. Thus, the hypothesized “social buffering effect” was supported. We did not find any other significant cross-lagged effects over time. Hence, time online neither functions as a protective nor as a risk factor of depression, but they increase and are interrelated over time. Furthermore, time online does not take away time spent with friends after school over time, but they increase and are interrelated over time. In general, this finding leaves room for future studies investigating how digital activities are embedded in adolescents’ leisure activities with friends.

When gender was included in the analysis, the general model fit remained excellent $\chi^2 = 33.689$, $df = 21$, $p = .039$, CFI=.991, RMSEA=.036, 90% CI [.008, .058], SRMR=.020. Comparing coefficients, we found some differences both at the within- and the between-person level (Table 5). For example, we found that depression at T2 decrease time online at T3 in males. These and more results will be further discussed during the presentation.

* Corresponding Author:
Laura Marciano
Via Giuseppe Buffi 13
6900 Lugano, Switzerland
(p): +41 58 666 4821
<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.71</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1.40</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1.00</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>0.70</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>0.50</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>0.30</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>0.10</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>0.00</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

### Table 1: Means, SDs, and Correlations of All the Variables.
Table 2 and Figure 1. Repeated measure ANOVA results for depression.

<table>
<thead>
<tr>
<th>Effect</th>
<th>MS</th>
<th>df</th>
<th>F</th>
<th>p</th>
<th>Huynh-Feldt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>9.369</td>
<td>1.982</td>
<td>32.050</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Depression x gender</td>
<td>7.916</td>
<td>1.982</td>
<td>27.081</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Error</td>
<td>.292</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mauchly’s Test for sphericity was significant [W=.988, χ²(2) =11.55, p = .003], hence the Huynh-Feldt correction was reported.

Table 3 and Figure 2. Repeated measure ANOVA results for Time online.

<table>
<thead>
<tr>
<th>Effect</th>
<th>MS</th>
<th>df</th>
<th>F</th>
<th>p</th>
<th>Huynh-Feldt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time online</td>
<td>633.89</td>
<td>2</td>
<td>373.77</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Time online x gender</td>
<td>13.55</td>
<td>2</td>
<td>7.99</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Error</td>
<td>1.69</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mauchly’s Test for sphericity was significant [W=.949, χ²(2) = 46.12, p < .001], hence the Huynh-Feldt correction was reported.
Table 4 and Figure 3. Repeated measure ANOVA results for time with friends.

<table>
<thead>
<tr>
<th>Effect</th>
<th>MS</th>
<th>df</th>
<th>F</th>
<th>p</th>
<th>Huynh-Feldt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time with friends</td>
<td>208.388</td>
<td>2</td>
<td>69.061</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Time with friends x gender</td>
<td>41.178</td>
<td>2</td>
<td>13.647</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Error</td>
<td>3.017</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mauchly’s Test for sphericity was significant \(W=.992, \chi^2(2) = 7.334, p = .026\), hence the Huynh-Feldt correction was reported.
Figure 4. Graphical representation of the RI-CLMP model with all subjects.

A representation of the random intercept cross-lagged panel model including the relationships between Depression, Time online and Time with friends across the three waves. Observed variables are represented in squares, latent variables at between- and within-level are represented in ovals. The three random intercepts (kappa, omega, and phi) reflect the between-person variances. The other nine latent variables represent the within-person variance (Depression from T1 to T3, Time online from T1 to T3, and Time with friends from T1 to T3). Both autoregressive and cross-lagged paths are displayed. Residual covariances are not displayed.
Table 5. RI-CLMP models’ results.

<table>
<thead>
<tr>
<th></th>
<th>Model 1 (All)</th>
<th>Model 1 (Girls)</th>
<th>Model 1 (Boys)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Autoregressive effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D_T1 → D_T2</td>
<td>.198**</td>
<td>.225**</td>
<td>.095</td>
</tr>
<tr>
<td>D_T2 → D_T3</td>
<td>.244**</td>
<td>.290**</td>
<td>-.073</td>
</tr>
<tr>
<td>TO_T1 → TO_T2</td>
<td>.186**</td>
<td>.164**</td>
<td>.157</td>
</tr>
<tr>
<td>TO_T2 → TO_T3</td>
<td>.286**</td>
<td>.278**</td>
<td>.195*</td>
</tr>
<tr>
<td>TF_T1 → TF_T2</td>
<td>.155*</td>
<td>.118†</td>
<td>.203*</td>
</tr>
<tr>
<td>TF_T2 → TF_T3</td>
<td>.164*</td>
<td>.132†</td>
<td>.094</td>
</tr>
<tr>
<td><strong>Cross-lagged effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D_T1 → TO_T2</td>
<td>.012</td>
<td>.029</td>
<td>.038</td>
</tr>
<tr>
<td>D_T2 → TO_T3</td>
<td>.014</td>
<td>.037</td>
<td>-.154*</td>
</tr>
<tr>
<td>D_T1 → TF_T2</td>
<td>-.004</td>
<td>-.013</td>
<td>.034</td>
</tr>
<tr>
<td>D_T2 → TF_T3</td>
<td>-.004</td>
<td>-.017</td>
<td>-.144†</td>
</tr>
<tr>
<td>TO_T1 → D_T2</td>
<td>.033</td>
<td>.016</td>
<td>-.025</td>
</tr>
<tr>
<td>TO_T2 → D_T3</td>
<td>.051</td>
<td>.028</td>
<td>-.024</td>
</tr>
<tr>
<td>TO_T1 → TF_T2</td>
<td>.044</td>
<td>.058</td>
<td>.017</td>
</tr>
<tr>
<td>TO_T2 → TF_T3</td>
<td>.069</td>
<td>.100</td>
<td>-.032</td>
</tr>
<tr>
<td>TF_T1 → TO_T2</td>
<td>.046</td>
<td>.023</td>
<td>.007</td>
</tr>
<tr>
<td>TF_T2 → TO_T3</td>
<td>.048</td>
<td>.025</td>
<td>.107</td>
</tr>
<tr>
<td>TF_T1 → D_T2</td>
<td>-.068*</td>
<td>-.060</td>
<td>-.013</td>
</tr>
<tr>
<td>TF_T2 → D_T3</td>
<td>-.072*</td>
<td>-.066</td>
<td>-.148†</td>
</tr>
</tbody>
</table>

Note: All n = 834, girls n = 431, boys n = 383, TO = time online, D = depression, TF = time with friends, T1 = Time 1, T2 = Time 2, T3 = Time 3, †p < .10, *p < .05, **p < .01
References


Searching for health: Doctor Google and the shifting dynamics of the middle-aged and older adult patient-physician interaction

Martijn Huisman¹, Daniël Biltereyst¹, Stijn Joye¹

Introduction

In January 2019, Google held a worldwide search engine market share of 92.86%. Google’s position was even more dominant in Belgium by handling 95.81% of all web searches (Statcounter, 2019). Google is the leading search engine for Internet users around the globe to find information, including health information. A 2016 survey found that nine out of ten adults in Flanders, the northern Dutch-speaking part of Belgium, used ‘Doctor Google’ to seek health information online (Christelijke Mutualiteit, 2016). The dominance of Google has potentially far-reaching implications for how and where people find health information, what they find, and how they use this information. In this paper we investigate the role of ‘Doctor Google’ in acquiring online health information (OHI) and its impact on the patient-physician dyad – i.e. the relationship and interactions between middle-aged and older adult patient and the healthcare professional (HCP).

Theoretical framework

Our study builds on the concept of information behaviour (Case, 2012; Wilson, 1997), specifically health information seeking behaviour (Galarce, Ramanadhan, & Viswanath, 2011; Johnson & Case, 2012) to understand the information search behaviour of Flemish middle-aged and older adults. We link this concept to the influence of age on information needs and wants, online search engine behaviour (e.g. how people search, how they deal with and process search results), and the impact on personal health management and the relationship with the HCP (Tan & Goonawardene, 2017). Moreover, we examine the patient-physician relationship and its shifting contexts in the digital age, which differ markedly from the traditional patient-physician relationship in the post-internet era (Broom, 2005; Chiu, 2011; Iverson et al., 2007).

Method & Data

Semi-structured, in-depth interviews were conducted in and around the city of Ghent with forty Flemish adults in the age groups of 50-64 (middle-aged adults) and 65-80 (older adults). The interviews extensively covered the nature of health information, health information sources and behaviour, as well as the relationship with the HCP. The interviews were transcribed, coded, and analysed by employing thematic analysis (Boyatzis, 1998).

¹ Ghent University, Belgium
Results

Respondents overwhelmingly use the Google search engine to find health information online, consulting the first page of search results offered by Doctor Google. Some mention that they were taught to do so during computer lessons, demonstrating their use of the Internet as ‘digital immigrants’ rather than ‘digital natives’ (Loos, 2012).

Three types of health information behaviour and use influence the patient-HCP dyad. First, information obtained from Google can complement the information received from the physician, for example when the patient wants to read it again in the comfort of his or her own home. Interestingly, these patients seldom seek out information because they do not trust the information or diagnosis by their HCP. Instead, they want to confirm, understand better, and know more about their health condition. Second, older adults users seek out health information both before and after visiting their physician. These people want to be informed before visiting their physician, or look up information so that they might not have to visit their physician in order to save time and money. After visiting their physician, information is looked up online to read about the experiences of others and possible treatments. Some go online to verify their diagnosis and the advice of the physician. These people are quite critical and want confirmation of what their physician told them. Third, some older adults, whom we might call ‘informed’ or ‘expert’ patients (Fox & Ward, 2006), proactively look for health information on the Internet. Some older adults bring that information to the table and discuss it with their HCP. These patients are sometimes seen as demanding or difficult by HCPs. Conversely, there are also older adults who look up information proactively, but find it too confronting to discuss it with their HCP, fearing rejection and being brushed off.

In sum, middle aged and older Flemish adults commonly use Google to obtain OHI before and after consulting a physician, albeit with different motivations and in search of different types of information. Doctor Google shifts the dynamics of the patient-physician relationship, expanding the dyad into an information triangle between patient, Doctor Google, and the physician. The physician remains the trusted medical authority, but with Doctor Google as convenient ‘know-it-all’, the physician is increasingly expected to deal with and appraise OHI and put it into the individual context of the patient.

Conclusion

The virtual monopoly of Doctor Google on searching for OHI raises not only questions and concerns about health information practices of patients and health consumers, but also contributes to the shifting dynamics between patients and HCPs. Our study shows that middle aged and older adults use Google at various moments of their patient and health consumer journeys, with different motivations and intentions, and with different outcomes with regards to their interactions with their HCP. Overall, Doctor Google has thus obtained an important position in the area of health information for middle aged and older adults.
References


The influence of type of narrative voice and addressing style on reactance to health campaigns

Michelle Möri¹, Perina Siegenthaler², Alexander Ort³

Theoretical background & research interest

Reactance to persuasive attempts is a decisive factor for the success or failure of health campaigns (Dillard & Shen, 2005). A solution to prevent reactance or defensive reactions is narrativity. “Narrativity” is used as an umbrella term for stories with connected events as well as acting characters and their motivations (Braddock & Dillard, 2016; Bruner, 1991). Narratives can conceal persuasive intent making people less likely to invest cognitive resources to defend against a persuasive message (Kreuter et al., 2007). As a result, health campaigns including some sort of narrative should lead to increased persuasive effects compared to more didactic or factual message formats (Kreuter et al., 2010; Murphy et al., 2015). Therefore, this paper investigates the role of narrativity in order to overcome reactance to health messages.

While reading narratives, audiences can engage with the characters displayed (Slater & Rouner, 2002). These forms of engagement represent relevant mechanisms for understanding how the persuasive process works (Igartua & Vega Casanova, 2016; Moyer-Gusé, 2008; Slater & Rouner, 2002). They are often investigated against the background of identification (Cohen, 2001) or parasocial interactions (PSI; Klimmt, Schramm & Hartmann, 2006). Both concepts implicate that audiences develop a form of “intimacy” with media characters (Cohen, Oliver, & Bilandzic, 2018; Moyer-Gusé, 2008). Identification occurs when an audience member imagines himself or herself being one of the story characters (Cohen, 2001). Identification might increase the acceptance of attitudes expressed in a narrative (Igartua & Vega Casanova, 2016; Moyer-Gusé, 2008) and reduce counterarguing (Moyer-Gusé & Nabi, 2010). Identification is supposed to be heightened through narrative voice in a first-person perspective (Chen, Bell, & Taylor, 2017; Segal et al., 2009; Tukachinsky, 2014). In this perspective, a protagonist describes his or her personal experience. In contrast, a third-person narrative is told by a narrator who tells the story of a protagonist. The latter is supposed to impede perspective taking (Chen et al., 2017). Thus, we propose less reactance towards messages presented in a first-person perspective compared to messages presented in a third-person perspective (H1).

PSI describes an imaginary interaction between the audience and the media character (Cohen, Oliver, & Bilandzic, 2018; Klimmt, Schramm & Hartmann, 2006). PSIs should reduce reactance (Moyer-Gusé & Nabi, 2010) and positively influence the acceptance of a health message (Lee et al., 2010; Phua, 2014; Tian & Yoo, 2015). An important trigger of PSI is the verbal or physical addressing of the audience (Beege, Schneider, Nebel, & Rey, 2017; Cohen et al., 2018; Hartmann & Goldhoorn, 2011). We therefore assume, that messages presented with direct verbal and bodily addressing reduce reactance towards a persuasive attempt than messages with no direct addressing (H2).

¹ Department of Communication and Media Research, University of Fribourg, Switzerland, michelle.moeri@unifr.ch
² Department of Communication and Media Research, University of Fribourg, Switzerland, perina.siegenthaler@unifr.ch
³ Department of Communication and Media Research, University of Fribourg, Switzerland, alexander.ort@unifr.ch
In sum, this paper examines the influence of characteristics of narratives, i.e., narrative voice and addressing style, on reactance to a persuasive attempt resulting from confrontation with health communication messages. We assume that narratives presented in first-person perspective and direct addressing reduce reactance towards the message as they increase identification and PSI respectively.

**Method**

As we are not only interested in the importance of one narrative characteristic itself, but rather in the most effective *combination* of these features, we conducted a choice-based conjoint analysis (CBC) to test the hypotheses. This decompositional method allows to measure the relative importance of stimuli characteristics. With compositional methods the characteristics are examined individually and an overall judgement is formed out of individual judgements. The advantage of the decompositional method of CBC is that the respondents’ evaluations are analyzed to measure the relative importance of each characteristic for the overall evaluation (Balderjahn, Hedergott & Peyer, 2009). The characteristics in question are thus not interpreted isolated, but can be compared relatively (Baier & Brusch, 2009).

This study employed a 2 (narrative voice: first vs. third person) x 2 (addressing: direct verbal and bodily addressing vs. no direct verbal and bodily addressing) factorial within-subjects design. Stimuli were designed to resemble a poster from a health campaign on reducing stress at the workplace (see appendix 1-4). Posters can be considered as minimal form of narratives (Slater & Rouner, 2002), although they do not represent classic narrative genres such as videos or audios (Shen, Sheer, & Li, 2015).

In order to investigate the trade-off of addressing style and narrative voice, the participants were confronted with six choice tasks, in which always two of the four stimuli were displayed. To measure reactance, participants were asked for each combination to choose the poster which *puts them more under pressure*. Data were collected online in May 2019. After data cleansing the final sample consisted of 241 participants ($M_{\text{age}}=26.4$, $SD_{\text{age}}=6.58$; 75% female).

**Data analysis & results**

Assuming a logit-choice-model for decision-making processes, a Cox-regression⁴ was conducted with the covariates⁵ of addressing style and narrative voice (see Table 1). The dependent variable was the choice of a particular poster indicating reactance (chosen vs. not chosen). The overall model was significant ($X^2=167.877$, $df=2$, $p<.001$). However, only the influence of narrative voice on reactance was significant ($u_V=.873$, $p<.001$), while addressing style wasn’t ($u_A=.036$, $p=.590$).

The largest impact on reactance had the stimulus with narrative voice in first-person and a direct addressing of the audience by the media character ($u_V=.909$, $p<.001$; see Appendix 4), followed by the poster with narrative voice in the first-person perspective and without direct addressing ($u_V=.873$, $p<.001$; see Appendix 1). The poster with no direct addressing and narrative voice in third-person

---

⁴ Note: Results from Cox-regression in CBC are per se interpreted, hence only differences in utility matter, not the absolute values. $u_v=$part-worth utility of narrative voice, $u_A=$part-worth utility of addressing style.

⁵ In Cox-regression the independent variables, of which the influence on the dependent variable has to be estimated, are called covariates.
evoked the least reactance \((u = 0^6, \text{ see Appendix 2})\). These results indicate that first-person narratives evoke more reactance than third-person narratives and (on a non-significant level) direct addressing evokes more reactance than no direct addressing. These results do not confirm either of our hypotheses. The relative importance reveals that 96% of the self-evaluation of reactance is driven by type of narrative voice, only 4% by addressing style.

**Discussion, limitations, & outlook**

The results indicate that health campaigns including texts with a first-person narrator are not ideal because they might increase the feeling of being pressured. Instead, no direct addressing and a third-person perspective could reduce reactance to the persuasive attempt.

There are several explanations for these results. First, participants were asked to indicate their feeling of being “put under pressure” by the health-related message. This question was chosen for reasons of simplicity and comprehensibility, both necessary in CBC. However, every persuasive attempt can be evaluated as pressuring, also in a sense that motivates people to change attitudes or behaviour and therefore not indicating actual reactance.

We did not consider possible intervening variables yet, e.g., trait reactance, issue involvement, or personal stress level. Hence, further analyses of the data will be presented at the conference.

\(^6\) Partial utility estimate for “no direct” addressing and “third person”=0, due to standardization.
### Appendix

**Table 1**  
*Cox-regression of narrative characteristics.*

<table>
<thead>
<tr>
<th>Part-Worth Utilities</th>
<th>Total Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>direct</strong></td>
</tr>
<tr>
<td></td>
<td><strong>addressing</strong></td>
</tr>
<tr>
<td></td>
<td><strong>$u_0$</strong></td>
</tr>
<tr>
<td>first person</td>
<td>.873*</td>
</tr>
<tr>
<td>third person</td>
<td>0</td>
</tr>
</tbody>
</table>

$LLR = 167.877^*$  
$R^2_M = .0837$

*Note: Partial Utility Estimates of direct addressing: $u_0 = .036, \text{SE} = .067, \text{Exp}(B) = .964, p = .590$. Partial utility estimate for «no direct addressing» and «third person» = 0, due to standardization. Total Utility are estimated manually. * $p < .001$. Likelihood-Ratio-Statistics is calculated manually with: $LLR = -2 \cdot (LL_0 - LL_b)$ whereas $LL_b = 918.35214$ and the log-likelihood-function of the zero-model: $LL_0 = 1002.2908$. McFadden’s R-square ($R^2_M$) as global quality criteria: $R^2_M = 1 - \left( \frac{LL_0}{LL_b} \right)$. 

Stress vorbeugen: Pausen einplanen, Handy öfter stumm schalten, regelmäßige Bewegung, ausreichend Schlaf.

Stress und Überlastung können zu schwerwiegenden gesundheitlichen Folgen wie Depression oder Burnout führen. Auch das Risiko für erhöhten Blutdruck, Herzinfarkt oder Schlaganfall steigt an. Wer das Gefühl hat, dauerhaft an übermäßigem Stress zu leiden, sollte sich an eine Ärztin oder einen Arzt wenden.
Poster 2: third-person and no direct addressing

Der **Stress** macht Jan fertig. Er ertrinkt in Arbeit. **Ständig** will jemand etwas von **ihm**. Jetzt. Schnell. **Sofort**.

**Stress vorbeugen:** Pausen einplanen, Handy öfter stumm schalten, regelmäßige Bewegung, ausreichend Schlaf.

**Stress** und Überlastung können zu schwerwiegender gesundheitlichen Folgen wie Depression oder Burnout führen. Auch das Risiko für erhöhten Blutdruck, Herzinfarkt oder Schlaganfall steigt an. Wer das Gefühl hat, dauerhaft an übermässigem Stress zu leiden, sollte sich an eine Ärztin oder einen Arzt wenden.
Poster 3: third-person and direct addressing


Beugen Sie Stress vor: Planen Sie Pausen ein, schalten Sie Ihr Handy öfter stumm, sorgen Sie für regelmässige Bewegung und ausreichend Schlaf.

Stress und Überlastung können zu schwerwiegenden gesundheitlichen Folgen wie Depression oder Burnout führen. Auch das Risiko für erhöhten Blutdruck, Herzinfarkt oder Schlaganfall steigt an. Wenn Sie das Gefühl haben, dauerhaft an übermässigem Stress zu leiden, wenden Sie sich an eine Ärztin oder einen Arzt.
Poster 4: first-person and direct addressing

«Der **Stress** macht **mich** fertig. Ich **ertrinke** in Arbeit. **Ständig** will jemand etwas von **mir**. Jetzt. **Schnell. Sofort.** Kennen Sie das?»

**Beugen Sie Stress vor:** Planen Sie Pausen ein, schalten Sie Ihr Handy öfter stumm, sorgen Sie für regelmässige Bewegung und ausreichend Schlaf.

**Stress** und **Überlastung** können zu schwerwiegenden gesundheitlichen Folgen wie **Depression** oder **Burnout** führen. Auch das Risiko für **erhöhten Blutdruck**, **Herzinfarkt** oder **Schlaganfall** steigt an. Wenn Sie das Gefühl haben, dauerhaft an übermässigem Stress zu leiden, wenden Sie sich an eine Ärztin oder einen Arzt.
References


Panel 1  
Media’s social responsibility

14 November, 11:45 – 13:00
Room RAA-G-01
Chair: Markus Schäfer (Mainz)

Klammer, Paul (Dortmund); Serong, Julia (Dortmund, Munich); Wormer, Holger (Dortmund)
*Lack of context? Frequency and normative orientation of reporting on diagnostic tests*

Stelzmann, Daniela; Wapsa, Josephine (Berlin)
*Journalism and Paedophilia: Background on the media coverage of a stigmatized minority*

Markiewitz, Antonia (Munich); Arendt, Florian (Vienna); Scherr, Sebastian (Leuven)
*Preventing imitation suicides: Evaluation of media guidelines on responsible reporting on suicide by German journalists. Implications for designing awareness campaigns*

Kobilke, Lara; Markiewitz, Antonia (Munich)
*Momo is a ‘NoNo’ – How media depictions of the suicide game Momo challenge affect their viewers on YouTube*
Lack of context? Frequency and normative orientation of reporting on diagnostic tests

Paul Klammer¹, Julia Serong², Holger Wormer³

Background

In recent years new diagnostic methods have been developed and brought to health care market that have the potential to exacerbate legal, ethical and social conflicts that reach beyond the individual user’s decision making and responsibility. Firstly, tests that allow for the non-invasive prenatal determination of chromosomal defects (NIPD) are now available. Secondly, multiple other diagnostic tests, e. g. for HIV or cancer, but also commercial full and partial genome sequencing can be ordered on the internet as a “global market place” for medical devices and used without personal medical advice.

Although professional journalism has partially lost its gatekeeper function in the digital age it is still relevant for personal healthcare-related decision making and for opinion formation regarding societal issues. While the influence of mass media reporting on healthcare usage has been described consistently for a range of health topics including diagnostic testing (Shaffer et al. 2018, Evans et al. 2014, Li et al. 2008), research on the coverage of gene and molecular diagnostics is scarce. Almeyda et al. (2015) report that in Germany genetic diagnosis options are predominantly presented as beneficial. Fundamental ethical concerns are mentioned rarely. Kamenova et al. (2015) concluded that English language media were particularly interested in the advantages and speed of non-invasive prenatal diagnostics, while uncertainties and ethical concerns were hardly addressed. Lewis et al. (2015) also showed a considerable lack of addressing ethical concerns in the reporting and underlined the growing importance of medical advice in view of the increasing amount of information online. It is, however, still unclear, if these trends apply to reporting on diagnostics in general or if the coverage of diagnostic tests differs depending on the disease or problem, with regard to the quality of the tests as well as ethical conflicts and socio-cultural consequences.

Research Questions and Study Design

The study aims at exploring the reporting on medical diagnostic tests over time.

It is guided by the following research questions:

Q1: How intensive is the reporting on medical diagnostic tests over time?

Q2: How are different diagnostic tests assessed normatively and how do these positive or negative evaluations change over time?

¹ Institute for Journalism, TU Dortmund, Germany, paul.klammer@tu-dortmund.de
² Department of Media and Communication, LMU Munich, Germany
³ Institute for Journalism, TU Dortmund, Germany
Q3: Does the journalistic reporting related to diagnostic tests focus more on the tests themselves or on the individual or social consequences?

For this purpose, a quantitative content analysis of journalistic articles (N=1028) has been carried out. Four samples with articles on prenatal diagnostics (N=669), direct-to-consumer (DTC) genetic tests (N=196) and home tests for HIV (N=130) and cancer (N=33) were taken from all German-language newspapers and popular magazines (165 print and 11 online) in the GENIOS database published between March 1989 and January 2018. The articles were coded by four coders.

Findings

Intensity of reporting

The intensity of reporting measured by the number of retrieved articles varies dramatically between the partial samples and over time, with distinctive peaks (fig. 1a, b, c, d). Prenatal diagnostics get the highest media attention reaching a peak in 2012, around and after the market entry of the first non-invasive prenatal test in Germany. Furthermore, articles related to self-tests for cancer and HIV are usually shorter than those related to prenatal diagnostic and DTC genetic tests (fig. 2). The length correlates with the formats, with news and reports making up at least 9 in 10 articles related to self-tests while articles related to commercial genetic and prenatal diagnostic tests show a greater variety of formats including more reportages and features, but also more opinionated formats like commentaries and interviews (fig. 3).

Normative assessment

While most articles related to self-tests for HIV (92%) and cancer (94%) as well as to DTC genetic tests (84%) contain evaluative statements, this does not apply to articles related to non-invasive prenatal tests (46%). Non-invasive prenatal tests and self-tests for HIV are portrayed less unfavourable (mean=3.22 and 3.21 on 5-point scale with 1 meaning favourable, 3 balanced and 5 dismissive) than self-tests for cancer (3.84) and DTC genetic tests (3.91).

During the observed time span (1989-2018) two first-of-its-kind products have been introduced into the German market for non-invasive prenatal testing (PraenaTest, LifeCodexx AG, 2012) and for DTC genetic testing (23andMe Health and Traits, Ancestry Test Kits, 23andMe Inc., 2008). In both cases the tendency of reporting about the respective kind of tests has been less favourable in the year of market entry compared to the preceding and following periods (fig. 4).

Risks related to the diagnostic methods are mentioned less often (62.3% of articles) than benefits (84.9%). The validity of the diagnostic method has been evaluated in only 47.6% of all articles.

Topical Focus and Centrality

Social implications of new diagnostic procedures are broached more prominently in the context of prenatal diagnostics (main topic in 34% of articles) and DTC genetic tests (24%) whereas they only play a minor role in the reporting about self-test for HIV (5%) and have not been detected as central in the reporting on cancer self-tests. Inversely, technical and medical aspects of the test procedure are dominant in the reporting about self-tests (91% cancer, 75% HIV) and to a lesser extent about DTC genetic tests (51%). Only in 33% of articles about prenatal diagnostics theses aspects have been identified as the main topic. Although mentioned in many articles, individual consequences seldom take the center stage of the reporting (2 to 11% of main topics).
Discussion

Our study shows specific characteristics of German mass media reporting about diagnostic tests and points to several weaknesses that should be addressed.

Although reporting about health and medicine plays a major role in German news media (Volpers, Summ (2016), Elmer et. al. (2008)), German news media rarely report on diagnostic tests. Diagnostic tests are still a marginal topic of medical journalism. The results also show that reporting on diagnostic tests depends very much on which disease or problem the tests address. In contrast to other methods, prenatal diagnostics has been accompanied by an intensive public discourse, but only since the introduction of NIPD. However, many articles do not even specify basic characteristics like benefits, risks and validity of the tests they describe. Moreover, diagnostic tests are often not at the center of the topical focus, but are just briefly mentioned. This may be indicative of journalists’ selection routines that favour public controversies over explaining the fundamentals, especially regarding the social implications of prenatal diagnostics and commercial genetic tests. This is supported by the observed course of reporting with distinctive peaks. Peaks can usually be linked to certain “key events” (cf. Kepplinger and Habermeier 1995), such as the market roll-out of a new test. We found that the reporting is more critical around such key events. But as public attention fades, the evaluation becomes slightly more positive.
Appendix

Fig. 1: Temporal distribution of articles within the partial samples: a) prenatal diagnostics, b) self-tests for cancer, c) self-tests for HIV, d) DTC genetic tests

Fig. 2: Mean length of articles
### Table of Contents

| Programme | 31 |

#### Panel 1 | Klammer, Serong & Wormer

| partial samples | prenatal diagnostics | format |  |  |  |  |  | sum |
|-----------------|----------------------|--------|--------|--------|--------|--------|------|
| news            | 57                   | report | 302    | reportage | 39     | feature | 43   | 76   | interview | 45   | other | 17   | 669 |
| self-tests cancer | 4                   | 28     | 0      | 0      | 0      | 0      | 1    | 1    | 0         | 0    | 0     | 33   |
| self-tests HIV  | 42                   | 75     | 2      | 3      | 5      | 2      | 1    | 1    | 130       |      |       |      |
| commercial genetic tests | 14               | 128    | 5      | 24     | 8      | 14     | 3    | 196  |
| full sample     | 117                  | 623    | 46     | 70     | 89     | 62     | 21   | 1028 |

<table>
<thead>
<tr>
<th>negativity of statements about NIPD</th>
<th>negativity of statements about DTC genetic tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>before market entry</td>
<td>1</td>
</tr>
<tr>
<td>year of market entry</td>
<td>2</td>
</tr>
<tr>
<td>after market entry</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Fig. 3: Distribution of article formats

#### Fig. 4: Observed tendency towards NIPD and DTC genetic tests in relation to first market entry. Tendency has been coded on a 5-point scale (1=favourable; 5 = dismissive).
References


Journalism and Paedophilia: Background on the media coverage of a stigmatized minority

Daniela Stelzmann¹, Josephine Wapsa¹

Introduction

Paedophilia, the sexual interest in prepubescent children (American Psychiatric Association, 2015), is estimated to affect 1 to 5 percent of the male population (Beech, Miner, & Thornton, 2016; Beier, Amelung, Grundmann, & Kuhle, 2015; Beier, Bosinski, & Loewit, 2005; Jahnke, 2018b). Although few people knowingly have contact with paedophiles, most people have an opinion about paedophiles (Feldman & Crandall, 2007; Jahnke, Imhoff, et al., 2015). In a survey by Jahnke, Imhoff, et al. (2015), 40 percent of respondents stated that paedophiles should be locked away preventively, i.e. even without a criminal offence. Paedophilia is a major risk factor for child abuse and the consumption of abuse images (Beier, Grundmann, et al., 2015; Mann, Hanson, & Thornton, 2010; Mokros et al., 2012). Nevertheless, the majority of all abuse offences are not motivated by paedophilia and the majority of those affected by paedophilia do not commit any abuse offences (Cantor & McPhail, 2016; Dombert et al., 2016; Grundmann et al., 2016; Imhoff, 2015; Jahnke, Schmidt, Geradt, & Hoyer, 2015; Mokros et al., 2012). Paedophilia is a sexual predisposition and should not be confused with actual behavior. It is neither a necessary nor a sufficient condition for child sexual abuse (Dombert et al., 2016; Jahnke, 2018a).

Media coverage about paedophilia often takes place in connection with current cases of child sexual abuse. Harper and Hogue (2015) were able to show that persons guilty of child sexual abuse were disproportionately often referred to as "paedophiles" in British media coverage. Cases of child sexual abuse have a high news value (Kitzinger, 2008), so they are "reported intensively in the media", and in many people emotions such as anger, fear and disgust (Jackob, 2018, p. 171; Jahnke, 2018a). Precisely because of the high destructive potential of a suspected abuse - both for the person of the suspect and for the victims - the media have a special responsibility (Jackob, 2018). Nevertheless, there is always a mixture of clinical picture and criminal behaviour, so that paedophilia is associated as a psychological disorder with the sexual abuse of children (Jahnke, 2018b). "The term paedophile is laden with ideas and assumptions which confine thinking about this issue to a very narrow focus," writes Kitzinger (2008, p. 369). Jahnke, Imhoff, et al. (2015) cite the equation of paedophiles with child molesters as a possible reason for the strong discrimination against paedophilia and lead to an inhibited acceptance of preventive offers. Undifferentiated or incorrect media reporting on paedophilia, especially in connection with criminal acts, is not uncommon and is associated with the maintenance and reinforcement of existing stigmata against people with paedophilia (Harper & Hogue, 2015; Jahnke, Imhoff, et al., 2015; Kitzinger, 2004; Silverman & Wilson, 2002). One of the best-known cases is that of Marc Dutroux, who abducted, sexually abused and murdered several children, adolescents and adult women in Belgium until the 1990s (Uzieblo, Merckx, Vertommen, De Beoec, & Huys, 2018). No sexual preference for children was diagnosed at Dutroux. In media reports, however, he was largely portrayed

¹ Institute for Media and Communication Studies, Freie Universität Berlin, Germany
as a "paedophile". There was a continuous - and erroneous - media link between the sexual inclination to paedophilia and Dutroux's acts of violence, which fueled the association between inclination and crime (Kitzinger, 2008). Jahnke (2018b) argues that the continuous association of paedophilia and child sexual abuse in the media (Harper & Hogue, 2015; Kitzinger, 2002) contributes to the stigmatization of people with paedophilia.

**Research Questions**

Since journalists have a strong influence on the perception of pedophiles in the society, the question arises how they deal with this topic.

RQ 1: When do journalists report on paedophilia?
RQ 2: What knowledge do they have about paedophilia?
RQ 3: And what consequences does this have for the way they report?

**Method**

Qualitative telephone interviews were conducted with 11 journalists who between 01.01.2018 and 12.12.2018 had published at least one article in German-language print media focusing on paedophilia or sexual child abuse. The purpose of this restriction was to ensure that the interviewees had already dealt with the issues in question at least once and that they had not published any articles on them. The data collected were processed using qualitative content analysis oriented to Mayring (2015). The software f4analyse was used for the content analysis. The aim of the analysis for this study was to make statements about the background knowledge, attitudes and emotions of the interviewees with regard to pedophilia. In addition, statements on prevention concepts as well as risks and opportunities of general reporting were to be extracted.

**Preliminary Results**

The interviewees largely defined pedophilia consistent with scientific evidence, but overestimated the risk posed by people with pedophilia. They were generally open to differentiated, evidence-based reporting, which could be a first step towards destigmatizing pedophilia, making supportive services known and, as a consequence, preventing CSA.
References


Preventing imitation suicides: Evaluation of media guidelines on responsible reporting on suicide by German journalists
Implications for designing awareness campaigns

Antonia Markiewitz¹, Dr. Florian Arendt², Sebastian Scherr³

Relevance

Every year, about 800,000 people die of suicide. Suicide is the second leading cause of death among the 15-29 age group. In Germany alone, 10,000 suicides are recorded yearly (World Health Organization, 2014, 2018) – making it more deaths due to suicide than to car accidents, homicide, drug abuse and AIDS combined (Wolfersdorf & Etzersdorfer, 2011). Austria counts approx. 1,200 and Switzerland counts 1,000 suicides a year which is about the same amount as in Germany in relation to the number of inhabitants (World Health Organization, 2014, 2018). This makes suicide (that is all deaths due to self-harm) and suicidality (that is all thoughts and actions that involve striving for one's own death or accepting it as a possible result of an action; Scherr, 2016) a crucial global health problem (Wolfersdorf & Etzersdorfer, 2011; World Health Organization, 2017). In addition to numerous other factors, such as mental health, the media play an important role in the context of suicide (Mann et al., 2005): Reporting on suicides can have both harmful and preventive effects, depending on how the reports are framed, thereby assigning a decisive role to journalists and media professionals (Niederkrotenthaler et al., 2010; Phillips, 1974; Scherr & Steinleitner, 2015). To help them design their media reports with regard to minimizing the harmful effects and promoting the favorable ones, media guidelines on responsible reporting on suicide (RRS) for journalists have been developed in cooperation with the WHO and national institutions (Beam, John, & Yaqub, 2018; R. Schäfer, Althaus, Brosius, & Hegerl, 2006; World Health Organization, 2008). However, not all journalists and media professionals are yet aware of these guidelines, or do not take them into account deliberately (Bohanna & Wang, 2012; Yaqub et al., 2017). Against this background, we conducted semi-structured interviews with 30 journalists from all over Germany, focusing on their needs and demands for such media guidelines in order to be able and willing to adhere to them. We clarify how media guidelines and awareness materials for responsible reporting should be designed so they can be best implemented by the journalists. This study provides implications for the design of awareness materials and campaigns that may help journalists and media professionals to communicate suicide and suicidality best possible in order to ultimately prevent imitation suicides.

Theoretical conception

The theoretical underpinnings of this study are the two essential, diametrically opposed concepts in the discussion about the effects and consequences of suicide reporting: On the one hand, there is the Werther effect stating that the suicide rate rises as a result of suicides being picked up by the media, i.e. that imitation suicides are triggered (Phillips, 1974; Scherr, 2016; Stack, 2000). On the other hand, there is the Papageno effect, according to which prudent and responsible suicide reporting prevents

¹ Department of Media and Communication, LMU Munich, Germany
² Department of Communication, University of Vienna, Austria
³ School for Mass Communication Research, KU Leuven, Belgium
further suicides (Arendt, Till, & Niederkrotenthaler, 2016; Niederkrotenthaler et al., 2010; Scherr, 2016; Scherr, Arendt, & Schäfer, 2017). Which one of the two effects is triggered by suicide reporting decisively depends on how journalists and media professionals design their articles. The most decisive criteria for a conducive, i.e. preventive, suicide reporting are the omission of information on suicide method and location, the reduction of attention to suicide (e.g. no illustrations, no title page, no lurid wording), especially in the case of celebrity suicides, and the avoidance of glorifying or romanticizing representations of suicides. Furthermore, it is important that suicide reports include information on possibilities for help (e.g. counselling hotlines, aid forums) and ways out of the crisis (e.g. through positive examples) (Frey, Michel, & Valach, 1997; Mueller, 2017; Niederkrotenthaler et al., 2010; Nutt, Kidd, & Matthews, 2015; Roškar, Tančič Grum, Poštuvan, Podlesek, & De Leo, 2017; M. Schäfer & Quiring, 2013; World Health Organization, 2014). Based on this research, media guidelines for responsible suicide reporting have been developed (World Health Organization, 2008, 2014). Nevertheless, there are still numerous suicide reports that do not do correspond to these guidelines (Frei et al., 2003; Nutt et al., 2015; M. Schäfer & Quiring, 2015). This leads to the following questions: (1) Why do some journalists adhere to these guidelines only insufficiently or not at all and (2) how should the guidelines be designed so that they can be integrated best possible into everyday journalistic life and thus be used more readily? Those questions gain of additional importance as studies have shown that such guidelines are better accepted by journalists when they have been developed, designed and implemented in joint collaboration between health professionals and journalists (Bohanna & Wang, 2012; Pirkis et al., 2009; R. Schäfer et al., 2006; Tatum, Canetto, & Slater, 2010).

**Method**

To answer these questions, we conducted a qualitative study with journalists from Germany: We organized semi-structured in-depth interviews with 30 journalists (13 of which female; aged 23 to 57 years, $M = 37.80$, $SD = 11.61$, with 2 to 30 years of professional work experience, $M = 14.60$, $SD = 10.06$; most, $n = 25$, have graduated from college and hold a middle position, $n = 26$; 13 were working for tabloid media). The interviews were conducted following the suggestions based on grounded theory by Glaser and Strauss (1967), which have been applied to the health domain by Ziebland and McPherson (2006). We showed awareness materials (video and text) on guidelines on RRS to the journalists and let them evaluate those materials with regards to what positive and negative aspects they find. We also asked several questions on their experiences with suicide reporting and guidelines on RRS as well as on their willingness to adhere to such guidelines in the future.

**Results**

The analysis of the interviews shows that competitive pressure (especially competition for attention, circulation and clicks) and the generally precarious working conditions in journalism (especially lack of time for research; Steindl, Lauerer, & Hanitzsch, 2017) seem to be the main reasons for inadequate suicide reporting. In addition, journalistic autonomy plays a decisive role. The recommendations of media guidelines and/or corresponding awareness materials should be formulated and structured in such way that journalists still have the freedom to make their own decisions and are not imposed with any strict rules. This is consistent with previous research on the connection between the need for autonomy and motivation (Deci & Ryan, 1993; Krapp, 2005) and on reactance effects (Brehm & Brehm,
1981). Journalists are also particularly critical of the linguistic, stylistic and visual presentation of such guidelines and corresponding awareness materials.

**Implications**

There are numerous studies that speak both for the application and consideration of media guidelines on RRS, and for some journalists not having considered and included them in their suicide reporting at all or only partially yet. So far, what has been lacking in the research and practice landscape is a scientifically sound basis for awareness materials on RRS, respectively on the guidelines, which create among journalists an awareness of the equally sensitive and important topic of suicide and inform them sufficiently about how suicide reporting can best be designed in terms of suicide prevention. This study provides evidence and starting points for this concern. Research, but also organizations and other health facilities should take these results into account when designing health awareness campaigns and materials.
References


Momo is a ‘NoNo’ – How media depictions of the suicide game Momo challenge affect their viewers on YouTube

Lara Kobilke¹, Antonia Markiewitz²

Relevance

800,000 people die of suicide each year, with suicide being the second leading cause of death among adolescents aged 15-29 years (World Health Organization, 2017). This identifies adolescents as a risk group to suicide (Wasserman, Danuta & Wasserman, Camilla, 2009). In the context of suicide and suicidality, media—among several other factors—play a decisive role (Mann et al., 2005). Depictions of suicide may elicit both the Werther effect, i.e. imitation suicides after unfavorable media depictions (Stack, 2005) and the Papageno effect, i.e. preventive effects due to responsible depiction of suicide in the media (Pirkis, Blood, Beautrais, Burgess, & Skehans, 2006). Adolescents are particularly susceptible to unfavorable media depictions of suicide (Miller & Prinstein, 2019). In addition, they are vulnerable to peer pressure and (cyber-)bullying (Fawzi, 2015), which both seem to occur frequently in the digital age (Arendt, 2019). In combination, depictions of suicide and cyberbullying both pose a great risk to adolescents.

Worryingly, suicide games like the Momo Challenge (MC) have gained more and more popularity over the years (Mukhra, Baryah, Krishan, & Kanchan, 2017; theguardian.com, 2019). These suicide games dare their audience to induce self-harm and to ultimately commit suicide, thus, combining unfavorable media depictions and peer pressure. However, empirical knowledge about this emerging cyber threat is still lacking. Recently, the MC has been spread via YouTube (theweek.co.uk, 2018), forcing the platform to declare that they have “no recent evidence of videos promoting the Momo Challenge on YouTube” (YouTube, 2019). We aimed to analyze YouTube user comments on videos of the MC—that in fact do exist in dozens—regarding how viewers experience these videos. Thereby, we want to attach greater importance not only to how present the MC actually is, but also to what harm it potentially causes among its viewers.

Theoretical Background

The media play an integral role in both suicide promotion (Werther effect; Phillips, 1974) and suicide prevention (Papageno effect; Niederkrotenthaler et al., 2010). In fact, the Werther effect describes the rise of suicides among the population after a suicide has been depicted in the media (Phillips, 1974). This phenomenon is based on Bandura’s social-cognitive learning theory that postulates that the depicted suicide may serve as a model to or ‘dry practice’ for the viewers and contribute to the weakening of social norms and inhibitions that would otherwise preclude from suiciding (Gould, Jamieson, & Romer, 2003; Scherr, 2016). In this context, social media pose a particularly high risk (Terrasse, Gorin, & Sisti, 2019): They promote involvement and identification with role models, two

¹ Department of Communication and Media Research (IKMZ), University of Zurich, Switzerland
² Department of Communication Studies and Media Research (IfKW), University of Munich, Germany
factors contributing to the emergence of the Werther effect (Stack, 2005). Furthermore, social media are often connected to forms of cyberbullying, which again is found to be linked with suicidal ideation (Hinduja & Patchin, 2010; Lupton, June, & Fairall, 2012). As cyberbullying is the most common risk for young people on the internet (O’Keeffe & Clarke-Pearson, 2011) and their age group is more prone to suicide and suicidality (World Health Organization, 2017), additional efforts should be made to protect them. A new threat emerged with the distribution of suicide games like the MC, in which peers pass on telephone numbers to anonymous WhatsApp accounts, daring them to take part in self-harming challenges. These virtual challenges are real in their consequences, especially when they are spread by influencers on social media. However, no research has addressed the consequences of watching suicide game content on social media yet, especially not with regard to a young audience. Thus, we ask:

**RQ: What cognitive, emotional and behavioral effects do Momo Challenge videos elicit in their viewers?**

**Method**

We performed our data crawl with NodeXL, an add-in for Microsoft Excel using YouTube’s API to collect videos automatically, searching for up to 2,000 videos with the keywords ‘Momo Challenge English’ in the titles, descriptions, or tags. The YouTube API identified 489 matching videos and extracted their descriptive statistics (videos’ creators, views, comment counts, likes, dislikes). For each video, up to 1,000 top-level user comments and their first 100 replies were gathered. We further conducted a manual editing process that controlled for English language (including subtitles) and thematic proximity to the MC, and deleted all videos not fulfilling these criteria. Finally, we manually searched YouTube and added every MC video and its comments that the crawl had missed. The revised data set included 209 videos and 339,038 comments. We randomly selected \(n = 1,000\) comments to be further examined in a manual content analysis. Our category system differentiated between 23 categories, divided in six sections: 1) reactions to trigger warnings and age restrictions, 2) extent of prior knowledge about the MC, 3) whether Momo and the video content were perceived as real or fake, 4) past and future contact intentions, 5) emotional reactions to the video, and 6) overall video evaluation. The comments were coded by the authors who created the category system. The intercoder reliability was very satisfactory with \(M(Holsti) = .94\) (lowest ratings: perceptions of the video (.82) and Momo (.78) as real or fake; overall video evaluation (.65); all other categories scored above .92).

**Results and Implications**

*Cognitive effects.* Viewers of MC videos tend to perceive Momo as a real entity posing a serious threat. 30% of all comments explicitly or implicitly verbalize this assumption. Contrarily, only 12% of the comments reveal the viewers’ belief that Momo is a hoax. Apparently, the videos pose enough psychological distress that 42% of all commenters feel the need to verbalize their opinion on whether or not Momo is real. Furthermore, perceiving Momo to be real correlates with higher contact intentions (establishing contact to Momo accounts, \(r = .246; p < .001\); having competed in the challenge, \(r = .208; p < .001\); future contact intentions, \(r = .257; p < .001\); asking for contact data, \(r = .220; p < .001\)).

*Emotional effects.* When it comes to emotions, fear (19%) is the dominant affection verbalized in the comments, followed by joy (12%), anger (6%), disgust (5%), and surprise (4%). Sadness was least
prevailing (2%). Fear significantly correlates with establishing contact to Momo accounts ($r = .095; p < .01$), having competed in the challenge ($r = .066; p < .05$) and future contact intentions ($r = .088; p < .01$). As fear is the most expressed emotion and correlates positively with contact intentions, this relationship emphasizes the threat emerging from MC videos.

**Behavioral effects.** Out of 1,000 comments, we found that 26 viewers had already tried to establish contact with a Momo account in the past. Ten viewers report having successfully established contact and even completed tasks of the challenge. Additionally, 22 viewers explain that they plan to contact a Momo account after having watched the video. In this context, 17 viewers asked for respective contact data. Though it might not seem overwhelming at first glance, these numbers show that Momo videos serve as multiplicators of the challenge. As it poses a high risk to adolescents, possibly leading to self-harm, even small numbers are alarming. This is intensified as ten viewers in our sample talk about having experienced one of their peers getting injured or killed while participating in the MC.

**Limitations**

We cannot say for sure whether the viewers of the MC videos are indeed young and vulnerable, even though this seems plausible due to YouTube's user structure. Additionally, limitations include the usual challenges that come with analyzing user comments.
References


What is the Momo suicide challenge? Police forces warn children and parents about the popular online game. Retrieved from https://www.theweek.co.uk/96248/what-is-the-momo-suicide-challenge-and-is-it-dangerous


YouTube. (2019). We want to clear something up regarding the Momo Challenge. Retrieved from https://twitter.com/YouTube/status/1100820993671495680
Panel 2

Social influence, control, and action

14 November, 11:45 – 13:00
Room RAA-E-30
Chair: Gert-Jan de Bruijn (Amsterdam)

Stehr, Paula; Rossmann, Constanze; Kremer, Tabea; Lütke Lanfer, Hanna (Erfurt)
*The ambivalent role of social aspects in health promotion. Findings from a two-study formative research project examining health information sources and determinants of physical activity among older adults in Germany*

Klimmt, Christoph (Hanover); Geber, Sarah (Zurich); Baumann, Eva (Hanover); Czerwinski, Fabian (Hanover)
*Explaining gender differences in risk behavior by gender-specific normative peer group influences*

Naderer, Brigitte; Spielvogel, Ines; Matthes, Jörg; Binder, Alice; Forrai, Michaela; Knupfer, Helena; Saumer, Melanie (Vienna)
*The impact of watching movies and series on children’s BMI and the moderating role of perceived parental food rules. A longitudinal study*

Schossboeck, Judith (Hong Kong, Krems)
“You just have to trust them”: The role of digitally networked action for people with Thyroid disease
The ambivalent role of social aspects in health promotion. Findings from a two-study formative research project examining health information sources and determinants of physical activity among older adults in Germany

Paula Stehr, Constanze Rossmann, Tabea Kremer, Hanna Lütke Lanfer

Abstract

Individuals’ social network can impose both positive and negative effects on health-related outcomes. This can be explained by various mechanisms (Thoits, 2011). Social control or social comparison, for example, may exert positive or negative influences on health outcomes at the same time. Social comparison gives normative and behavioral guidance—but reference groups may model either risky or preventive behavior. Social control covers attempts to monitor, encourage, persuade, remind or pressure a person to adopt or adhere to positive health practices—but these attempts can also backfire if they are perceived as overly intrusive. This ambivalent role of social aspects is also reflected in Rook’s (2015) conceptualization of positive and negative social network exchanges affecting health and well-being of older adults. She points out that generally positive interactions such as support and regulation also may lead to feelings of indebtedness, reduced sense of self-efficacy or feelings of constraint and therefore impair one’s health and well-being.

In the context of health campaigns, social aspects may play a role in at least two different ways. Firstly, interpersonal communication can increase the reach of mass-media campaigns and either reinforce or undermine persuasive effects (Jeong & Bae, 2018). Secondly, social appeals can be used as a message strategy to influence health behavior (Reifegerste, 2016). This is especially promising, if formative research in the campaign planning process identifies social aspects as relevant behavioral determinants. In general, these two aspects, adequate communication channels and effective messages, are key concepts of evidence-based planning of health campaigns (Silk, Atkin, & Salmon, 2011). Against this background, the purpose of this submission is to highlight the role of social aspects in health promotion in the context of the evidence-based planning of a communication strategy to promote physical activity among older adults in Germany. Adequate communication channels were selected upon the general media use and health information behavior of our target group, among which we also assessed interpersonal information sources. Accordingly, our first research question is:

RQ1: Which role does interpersonal communication play among health information sources of older adults in Germany?

To promote a target behavior, adequate campaign messages have to be identified based on relevant behavioral determinants and their underlying beliefs (Rossmann, 2013). To assess the relevant determinants of physical activity we used a research frame that integrates the Theory of Planned Behavior (TPB; Ajzen & Fishbein, 2010) and the Self-Determination Theory (Deci & Ryan, 2000), because previous research has shown that physical activity is not just determined by the strength of behavioral

1 Media and Communication Science, University of Erfurt, Germany
intention (as usually measured in the TPB), but also by its self-determination, i.e. the level of intrinsic vs. extrinsic motivation, also called self-concordance in this context (Fuchs et al., 2017). Therefore, we integrated self-concordance as a further behavioral determinant (on the same level as behavioral intention) into our research model.

The TPB postulates that behavioral intentions are influenced by subjective norms, attitudes, and perceived behavioral control, which in turn are shaped by corresponding beliefs. Research on the determinants of physical activity among older adults often shows significant effects for attitudes and perceived behavioral control, but not for subjective norms (Alexandris, Barkoukis, & Tsormpatzoudis, 2007; Gretebeck et al., 2007). Nevertheless, normative appeals are often used to promote health behavior (Reifegerste, 2016). Moreover, subjective norms may be closely linked to extrinsic motivation of physical activity (Brickell, Chatzisarantis, & Pretty, 2006). Given this contradictory evidence in the context of physical activity, our second open research question is:

**RQ2: To what extent do subjective norms influence the strength and self-concordance of the intention to be physically active?**

Social appeals cover more than normative appeals and may also be addressed to social conditions and consequences of the health behavior (Reifegerste, 2016; Reifegerste & Rossmann, 2017). These messages should be developed according to the underlying beliefs of the behavior’s determinants. Therefore, our third research question is:

**RQ3: Which social aspects of beliefs influence the determinants of the intention to be physically active?**

As a first step to answer these questions, we conducted 20 semi-structured interviews with older adults to identify normative, behavioral and control beliefs of our target group and their interplay with self-determined motivation and physical activity. To test our research model and to collect data on health information sources and media use in our target group, we conducted a telephone survey with a representative sample of 1.001 older adults (65 years and older) in Germany as a second step.

Results of our studies confirmed that, beyond mass media, interpersonal communication with health professionals as well as family and friends does play a role as a source of health information (RQ1). Particularly men rely on interpersonal communication with health professionals for information on health and physical activity.

Structural equation modeling of the telephone interview data showed that a self-determined intention to be physically active and the intention strength were influenced by a positive attitude and a high perceived behavioral control. In contrast, subjective norm did not influence intention strength and self-determined regulations but influenced non-self-determined regulations (RQ2). That is, a higher subjective norm may indirectly decrease physical activity levels, since non-self-determined regulations are related to lower physical activity (Fuchs et al., 2017).

Further analysis of normative beliefs (RQ3) showed that especially family and spouses play a role for subjective norms. Thus, the above-mentioned negative influence of subjective norms on physical activity refers to these important others mainly. In contrast, among the control beliefs that influence perceived behavioral control, we found that having sports fellows increased older adults’ feeling to be able to engage in physical activity; this effect was even stronger for people with severe health conditions and very old people – for whom it may be even more difficult to find sports fellows. Concerning beliefs about the consequences of the behavior, relatedness was among the factors positively contributing to attitudes towards physical activity. Hence, social aspects indeed play a role as factors positively
contributing to older adults’ intention to be physically active. Therefore, an adequate message to promote physical activity among older adults could be that physical activity may enable meeting new people, which in turn makes it easier to maintain being active.

In conclusion, social aspects are important to be considered on different levels of campaign planning for health promotion. Firstly, social aspects may account for positive consequences as well as facilitators of the target behavior, which can in turn increase positive attitudes and perceived behavioral control. Consequently, these social aspects should be addressed to foster the target behavior. Secondly, social contacts may have an important relay function to pass on information and campaign messages, in particular for topics and target groups, which rely more on interpersonal sources. At the same time, however, social contacts could exert a negative influence by stimulating non-self-determined regulations, which could undermine the target behavior in the long term. Further theoretical and practical implications of these findings and limitations of the study will be discussed in the presentation.
References


Explaining gender differences in risk behavior by gender-specific normative peer group influences

Christoph Klimmt¹, Sarah Geber², Eva Baumann³, Fabian Czerwinski³

Research Problem and Theoretical Background

Explaining and influencing health-threatening risk behaviors is a key challenge in health communication. Past research has clearly revealed that men are on average substantially more likely to take risks across a wide variety of behavioral domains (e.g., Burnes, Miller & Schafer, 1999). Dispositional-motivational factors are typically discussed as explanation of this gender difference: Women tend to perceive a given risk as greater than men do and are thus less likely to engage in the same risk in order to gain a certain reward (e.g., Figner & Weber 2011).

The present study investigates whether gender differences in health-related risk behaviors might also be explained by gender-specific normative influences. The theory of normative social behavior (TNSB; Rimal & Real, 2005) predicts that risk-taking behavior is strongly affected by normative perceptions. When making decisions about (health-relevant) behaviors (e.g., smoking), people consider both descriptive (i.e., the prevalence of a behavior within the referent group) and injunctive social norms (i.e., the social approval of the behavior by referent others; Cialdini, Reno & Kallgren, 1990).

Most people’s reference groups comprise more individuals of their own gender than individuals of the other gender (e.g., Poulin, & Pedersen, 2007). Therefore, it is likely that males belong to more risk-supporting reference groups than females (as men take more risks than women). Consequently, males should also perceive that risk behaviors are more prevalent (descriptive norms) and accepted (injunctive norms) among their peers than females. Hence, the application of TNSB to gender differences suggests that a part of the gender difference in risk-taking can be explained by a the gender-specific (i.e., male-dominant vs. female-dominant) composition of the (typical) peer group and resulting normative perceptions.

H1. Males with male-only peer groups perceive more risks-affine norms than males and females with a gender-heterogeneous peer group and more than females with female-only peer groups. Females in exclusively female peer groups do least perceive risk supporting norms.

As the TNSB argues, the postulated differences between males and females based on their peer-group composition are assumed to have consequences for actual behavior. Because the empirical case of examination is the road traffic risk behavior of young drivers (i.e., speeding, driving after drinking alcohol, and texting while driving), we therefore postulate:

H2. Males with male-only peer groups are more engaged in risky driving behaviors than males and females with a gender-heterogeneous peer group and more than females with female-only peer groups. Females in exclusively female peer groups do least perform road traffic risk behaviors.

¹ Department of Journalism and Communication Research, Hanover University of Music, Drama, and Media, Germany, christoph.klimmt@ijk.hmtm-hannover.de
² Department of Communication and Media Research (IKMZ), University of Zurich, Switzerland
³ Department of Journalism and Communication Research, Hanover University of Music, Drama, and Media, Germany
Furthermore, risk-taking has been found an important part of the group identity of male peer groups. Therefore, males are more likely than females to respond to pro-risk normative cues from peers and to adjust their (risk) behavior accordingly (e.g., Cohen & Prinstein, 2006). An additional normative gender difference is therefore hypothesized to result from the greater importance of pro-risk norms for males’ decisions on risk behavior (i.e., a greater effect size of the influence of norms on behavior).

**H3.** The effects of perceived descriptive and injunctive pro-risk norms on risky driving behaviors are greater for males with male-only peer groups than for males and females with a gender-heterogeneous peer group and greater than for females with female-only peer groups. The normative effects for females in exclusively female peer groups are the weakest.

**Method**

Data from a representative survey of N = 311 young drivers aged 18 to 24 years in Germany were investigated for normative gender dynamics. Each young driver nominated three friends whose gender was recorded to characterize the gender composition of his/her peer group. The peer groups’ gender compositions were distributed as follows: 39 men with male-only peer groups, 231 heterogenous (male and female respondents with at least one woman and at least one man in their peer group), and 41 females with female-only peer groups. Risk behaviors (speeding, driving after drinking, and texting while driving) were measured through single items (scale 0 – never to 4 – very often). Perceived descriptive norms (e.g., „How often do your friends drive a car after they have drunk a glass of beer or wine“?) and injunctive norms (e.g., „Many of my friends find it okay to drive a car after drinking some alcohol“) related to each risk behavior were also assessed through single items with five-point scales.

**Results**

The comparison perceived social risk-related norms based on the gender compositions of peer groups supports H1 only with regard to speeding (table 1): Males in male-only peer groups perceive greater descriptive and injunctive pro-speeding norms than females in female-only peer groups.

In contrast, comparisons of actual risk behavior confirmed H2 across all three investigated types of driving behavior. Specifically, respondents from male-only peer groups reported the highest engagement in risk behaviors across the three addressed driving behaviors, and respondents from female-only peer groups displayed the least risk affinity (table 2).

To test H3, multiple regressions were run separately with respondents from the three types of gender configurations of peer groups in which the effect of descriptive and injunctive normative perceptions on risk behavior was investigated. This set of regressions was implemented for each of the three types of risky driving behavior (tables 3 to 5). The effect of descriptive and injunctive pro-risk norms is positive among individuals from any kind of gender-configured peer groups. However, the effects of both types of norms are substantially more pronounced for respondents from male-only peer groups than in respondents from gender-heterogenous and female-only peer groups. H3 was clearly supported.
Discussion

The current study reveals that beyond motivational determinants, normative social influences are also relevant for explaining males’ greater risk involvement. First, as males tend to gather same-sex friends with a higher risk affinity than females, the effects of social norms in their peer groups are likely to increase their own risk engagement. Vice versa, females within female-only peer groups seem to receive the least pro-risk normative influence from their peers. Thus, people’s preference for same-sex peers and the normative influences of peer groups seem to operate jointly in widening gender differences in risk affinity.

Second, males were found to respond more strongly to normative peer group influences than females – the effect size of norm influences on risk behavior is much greater for males in male-only peer groups than for females in female-only peer groups. This puts young males at a double risk, as their baseline level of average pro-risk peer norms is already higher and they are likely to react with escalating risk proclivity if one or more peers are communicating particularly strong pro-risk norms (Geber et al., 2019).

Future research should address the specific communication processes underlying these gender-specific normative peer group dynamics: How do male-only peer groups transmit their pro-risk social norms (e.g., through “trash talk”)? How do female-only peer groups exchange anti-risk norms (e.g., through expression of cautiousness when it comes to risk behaviors)? The second important task for follow-up research is the longitudinal analysis of the interplay between dispositional-motivational and normative social influences in the formation and maintenance of risk affinities within peer groups. Studying the interaction of these determinants over time may turn out useful for developing effective intervention strategies against health-threatening risk behavior.
## Appendix

**Table 1.** Descriptive and inuctive normative perceptions in respondents with different gender compositions of their peer group

<table>
<thead>
<tr>
<th>Normative perception</th>
<th>Females with female-only peer group (M; SD)</th>
<th>Males and females with heterogenous gender composition of peer group (M; SD)</th>
<th>Males with male-only peer group (M; SD)</th>
<th>Analysis of Variance ($F$; $p$)</th>
<th>Effect size: comparison of female-only and male-only (Cohen’s $d$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN Speeding</td>
<td>1.72 (0.79)</td>
<td>1.93 (0.80)</td>
<td>2.32 (0.91)</td>
<td>$F = 5.52, p &lt; .01$</td>
<td>-0.70</td>
</tr>
<tr>
<td>IN Speeding</td>
<td>1.02 (0.69)</td>
<td>1.22 (0.79)</td>
<td>1.49 (0.91)</td>
<td>$F = 5.26, p &lt; .05$</td>
<td>-0.58</td>
</tr>
<tr>
<td>DN Driving after drinking</td>
<td>1.18 (1.04)</td>
<td>1.49 (1.04)</td>
<td>1.67 (1.31)</td>
<td>$F = 3.43, ns$</td>
<td>-0.41</td>
</tr>
<tr>
<td>IN Driving after drinking</td>
<td>1.24 (0.97)</td>
<td>1.40 (0.93)</td>
<td>1.46 (0.97)</td>
<td>$F = 0.63, ns$</td>
<td>-0.23</td>
</tr>
<tr>
<td>DN Texting while driving</td>
<td>1.88 (1.07)</td>
<td>1.90 (1.07)</td>
<td>1.84 (1.12)</td>
<td>$F = 0.66, ns$</td>
<td>0.04</td>
</tr>
<tr>
<td>IN Texting while driving</td>
<td>1.27 (0.78)</td>
<td>1.31 (0.82)</td>
<td>1.23 (0.81)</td>
<td>$F = 0.18, ns$</td>
<td>0.05</td>
</tr>
</tbody>
</table>

*Note.* Female-only: $N = 39-41$, males and females with heterogenous gender composition of peer group: $N = 224-231$, male-only: $N = 36-39$. 
### Table 2. Self-reported risk behaviors while driving in respondents with different gender compositions of their peer group

<table>
<thead>
<tr>
<th>Risk behavior</th>
<th>Females with female-only peer group (M; SD)</th>
<th>Males and females with heterogenous gender composition of peer group (M; SD)</th>
<th>Males with male-only peer group (M; SD)</th>
<th>Analysis of Variance (F; p)</th>
<th>Effect size comparison of female-only and male-only (Cohen’s (d))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speeding</td>
<td>1.38 (0.94)</td>
<td>1.78 (0.92)</td>
<td>2.05 (0.89)</td>
<td>(F = 5.26, p &lt; .01)</td>
<td>-0.73</td>
</tr>
<tr>
<td>Driving after drinking</td>
<td>0.50 (0.68)</td>
<td>1.01 (1.04)</td>
<td>1.31 (1.28)</td>
<td>(F = 6.21, p &lt; .01)</td>
<td>-0.79</td>
</tr>
<tr>
<td>Texting while driving</td>
<td>1.49 (1.07)</td>
<td>1.85 (1.13)</td>
<td>1.90 (1.29)</td>
<td>(F = 1.88, \text{ns})</td>
<td>-0.34</td>
</tr>
</tbody>
</table>

*Note.* Female-only: \(N = 39-41\), males and females with heterogenous gender composition of peer group: \(N = 218-231\), male-only: \(N = 36-39\).

### Table 3. Effect of descriptive and injunctive norms related to speeding on speeding behavior, by gender composition of respondent peer groups (multiple linear regressions)

<table>
<thead>
<tr>
<th>Type of peer group</th>
<th>Effect of descriptive norms</th>
<th>Effect of injunctive norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unstandardized regression coefficient (b), (p)</td>
<td>Standardized regression coefficient (\beta)</td>
<td>Unstandardized regression coefficient (b), (p)</td>
</tr>
<tr>
<td>Female-only</td>
<td>0.09 (ns)</td>
<td>0.07</td>
</tr>
<tr>
<td>Males and females with heterogenous gender composition of peer group</td>
<td>0.635 ((p &lt; .01))</td>
<td>0.549</td>
</tr>
<tr>
<td>Male-only</td>
<td>0.578 ((p &lt; .01))</td>
<td>0.604</td>
</tr>
</tbody>
</table>

*Note.* For female-only: corrected \(R^2 = .12\), for males and females with heterogenous gender composition of peer group: corrected \(R^2 = .35\), for male-only: corrected \(R^2 = .39\).
Table 4. Effect of descriptive and injunctive norms related to driving after drinking alcohol on driving after drinking behavior, by gender composition of respondent peer groups (multiple linear regressions)

<table>
<thead>
<tr>
<th>Type of peer group</th>
<th>Effect of descriptive norms</th>
<th>Effect of injunctive norms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unstandardized regression coefficient (b), (p)</td>
<td>Standardized regression coefficient (\beta)</td>
</tr>
<tr>
<td>Female-only</td>
<td>0.25 ((p &lt; .05))</td>
<td>0.371</td>
</tr>
<tr>
<td>Males and females with heterogeneous gender composition of peer group</td>
<td>0.444 ((p &lt; .01))</td>
<td>0.44</td>
</tr>
<tr>
<td>Male-only</td>
<td>0.751 ((p &lt; .01))</td>
<td>0.766</td>
</tr>
</tbody>
</table>

Note. For female-only: corrected \(R^2 = .21\), for males and females with heterogenous gender composition of peer group: corrected \(R^2 = .37\), for male-only: corrected \(R^2 = .72\).

Table 5. Effect of descriptive and injunctive norms related to texting while driving on texting while driving behavior, by gender composition of respondent peer groups (multiple linear regressions)

<table>
<thead>
<tr>
<th>Type of peer group</th>
<th>Effect of descriptive norms</th>
<th>Effect of injunctive norms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unstandardized regression coefficient (b), (p)</td>
<td>Standardized regression coefficient (\beta)</td>
</tr>
<tr>
<td>Female-only</td>
<td>0.558 ((p &lt; .01))</td>
<td>0.548</td>
</tr>
<tr>
<td>Males and females with heterogeneous gender composition of peer group</td>
<td>0.564 ((p &lt; .01))</td>
<td>0.533</td>
</tr>
<tr>
<td>Male-only</td>
<td>0.862 ((p &lt; .01))</td>
<td>0.761</td>
</tr>
</tbody>
</table>

Note. For female-only: corrected \(R^2 = .38\), for males and females with heterogenous gender composition of peer group: corrected \(R^2 = .48\), for male-only: corrected \(R^2 = .63\).
References


The impact of watching movies and series on children’s BMI and the moderating role of perceived parental food rules.
A longitudinal study

Brigitte Naderer\textsuperscript{1}, Ines Spielvogel\textsuperscript{1}, Jörg Matthes\textsuperscript{1}, Alice Binder\textsuperscript{1}, Michaela Forrai\textsuperscript{1}, Helena Knupfer\textsuperscript{1}, Melanie Saumer\textsuperscript{1}

Introduction

Media consumption is frequently discussed in connection with the increase of children’s overweight and obesity in Western societies (WHO, 2016). On the one hand, it is argued that watching series or movies replaces active free time activities (Robinson, 1999). On the other hand, the effect on the increase in obesity and overweight is attributed to the fact that children are exposed to numerous food presentations within media content. These food presentations typically depict energy-dense foods and beverages (Matthes & Naderer, 2019) which include high amounts of sugar, fat, and salt but are low in nutritional value (i.e., hardly contain minerals or vitamins) and therefore contribute to overweight and obesity (Olafsdottir & Berg, 2016). The emphasis on energy-dense food can be found in commercial content targeted at children like traditional TV-commercials (Keller & Schulz, 2011), or product placements in children’s movies (Sutherland et al., 2010), as well as in editorial content like TV series, or movies (Roseman et al., 2014). Such presentations can, as many studies have demonstrated, significantly shape children’s food preferences and eating habits, in regards to making unhealthy food more desirable (Auty & Lewis, 2004; Matthes & Naderer, 2015) and in an observable increase in the amount of food that is eaten (Halford et al., 2008, 2004).

The effect of food presentations in media content on children’s eating behavior is based on the theoretical framework of Reactivity to Embedded Food Cues in Advertising Model (REFCAM, Folkvord et al., 2016). This model assumes that the representation of food within media content is connected to a cue reactivity process. Cue reactivity can be described as a line of physiological and psychological responses, for instance an increase in heart rate or visual attention (e.g., Jansen, 1998). Following this line of argumentation, the cue reactivity activated by food presentations is connected to human’s food intake (Folkvord et al., 2016).

Based on these assumptions regarding a decline of physical activity (Robinson, 1999) and a shaped preference for unhealthy food due to the overwhelming presentations of energy-dense foods within media content (e.g., Matthes & Naderer, 2019), we assume a long-term influence of the amount of series and movies watched on children’s Body Mass Index (BMI, Jordan, 2007; H1). Yet, we only have limited insights in large scale, longitudinal studies on the investigation of media consumption and obesity (Emond et al., 2019; Fuller-Tyszkliewicz et al., 2012). Most studies are based on cross-sectional data (e.g., Cox et al., 2012; Marshall et al., 2004). With our study, we therefore want to tackle a long-term investigation of children’s usage of series and movies on their BMI development.

\textsuperscript{1} Department of Communication, University of Vienna, Austria
The REFCAM (Folkvord et al., 2016) proposes that cue reactivity is not absolute but can be moderated by the type of food that is presented, as unhealthy foods are assumed to impact cue reactivity to a higher extent (Spielvogel et al., 2018). Furthermore, individual susceptibility factors like children’s family context (Naderer et al., 2018) are assumed to moderate this relationship. Parents and educators as a social influence play an important role in shaping children’s eating habits (Birch, 1999) and we therefore decided to include perceived parental guidelines as a moderator in our study. How parents communicate guidelines (Buijzen, 2008) regarding healthy and unhealthy eating behaviors and especially, how this communication is perceived by children, can be considered as an important social impact on children’s food behavior. Two main assumptions can be derived: Children who perceive their main social influences (i.e., their parents) to motivate them to eat healthy are constrained in their development of unhealthy food preference formation and thus there is no surpassing increase in their BMI due to series and movie consumption (H2a). However, the perceived enforcement of rules to eat healthy could also potentially backfire and therefore increase the effect on BMI (H2b). This can be based on the “Forbidden Fruit Effect”, which is usually explained with Commodity Theory (Gosselt et al., 2012). This theory builds on the assumption that any goods that are seemingly unavailable are consequently deemed as more desirable (Lynn, 1991). Accordingly, if children perceive their parents to forbid unhealthy foods or overemphasize healthy food intake, children may show the reverse behaviors to what they are compelled to do.

Social influence regarding food rules can therefore influence children in two competing directions. With our study, we want to investigate, in which way the long-term relationship between series and movie usage on children’s BMI is moderated by perceived parental food rules.

**Method**

We collected two-wave panel data in 12 primary schools in COUNTRY. We obtained the headmasters and parents’ written consent, and the Ethical Board of the UNIVERSITY approved the study. Valid data from N=791 children (ages 5-11, M=7.79; SD=1.23; 46.4% female) were collected in the first wave (Sep.-Nov. 2018) and approximately 85% responded in the second wave (Mar.-May 2019). We kept the difference between the waves for each school constant to assess a development for each child of approximately six months. Hence, participants were exposed to six months of their regular consumption of series and movies between the two waves. We took children out of the class individually and after retrieving their oral consent for participation, a trained interviewer questioned them and noted children’s indications on a paper and pencil questionnaire. After the interview, we measured their height and weight to assess BMI.

While we have concluded the data collection for this project (which is part of a bigger study but only variables relevant to this project are reported here), only preliminary, cross-sectional results for wave 1 can be provided at this point, as the data entry of the second data set is not yet completed.

**Measures**

As our independent variable we measured children consumption of series and movies with two variables, on a 4-point scale in the first wave of our study (1=I never watch series/movies; 4=I watch series/movies all the time; n=787; α(t1)=.62, M(t1)=2.58, SD(t1)= 0.64).
We assessed children’s BMI in both waves; we will employ BMI of the second wave as our dependent variable (data entry not completed). The BMI is calculated as a ratio of weight and height and the BMI is used to classify humans in underweight, normal weight, overweight and obese. The results show that the majority of the participating children are located in the average BMI for children up to 18 (79.0%; WHO, 2016), whereas 21% of all children had a BMI score above this average. BMI is specifically versatile with children, therefore standard deviation score of BMI (zBMI) to adjust for children’s age and sex need to be considered. The standardized BMI scores for the first wave (n=791; BMI M(t1)=16.65, SD(t1)=2.62; data entry for the zBMI not completed) needs to be controlled to assess the autoregressive effect.

As our moderator, we included children’s perceived parental rules about food in wave 1 indicated by two variables measured on a 4-point scale (1=is not true at all; 4=is totally true). Children were asked whether parents were restricting the consumption of candy and salty snacks (n=777; M(t1)=3.76, SD(t1)=1.02) and whether parents were motivating children to eat fruit and vegetables (n=783; M(t1)=3.63, SD(t1)=0.75).

Results

Preliminary results on the cross-sectional effect of movie and series consumption on children’s BMI(t1) indicate the hypothesized positive effect (b=.35; SE=.14; p=.012) and show no moderation of perceived parental rules. To see whether there actually is a causal connection of movie and series consumption on the development of children’s BMI we will run OLS regressions with lagged dependent variables and autoregressive effects. For an overview of our proposed model see Figure1.
Appendix

*Figure 1.* The autoregressive effect for zBMI (t1) will be controlled for
References


“You just have to trust them”: The role of digitally networked action for people with Thyroid disease

Judith Schossboeck

Participatory knowledge and self-care: The role of health activism

Health communication research has investigated the affordances of participation in online support groups. Lesser is known about how health seeking subjects identify valuable sources of information, and how online discourses shape personal decision-making. This is particularly relevant in times where health care systems shift towards models that emphasize self-care (Silver, 2015), with online health information being increasingly used for self-diagnosis. (Fox & Duggan, 2013).

Thanks to the ability to filter out conflicting viewpoints, many people seem to arrive easily convinced about alternative theories. News aggregators and social media have become important information sources (Mitchell, Matsa, & Gottfried, 2015). Today, declaring “truth” based on autonomous expertise can even suggest irrelevance, as opposed to a collectively formed opinion (Singer, 2008). It has become a concern that people aggregate around shared beliefs from polarized communities (Bessi et al., 2015; Phillips & Milner, 2017). However, unauthorized information plays an important role for informed patients, who navigate both expert- and hive-based narratives. Recently, censorship for alternative health pages on social media has been discussed (Raphael, 2018), and ambiguity exists regarding the criteria and legitimacy of possible interventions. Thus, gaining conceptual clarity about alternative health discourse seems necessary.

Updating Health Activism Theory

This paper argues that an update of health activism theory that acknowledges the role of non-elite actors in networked environments and their relevance for patients is necessary. Current theories do not sufficiently acknowledge the role of digital media for the creation of health-related knowledge or the politicization of illness identities, albeit it seems clear that most activism in the health domain strongly builds on the digital today.

I pursue this inquiry through the theoretical lenses of health activism, politicised illness identities and connective action. The part presented in this paper displays the strategic stances of today’s self-informed patients based on the case of thyroid disease.

Thyroid Disease as Case of Increasing Global Relevance

Thyroid disease is a chronic condition of increasing world-wide relevance that is likely under-researched outside the medical field (Winterich, 2011). However, it forms a worthy object of study due to a vivid global online health discourse lead by many non-elite actors who formulate challenges to the
medical authority (Brown et al., 2004), e.g. regarding treatment options. Thyroid disease activism offers many characteristics of health movements in one by addressing health access, inequality and illness experience (Brown et al., 2004). Activist groups have been mobilizing in the US, Canada, the UK, but also in Nigeria.

This paper seeks to answer the following research question: How do self-informed people with thyroid disease make decisions and what is the role of online discourse in that process? (RQ3 in figure 1 displaying the research design)

**The Logic of “Connective Health Action”**

This study builds on health activism as framework (Laverack, 2013; Vicari & Cappai, 2016). Health activists create alternative knowledge and challenge dominant practices (Brown & Zavestoski, 2004; Laverack, 2013; Zoller, 2005), as in the women’s health movement, breast cancer activism, the AIDS movement or mental health activism (Zoller, 2005). These Health Social Movements (Brown et al., 2004) share that they challenge traditional conceptions of medical authority (Vicari & Cappai, 2016), and often blur traditional distinction between lay people and professionals. With the advent of connective action (Bennett & Segerberg, 2012), these processes are more and more crowd- than organization-based, challenging our understanding of what constitutes established knowledge, and expanding the discoursive space around illnesses. This inquiry is an attempt to systematize such spaces and strategies.

**Methods and Data Collection**

This abstract is part of the author’s broader, netnographically oriented and phenomenologically inspired inquiry² (see figure 1) into health activist discourse, drawing on a “pure netnography” (Kozinets, 2013, p. 67) in social media spaces of activists and advocates combined with 48 VoIP interviews³ and participation (Kozinets, 2013).⁴

For the reported results, 31 semi-structured interviews with people with thyroid disease were conducted in February and March 2019. The study followed a purposeful interview sampling strategy by using contacts from a previous study with different health activists and advocates, who supported the researcher’s request on their blogs, social media or newsletters. This way, the target group of people with thyroid disease who know a variety of information was reached⁵.

---

² Netnography is here understood as ethnographic research in online environments (Kozinets, 2013) defined as “specific set of research positions and accompanying practices” to examine online sociality, and a “performance of cultural research” (Kozinets, 2015, p. 3).

³ 17 Voice over Internet Protocol interviews were done with activists and advocates and 31 with people with thyroid disease. Interviews lasted 47 min on average for the people.

⁴ In the first part of the netnography from April 2017 I followed an embodied strategy (Hine, 2015) observing a variety of non-elite actors, while in the second participative part (Kozinets, 2015) from November 2018 I focused on activist spaces, for instance the closed Facebook group Improve Thyroid Treatment. ITT is a collective thyroid activist group in the UK that became active from June 2017.

⁵ Coding was done with the qualitative data analysis software MAXQDA 2018 (maxqda.com). The researcher followed an initial deductive approach drawing on themes of health activist and connective action theory, followed by an inductive one aiming at deriving further strategic themes. As a reflection on the researcher’s personal involvement, auto-ethnographic passages were coded as well.
Preliminary Findings

The logic of connective action fosters specific affordances for health activism, e.g. for the creation of alternative and politicised illness identities, and the presentation of evidence for contested treatment options. These shifts lead to distinct strategic stances and conflicts between self-informed people with thyroid disease, and how they position themselves with view to such discourse. Non-elite actors (Vicari, 2017) and hive narratives of activists are widely acknowledged and trusted by a big proportion of patients, but seen critically by others. While most people follow a fact-based and experimental approach, their evaluation of knowledge found on social media differs considerably, pointing towards a shift regarding what may constitute knowledge authority and what information can be trusted. Aggregated information in the network stimulates a closer look or experimenting, particularly when such information is encountered repeatedly online by similar people. Trust is based on embodied, authentic experiences that are often considered absent in the medical system.

While some people display a clearly politicized illness identity (Simon & Klandermans, 2001) with the formulation of shared grievances and adversaries (for instance endocrinologists, big pharma and a rigid medical system that resists alternative treatment options) resulting in connective action, others take a more conformist stance appreciating the affordances of social media via collective illness identity or valuing more established knowledge or expertise. However, for politicized illness identities, crowd wisdom is not necessarily better than an expert-generated narrative. People use an assembly of sources and strategies, emphasizing their responsibility to not trust isolated information. However, they differ between their understanding of what constitutes knowledge authority and trusted information, and can switch between different standpoint themes. Related to these findings, a static typology of themes for people with thyroid disease was derived (see figure 2). The upper part symbolises people who are politicised and thus follow an alternative route of decision-making. They challenge medical authority either by taking on a cooperative stance (by trying to influence the medical profession or science), or by relying on activist information within the online community (for instance by sharing information about medical tourism). The lower part symbolises the conformist stance, proposing decision-making paradigms related to current shifts in the understanding of expertise.

Contribution and Limitations

In summary, this project offers three contributions: Firstly, it complements studies about the negotiation of “truth” in networked publics. Secondly, it creates knowledge about a sociologically under-researched chronic disease. Thirdly, the results extend beyond the lens of thyroid disease with impulses for health activist theory. The limitations of the study lie in its focus on one particular health domain, and its focus on English content. Furthermore, the noncategorical approach of the conceptualization needs to be stressed.
Appendix

Figure 1: Netnography, flow of the research project

Participants can shift between strategic themes or processes, for instance a person relying on information based on shared authenticity in an online self-help group can be activated as an activist relying on radical self-treatment, if the medical system restricts access to essential treatment plans (for instance by sourcing medication abroad).
References


Panel 3  

Social dimension of mental health

14 November, 14:00 – 15:15

Room RAA-G-01

Chair: Matthias Hastall (Dortmund)

Freytag, Anna (Hanover); Baumann, Eva (Hanover); Hahm, Stefanie (Greifswald); Angermeyer, Matthias (Leipzig); Schomerus, Georg (Leipzig)

*Stigmatization of mental health: The role of social contexts*

Hunsaker, Amanda Egner (Zurich); Hargittai, Eszter (Zurich); Piper, Anne Marie (Evanston); Nguyen, Hao (presenter, Zurich)

*Online social connectedness and anxiety among older adults*

Annoni, Anna Maria; Marciano, Laura; Petrocchi, Serena; Camerini, Anne-Linda (Lugano)

*“Control yourself and don’t trust anybody!”: A moderated mediation model of impulsivity, social anxiety, and dispositional trust and their relationship to smartphone use and addiction in young adults*

Petrocchi, Serena; Filipponi, Chiara; Schulz, Peter (Lugano)

*Interpersonal support in dyads decrease feelings of depression and increase health: A longitudinal application of the APIMeM*
Stigmatization of mental health: The role of social contexts

Anna Freytag¹, Eva Baumann¹, Stefanie Hahm², Matthias Angermeyer³, Georg Schomerus¹

Introduction

Almost 40 per cent of EU citizens are estimated to suffer from a mental disorder (Wittchen et al., 2011). Although public attitudes towards the treatment of mental illnesses are improving, people with a mental illness still seem at risk of strong stigmatization (Angermeyer, Matschinger, & Schomerus, 2013). Minority rights are increasingly becoming subject of controversial public discourses and are no longer inviolable (Zick, Krause, Berghan, & Küpper, 2016). Stigmatization of people with mental illnesses has far-reaching consequences: it is an additional burden for those affected and complicates as well as impedes early diagnosis and treatment (Gaebel, Zäske, & Baumann, 2004; Major & O'Brien, 2005). There is thus an urgent need for communication research to thoroughly understand the formation of stigmatizing attitudes and to develop effective anti-stigma interventions.

Investigating the stigmatization of people with mental illnesses, previous research has so far focused on individual attitudes and consequences of stigma (Angermeyer, Matschinger, & Schomerus, 2017). Despite definitions and theoretical models of stigma have recently gradually progressed from an individualistic focus towards an emphasis on social aspects (Yang et al., 2007), the influence of social context has empirically hitherto been largely neglected.

We argue that new perspectives on our understanding of the stigmatization of mental illness with a focus on social contexts, in which stigma is formed, pronounced, spread, but also changed, is much needed. We therefore pose the following research question:

What role do social contextual aspects play regarding stigma-related perceptions of mental illness?

Method

32 semi-structured face-to-face interviews were conducted in spring 2019 to gain a better understanding of social aspects for stigma-related perceptions of mental illness. The sampling strategy focused on maximal variation: respondents varied in gender (16 women/men), age (21-93 years), education (all qualifications), residence (rural vs. urban areas, six federal states), and mental health-related factors (healthy vs. directly vs. indirectly affected). The interview guide covered questions on the perception of mental illness in general as well as of people affected, with a special focus on social aspects. The interviews were transcribed verbatim and analyzed by means of a computer assisted qualitative content analysis based on inductive and deductive coding strategies.

¹ Department of Journalism and Communication Research, Hanover University of Music, Drama, and Media, Germany
² Institut für Psychologie, University of Greifswald, Germany
³ Medizinische Fakultät, University of Leipzig, Germany
Results

The qualitative data provide profound insights on stigma-related perceptions of mental illness. Three theses on the role of social contexts were derived:

(1) Stigma-related perceptions vary between different social groups and on regard to different social contexts

Our participants reflected their own cognitions on mental illnesses as being associated to their individual social contexts, i.e., their social group affiliations and social interactions. For example, experiences of living in rural vs. urban environments was perceived to influence the acceptance of mentally ill people and citizens living in the eastern states of Germany traced their attitudes back to their socialization in the GDR. Further, some participants referred to their religious affiliations shaping their openness to minority groups and thus also mentally ill persons.

Our participants also pointed to the importance of their interpersonal contact with people affected. They believe that their own stigmatizing attitudes may result from a lack of knowledge or – by contrast – that their experiences in their social environments help them in being less stigmatizing.

(2) Stigma-related perceptions are always linked to specific social groups

Stigma-related perceptions towards people with mental illnesses do usually refer to general beliefs. According our results, however, they rather seem to depend on characteristics attributed to the social context of the affected persons. Thus, perceptions of vulnerability, prevalence and management of mental illnesses appear to be connected to specific social categories. For instance, unemployed people, persons already suffering from another illness or with substance addictions were mentioned as such categories. Some participants also emphasized that mentally ill are just normal persons and predominantly drew on a high prevalence in the middle class. Others shared their observation that not only poor, but also famous people, and thus both people with a low and a high socio-economic status are likely to be affected by mental illnesses. Moreover, we observed that there are specific cognitive patterns regarding specific illnesses. For instance, schizophrenia appears to be linked to people with a lower socio-economic status, while burn-out is strongly associated with better earners (e.g., managers). By comparing the status of mentally ill implicitly or explicitly with other social groups (e.g., refugees, physically handicapped or homosexual people) perceptions of mentally ills as a distinct social group, and thus an ingroup-outgroup-thinking, appeared.

(3) Stigma-related perceptions become manifest and are reinforced in social settings

Our participants referred to different social settings as being relevant for the development and perpetuation of stigma-related perceptions. They assign responsibility to the close social context of affected persons. In the view of our participants the direct environment of people suffering from mental illnesses, especially parents and friends, can be bringer of both salvation and disaster: They can provide at best important social support and decrease perceived stigmatization, and might at worst increase stigmatization and thus be the cause for a negative development. In addition, some participants blamed social contexts as reason for the illness. They believe that family members who are already ill can pass this on and that, for example, a socially weaker parental home is sickening.

Further, participants mentioned the health system as a relevant social context in which stigma-related experiences can occur and be perpetuated. They for instance believe that access to professional
psychological help is supposed to depend on the individual’s social status. People with a higher socio-economic status have better access to health care as they can pay privately for treatments.

**Discussion**

Our research reveals the complex and multi-layered role of social aspects for stigma-related perceptions of mental illnesses. They show that social contexts not only affect people in their attitudes about mental illnesses but play an important role in various dimensions. As stigmatization is always shaped by and manifested in communication, the connection between social settings and stigma-related perceptions must be reflected against the role of communication.

First, not only stigma-related perceptions, but also stigma-related communication varies between different social groups. In particular, less educated people and men are said to speak less reflectively about mental illness. An in-depth understanding of different communication processes in different social groups is thus much needed. Second, stigma-related communication appears to be marked by specific group attributions and imbalances. We found that communication varies significantly depending on the group affiliation of people affected (e.g., migrants vs. celebrities), which might result in disparate degrees of stigmatization.

In summary, we argue that reflecting perceptions as well as communication about mental illness against the background of socio-contextual factors appears as a crucial factor for stigmatizing and de-stigmatizing processes. We hereby see a major challenge for strategic communication as considering this social complexity of stigma-related perceptions in future interventions will help in the adaptation of successfully targeted anti-stigma communication for different social contexts.
References


Online social connectedness and anxiety among older adults

Amanda Hunsaker¹, Eszter Hargittai² & Anne Marie Piper²
Presenter: Minh Hao Nguyen¹

Introduction

Worldwide, there is a growing prevalence of mental health conditions, with anxiety being one of the most common, affecting 265 million people (World Health Organization, 2018). Reports of the prevalence of anxiety disorders among older adults range from 17% to 21% (Byers, Yaffe, Covinsky, Friedman, & Bruce, 2010; El-Gabalawy, Mackenzie, Pietrzak, & Sareen, 2014). Prior work suggests that for older adults, using the Internet may reduce loneliness and thereby improve mental health (Cotten, Ford, Ford, & Hale, 2014). However, only a small portion of studies have had detailed data about older adults’ online activities (as compared to being an Internet user), making it difficult to know what it is about Internet use that may matter for specific aspects of mental health (for a review, see Hunsaker & Hargittai, 2018). Many characterize technology, particularly online social interactions, as positively affecting older adult mental health (Chopik, 2016; Jun & Kim, 2016), although some have raised concerns about the potential for technology-related isolation (Rowe & Kahn, 2015). While extensive work has examined the relationship between Internet use and depression among older adults (Cotten et al., 2014), less work has explored the relationship between Internet use and anxiety for this age group. This study fills a gap in the literature by focusing on the relationship between online social interactions and anxiety among older adults.

Methods

We surveyed 1,026 U.S. older adults ages 60 and over in summer, 2018. We contracted with the online research firm Cint to administer our survey. Data collection occurred between July 10-22, 2018. To achieve a diverse sample we set quotas for age, gender, race/ethnicity, and education.

Demographic measures included age, gender, race/ethnicity, education level, income and household size. We measured respondents’ social context using two constructs: social capital and loneliness. Social capital included measures assessing social bonding and offline social bridging (Cohen & Hoberman, 1983; Williams, 2006). We also measured online social bridging as a construct of online social interaction. Social bonding was measured with five items. Social bridging, measured separately in the offline and online contexts, each had four items. We measured each social capital domain using a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree) and averaged responses to achieve separate scores for each domain. We measured loneliness using the Three-Item Loneliness Scale (Hughes, Waite, Hawkley, & Cacioppo, 2004). Responses ranged from 1 (hardly ever or never) to 3 (often) with higher scores indicating greater loneliness.

¹ Department of Communication and Media Research (IKMZ), University of Zurich, Switzerland
² School of Communication, Northwestern University, USA
We measured *Internet experiences and skills* using: (a) years of Internet use; (b) autonomy of use; (c) frequency of use; and (d) Internet skills. To gauge Internet skills, participants completed a series of questions regarding their understanding of 8 Internet-related terms (Hargittai & Hsieh, 2012). We prompted respondents to use a scale ranging from 1 (no understanding) to 5 (full understanding). We averaged these scores and higher scores indicate greater skills.

In addition to online social bridging, we measured *online social interactions* in two ways. We asked about belonging to online communities for 17 different topic areas. Respondents could check any topics that included aging-related issues (e.g. retirement, caregiving), health-related activities (e.g. health condition you have, general health/exercise) and several topics on general areas of interest (e.g. travel, religion, finances, entertainment, food/recipes). We created two variables from this question by summing the number of online communities in which each respondent participates and creating a dichotomous variable indicating belonging to any online communities.

We then asked respondents about their participation in meaningful online discussions. For each of the above 17 topics we used response items ranging from 0 (never) to 2 (have done it more often). We derived two variables. The first variable indicated participation in meaningful online discussions of any topic ever if the respondent chose 1 or 2 for any topic. The second variable indicated more frequent participation in one or more such conversations when participants chose, “have done it more often” for any topic area.

We included single-item measures of *general health* (Ware & Gandek, 1998) and *memory* (Ofstedal, Fisher, & Herzog, 2005). Both used 5 item response options ranging from 1 (poor) to 5 (excellent) that we dichotomized. We measured *anxiety symptoms* using the Beck Anxiety Inventory that measures frequency of occurrence of five different anxiety symptoms over the past week (Beck, Epstein, Brown, & Steer, 1988; Smith, Ryan, Fisher, Sonnega, & Weir, 2017). We averaged response options ranging from 1 (never) to 4 (most of the time). See Table 1 for findings regarding sample characteristics.

**Results**

We used linear regression to model factors related to anxiety symptoms. In our first set of modeling, we entered socio-demographics, social context, Internet experiences and skills, and health in each model as independent variables. We then added online social interaction variables (online social bridging, belonging to one or more online communities, total membership in online communities, experiencing any meaningful online discussion, and more frequent participation in meaningful online discussions) in separate models (Table 2). In modeling, online social bridging, belonging to an online community, diversity in belonging to online communities, any participation in meaningful online discussions, and more frequent meaningful participation in online discussions all related to greater anxiety.

We next used linear regression to model the topical areas of belonging to online communities with anxiety as the outcome (Table 3). As before, we entered socio-demographics, social context, Internet experiences and skills, and health in each model. We added each topical area for belonging to online communities in separate models. We found that belonging to an online community devoted either to retirement or religion significantly associated with anxiety. No other topics emerged as significant in modeling.
To examine topic-related online social interactions further, we repeated the above modeling, but substituted participating in any meaningful online discussion for online community belonging. We found meaningful discussion in each of the topics on aging and health (retirement, caregiving, a health condition you have, a health condition of a loved one, general health and exercise) related to greater anxiety (Table 4). Six of the 11 general interest topics significantly related to more anxiety symptoms: arts and crafts, religion, finances, food/recipes, technology, and gardening (Table 5). The topics of travel, politics, activism, entertainment, and sports remained unrelated.

Discussion

Adding nuance to the existing literature on Internet use and mental health among older adults, we find a clear relationship between differing ways of socializing online and greater symptoms of anxiety, while controlling for socio-demographics, social context, Internet experiences, and health. Using measures with neutral language and leaving platform unspecified, we offer more holistic measures of online social interaction than most existing work in this domain. Such an approach to the measurement of online social interactions will be relevant for a longer time period than ones that focus on specific platforms since those can come and go. Older adults may need support when engaging online in the especially salient topics of health and aging. Overall, our work points to a clear need to consider the ways that varying kinds of online social interactions relate to mental health and the unique relationships that can occur for this growing age group.
### Appendix

**Table 1. Sample characteristics**

<table>
<thead>
<tr>
<th></th>
<th>Percent</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-demographics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>69.3</td>
<td>6.2</td>
<td></td>
<td>1026</td>
</tr>
<tr>
<td>Female</td>
<td>57.3</td>
<td></td>
<td>1024</td>
<td></td>
</tr>
<tr>
<td>Race and ethnicity</td>
<td></td>
<td></td>
<td></td>
<td>1026</td>
</tr>
<tr>
<td>White</td>
<td>81.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>8.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>6.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Native American</td>
<td>1.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td>1023</td>
</tr>
<tr>
<td>High school or less</td>
<td>23.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some college</td>
<td>39.8</td>
<td></td>
<td></td>
<td>1022</td>
</tr>
<tr>
<td>Bachelor’s degree or more</td>
<td>36.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>$60,042</td>
<td>$45,161</td>
<td></td>
<td>1018</td>
</tr>
<tr>
<td>Household size</td>
<td>1.9</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Social context</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social bonding</td>
<td>3.7</td>
<td>1.1</td>
<td></td>
<td>1026</td>
</tr>
<tr>
<td>Offline social bridging</td>
<td>3.3</td>
<td>1.1</td>
<td></td>
<td>1026</td>
</tr>
<tr>
<td>Loneliness</td>
<td>4.6</td>
<td>1.8</td>
<td></td>
<td>1021</td>
</tr>
<tr>
<td><strong>Internet experiences and skills</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using the Internet five or more years</td>
<td>96.6</td>
<td></td>
<td></td>
<td>1023</td>
</tr>
<tr>
<td>Autonomy of use</td>
<td>2.8</td>
<td>1.9</td>
<td></td>
<td>1026</td>
</tr>
<tr>
<td>Frequency of Internet use</td>
<td>19.8</td>
<td>12.9</td>
<td></td>
<td>1022</td>
</tr>
<tr>
<td>Internet skills</td>
<td>2.9</td>
<td>1.1</td>
<td></td>
<td>1023</td>
</tr>
<tr>
<td><strong>Online social interactions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online social bridging</td>
<td>2.8</td>
<td>1.2</td>
<td></td>
<td>1026</td>
</tr>
<tr>
<td>Belonging to online communities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belongs to one or more</td>
<td>47.3</td>
<td></td>
<td></td>
<td>1021</td>
</tr>
<tr>
<td>Total of online communities</td>
<td>1.4</td>
<td>2.1</td>
<td></td>
<td>1021</td>
</tr>
<tr>
<td><strong>Meaningful online discussion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More frequent participation in 1+ online discussion topic(s)</td>
<td>37.2</td>
<td></td>
<td></td>
<td>1019</td>
</tr>
<tr>
<td>Any participation in 1+ online discussion topic(s)</td>
<td>58.1</td>
<td></td>
<td></td>
<td>1019</td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health status very good/excellent</td>
<td>40.6</td>
<td></td>
<td></td>
<td>1026</td>
</tr>
<tr>
<td>Cognition very good/excellent</td>
<td>63.6</td>
<td></td>
<td></td>
<td>1025</td>
</tr>
<tr>
<td><strong>Mental Health</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>1.5</td>
<td>0.5</td>
<td></td>
<td>1025</td>
</tr>
<tr>
<td>Elevated anxiety</td>
<td>8.9</td>
<td></td>
<td></td>
<td>1018</td>
</tr>
</tbody>
</table>
Table 2. Regression modeling of factors associated with anxiety

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Female</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Asian American</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Race and ethnicity, white</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Education, High school or less (ref)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Some college</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>College degree or more</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Income</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Household size</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Social contact</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Online social bridges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Loneliness</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>General Internet use</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Anonymity of use</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Frequency of Internet use</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Internet skills</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Panel 3 | Hunsaker, Hargittai & Piper
<table>
<thead>
<tr>
<th>Model</th>
<th>d</th>
<th>b</th>
<th>d</th>
<th>b</th>
<th>d</th>
<th>b</th>
<th>d</th>
<th>b</th>
<th>d</th>
<th>b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer discussion topics(s)</td>
<td>More frequent participation in + online topic(s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any participation in + online discussion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meaningful online discussion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belonging to online communities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online social bonding</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Continued
<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>p</td>
</tr>
<tr>
<td>Socio-demographics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age, mean</td>
<td>0.00</td>
<td>0.74</td>
</tr>
<tr>
<td>Female</td>
<td>0.06</td>
<td>0.08</td>
</tr>
<tr>
<td>Race/ethnicity, White, non-Hispanic (ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>-0.03</td>
<td>0.60</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.02</td>
<td>0.74</td>
</tr>
<tr>
<td>Asian/Asian American</td>
<td>-0.03</td>
<td>0.74</td>
</tr>
<tr>
<td>Education, High school or less (ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some college</td>
<td>0.04</td>
<td>0.27</td>
</tr>
<tr>
<td>College degree or more</td>
<td>0.00</td>
<td>0.98</td>
</tr>
<tr>
<td>Income</td>
<td>0.00</td>
<td>0.77</td>
</tr>
<tr>
<td>Household size</td>
<td>0.07</td>
<td>0.05</td>
</tr>
<tr>
<td>Social context</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social bonding</td>
<td>-0.01</td>
<td>0.60</td>
</tr>
<tr>
<td>Offline social bridging</td>
<td>0.00</td>
<td>0.97</td>
</tr>
<tr>
<td>Loneliness</td>
<td>0.09</td>
<td>0.00</td>
</tr>
<tr>
<td>Internet experiences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy of use</td>
<td>0.01</td>
<td>0.73</td>
</tr>
<tr>
<td>Frequency of Internet use</td>
<td>0.02</td>
<td>0.20</td>
</tr>
<tr>
<td>Internet skills</td>
<td>0.00</td>
<td>0.87</td>
</tr>
<tr>
<td>Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health status excellent/very good</td>
<td>-0.14</td>
<td>0.00</td>
</tr>
<tr>
<td>Cognitive status excellent/very good</td>
<td>-0.18</td>
<td>0.00</td>
</tr>
<tr>
<td>Belonging to online communities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retirement</td>
<td><strong>0.11</strong></td>
<td><strong>0.04</strong></td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>1.04</td>
<td>0.00</td>
</tr>
<tr>
<td>N</td>
<td>989</td>
<td></td>
</tr>
</tbody>
</table>
### Table 4. Regression model of anxiety with topics of any meaningful online discussion related to aging or health topics (Models 1-5)

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>96.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>09.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>02.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>02.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>02.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>02.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>02.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>02.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>02.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>02.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>02.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>02.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>02.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>02.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>02.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>02.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Note: The table presents the coefficients for each model, indicating the relationship between the topics of online discussion and anxiety. The models are sequentially evaluated to understand the incremental impact of each topic on anxiety.
<table>
<thead>
<tr>
<th>Model</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 4 Continued**
| Panel 3 | Hunsaker, Hargittai & Piper |

### Table 5: Regression model of anxiety with topics of any meaningful online discussion related to General areas of interest (Models 6-11)

<table>
<thead>
<tr>
<th>d</th>
<th>g</th>
<th>d</th>
<th>g</th>
<th>d</th>
<th>g</th>
<th>d</th>
<th>g</th>
<th>d</th>
<th>g</th>
</tr>
</thead>
<tbody>
<tr>
<td>d</td>
<td>g</td>
<td>d</td>
<td>g</td>
<td>d</td>
<td>g</td>
<td>d</td>
<td>g</td>
<td>d</td>
<td>g</td>
</tr>
<tr>
<td>Model 6</td>
<td>Model 5</td>
<td>Model 4</td>
<td>Model 3</td>
<td>Model 2</td>
<td>Model 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Panel 3
<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>$\beta_{1}$</td>
<td>0.01</td>
<td>0.02</td>
<td>0.04</td>
<td>0.06</td>
<td>0.08</td>
<td>0.10</td>
</tr>
<tr>
<td>$\beta_{2}$</td>
<td>0.09</td>
<td>0.13</td>
<td>0.17</td>
<td>0.19</td>
<td>0.21</td>
<td>0.24</td>
</tr>
<tr>
<td>$\beta_{3}$</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>$\beta_{4}$</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>$\beta_{5}$</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Panel 3
Hunsaker, Hargittai & Piper

Table of Contents
Programme

Programme

Any meaningful online discussion
Comprehensive online evaluation
Community based excellence
Health

Table 5. Continued
References


“Control yourself and don’t trust anybody!”: A moderated mediation model of impulsivity, social anxiety, and dispositional trust and their relationship to smartphone use and addiction in young adults

Anna Maria Annoni¹, Laura Marciano², Serena Petrocchi¹, Anne-Linda Camerini¹

Theoretical background

The widespread diffusion of smartphones has solicited increasing interest in their use and overuse. In 2018, U.S. young adults spent, on average, 4 hours per day on their smartphones, which are primarily used for social media and instant messaging. In the U.S., 15% of young adults are classified as heavily attached to their smartphones (Pew Research Center, 2018), similarly 10% of Swiss youth met criteria for smartphone addiction (Haug et al., 2015). Although smartphone addiction is not yet considered as a real “addictive” behavior, and there is an ongoing debate on its definition, it is generally characterized by dysfunctional attachment to the smartphone, involving a maladaptive pattern of use that leads to functional impairment or distress (Kwon et al., 2013; Lin et al., 2015). Additionally, there is a broad consensus on the existing link between smartphone addiction and excessive amount of time spent on the device (Gökçearslan et al., 2016), with higher levels of smartphone use predicting smartphone addiction (Camerini & Marciano, 2019; Haug et al., 2015).

According to the Person-Affect-Cognition-Execution (I-PACE) model (Brand et al., 2016), increased smartphone use depends on individuals’ traits and states. For example, individuals with high levels of trait impulsivity, described as a tendency to seek immediate excitement and urgency to act (Bakhshani, 2014), spend more time on the smartphone and are more inclined to develop strong problematic attachment to it (Kim et al., 2016; Wu, Cheung, Ku & Hung, 2013). At the same time, social anxiety, described as a pervasive fear of embarrassment, accompanied by avoidance of social or public situations (Shneider et al., 2002), is related to addictive use, especially in the context of mediated social interactions (Caplan, 2006; Thomée, Härenstam, & Hagberg, 2011). Lee et al. (2012) reported how social anxiety can decrease in online environments, allowing for an easier and more gratifying social interaction and increasing the probability to use the medium again as a less stressful social alternative (Lee et al., 2012).

Finally, dispositional trust, described as the expectation that others’ behaviors are guided by positive and benign intentions (Hall et al., 2001), is also linked to smartphone use and addiction. In particular, studies on smartphone-mediated communication showed that the higher the trust, the greater the joining of online communication, the interactions seeking, and the willingness to connect (Gefen et al., 2003; Dwyer et al., 2007; Sledgianowski & Kulviwat, 2009). However, high levels of trust can be risky as they lead to increased smartphone use and smartphone addiction by encouraging and promoting the interaction seeking and reinforcing a vicious cycle (McKnight, Kacmar & Choudhury, 2004).

¹ Università della Svizzera italiana, Switzerland
Research objectives

Based on the theoretical background, the aim of this study is to determine whether smartphone use is a mediator in the relationship between impulsivity, social anxiety, and smartphone addiction, and whether the indirect effects are moderated by the degree of trust in others. More precisely, we hypothesized that impulsivity and social anxiety augment smartphone addiction both directly and indirectly through increased smartphone use. We, furthermore, hypothesized that higher levels of dispositional trust combined to higher levels of smartphone use lead to higher levels of smartphone addiction.

Methods

Participants

A total of 146 young adults, primarily based in Canton Ticino (90.4%), took part in an ongoing laboratory experiment (Mean age = 23.08, SD = 3.80, 47.9% male). After providing informed consent, they were asked to fill out an online questionnaire.

Measures

Smartphone addiction was measured with the 10-item Smartphone Addiction Scale Short Version (SAS-SV; Kwon et al., 2013) and the following added item: “The first thing that I do in the morning is checking my smartphone”. Response options ranged from 1 to 6, with higher values indicating higher levels of smartphone addiction.

Smartphone use was measured with an estimate of smartphone use during a regular weekday and a regular weekend day. The final measure was obtained by averaging the two scores. (r = .59).

Impulsivity was measured with 7 items from the Reward sub-scale of the State Impulsivity Scale (SIS; Iribarren et al., 2011). Response options ranged from 1 to 4, with higher scores indicating higher urgency to satisfy an impulse.

Social anxiety was measured with the 18-item Social Anxiety Scale for Adolescents (SAS-A; Nelemans & al., 2017). Response options ranged from 1 to 5, with higher scores indicating higher levels of social anxiety.

Dispositional trust was assessed with a single-item: “In general, how much do you trust people?”, rated on a Likert scale from 1 “Not at all” to 7 “Extremely”.

Covariates include gender (1 = male, 2 = female) and current occupation (1 = non-students, 2 = students).

Means, standard deviations and Chronbach’s alphas are presented in Table 1.
Results

After the exclusion of the outliers (n=4) and skewness and kurtosis values were checked, a series of T-test were run to explore differences in the variables linked to gender (Table 1) and current occupation (Table 2). Then, we explored correlations among all the variables in the model (Table 3). These differences were taken into account by including gender and current occupation as covariates in the model.

Next, a moderated mediation model was tested using AMOS by Arbuckle (2014), raw regression weights were reported, as suggested by Whisman & McClelland (2005), and moderation’s variables mean centered (Breitborde et al., 2010). As shown in Figure 1, impulsivity (B = .06, p = .001) and social anxiety (B = .02, p = .002) were significantly positively and directly related to smartphone addiction (R² = .25). While the relationship between impulsivity and smartphone addiction was mediated by smartphone use (R² = .05), i.e. impulsivity (B = .08, p = .035) was significantly positively associated with smartphone use, which, in turn, was significantly positively associated with smartphone addiction (B = .14, p = .000), this was not the case for social anxiety, which was not significantly associated with smartphone addiction. Moreover, dispositional trust moderated the relationship between smartphone use and addiction (B= .10, p = .002). One-Way ANOVA allowed plotting the moderation effect (Figure 2).

Discussion

The results of this study indicate that impulsivity results in a large amount of time spent on the smartphone and, eventually, higher levels of smartphone addiction. In fact, among young adults, the omnipresence of smartphones presents an instant gratifying alternative rich in stimulating contents and functionalities. Instant messaging and social media applications are among the most used functionalities, and this explains why individuals high in real-world social anxiety report higher levels of smartphone addiction, because these forms of smartphone-mediated communication allow, for example, an easier way to maintain and develop relationships (Madell & Muncer, 2007). Taking into consideration the predominant use of smartphones for mediated communication, another important finding of this study is that high levels of trust constitute a risk predisposition for the behavioral component of smartphone addiction. According to the I-PACE model, lack of self-control and the continuous need and satisfaction for immediate short-term gratifications, primarily linked to the psychological and social domains, lead to an increased smartphone use and, consequentially, to smartphone addiction (Brand et al., 2016). Moreover, high levels of dispositional trust amplify the relationship between excessive use as a behavioral component of addiction and smartphone addiction. A possible explanation is that a high propensity to trust others could lead to need to connection and to a reiteration of interaction seeking (Gefen et al., 2003), especially in (smartphone-) mediated communication.
### Appendix

#### Table 1. Independent t-test for gender

<table>
<thead>
<tr>
<th></th>
<th>Group</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td>Female</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Impulsivity</td>
<td>13.42</td>
<td>3.18</td>
<td>69</td>
<td>13.63</td>
<td>3.85</td>
<td>73</td>
<td>-0.35</td>
</tr>
<tr>
<td>Social anxiety</td>
<td>23.22</td>
<td>8.78</td>
<td>69</td>
<td>30.97</td>
<td>9.55</td>
<td>73</td>
<td>-2.44**</td>
</tr>
<tr>
<td>Disposition trust</td>
<td>3.96</td>
<td>1.322</td>
<td>69</td>
<td>4.07</td>
<td>1.37</td>
<td>73</td>
<td>0.50</td>
</tr>
<tr>
<td>Smartphone use</td>
<td>3.29</td>
<td>1.44</td>
<td>69</td>
<td>3.70</td>
<td>1.58</td>
<td>73</td>
<td>0.29</td>
</tr>
<tr>
<td>Smartphone addiction</td>
<td>2.57</td>
<td>0.92</td>
<td>69</td>
<td>2.86</td>
<td>0.80</td>
<td>73</td>
<td>0.27*</td>
</tr>
</tbody>
</table>

* = 0.05 level (2-tailed).

** = 0.01 level (2-tailed).

#### Table 2. Independent t-test for occupation

<table>
<thead>
<tr>
<th></th>
<th>Group</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Students</td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td>Non students</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Impulsivity</td>
<td>13.42</td>
<td>3.56</td>
<td>97</td>
<td>13.76</td>
<td>3.49</td>
<td>45</td>
<td>0.52</td>
</tr>
<tr>
<td>Social anxiety</td>
<td>30.70</td>
<td>9.29</td>
<td>97</td>
<td>25.80</td>
<td>9.864</td>
<td>45</td>
<td>-2.99**</td>
</tr>
<tr>
<td>Dispositional trust</td>
<td>3.98</td>
<td>1.34</td>
<td>97</td>
<td>4.09</td>
<td>1.36</td>
<td>45</td>
<td>0.45</td>
</tr>
<tr>
<td>Smartphone use</td>
<td>3.42</td>
<td>1.51</td>
<td>97</td>
<td>3.68</td>
<td>1.55</td>
<td>45</td>
<td>0.94</td>
</tr>
<tr>
<td>Smartphone addiction</td>
<td>2.69</td>
<td>0.86</td>
<td>97</td>
<td>2.77</td>
<td>0.89</td>
<td>45</td>
<td>0.52</td>
</tr>
</tbody>
</table>

* = 0.05 level (2-tailed).

** = 0.01 level (2-tailed).

#### Table 3. Correlations

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>α</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Impulsivity</td>
<td>13.52</td>
<td>3.53</td>
<td>.69</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Social anxiety</td>
<td>29.15</td>
<td>9.34</td>
<td>.89</td>
<td>.108</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Disposition trust</td>
<td>4.01</td>
<td>1.34</td>
<td>-</td>
<td>-.015</td>
<td>-.006</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Smartphone use</td>
<td>3.50</td>
<td>1.52</td>
<td>-</td>
<td>.170 *</td>
<td>-.056</td>
<td>-.088</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5. Smartphone addiction</td>
<td>2.18</td>
<td>0.87</td>
<td>.82</td>
<td>.308 **</td>
<td>.239 **</td>
<td>.074</td>
<td>.302 **</td>
<td>1</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).
Figure 1. Straight lines indicated significant path coefficients (* = p < .05, ** = p < .01, *** = p < .001). Only significant path coefficients are displayed. [χ²(2) = 2.81, p = .25, SRMR = .024, RMSEA = .053, CFI = .98; total effect of impulsivity: B = 0.069, p = .001, indirect effect of impulsivity: B = 0.01, p = .033; total effect of social anxiety: B = 0.020, p = .133, indirect effect of social anxiety: B = -0.002, p = .128]

Figure 2. Moderation effect of dispositional trust on relationship between smartphone use and smartphone addiction. The values to the 16th, 50th and 84th percentiles are shown, as suggested by Hayes (2018).
References


Interpersonal support in dyads decrease feelings of depression and increase health: A longitudinal application of the APIMeM

Serena Petrocchi¹, Chiara Filipponi¹, Peter J. Schulz¹

Introduction

Social capital is defined as the tangible and intangible resources gathered by members of dyadic relations, social groups, or communities (Derose, Varda, 2009). A huge body of literature describes the association between social capital, interpersonal communication, support, and health (see Berkman, Glass, 2000). Social and emotional support received from significant others can be protective factors for individuals’ health, but further studies should explain why this relationship exists (Reblin, Uchino, 2008). One possible explanation is that the interpersonal support received by others is associated to better health outcomes through the mediation of feelings of depression, which is a well-known risk factor for health (for example, see Blazer, 2008).

The present research aimed at analysing this mechanism within close relationships between heterosexual partners, disentangling the association among variables and considering the influence that two partners have on one another. The APIM (Actor Partner Interdependence Model; Reed, Butler, Kenny, 2013) is one of the most popular models implemented to evaluate the influence that variables measured on two members of a dyad have on each other. Four different effects can be estimated (Fizpatrick, Gareau, Lafontaine, Gaudreau, 2016): two actor effects (i.e., one for husband and one for wife) and two partner effects (i.e., one for husband and one for wife). Actor effects explain how the independent variable of a person influences his/her score on the dependent variable. Partner effects explain how the independent variable of a person influences the score of the partner’s dependent variable, allowing the exploration of the dependency across partners of a dyad.

The present study applies the APIM extended to Mediation analysis (APIMeM; Ackerman, Ledermann, Kenny, 2010; Coutts, Hayes, Jiang, 2019; Lederman et al., 2011) which allows estimating direct and indirect effects of X on Y when both dyad members are measured on a mediator M. In the APIMeM, the mechanisms through which X influence Y may operate through the person’s own M, the partner’s M, or both.

Figure 1 shows the theoretical model tested. We expect to find significant actor indirect effects (Fig. 1, red lines), i.e., husband’s perception of the interpersonal support received by the wife influences husband’s feelings of depression, which, in turn, are associated with husband’s perceived health (and vice versa for wife). We also explored the partner indirect effects (Fig. 1, green lines), i.e. husband’s perception of the interpersonal support received by the wife influences his wife’s feelings of depression, which, in turn, are associated with husband’s perceived health (and vice versa for wife).

¹ Faculty of Communication Sciences, Università della Svizzera Italiana, Switzerland
Method

Participants

Data came from the Swiss Household Panel (SHP; see Tillman et al., 2016), which is a large annual panel study following a random sample of household conducted in Switzerland since the year 1999. All members older than 14 of the selected household were interviewed. In the present study, we included data of the heterosexual couples of 2013, 2014, and 2015 (following T1, T2, and T3). The initial sample was composed of 5358 individuals (n = 2679 dyads); 3182 were excluded from the analyses because their missing data in the considered variables exceeded the suggested 10%. The analytical sample was composed of 2176 individuals (age range 24 – 89, M husbands = 58, SD = 11.2; M wives = 55, SD = 11.4; n = 1088 dyads). T-tests comparing individuals in the initial sample and in the analytical sample are showed in Table 1. For the analytical sample, mean of the years relative to the highest finished type of education estimated based on the ISCED-classification scheme (Unesco, 2012) was 14.72 for men (sd = 3; range 8-21) and 13.27 for women (sd = 2.9; range 8-21). 68% of the men were employed; 32% retired, 1% unemployed; 58% of the women were employed, 25% retired, and 17% unemployed.

Measures

Interpersonal support was measured as emotional and practical support, and satisfaction with partner at T1 with single item questions: “To what extent can your partner be available in case of need and show understanding, by talking with you for example?” (emotional support); “If necessary, in your opinion, to what extent can your partner provide you with practical help, this means concrete help or useful advice?” (practical support): “All in all, how satisfied are you with the relationship with your partner?” (satisfaction with the partner). Answers ranged from 0 (“not at all” or “not satisfied at all”) to 10 (“a great deal” or “very satisfied”).

Feelings of depression was measured at T2 through the question “Do you often have negative feelings such as having the blues, being desperate, suffering from anxiety or depression?” (responses ranged from 0 “not at all” to 10 “always”).

Perceived health was measured at T3 through the question “How do you feel right now?” (responses ranged from 1 “very well” to 5 “not well at all”).

Results

Findings revealed moderate degrees of non-independence for all the husbands’ and wives’ variables: satisfaction r = .42, p < .0001; emotional support r = .29, p < .0001; practical support r = .18, p < .0001; feelings of depression r = .11, p < .0001; and perceived health r = .09, p < .0001. These results provided grounds to analyse couples as the unit of analysis.

Three APIMeM models tested effects of husbands’ and wives’ emotional support (Fig. 2), satisfaction (Fig. 3), and practical support (Fig. 4) respectively. In the first and second model, we have found both significant husbands’ and wives’ actor indirect effects of the emotional support (Fig. 2) and satisfaction with partner (Fig. 3) on health. Husband’s high emotional support and satisfaction with partner decreased his feelings of depression and, in turn, husband’s high feelings of depression led to low perceived own health status (same path for wife). For those variables, there was not indication of partner indirect effects.
In the third model (Fig. 4), both husbands’ and wives’ actor indirect effects and one partner indirect effect were significant. Husband’s high practical support decreased his feelings of depression and, in turn, husband’s high feelings of depression led to low perceived own health status (same path for wife). In addition, there was a significant (partial) partner effect: high wife’s practical support led to low level of husband’s feelings of depression and, in turn, husband’s high feelings of depression led to low levels of husband’s perceived health.

**Discussion**

The current longitudinal study investigated the effects of interpersonal support, in the form of satisfaction with partner, emotional support, and practical support, on the feelings of depression and perceived health status involving members of close relationships. Our models showed that the emotional, practical support, and satisfaction with the partner (at T1), significantly increased perceived health (at T3), through the mediation of the feelings of depression (at T2). For the emotional support and satisfaction with partner, the mechanisms through which those variables affected perceived health operate through the person’s own feelings of depression. For the practical support, the mechanisms operate through both the person’s own and the (partial) partner’s feelings of depression.

We have showed the importance to disentangle the influence played by the two partners in a dyad and to estimate the effects of one’s characteristics and one’s partner characteristics on an outcome variable. Further studies would apply the APIMeM to the interpersonal communication process between partners, such as investigate whether other partners’ variables (e.g., stress, coping strategies) would influence one another perceived health status even in case of chronic/acute diseases (Reed, Butler, Kenny, 2013). Moreover, it would be interesting to understand who, between the partners, has more influence on whom.
Appendix

Table 1. Independent-sample t tests on husbands and wives’ variables comparing the initial and the analytical sample.

<table>
<thead>
<tr>
<th></th>
<th>Included</th>
<th>Not-included</th>
<th>t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M(ds)</td>
<td>M(ds)</td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husbands</td>
<td>58.41 (11.22)</td>
<td>52.35 (16.17)</td>
<td><em>t</em>(2676.677) = -11.44**</td>
</tr>
<tr>
<td>Wives</td>
<td>55.39 (11.49)</td>
<td>49.74 (15.73)</td>
<td><em>t</em>(2666.599) = -10.74**</td>
</tr>
<tr>
<td><strong>Years of Education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husbands</td>
<td>14.72 (2.99)</td>
<td>14.15 (3.03)</td>
<td><em>t</em>(2676) = -1.89*</td>
</tr>
<tr>
<td>Wives</td>
<td>13.27 (2.90)</td>
<td>13.06 (2.90)</td>
<td><em>t</em>(2676) = -4.78**</td>
</tr>
<tr>
<td><strong>Emotional Support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husbands</td>
<td>9.12 (1.21)</td>
<td>9.00 (1.42)</td>
<td><em>t</em>(1731.356) = -2.02*</td>
</tr>
<tr>
<td>Wives</td>
<td>8.65 (1.65)</td>
<td>8.56 (1.86)</td>
<td><em>t</em>(2156.827) = -1.24</td>
</tr>
<tr>
<td><strong>Practical Support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husbands</td>
<td>8.58 (1.55)</td>
<td>8.45 (1.71)</td>
<td><em>t</em>(1784.456) = -1.70</td>
</tr>
<tr>
<td>Wives</td>
<td>8.61 (1.55)</td>
<td>8.30 (2.02)</td>
<td><em>t</em>(2096.795) = -4.001**</td>
</tr>
<tr>
<td><strong>Satisfaction with partner</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husbands</td>
<td>9.01 (1.20)</td>
<td>8.89 (1.37)</td>
<td><em>t</em>(1765.464) = -2.14*</td>
</tr>
<tr>
<td>Wives</td>
<td>8.71 (1.30)</td>
<td>8.66 (1.44)</td>
<td><em>t</em>(2195.978) = -.84</td>
</tr>
<tr>
<td><strong>Feelings of Depression</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husbands</td>
<td>1.64 (1.81)</td>
<td>1.99 (2.20)</td>
<td><em>t</em>(659.336) = 2.93*</td>
</tr>
<tr>
<td>Wives</td>
<td>2.30 (2.05)</td>
<td>2.42 (2.19)</td>
<td><em>t</em>(1688) = 1.11</td>
</tr>
<tr>
<td><strong>Perceived Health</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husbands</td>
<td>1.97 (.61)</td>
<td>2.07 (.64)</td>
<td><em>t</em>(558.418) = 2.72*</td>
</tr>
<tr>
<td>Wives</td>
<td>2.05 (.64)</td>
<td>2.12 (.70)</td>
<td><em>t</em>(934.54) = 1.92</td>
</tr>
</tbody>
</table>

Note: *p < .05, **p < .001. Source: Swiss Household Panel (SHP)

Figure 1: theoretical model tested

Note: H = husband; W = wife. Interpersonal support stands for all the predictor variables (satisfaction with partner, emotional and practical support). Red lines indicate actor effects; green lines indicate partner effects.
Figure 2. APIMeM with husbands’ and wives’ emotional support as predictor variables.

Note: H = husband; W = wife. EmSupport = emotional support. Plain lines showed significant paths; dotted lines non-significant lines. Source: Swiss Household Panel (SHP)

Figure 3. APIMeM with husbands’ and wives’ satisfaction with partner as predictor variables.

Note: H = husband; W = wife. Psatisfaction = satisfaction with partner. Plain lines showed significant paths; dotted lines non-significant lines. Source: Swiss Household Panel (SHP)

Figure 4. APIMeM with husbands’ and wives’ practical support as predictor variables.

Note: H = husband; W = wife. PraSupport = practical support. Plain lines showed significant paths; dotted lines non-significant lines. Source: Swiss Household Panel (SHP)
References


Panel 4 (open)  Health communication campaigns and concepts

14 November, 14:00 – 15:15
Room RAA-E-30
Chair: Anna Wagner (Augsburg)

Heinemeier, Dorothee; Eitze, Sarah; Weber, Winja; Reinhardt, Anne; Betsch, Cornelia; Rossmann, Constanze (Erfurt)
Vaccine hesitancy in the elderly – a challenge for evidence-based health campaigns: Results from two evaluation surveys

Poggiolini, Claudia; Werner, Wirth (Zurich)
Reducing smokers' unrealistic optimism via targeted content in a national antismoking campaign in Switzerland: A field study

Toerien, Lucea (Stellenbosch)
Furthering fear-appeal models: Describing the role of decisional balance on EPPM outcomes

Guenther, Lars (Hamburg); Gärtner, Maria (Jena); Zeitz, Jessica (Jena)
Framing as a concept for health communication: A systematic review
Vaccine hesitancy in the elderly – a challenge for evidence-based health campaigns: Results from two evaluation surveys

Dorothee Heinemeier¹,², Sarah Eitze¹,², Winja Weber¹,³, Anne Reinhardt¹,³, Cornelia Betsch¹,², Constanze Rossmann¹,³

Relevance and theoretical background

Older adults underestimate the risk of infectious diseases such as influenza and pneumococci-associated diseases. Despite the safety and effectiveness of influenza and pneumococcal vaccination, uptake in older adults in Germany is currently too low (influenza vaccination: 35%, pneumococcal vaccination: 10%; Robert Koch-Institute, 2018). Therefore, the goal of our campaign was to increase vaccine acceptance in older adults. As main outcomes, the intervention aimed to increase knowledge about influenza, pneumococci, sepsis as sequela, and influenza and pneumococcal vaccination, influence determinants of vaccination behavior, and increase (self-reported) vaccine uptake (Betsch et al., 2018b).

Interventions often follow a ‘one size fits all’-approach and show a lack of theoretical foundation (Trivedi, 2015). A key characteristic of this campaign is its evidence- and theory-informed development and evaluation. We based our campaign on the 5C psychological antecedents of vaccination (5C model, Betsch et al., 2018a), which is a framework to understand and overcome problems with low vaccine acceptance. We choose this approach, because it is domain specific and combines models of vaccine hesitancy with models of health behavior (Betsch, Boehm & Chapman, 2015). The 5C psychological antecedents of vaccination are confidence (trust in the safety and effectiveness of vaccines), complacency (risk perceptions of vaccine preventable diseases), constraints (barriers, e.g. stress), collective responsibility (willingness to protect the community), and calculation (rational calculation of risks and benefits of vaccination, extent of information search) (Betsch et al., 2018a). Using this model in formative research helps to identify specific informational needs of the target group.

Intervention planning and evaluation

Our intervention mainly aimed at increasing confidence and decreasing complacency as these were the specific informational needs that we identified in a baseline survey. Furthermore, older adults mainly used traditional media and their doctors as their main sources of health information. We therefore developed leaflets and posters that were distributed in local medical practices and pharmacies. Billboards, bus advertisements and newspaper supplements were implemented as well. Before implementation, we conducted several qualitative and quantitative studies to pre-test the

¹ Media and Communication Science, University of Erfurt, Germany
² CEREB – Center of Empirical Research in Economics and Behavioral Sciences, University of Erfurt, Germany
³ ComDigMed – Communication and Digital Media; University of Erfurt, Germany
effectiveness of our campaign material (e.g., studies on gain- vs. loss-framing, knowledge retention, evaluation of the leaflets; Heinemeier, Reinhardt, Hanke, Betsch, Rossmann & vaccination60+ studygroup, subm.).

The intervention was implemented in two waves (Sep-Feb) in 2017 and 2018. Awareness and success of the intervention were evaluated annually by conducting cross-sectional computer-assisted telephone surveys (CATI) with $N = 700$ elderly individuals. We assessed awareness of the campaign, knowledge about influenza, pneumococci and sepsis, the 5C antecedents of vaccination, vaccination intention and self-reported behavior.

We conducted several analyses to evaluate campaign outcomes: for knowledge scores as well as the 5C antecedents of vaccination and intention to vaccinate, we computed analyses of variance with campaign year (baseline 2016, waves 2017 and 2018) and campaign awareness as factors (high campaign awareness vs. control group). For self-reported vaccination behavior, we conducted Chi$^2$ tests to test for main effects of campaign year, awareness, as well as for interactions of these variables. In addition, mediation analyses via SPSS Process (Model 4, Hayes, 2012) were run to examine indirect effects of campaign awareness on the intention and behavior for both vaccinations via increasing knowledge or the antecedents of vaccination.

**Results**

**Knowledge**

Overall, knowledge about influenza, pneumococci and sepsis increased significantly in individuals with campaign awareness compared to individuals in the control group.

5C psychological antecedents of influenza and pneumococcal vaccination

In line with our goals, campaign awareness successfully decreased complacency. For pneumococcal vaccination, participants who were aware of the campaign had significantly higher confidence. For other antecedents however, campaign awareness lead to unexpected results, for example an increase in calculation for influenza vaccination as well as a decrease in collective responsibility, i.e. a potential increase in free-riding.

**Intention to vaccinate**

There were no indirect effects of campaign awareness on the intention to vaccine against influenza, via knowledge (influenza, pneumococci and sepsis). For pneumococcal vaccination, we found indirect effects of campaign awareness on increased pneumococcal knowledge, which in turn increased vaccination intention. Regarding the pneumococcal 5C antecedents, increased confidence due to campaign awareness increased the intention to vaccinate.

**Self-reported vaccination behavior**

Self-reported influenza vaccination behavior increased over the years, independently of campaign awareness. A significant interaction effect shows that campaign awareness increased influenza vaccination behavior only in the 2017 season, but not in 2018. Pneumococcal vaccination behavior increased over the years, as well as with higher campaign awareness in the two cohorts: The interaction effect shows that the campaign could successfully increase vaccination behavior in 2018, even more than in 2017. The percentage of people taking the advantage of both vaccinations is significantly higher in individuals with campaign awareness: two mediation analyses, for influenza and pneumococcal
vaccinations, showed positive indirect effects of campaign awareness on increased knowledge, which in turn increased behavior.

**Discussion**

The campaign can effectively increase knowledge and intentions to vaccinate against pneumococci. Self-reported vaccination behavior for pneumococci increased over the years and with campaign awareness. With regard to influenza vaccination, more explanatory factors have to be taken into account. The data does not show a campaign-specific increase in influenza vaccination behavior in 2018. This may be due to the introduction of a quadrivalent influenza vaccine in 2018, which is perceived as more effective and lead to an overall increase in vaccine behavior. Insurance data will hopefully provide an estimator of the vaccine uptake. Moreover, we will assess other intervention outcomes such as a reduction of disease incidence and economic burden. In this campaign, the 5C model was used for intervention planning and evaluation for the first time. We can conclude its particular value for planning and development. However, the results also indicate that these 5C psychological antecedents of vaccination seem to be quite stable and resistant to change, which makes them less attractive as constructs to evaluate shorter interventions. The major strength of the 5C model is that it provides an empirical understanding of the unique reasons why people do not vaccinate and facilitates a data-driven intervention design.

Finally, vaccine hesitancy remains a challenge on a global scale and especially in Europe. To achieve the full benefits of vaccination, coverage rates and trust in vaccination must be further improved (Esposito et al., 2018). Our campaign provides an example of how an evidence-based campaign strategy can lead to increasing vaccination knowledge and behavior. We are curious to see how our approach can be translated to other interventions and target groups in the future.
References


Heinemeier, D., Reinhardt, A., Hanke, R., Betsch, C., Rossmann C. & vaccination60+ study group (subm.). Using behavioral insights and human-centered design methods to increase vaccination acceptance among older adults: An integrated framework of campaign design.


Reducing smokers’ unrealistic optimism via targeted content in a national antismoking campaign in Switzerland: A field study

Claudia Poggiolini1, Werner Wirth2

Introduction

In Switzerland, about 9500 smokers die every year from smoking-related diseases (BAG, 2018). One of the main reasons why smokers do not quit smoking is their unrealistic optimism regarding health-related risks of smoking: Many smokers underestimate their personal health risks, and they believe to be less at risk than others (Weinstein, Marcus, & Moser, 2005). To counteract an underestimation of one’s personal health risks, antismoking campaigns usually contain fear appeals, which often lead to desirable outcomes (e.g., McAfee et al., 2013; Tannebaum et al., 2015; Wakefield, Freeman, & Donovan, 2003). However, fear appeals can elicit reactance (e.g., Ecreghurn & Steed, 2011; Ruiter et al., 2014; van’t Riet & Ruiter, 2013), which means, for instance, that smokers argue against the message (e.g., ‘the presented risk might be valid for others, but not for me’) (Dillard & Shen, 2005). Confirming these assumptions, Glock and Kneer (2009) found that smokers seeing a fear appeal decreased (instead of increasing!) risk perception regarding smoking related health risks. Thus, increasing unrealistic optimism might be an expression of reactance to the fear appeal message.

In Switzerland’s antismoking campaign SmokeFree 2015-2017, a TV-spot highlighted smokers’ tendency to attribute health risks of smoking to others but not to themselves, recommending ‘don’t be one of them – quit smoking’. This target spot was assumed to reduce unrealistic optimism in smokers more than other campaign content. Moreover, it is assumable that reduced unrealistic optimism increases intention to quit smoking.

H1: Smokers seeing the target spot decrease unrealistic optimism more than smokers, seeing campaign content other than the target spot, or smokers seeing no campaign content.

H2: Seeing the target spot increases intention to quit smoking via reduced unrealistic optimism.

Moreover, the wear-in effect states that an advertisement has a significant positive effect at a certain level of exposure, whereas the wear-out effects states that an advertisement may have a negative effect at a certain level of exposure. Thus, an inverted U-shaped curve as the net effect of the positive and negative factors of repetition is expected (Schmidt & Eisend, 2015)

H3: The relation between the exposure of the target spot and decreasing unrealistic optimism is inverted U-shaped.

1 Department of Communication and Media Research (IKMZ), University of Zurich, Switzerland, c.poggiolini@ikmz.uzh.ch
2 Department of Communication and Media Research (IKMZ), University of Zurich, Switzerland, w.wirth@ikmz.uzh.ch
Methods

A longitudinal study was conducted. 724 smokers living in Switzerland responded to an online-questionnaire. The first measurement was before the campaign started, in January 2015; the second measurement took place after the fourth wave of the campaign had ended, in November 2016.

In January 2015, participants were between 18 and 75 years old. The sample was representative for smokers in Switzerland regarding age, sex and education (BfS, 2019). On average, participants smoked 15.48 cigarettes per day (SD = 8.28). The second measurement showed that 86 smokers had stopped smoking.

Information on how to quit smoking and information of health risks of smoking were included in every campaign content (newspaper-ads, online-ads, TV-spots). However, only the target-spot indicated that people tend to attribute health risks of smoking to others.

Unrealistic optimism was measured by 4 items, asking the perception of personal health risks of smoking, including, for instance, lung cancer or skin aging; 4 items assessed general health risks of smoking for lung cancer, skin aging etc. Answers were done on 6-point likert scales. The scale was based on Weinstein et al. (2005). ($\alpha_{pers,T1} = .86; \alpha_{pers,T2} = .88); ($\alpha_{general,T1} = .87; \alpha_{general,T2} = .88). The difference between personal and general perception of health risks indicated the amount of unrealistic optimism (Weinstein et al., 2005). The reduction of unrealistic optimism was calculated by subtracting unrealistic optimism T2 from unrealistic optimism T1, thus, higher values indicated stronger reduction of unrealistic optimism.

Intention to quit was assessed with one item ‘I want to quit smoking’. Answers were done on 6-point likert scales.

If participants recognized campaign content, they indicated if they had seen the content 1-2 times, 3-5 times, 6-10 times or more often.

Results

For testing H1, t-tests for dependent samples were conducted. 257 participants had seen the campaign including the target-spot, 240 participants had seen the campaign, excluding the target spot, 141 participants had not seen the campaign. When participants had seen the target spot at least once, their unrealistic optimism decreased significantly from T1 ($M = 0.92, SD = 0.98) to T2 ($M = 0.77, SD = 0.95) t(256) = 2.30, p = .02. There was no significant change in unrealistic optimism from T1 ($M = 0.90, SD = 1.04) to T2 ($M = 0.92, SD = 1.00) for participants who had seen exclusively other campaign content, t(239) = .37, ns, or for individuals who had not seen the campaign: T1 ($M = 0.76, SD = 0.79), T2 $M = 0.76, SD = 1.05), t(140) = .035, ns (see figure 1).

For testing H2, a mediation analysis was conducted using model 4 of the SPSS Macro PROCESS (Hayes, 2013). The target spot (0 = not seen, 1 = at least seen once) was the independent variable, the difference in unrealistic optimism was the mediator, the difference in intention to quit smoking was the dependent variable. The total effect was not significant ($b = .043, SE = .04, t = 0.95, ns). The target spot had a significant effect on the difference in unrealistic optimism by trend ($b = .16, SE = .09, t = 1.90, p = .06). The difference in unrealistic optimism was significantly related to the difference in intention to quit smoking.

3 Controlling for dependence (number of cigarettes per day), age, sex and education did not change the results.
(b = .06, SE = .02, t = 3.04, p < .01). The direct effect was not significant (b = .03, SE = .04, t = .72, ns), but the indirect effect was (b = .01, SE = .01, CI: .00 to .03). Thus, H2 could be confirmed partly (see figure 2).

Model 4 was used for calculating H3 as well. The five possibilities of exposure were coded for inverted U-shape (1 2 3 2 1). The inverted U-shape exposure of the target spot had a significant effect on the difference in unrealistic optimism (b = .16, SE = .06, t = 2.74, p < .01). Thus, H3 was confirmed. Again, the difference in unrealistic optimism influenced the difference on the intention to quit smoking significantly (b = .06, SE = .02, t = 3.06, p < .01). The indirect effect was significant (b = .01, SE = .01, CI: .00 to .02), the direct effect was not (b = .01, SE = .03, t = 0.23, ns), nor was the total effect (b = .02, SE = .03, t = 0.55, ns) (see figure 3).

Moreover, at T1, individuals who had quit smoking at T2 had lower unrealistic optimism (n = 86, M = .78, SD = .91) than individuals who did not quit smoking (n = 638, M = .88, SD = 1.00), F(2,723) = 4.47, p < .01.

Discussion

Results of the present study suggest that highlighting smokers’ tendency to attribute health-risks of smoking to others had positive effects on reducing unrealistic optimism. The more individuals were exposed to the target spot, the more they reduced unrealistic optimism. However, if they had seen the target spot more than 5 times, they increased unrealistic optimism, confirming the proposed inverted U-shape of exposure. Results suggest that reduced unrealistic optimism had positive effects on increased intention to quit smoking.

This field study is one of the first exploring the effect of campaign content designed to reduce unrealistic optimism. However, as it is typical for field studies, other factors than the target-spot might have influenced the amount of unrealistic optimism, which will be discussed.

Implications for antismoking campaigns and warning labels will be discussed, as well as the importance of personal risk-perception and social comparison with other individuals.

---

4 Linear exposure effects had no significant influence on the difference in unrealistic optimism.
Appendix

Figure 1: Reduction of unrealistic optimism: higher values indicate stronger reduction; $n = 638$.

Figure 2: Effect of the target spot on the difference in intention to quit smoking, mediated by the difference in unrealistic optimism; coefficients are unstandardized, the total effect is in brackets; $n = 638$; *$p < .10$; **$p < .01$

Figure 3: Effect of the inverted U-shaped exposure of the target spot on the difference in intention to quit smoking, mediated by the difference in unrealistic optimism; coefficients are unstandardized, the total effect is in brackets; $n = 638$; **$p < .01$
References


Furthering fear-appeal models: Describing the role of decisional balance on EPPM outcomes

Lucea Toerien

Abstract

Noncommunicable diseases are reported as amongst the top 10 threats to global health. Primary causes of such diseases relate to unhealthy behaviours like cigarette smoking, excessive alcohol consumption and poor diets (WHO, 2019). Although statistics on these health issues warrant alarm, social marketing initiatives attempting to improve public well-being have the ability to intervene (Thackeray & Neiger, 2000).

When designing public health campaigns that attempt to address health-harming behaviours, threat-appeals are employed most often (Dibb & Carrigan, 2013). Such health interventions attempt to convey severe consequences of destructive behaviours that the targeted population is susceptible to, with the prospect of stimulating behaviour change (Witte, 1994). The premise behind threat-appeal interventions stems from its ability to trigger fear as a motivator for behaviour change (Ruiter, Kessels, Peters & Kok, 2014). To conclude whether such communication successfully motives the targeted audience to change behaviour, models that accurately predict behaviour change are required.

To determine whether mass communicated fear-eliciting public health interventions successfully motivate behaviour change, various models exist (Ruiter et al., 2014). Of these models, the Extended Parallel Process Model (EPPM) is considered state of the art (Kok, Peters, Kessels, ten Hoor & Ruiter, 2018) and most recent (Popova, 2012). The EPPM attempts to determine whether a fear-eliciting message motivated an individual to adopt intended healthy behaviours compared to current unhealthy practices (Maloney, Lapinski & Witte, 2011; Witte, 1992). According to the EPPM (Figure 1), an individual will either accept or reject the fear-evoking message based on the interaction between perceived threat (susceptibility and severity) and perceived efficacy (response efficacy and self-efficacy) (Ooms, Jansen & Hoeks, 2015). More specifically, should an individual perceive the communicated threat as severe and consider themselves as susceptible, but perceive the recommended response as doable (self-efficacy) and able to assist in threat avoidance (response efficacy) (Witte, 1992), message acceptance will ensue. Alternatively, if the individual considers the perceived threat as unsurmountable based on low levels of perceived efficacy, the message will be rejected (Maloney et al., 2011).

1 Faculty of Economic and Management Science, Stellenbosch University, South Africa
Although evidence supporting the predictive ability of the EPPM exists, various ambiguities have also been reported (Maloney et al., 2011). More specifically, conditions of high threat and higher efficacy have not led to message acceptance. Similarly, low efficacy and high threat do not always precede message rejection. Additionally, messages have been accepted in settings where efficacy and threat are not high (Papova, 2012). Based on such findings, this paper proposes that the interaction between perceived threat and perceived efficacy, given the evocation of fear, is not solely able to explain possible health behaviour change. More specifically, this theoretical paper argues that the EPPM be enhanced by including an omitted cognitive variable seen as key to behaviour change, namely Decisional Balance (DB) (Rintamaki & Yang, 2013).

DB is considered a proxy for motivation to change (Miller & Tonigan, 1996), has been found to predict changes in health behaviours (Velicer, DiClemente, Prochaska & Brandenburg, 1985), and forms part of the decision-making process. More specifically, during the integral step of decision-making (Velicer et al., 1985) possible positive and negative outcomes of different considered behaviours are scrutinized (Wigfield & Cambria, 2010). This process is formally referred to as Outcome Expectancies (OE) (Nicolai, Moshagen & Demmel, 2017). According to OE theory, the likelihood of expected outcomes will guide the decision-maker in selecting a preferred behaviour. Although this is true, Orbell, Perugini and Rakow (2004) demonstrate that likelihood of occurrence is not the only factor influencing decision-making. Stated differently, the fact that an outcome has a high probability of occurring may not be enough to facilitate decision-making. Instead, to reach a verdict, the decision-maker will also weigh the different positive and negative expected outcomes of different behaviours against each other (Orbell et al., 2004), in order to decide which combination of expected outcomes is most preferred. It is this weighted comparison that may influence behaviour change (Levesque, Cummins, Prochaska & Prochaska, 2006). In a health-behaviour context, this notion of weighted expected outcomes is reflected in DB (Prochaska and DiClemente, 1985).
To illustrate by means of a harmful health behaviour, a smoker may be confronted with a fear-based warning label recommending cessation. For smoking cessation, the decision-maker may consider positive outcomes including health benefits and financial gains, but be aware of possible negative outcomes such as cravings too (Bommelé, Schoenmakers, Kleinjan, van Straaten, Wits, Snelleman & van den Mheen, 2014). In comparison, opting to smoke may engender cognitive consideration of the possible positive and negative aftermaths of tension relief and bad hygiene respectively (Glock, Unz & Kovacs, 2012). According to DB theory, although a decision-maker can recognise that positive and negative outcomes are likely to occur, it is the personally relevant importance of one or the other that will dictate the decision made (Williams, Anderson & Winette, 2005). For example, should the advantages of smoking cessation outweigh the disadvantages, the individual is more inclined to change. Alternatively, should the disadvantages of smoking cessation be more important than the advantages, the individual is likely to continue smoking (Levesque et al., 2006). Considering that DB serves as a proxy for motivation to change (Collins, Carey & Otto, 2009), and is regarded dominant to self-efficacy (Maddux, Norton and Stoltenberg, 1986), a theoretical model explaining whether a threat-appeal effectively motivates changed behaviour should include an evaluation of the individual’s DB to effectively predict health behaviour change. More specifically, although the EPPM suggests message acceptance depends on efficacy levels given the perceived threat (Witte, 1994), DB theory proposes that the weighted anticipated outcomes are important considerations in deciding to change behaviour (Williams et al., 2005)

Despite the motivational importance that DB has on decision-making, the EPPM omits consideration of its influence on health behavioural decision. As a result, this paper offers an extension to the EPPM (Figure 2).

**Figure 2: The Adapted EPPM**

![Diagram of the Adapted EPPM](image-url)

- **External Stimuli**: Message Components: Self-efficacy, Response efficacy, Susceptibility, Severity
- **Message Processing**: Perceived Efficacy (Self-efficacy, Response efficacy), Perceived Threat (Susceptibility, Severity)
- **Decisional Balance**: Protection Motivation, Message Acceptance, Defensive Motivation, Message Rejection
- **Process**: Danger Control Process, Fear Control Process
- **Individual differences**: No threat perceived (No response)
- **Table of Contents** | **Programme**
Because conditions of high threat and higher efficacy do not always lead to message acceptance, low efficacy and high threat do not always precede message rejection, and messages have been accepted in settings where efficacy and threat are not high (Papova, 2012), alternative EPPM propositions are offered. More specifically, because health behavior changes, like smoking cessation, usually require a cognitive decision, and weighted outcome expectancies in the form of DB are pertinent to decision-making, the assessment of fear-evoking health-communication should incorporate such theory. Resultantly, Table 1 illustrates examples of the proposed theoretical adaptions to some of the EPPM propositions, in an effort to include the mediating role of DB on the outcomes of the EPPM.

Table 1: Examples of revised EPPM propositions

<table>
<thead>
<tr>
<th>Original Proposition</th>
<th>Adapted Proposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Known as proposition 2 of the EPPM:</td>
<td>As perceived threat increases when perceived efficacy is high, so will message acceptance.</td>
</tr>
<tr>
<td>As perceived threat increases when perceived efficacy is high, so will message acceptance.</td>
<td>As perceived threat increases when perceived threat is high, and DB is positive, message accepted</td>
</tr>
<tr>
<td>Known as proposition 4 of the EPPM:</td>
<td>As perceived threat increases when perceived efficacy is low, the message will be rejection.</td>
</tr>
<tr>
<td>As perceived threat increases when perceived efficacy is low, the message will be rejection.</td>
<td>As perceived threat increases when perceived efficacy is low, and DB is negative, message rejection.</td>
</tr>
<tr>
<td>Known as proposition 6 of the EPPM:</td>
<td>As the level of evoked fear increases, so does message rejection.</td>
</tr>
<tr>
<td>As the level of evoked fear increases, so does message rejection.</td>
<td>As the level of evoked fear increases, and DB is negative, so does message rejection.</td>
</tr>
</tbody>
</table>

Consideration of DB on the outcomes of a threat-appeal message could increase the explanatory ability of the EPPM. Despite calls for such advancements, the EPPM is yet to undergo modification (Ooms et al., 2015; Rintamaki & Yang, 2013). Should fear-evoking health communication models appropriately include the role that DB has on a decision to change unhealthy behaviours, researchers will be able to better determine the effectiveness of mass communicated threat-appeal message.
References


Framing as a concept for health communication: A systematic review

Lars Guenther¹, Maria Gärtner², Jessica Zeitz²

Abstract

In the past decades, research in both framing and health communication has grown tremendously. Framing is one of the most popular theoretical approaches used in communication science (e.g., Cacciatore, Scheufele, & Iyengar, 2016). Despite its popularity, framing has not received much attention on an overarching analytical level. Borah (2011) examined the overall literature on framing systematically. However, up to date, there is no systematic review about how framing—as a concept—has been used in health communication. Answering this question is the goal of this study. The systematic review helps identifying current trends but also research gaps (AUTHORs; Borah, 2011)—valuable information that can inform future research.

While there are many definitions of what a frame is (Gamson & Modigliani, 1989; Reese, 2010; Van Gorp, 2010), Entman (1993) provided the most accepted one: framing stresses certain aspects of reality and pushes others into the background (see also Entman, Matthes, & Pellicano, 2009). Nevertheless, a lack of clear conceptualization and operationalization of framing has led to many framing studies that are distinctly different (Scheufele & Scheufele, 2010). Broadly, researchers differentiate between a sociological (e.g., Entman, 1993; Gamson & Modogliani, 1989; Goffman, 1974) and a psychological (e.g., Tversky & Kahneman, 1981; see also Scheufele & Iyengar, 2011) tradition of framing. Their dual nature can be summarized as frames in the news (sociological) and frames in individuals’ minds (psychological). How communicators, such as journalists, produce frames seems to be a less important topic for communication scientists: Borah (2011) found that only 2% of research articles deal with frame production. Furthermore, researchers seem to focus on textual frames, but not on visual ones (Matthes, 2014). Researchers also differentiate between two types of frames: generic (i.e., found across themes; e.g., Iyengar, 1991) and thematic (i.e., for a specific topic; e.g., Entman, 1993; Kohring & Matthes, 2002). Borah (2011) identified that communication scientists more frequently focused on the sociological tradition, by predominantly identifying thematic frames.

The tendencies described for framing used in communication science might also be true for the specific field of health communication. In health communication and regarding the sociological tradition of framing, a variety of health issues have been studied, often dealing with questions such as whether there are individual or societal attributions of responsibility represented (e.g., Kim & Willis, 2007, for obesity). Regarding the psychological tradition of framing, much research is devoted to effects of gain and loss frames (e.g., O’Keefe & Jensen, 2007, 2008; O’Keefe & Wu, 2012). While gain and loss frames can be defined as generic frames, research has also focused on thematic frames (AUTHORs).
Nevertheless, how framing—overall—has been used in health communication has not been answered because to date, no systematic reviews have been performed.

Based on these observations, the present study is designed as systematic review, exploring common characteristics (e.g., publication year, journal, number of authors; RQ1) and common topics (RQ2) of published literature in the field. Additionally, it will analyze whether the sociological or the psychological tradition of framing (RQ3) and whether generic or thematic frames (RQ4) were used more frequently (see Borah, 2011). The study will also explore the extent to which published literature has focused on gain and loss framing (RQ5).

The RQs were answered by conducting a systematic review on published literature with quality control (see Borah, 2011); thus, the review focused on published articles in scientific journals with peer-review. Following the PRISMA model (Moher et al., 2009), the search term “fram* ‘health communication”’ was used in the Web of Science ($N = 461$) and on Google Scholar ($N = 1300$), in mid-2018. All 1,761 articles found were screened for using the concept of framing in a health communication context, as indicated in their titles, abstracts, or keywords. Non-English articles, as well as gray literature (books, books chapters, and conference proceedings) were excluded, which resulted in a sample size of $N = 307$ articles. Among these articles were five available meta-analyses; they were checked for our criteria to identify further relevant articles ($N = 119$), extending the sample size to $N = 426$ articles. Finally, we were able to download $N= 316$ articles, the base for this investigation.

The quantitative content analysis considered formal categories that were extracted from the title pages of the articles (RQ1): publication year, journal, and number of authors. For each author, names, affiliations, countries, and gender were coded. Affiliations determined whether there was an international cooperation of authors (AUTHORs). Content-related categories were determined based on coders reading the abstract, the keywords, and browsing through the article: health topics under investigation (RQ2), methods used, qualitative or quantitative design, as well as the sociological or psychological tradition of framing (RQ3; Borah, 2011), types of frames (generic or thematic; RQ4), and use of visual frames. For all studies identified as framing effects studies, we coded if within experimental conditions of the studies, participants received only one frame, or a mix of competitive frames, as well as the presence of covariates. Lastly, we coded if framing effects studies used gain or loss frames (RQ5). Intercoder reliability between two coders was tested successfully.

The findings are rich and—in this abstract—will be summarized: The research output increased steadily over time (RQ1) and most articles were published in Health Communication ($n = 61; \text{19\%}$). The average number of authors was three ($M = 3.05; SD = 2.014$). There were 965 unique authors listed but 856 (89%) were counted only once. Based on their affiliations, most authors’ institutions were located in the US ($n = 637; \text{66\%}$). International cooperation was only counted for 28 articles (9%) and this increased slightly over time ($\beta = .151; p < .01; r^2 = .023$). Most authors were identified as female ($n = 573; \text{59\%}$); the number of female authorship slightly increased over the years sampled ($\beta = .068; p < .05; r^2 = .005$). The most common topics that have been studied in the sampled articles were cancer ($n = 68; \text{22\%}$), obesity, foods, diets, and nutrition ($n = 44; \text{14\%}$), and vaccination ($n = 36; \text{11\%}$) (RQ2).
Most articles sampled used experimental survey designs ($n = 206; 65\%$), followed by content analyses with some distance ($n = 60; 19\%$). In line with this (RQ3), most articles are based on the psychological tradition of framing ($n = 218; 69\%$), less are based on the sociological tradition ($n = 76; 24\%$). Only four articles (3%) dealt with frame production and the majority of articles used these methods quantitatively ($n = 266; 84\%$). The articles sampled (RQ4) almost equally deal with generic ($n = 151; 50\%$) and thematic frames ($n = 146; 48\%$). Visual frames were included in a minority of 27 studies (9%).

Regarding the framing effects studies ($n = 213; \text{RQ5}$), only in nine articles competitive frames were tested (4%). Almost all studies controlled influences of covariates ($n = 208; 98\%$) and 64% ($n = 137$) of these studies tested the effects of gain and loss framing.

Based on these outcomes, framing in health communication shows similarities with how framing is used in communication science overall (e.g., lack of research focusing on frame production, visual frames, and competitive frames in effect studies; Borah, 2011). However, some unique fingerprints were also found, such as the dominance of psychological studies and the equal attention given to generic and thematic frames. These results as well as their implications for future research will be explained and discussed at the conference.
References


Catalan-Matamoros, Daniel (Madrid); Lopez-Villegas, Antonio (Almeria); Lopez-Liria, Remedios (Almeria); Lappegard, Knut Tore (Bodø)
More information is needed by pacemaker patients with remote follow-up

Reinhardt, Anne; Rossmann, Constanze (Erfurt)
How vaccination messages affect risk perceptions, reactance, attitudes, and intentions in younger and older adults: The interplay of message framing and evidence type

Röhm, Alexander; Möhring, Michèle; Grengel, Michelle; Simmes, Ria; Hastall, Matthias R. (Dortmund)
Female readers’ attitudes towards blogging mothers of children with a disability and the influence of perspective taking

Jaspersen, Miriam; Baumann, Eva (Hanover)
The role of communication as a resource for coping and resilience in families: A qualitative analysis

Möhring, Michèle; Ditze, Anika; Krick, Natascha; Koput, Julia (Dortmund)
Influence of single case descriptions on stigmatization of ‘the mentally ill’: Recipients’ identification and exemplars’ social support as factors

Heuss, Sabina C.; Maidl, Elisabeth (Olten)
Communication issues between generations in Swiss hospitals with special emphasis on Generation Y

Antonietti, Chiara; Camerini, Anne-Linda; Marciano, Laura (Lugano)
Protective factors of perceived stress in adolescence: A moderated mediation model of self-esteem, adaptive coping, and social support
Blessing, Janine Nadine (Augsburg)

*It’s all about the focus: Varying the person affected by risky driving behavior in texting and driving PSAs*

Zschorlich, Beate; Wiegard, Beate (Cologne)

*My health is valuable: Evidence-based health information for hard-to-reach groups*

Pelletier, Karen; Badillo, Patrick-Yves (Geneva)

*Identification and typology of influencers on Twitter: The case of cancer prevention*

Temmann, Linn Julia (Erfurt); Wiedicke, Annemarie (Erfurt); Schaller, Sophia (Erfurt); Reifegerste, Doreen (Erfurt); Scherr, Sebastian (Leuven)

*Responsibility frames in health communication: A systematic review of their representation and effects*

Bertolazzi, Alessia (Macerata); Lombi, Linda (Milan); Ducci, Gea (Urbino); D’Ambrosi, Lucia (Macerata); Lovari, Alessandro (Cagliari)

*Health information in the digital era: How to measure the digital health literacy*
More information is needed by pacemaker patients with remote follow-up

Daniel Catalan-Matamoros¹, Antonio Lopez-Villegas², Remedios Lopez-Liria², Knut Tore Lappegard³

Introduction

Cardiovascular diseases are one of the most frequent reasons of disease-associated mortality (Ghojazadeh, Azami-Aghdash, Sohrab-Navi, & Kolahdouzan, 2015). In Norway, cardiovascular diseases are one of the main cause-of-death disease groups, with myocardial infarction being one of the five most important specific causes of death (Norwegian Institute of Public Health, 2017). Worldwide around 3 million people have a pacemaker and around 600,000 pacemakers are implanted every year (Lippeveld, Sauerborn, Bodart, & World Health Organization, 2000). According to clinical guidelines, patients with an implanted PM need to be followed-up every 3–12 months (Epstein et al., 2008; Wilkoff et al., 2008). Every consultation frequently involves an assessment of the device’s function, cardiac events, and the patient’s clinical status and, if needed, the pacemaker is reprogrammed or pharmacotherapy is changed (Cronin & Varma, 2012; Epstein et al., 2008). In our current ageing population, there are increasing indications with respect to persons carrying an implant. The follow-up is today a substantial load for national health services (Folino et al., 2012) as well as for patients and their relatives. In this regard, remote communication in cardiology could mitigate the increasing workload of follow-ups of pacemakers (Boriani et al., 2018).

In the last Norwegian Coordination Reform in the healthcare sector (Iversen et al., 2016), remote communication and the use of telehealth strategies were emphasised. Remote communication between healthcare providers and patients is considered today a tool that decreases outpatient consultations and costs (Daniel Catalán-Matamoros, Antonio López-Villegas, 2016). In fact, long-distance communication with implanted devices is now a reality. Recent studies have shown that using telemonitoring in patients with pacemakers can result in similar clinical outcomes to standard outpatient care while allowing more flexible services organisation and greater cost reduction in both formal and informal care (Lopez-Villegas, Catalan-Matamoros, Robles-Musso, Bautista-Mesa, & Peiro, 2018; Lopez-Villegas, Catalan-Matamoros, Robles-Musso, & Peiro, 2016; López-Villegas, Catalán-Matamoros, Robles-Musso, & Peiró, 2016). Moreover, remote monitoring (RM) or telemonitoring (TM) systems have potential advantages such as early detection of cardiovascular events and early response to technical problems in the device or alterations in the patient’s clinical condition (López-Villegas, Catalan-Matamoros, Robles-Musso, & Peiró, 2015; Varma & Ricci, 2013). TM could represent a possible solution in helping to reduce the number of consultations and travels to hospital, thereby optimising healthcare resources (Lopez-Villegas et al., 2016).

¹ Instituto de Cultura y Tecnología, University Carlos III of Madrid, Spain, dacatala@hum.uc3m.es
² Department of Nursing Science, Physiotherapy and Medicine, University of Almería, Spain
³ Department of Clinical Medicine, University of Tromsø, Norway
Although many economic evaluations and outcome studies have been conducted, few have inquired as to how individuals experience living with remote monitoring pacemakers. We have not found previous studies specifically on patients’ experiences with remote monitoring pacemakers. Therefore, the aim of this study was to explore the experiences of people living with telemonitoring pacemakers. The rationale was to produce pertinent and translatable knowledge for future opportunities in healthcare contexts of these patients and to direct future research in the field of remote communication in health care settings.

Method

This study is part of a larger project in Norway, the NORDLAND study (2014–2017), wherein a team has collaborated which includes chronic heart patients with a pacemaker, their relatives, cardiologists, nurses, psychologists, and health communication experts. This study is based on a randomised, non-masked observational design where participants were assigned to either follow-up consultations in the hospital or follow-up by remote communication technologies. Participants were recruited in Nordland Hospital, Bodø, Norway. This hospital with a pacemaker centre covers 170,000 inhabitants and conducts around 80–90 pacemaker implants per year (Lopez-Villegas, Catalan-Matamoros, Lopez-Liria, et al., 2018).

The following protocol has been described in detail previously (Lopez-Villegas, Catalan-Matamoros, Lopez-Liria, et al., 2018). A total of 76 patients were screened and 50 patients were included and randomised to either telemonitoring (TM, n = 25) or hospital monitoring (HM, n = 25), before being implanted with the pacemaker.

Data collection was performed 6 months after surgery, by a phone call from one of the research team members. In total, 24 HM patients and 25 TM patients participated, with each participant answering 20 questions. To assess the experiences of the users with PM, an *ad-hoc* questionnaire was created by merging validated questionnaires assessing users’ experiences. The items included comprised the full version of the Generic Short Patient Experiences Questionnaire (GS-PEQ), adding some questions from the telehealth patient satisfaction survey and a costs survey. Additionally, to evaluate other aspects of the telehealth experience by patients who have been implanted with home-monitored pacemakers, we used an adapted version of the telehealth patient satisfaction survey (Abrams & Geier, 2006) and the costs survey (Bas Villaobos, 2010).

Results

Overall experience with both types of follow-ups was positive and there were few differences between the home monitoring and the hospital monitoring groups with respect to the individual questions. Using the Mann–Whitney U test, χ² test and Fisher exact test, we only found significant *p* values in two questions that asked whether patients obtained sufficient information about their diagnosis/afflictions, and for the time that it takes patients to attend a cardiology consultation. Significant differences were found in GS-PEQ concerning how telemonitoring patients received less information about their diagnosis/afflictions (*p* = 0.046). We did not find significant differences in other
items such as ‘confidence in the clinicians’ professional skills’, ‘treatment perception adapted to their situation’, ‘involvement in decisions regarding the treatment’, ‘perception of hospital organisation’, ‘waiting before admission’, ‘satisfaction of help and treatment received’, ‘benefit received’, and ‘incorrect treatment’.

Discussion and conclusions

The NORDLAND study explored the patients’ experiences with living with telemonitoring pacemakers. To the best of our knowledge, this is the first study to explore patients’ experiences in respect of living with telemonitoring pacemakers. The findings revealed: i) overall positive experiences in patients living with telemonitoring pacemakers; ii) significant differences in the GS-PEQ between both groups concerning telemonitoring patients receiving less information about their diagnosis/afflictions than those ones in hospital monitoring; iii) significant differences in how TM patients take more time to attend a cardiology consultation at hospital than HM patients; and iv) that no significant differences between groups were found in the rest of the items.

Besides the overall positive experiences, one relevant outcome found in our study was that telemonitoring patients received less information about their diagnosis/afflictions than those ones in hospital monitoring. This is an important finding concerning the expectations of the information that are normally provided by conversations with the health professionals and the delivery of pamphlets. We believe that due to the reduction of face-to-face consultations, these TM patients had a lesser chance of posing questions or clarifying issues in relation to their diagnosis with the health professionals. Being well informed is a key ingredient in patients’ subjective experiences (Menkes, Davison, Costello, & Jaye, 2005). A recent study (Andersen, Andersen, Kornum, & Larsen, 2017) also found that a characteristic part of the diagnostic process in ICM remote monitoring is that patients experience the feeling of ‘not knowing’ or ‘being uninformed’. According to the authors, this might be a result of “no news is good news” in the home monitoring environment. The monitoring systems only inform the health professionals when something goes wrong. However, this collides with the needs of patients. Frequent contact with clinicians is needed so as to receive information on the health status, especially for patients who are asymptomatic (as this contact is the only way in which to know about their progress).

Areas for improvement should focus on improving the quality and timing of information during the entire therapeutic process. To the best of our knowledge, this is the first publication to show patients’ experiences of living with telemonitoring pacemakers. We believe that by achieving a better understanding of the experiential dimensions of these patients we can inform communication practices between healthcare professionals and patients in the follow-up process of a pacemaker implant. In fact, such little research into patient experiences of living with telemonitoring pacemakers could also be a result of the poor educational preparation of health professionals responsible for these patients. Therefore, our findings will support the development of this important research field (Catalán Matamoros, Muñoz-Cruzado y Barba, & Fuentes Hervías, 2010; Catalan-Matamoros, 2017). Further organisation and management of healthcare services should ensure the delivery of quality and timely information to patients during the entire process, from pre-implantation to the follow-up phases.
References


Cluster Randomized Controlled Noninferiority Trial (DiaFOTo). *JMIR Research Protocols*, 5(3), e148. https://doi.org/10.2196/resprot.5646


How vaccination messages affect risk perceptions, reactance, attitudes, and intentions in younger and older adults: The interplay of message framing and evidence type

Anne Reinhardt¹, Constanze Rossmann¹

Abstract

Vaccinations are the most effective way to prevent infectious diseases—nevertheless, the vaccination uptake for many adult vaccinations is too low (Robert Koch-Institute, 2017). Due to the weaker immune system of older people, the standing committee on vaccination in Germany distinguishes between younger (18 to 59 years) and older adults (≥ 60 years) in their recommendations (Robert Koch-Institute, 2018). Therefore, older people are more susceptible to illnesses and more severe courses of disease (Federal Centre for Health Education, 2019), what makes them a particularly vulnerable target group for vaccination promotion.

In addition, factors that influence the information processing changes with age—e. g., older people show an increased involvement in medical questions (Lambert-Pandraud, Laurent, & Lapersonne, 2005) as well as decreased literacy skills (van ’t Jagt, Hoeks, Jansen, de Winter, & Reijneveld, 2016). Another important difference is the increased aversion to negative information over the life span: While younger adults are subjecting to a negativity bias and are more affected by negative information like risks or losses (Bebbington, MacLeod, Ellison, & Fay, 2017), older individuals show the opposite phenomenon. This positivity effect is explained by the socio-emotional selectivity theory (Carstensen, 1991, 1995, 2006). It assumes, that with growing age emotionally-meaningful goals are prioritized over knowledge-relates goals, which goes along with advanced emotion regulation skills (Reed, Chan, & Mikels, 2014). Amongst other things, the positivity effect leads to a higher attention to positive compared to negative stimuli in older adults, what affects their memory, elaboration, and decision-making (e. g., Reed & Carstensen, 2012; Shamaskin, Mikels, & Reed, 2010).

The positivity effect is also well-documented in health communication. Accordingly, older people remember positive health information better than negative ones (Notthoff, Klomp, Doerwald, & Scheibe, 2016) and are more concerned about positive information when choosing a doctor (Löckenhoff & Carstensen, 2007). However, a high perceived relevance of negative information for one’s own goals (e. g., a good health) can weaken the positivity effect (English & Carstensen, 2015).

Health communicators can choose from a wide range of messaging strategies to promote healthy behavior. Among these, message framing is well-established and well-examined. Research has shown, that people tend to perceive vaccinations as risky (Dubé et al., 2013), which could lead to a stronger influence of loss-frames on risk perceptions, vaccination attitudes, and intentions than gain-frames (Betsch, Ulshofer, Renkewitz, & Betsch, 2011; Gerend, Shepherd, & Monday, 2008). However, loss-frames are directly associated with a higher reactance arousal (e. g., Kayser, Graupmann, Fryer, & Frey, 2013).

¹ Media and Communication Science, University of Erfurt, Germany
2016), which is one of the main reasons why health information often miss their intended effects (Cho & Salmon, 2007).

Interestingly, despite the aforementioned age differences in information processing, there is no study in the field of health promotion examining the moderating role of age on the framing effect. In general, there are only two studies in the vaccination context focusing on an older age group (McCaul, Johnson, & Rothman, 2002; Nan, Xie, & Madden, 2012)—however, both studies do not address the specific characteristics of the older target groups, but rather are grounded in the examined behavior (flu vaccination). Following the negativity/positivity bias, this is problematic, since younger adults could be more affected by losses, while older adults may pay more attention to gains (Mather & Carstensen, 2005).

Another phenomenon in media effects research is the exemplification effect (Brosius & Peter, 2017; Zillmann, 2006). It is based on exemplification theory and assumes that people tend to form their opinion about social issues based on single-case information (exemplars) rather than statistical information (base-rate information) (Zillmann & Brosius, 2000). Therefore, exemplars have a stronger influence on risk perceptions, attitudes, and behavioral intentions in comparison to the more valid base-rate information (e.g., Brosius, 1996; Ziegler, Pfister, & Rossmann, 2013). Furthermore, they lead to less reactance arousal than statistics (Limon & Kazoleas, 2004). The idea behind the exemplification effect is that exemplars can be processed more easily than statistical information (Peter, 2017)—from which especially people with a low health literacy like older people can benefit (van ’t Jagt et al., 2016).

There is only a very small research body on the interaction of health message framing and the presented type of evidence (exemplars vs. statistics; e.g., Chien & Chang, 2015; Kang & Lee, 2018). However, these studies neither examined the interaction effect in the context of vaccinations nor focused on older people. With this in mind, the goal of this study was (1) to examine differences in the effects of framing and evidence type between younger (18-59 years) and older adults (≥ 60 years) in the context of vaccination and (2) to shed light on the process, through which message frames influence attitudes and behavioral intentions by testing psychological reactance and risk perceptions as mediator variables.

In a 3 x 2 x 2 online experiment, participants (N = 412) received one of six versions of a health information text about a fictitious disease/vaccination presented as exemplars or base-rate information or a mixture of both (factor 1) focusing on either gains of getting vaccinated or losses of vaccination waiver (factor 2). The quasi-experimental factor 3 varied participants’ age (< 60 years, ≥ 60 years). In a first step, we conducted a multivariate analysis of covariance. The dependent variables were the perceived risk of disease, the reactance arousal as well as the vaccination attitude and intention. As covariates we included the educational status, gender, health literacy, numeracy, issue involvement, and general attitude towards vaccinations. The model was significant with $F(4, 391) = 84.50, p < .001$, Wilks $\Lambda = 0.53, \eta^2 = .46$. Interestingly, we found whether a main effect of evidence type on our dependents nor interaction effects of age group and framing or age group and evidence type respectively. However, our analyses revealed main effects for framing and age group on the reactance arousal (framing: $F(1, 394) = 2.70, p = .007$; age: $F(1, 394) = 4.19, p = .001$) and at least a tendency, that both variables might also have an effect on participants’ risk perceptions (framing: $F(1, 394) = 3.00, p = .053$; age: $F(1, 394) = 2.70, p = .067$).

Using mediation analysis (PROCESS, model 80), a closer look at the framing effects in each age group revealed that loss-frames led to a significantly higher reactance arousal, but only in the younger ones ($b = -.04 [.02]; 95\% CI: -.08, -.01$). In contrast, the perceived risk of disease was a relevant mediator only in
older adults ($b = .04 [.02]; 95\% CI: .01, .09$). Our findings are in line with current research on the positivity effect: The increased emotion regulatory skills can explain why reactance—that is associated with negative feelings like anger—do not play a role in older people. However, the text versions highlighting losses of vaccination waiver (e.g., getting sick or endanger other people like children) may address emotionally-meaningful goals of older people more effectively than gain-frames. Because of this, the older participants might have processed the negative information due to their high relevance and despite the positivity bias.

The results of this study give deeper insights into the differences in the processing of vaccination messages between younger and older people. Especially against the background of demographic changes health communicators can use these findings to promote vaccination behavior in older people.
References


Federal Centre for Health Education (2019). Grippeimpfung für Menschen ab 60 Jahren [Influenza vaccination for people over 60 years]. Retrieved on 10.01.2019 from https://www.impfen-info.de/grippeimpfung/menschen-ab-60/


Female readers’ attitudes towards blogging mothers of children with a disability and the influence of perspective taking

Alexander Röhm¹, Michèle Möhring², Michelle Grengel¹, Ria Simmes¹, Matthias R. Hastall⁴

Introduction

Blogging about health problems has been proven helpful, in some situations, to reduce stigmatization and to empower marginalized individuals (e.g., Rains, 2014). Especially mothers of children with a disability, who are often affected by family stigma (e.g., Eaton, Ohan, Stritzke, & Corrigan, 2016; Werner & Shulman, 2015) as a form of stigmatization by association, report positive effects of blogging regarding their perspective on life, social inclusion, and their knowledge about the disability (e.g., Loukisas & Papoudi, 2016). It is still unclear, however, how (1) different features of online postings about persons with a disability and (2) recipients’ characteristics affect stigma-related attitudes of the audience.

Based on exemplification theory (Zillmann & Brosius, 2000), the present experimental study examines how the type of disability and gender of a depicted child, the existence versus absence of a disability of the blogging mother herself, as well as her reported experience of a stressful situation influence audience’s attitudes. Building on research on family stigma (e.g., Ali, Hassiotis, Strydom, & King, 2012; Werner & Shulman, 2015), we assume that the depiction of a child with a disability yields more stigmatization than the depiction of a child with no disability (Hypothesis 1). Since intellectual disabilities are generally more stigmatized than physical disabilities (e.g., Werner, 2015), the depiction of a child with an intellectual disability is expected to elicit higher stigmatization, compared to a portrayed child with a physical disability (Hypothesis 2). We furthermore investigate if the self-presentation of a mother with a disability reduces stigmatization (RQ1), and how the depiction of positive or negative coping with a stressful situation affects stigmatization (RQ2). In addition, respondents’ perspective taking, which is known to affect stigmatization (e.g., Cornello & Farman, 2016), is taken into account. Respondents reporting high levels of perspective taking are assumed to show less stigmatization after reading the stimulus material, compared to respondents reporting low levels of perspective taking (Hypothesis 3).

Method

Design and Procedure

A 3 × 2 × 2 × 2 online experiment was conducted, in which participants read a fictional blog post of a mother with a young child. The stimulus text was manipulated regarding the child’s disability (no disability vs. physical disability vs. intellectual disability), the child’s gender (female vs. male), the mother’s disability (no disability vs. physical disability), and the mother’s coping in a conflicting situation.

¹ Faculty of Rehabilitation Sciences, TU Dortmund University, Germany
(positive vs. negative). Before being presented with the stimulus, participants’ perspective taking was assessed as trait. Social distance and motivation to behave unprejudiced were measured afterwards as dependent variables.

**Stimulus Material**

The stimulus material was designed as a typical blogging post (Figure 1): A blogging mother describes a conflict between her own child and another child at a garden party, and the reactions of other mothers towards them. The child of the blogging mother has either no disability, uses a wheelchair (physical disability), or has Down syndrome (intellectual disability), and is either a girl (Lea) or a boy (Leon). The mother describes herself as either having no disability or using a wheelchair (physical disability). Her coping with and solution of the conflict situation is depicted as successful resulting in positive reactions from other mothers (positive coping), or as unsuccessful with negative reactions (negative coping). A pretest with $N = 100$ participants ($M = 35.86$ years; $SD = 14.06$; 63.5% female) confirmed the successful stimulus manipulations (Krippendorff’s Alphas: child’s disability = .83; child’s gender = .99; mother’s disability = .94; coping = .85).

**Sample**

Seven hundred and fifteen respondents completed the questionnaire ($M = 24.43$ years; $SD = 4.59$; all female).

**Measures**

Respondents stated their ability for perspective taking as trait on four items (Cronbach’s alpha = .76) from the German adaption of the Interpersonal Reactivity Index (IRI; Paulus, 2009). Social distance was measured using Angermeyer and Matschinger’s (1995) seven-item scale (Cronbach’s alpha = .86). Participants’ motivation to unprejudiced behavior was assessed with eight items (Cronbach’s alpha = .77) from Banse and Gawronski (2003). High scores on each scale indicate high reported perspective taking, a high tendency for social distancing, or a high motivation for unprejudiced behavior, respectively.

**Results**

A multivariate analysis of variance (MANOVA) with all four experimental manipulations (1. child’s disability, 2. child’s gender, 3. mother’s disability, 4. coping) as well as respondents’ perspective taking (median-split) as factors was computed with both dependent measures. To protect subsequent univariate analyses of variance (ANOVAs) against type I error, only effects of the MANOVA with $p < .05$ using Pillai’s trace are reported (Field, 2018). The significance of differences between the estimated marginal means was determined through Sidak-corrected simple effect post-hoc tests.

A main effect of mother’s disability emerged on the interaction of both dependent measures, $V = .013, F(2, 659) = 4.410, p = .013$. Subsequent ANOVAs showed a significant effect on social distance, $F(1, 660) = 7.341, p < .01, \mu^2 < .001$. Depictions of mothers with a physical disability ($M = 1.515; SE = .03$) evoked significantly less social distance than depictions of mothers with no disability ($M = 1.62; SE = .03; p = .01$). Respondents’ perspective taking produced a main effect on the combination of both dependent
measures, $V = .037$, $F(2, 659) = 12.756$, $p < .001$. Subsequent ANOVAs indicated significant effects on social distance, $F(1, 660) = 4.809$, $p = .029$, $\mu^2 < .001$, and motivation to behave unprejudiced, $F(1, 660) = 24.456$, $p < .001$, $\mu^2 = .001$. Respondents who scored low on perspective taking reported significantly more social distance ($M = 1.62; SE = .03$) and less motivation for unprejudiced behavior ($M = 3.86; SE = .03$), compared to respondents with high perspective taking scores (social distance: $M = 1.52$, $SE = .03$, $p = .019$; motivation for unprejudiced behavior: $M = 4.11$, $SE = .04$, $p < .001$). A child’s gender × mother’s disability × coping × respondents’ perspective taking four-way interaction emerged on the interaction of both dependent variables, $V = .015$, $F(2, 659) = 5.166$, $p = .006$. Subsequent ANOVAs revealed an effect of this interaction on social distance, $F(1, 660) = 4.226$, $p = .01$, $\mu^2 < .001$. Figure 2 shows a rather complex effect pattern, indicating particularly moderating effects of mother’s disability, the depicted coping success, and respondents’ perspective taking regarding reported social distance towards mothers of male children.

**Discussion**

Aim of this study was to shed light on the interplay of different features of self-portrayals of blogging mothers of children with a disability as well as recipients’ characteristics on audience’s stigmatization towards this group. Our results do not support the assumed family stigma effect (hypothesis 1), since no difference emerged between depictions of children with or without a disability. Likewise, hypothesis 2 must be rejected, because of no differences in respondents’ reactions after reading self-portrayals with children with a physical or intellectual disability. However, disclosure of the mother’s disability reduced social distance compared to the control condition (no disability), which underlines a stigma-reducing influence of self-disclosure and blogging, as reported by other scholars (Corrigan & Matthews, 2003; Rains, 2014). Moreover, we found support for the expected influence of readers’ perspective taking (hypothesis 3). Higher-order Interactions revealed rather complex effect patterns, which clearly deserve further investigation. So far, findings show promising implications for strategic anti-stigma and health communication.
Appendix

Lifestyle

„Wie schaffe ich das bloß?“

- 2. Juli 2018-

Die wohl häufigste Reaktion auf meine Lebenssituation in Gesprächen mit neuen Bekanntschaften:

„Als Rollstuhlfahrer ein Kind mit Down Syndrom - wie schaffen Sie das bloß?!“

Tja, wie ich das bloß schaffe frage ich mich auch manchmal. In manchen Situationen gelingt es mir besser als in anderen.


Den restlichen Nachmittag wusste Leon und ich von missbälligenden Blicken und leisem Gemurmel verfolgt, sodass wir die Feier noch vor dem Abendessen verließen.

Wie man sieht bewältige ich meinen Alltag als Rollstuhlfahrerin mit einem Kind mit Down Syndrom nicht immer so gut wie jede andere Mutter.

Wie hätten Ihr in der Situation reagiert?

Kommentare (2)

Figure 1. Example of stimulus material (manipulations: child’s disability: intellectual disability; child’s gender: male; mother’s disability: physical disability; coping: negative).
Figure 2. Estimated marginal means for the child’s gender × mother’s disability × coping × respondents’ perspective taking four-way interaction on social distance. Means sharing the same symbol indicate significant mean differences between respondents’ perspective taking, whereas means sharing the capital letter indicate mean differences between the mother’s disability, and means sharing the same small letter indicate mean differences between the depicted coping success (p < .05; Sidak-corrected simple effect post-hoc comparisons).
References


The role of communication as a resource for coping and resilience in families: A qualitative analysis

Miriam Jaspersen¹, Eva Baumann²

Background

Children, adolescents and adults all struggle with growing challenges in everyday life as well as with their individual conditions and issues that affect them. The ability to deal successfully with developmental tasks, crises, and life changes, as well as stressful conditions and events in everyday life is called resilience (Fergus & Zimmerman, 2005; Windle, 2011). Resilience refers to the ability to develop positively and healthily in a dynamic process of adaptation and development under unfavorable circumstances. The concept is closely related to a salutogenetic perspective that incorporates the shift from a traditional approach focusing on deficits and risk factors to a competence- or resource-oriented approach (Patterson, 2002; Wustmann, 2005). As the core element of socialization, the family is instrumental in the resilient and healthy development of children and adolescents (Bettge, 2004; Schnabel 2001).

Therefore, one focus of research on resilience addresses the family as a system and context for human development and psychosocial adaptive mechanisms. Family resilience is defined as “the ability of a family to respond positively to an adverse situation and emerge from the situation feeling strengthened, more resourceful and more confident than its prior state” (Simon, Murphy & Smith, 2005, p. 427). It is assumed that families are engaged in active processes to reconcile family demands (stressors) with family skills (resources: what the family has, and coping behavior: what the family does) to reach a stress-adjusted level in the family (Maguire, 2015; Patterson, 2002). Thus, coping is defined as the ability to rebalance in an adaptation process while family resilience is defined as the result of coping with stress and adversity (Frydenberg, 2017).

Problem-solving communication is described as a key factor in fostering resilience among families. An open and positive communicative environment with frequent interaction between parents and adolescents can also promote health (Acuna, 2017; Haverfield & Theiss, 2017; Lerand, Ireland & Boutelle, 2007; Noorafshan et al., 2013; Schrodt & Ledbetter, 2007). As parents can help children with problems and provide informational, emotional, and functional support, parent-child communication plays a particularly important role not only for the development of children’s resilience and coping skills but also in dealing with family burdens (Heinz, Kern, Catunda, van Duin, & Willems, 2017; Theiss, 2017). Maguire (2012) has developed the following conceptual framework that places communication at the heart of family coping:

a) Communication as a source or symptom of stress
b) Communication as meaning-making
c) Communication as a resource
d) Communication as a coping strategy

¹ Department of Journalism and Communication Research, Hanover University of Music, Drama, and Media, Germany
Communication as an indication of the status of family health and functioning

Against this background, this study deals with the following research question: **What role does parent-child communication play as a coping strategy in relation to family resilience?**

**Method**

A qualitative research approach is used to explore how parent-child communication unfolds in the light of stressors and resources, and what kind of contribution family communication is able to make in family resilience.

As part of a school prevention project on emotion regulation by the University of Koblenz-Landau (Germany) in 12 schools (17 classes: 1st to 10th grade), 20 parents of pupils participating in the school project were recruited and interviewed in semi-structured telephone interviews between January and March 2019.

17 mothers and three fathers of 14 boys and six girls aged from six to twelve from different school types participated in the study. The interview guide covered various characteristics of parent-child communication (e.g. time, occasion, purpose, topics, importance, climate of family communication) and the role communication plays as a potential resource for coping with stress and family resilience. The interviews were transcribed verbatim and analyzed by means of computer-assisted qualitative content analysis based on inductive and deductive strategies of coding. The communication-based coping model (Maguire, 2012) guided the analysis strategy.

**Results**

Most parents interviewed consider the communication environment to be open by talking about everything as well as frequent and mutual exchange. Only a few say that communication is rather reserved and less lively. Common meals are an important occasion and place for interfamily exchange. But also, evening bed-time is used to talk about topics that occupy children’s mind.

In reflection to Maguire’s communication-based coping model, the qualitative data analysis revealed how parent-child communication is associated with coping strategies and family resilience:

**Communication as a source of stress:** parents desire more family time and the opportunity to exchange ideas with their children more intensively. Often, conversations do not take place through lack of time, and the stress of everyday life is excessive. Families should consciously take time to be more aware of each other’s needs, worries and feelings.

**Communication as a symptom of stress:** children are unwilling to talk and to engage in dialogue, fatigue or a lack of empathy on both sides or disturbances by mobile phone use or third parties (e.g. brothers and sisters) can cause conflicts in the communication setting. During conversations, conflicts may arise from disagreements. If such conflicts occur, parents should listen to both sides, allow time for discussion and give opportunities to apologize and reconcile.

**Communication as a resource:** parents perceive regular family communication as an important resource to foster the connection and relationship with the child. This requires that the child feels understood and that parents show empathy, listen attentively and are open-minded. In doing so,
parents see opportunities to teach their children problem solving and finding common solutions for conflicts.

**Communication as a coping strategy:** parents often perceive work and parenthood as difficult to reconcile, especially when they are separated. Many daily routines, demands, and obligations cause everyday stress. Furthermore, school demands brought home by children also represent perceived stress in the family. But communication can help cope with stress. Especially after school, conversations help to “cool down”, to process experiences, and to “free oneself” from worries.

**Discussion**

The results show that overall a positive communication climate prevails. Family communication can fulfill important functions in coping with the stress and challenges of everyday life. The connection with the child and regular family communication can serve as a resource for social support and problem-solving, help process arousing experiences and reduce stress. Maguire’s (2012) communication-based coping model provides valuable main dimensions and parents confirm the key functions of family communication in promoting resilience.

Building on these qualitative results, a quantitative research approach could reveal which patterns of family communication are particularly prevalent in which families, which facilitators and barriers are related to more or less resilience-oriented family communication, and which conditional and causal mechanisms of functional and dysfunctional family communication can be observed. The role of communication in the coping process as an interactive process should be examined systematically in order to elaborate upon the concept of communicative coping in more detail in relation to causes, context factors, effects, and solution.
References


Influence of single case descriptions on stigmatization of ‘the mentally ill’: Recipients’ identification and exemplars’ social support as factors

Michèle Möhring1, Anika Ditze1, Natascha Krick1, Julia Koput1, Matthias R. Hastall1

Introduction

Because of stigmatization, people with mental health problems face barriers and discrimination in accessing education, work, or health. This can lead to shame, social withdrawal, delayed treatments and poorer treatment outcomes (e.g., Hebl & Kleck, 2000). In order to remain able to act, especially in acute phases, people with mental illness need support from their social environment in addition to medical care (Barney, Griffiths, Jorm, & Christensen, 2006). Still, media representations promise high potential for destigmatizing people with mental illness (contact hypothesis: Allport, 1954; Zajonc, 1968), as demonstrated in several health contexts (Clement et al., 2013; Morgan, Movius, & Cody, 2009; Peter, Rossmann, & Keyling, 2014; Zillmann & Brosius, 2000). However, the precise mechanisms are yet to be understood.

Based on exemplification theory (Zillmann & Brosius, 2000) and social comparison theory (Festinger, 1954), the current experimental study examines how depictions of individuals (“exemplars”) with mental illness and recipients’ characteristics influence dimensions of stigmatization. In this context, the degree of recipients’ identification with the exemplar plays an important role. Yang, Link, and Phelan (2008) found, that a higher degree of identification leads to a decreased need for social distance. For this reason, we assume that people who can identify with a depicted exemplar stigmatize less compared to people who cannot (Hypothesis 1). Peter and Brosius (2010) observed, that if a majority would consider a person sympathetic in a case vignette, recipients consider the depicted person more sympathetic compared to recipients of a case vignette with the person being less popular. In line, we suspect exemplars depicted as receiving social support to evoke less stigmatization, than exemplars depicted as not receiving social support (Hypothesis 2). Finally, we aim to investigate if recipients’ characteristics (e.g., sex, age, and relationship status) moderate the hypothesized effects on stigmatization (RQ1, 2, & 3).

Method

Design and Sample

We conducted a 2 × 2 × 2 online experiment. Participants read a case vignette, which was manipulated regarding students’ sex (male vs. female), students’ age (young adult vs old age) and the outcome of the situation (social support vs. no social support). Participants were randomly assigned to one of the eight experimental conditions. Eight hundred fifty four students (67.6 % female, age: \( M = 24.35 \) years, \( SD = 4.5 \)) participated.

1 Faculty of Rehabilitation Sciences, TU Dortmund University, Germany
Stimulus Material

The stimulus material was designed as a case vignette (Figure 1). It describes a student with mental illness. The text characterizes the symptoms, and either depicts the student getting help from friends and family and being able to resume studies or lacking social support leading to drop out of university. A pretest with $N = 45$ participants (51.1 % female; $M = 32$ years, $SD = 13.93$) confirmed the stimulus manipulations (Krippendorff’s Alphas: student’s sex = 1.0; student’s age = .97; outcome = .94).

Measures

Social distance was measured using Angermeyer and Matschinger’s (1997) seven item scale (Cronbach’s alpha = .85). Stigma-related attitudes were measured using four subscales of Day, Edgren, and Eshleman’s (2007) mental illness stigma scale (relationship disruption: six items, Cronbach’s alpha = .78; anxiety: seven items, Cronbach’s alpha = .85; visibility: four items, Cronbach’s alpha = .86; recovery: one item). Further, three subscales of Taylor and Dear’s (1981) community attitudes towards the mentally ill scale (community mental health ideology: nine items, Cronbach’s alpha = .79; benevolence: eight items, Cronbach’s alpha = .82; social restrictiveness: eight items, Cronbach’s alpha = .80) were assessed. Recipients indicated their identification with the exemplar with the single item social identification measure (SISI) by Postmes, Haslam, and Jans (2013). Table 1 displays means, standard deviations, and correlations among these measures.

Results

Univariate analyses of variance (ANOVAs) with the three experimental manipulations as well as recipients’ sex, age (median-split), relationship status, and identification (median-split) as factors were computed for all dependent measures. The significance of differences between the estimated marginal means was determined through Sidak-corrected simple effect post-hoc tests.

Main Effects of Experimental Manipulations

The analysis yielded a main effect for exemplars’ sex on the relationship disruption, $F(1,847) = 4.226, p < .05, \eta^2 < 0.001$. Recipients having read of a female exemplar ($M = 5.034, SE = 0.055$), find a relationship with a person with mental illness less straining than recipients having read of a male exemplar ($M = 4.871, SE = 0.056$).

Main Effects for Recipients’ Characteristics

Results yielded main effects for recipients’ sex and age on social distance and stigma-related attitudes. Table 2 and 3 display all parameters among these measures. Female as well as younger recipients were less stigmatizing compared to male or older recipients. Further, we found main effects of recipients’ identification for almost all dependent variables. All parameters among these measures are displayed in Table 4. Recipients, who identified with the exemplar, were less stigmatizing compared to those who did not.

Recipients’ relationship status yielded a main effect for visibility, $F(1,838) = 3.984, p < .05, \eta^2 < .001$, showing that participants in a relationship ($M = 4.032, SE = .063$), thought their ability to identify people with a mental illness as higher, than those not in a relationship ($M = 4.22, SE = .07$).
Higher-Order-Interactions

Two higher-order interactions with recipients’ identification × manipulated outcome as factors emerged: one for benevolence $F(1,843) = 6.768$, $p < 0.01$, $\eta^2 < 0.001$, and one for social restrictiveness, $F(1,841) = 4.762$, $p < 0.05$, $\eta^2 < 0.001$. Figure 2 and Figure 3 display the estimated marginal means. Recipients who identified with the exemplar and read the positive outcome indicated significant less stigmatization compared to those with no identification. Further, recipients who do not identify indicate less stigmatization after reading the negative outcome compared to the positive one.

Discussion

The present study aims to investigate the role of identification with an exemplar with mental illness and the presentation of social support for an affected person on the stigmatization of people with mental illness, in general.

We can verify our first hypothesis, because recipients who identify with the exemplar indicate less stigmatization towards people with mental illness. This is in line with Festinger’s (1954) theory, stating that we do not want to become victim of stigmatization, and do not stigmatize people we can identify with, respectively.

Further, we can partially verify our second hypothesis, since the depicted positive ending with social support for the affected person yielded to less stigmatization when the recipients could identify with the person depicted. Conversely, this means that people are less stigmatizing towards people with mental illness after reading about a lack of social support when not identifying with the depicted person. Therefore, we assume an interplay of depicted social support and identification for a destigmatizing effect. This is in line with Yang, Link & Phelan (2008), who found a correlation of identification and social distance. In turn, lack of identification implies a greater need for social distance, though this does not explain why the negative outcome evoked less stigmatization compared to the positive one in our study. Further research is needed to analyse this effect. At first glance, the characteristics of recipients of an exemplar seem to be decisive for stigmatizing effects. However, the complex interaction effects with the manipulated outcome indicate that it is the best fit between how we portray people with mental illness in media messages and recipients’ characteristics, which is important. Although it should be noted that the comparatively low effect sizes limit the generalizability of our results, so far, our findings show promising implications for reducing mental health-related stigmatization and health communication.
Appendix

Die 24-jährige Laura fühlt seit einiger Zeit eine innere Leere. Im Studium fehlt ihr die Kraft und Motivation, sich so anzustrengen, wie sie es vor einem Jahr konnte. Selbst wenn sie die Kraft dazu hätte, bereiten ihr Konzentrationsstörungen Schwierigkeiten. Hinzu kommen die Versagensängste, dass sie in ihren jungen Jahren dem Studium nicht gewachsen ist und dies nicht erfolgreich bewältigen kann. Auch zu Hause ist ihre Stimmung oft gedrückt, sodass sie eigentlich keine Lust hat, sich mit ihren Freunden zu treffen. Zusätzlich leidet sie unter Schlafstörungen, was dazu führt, dass sie oft sehr müde ist und den Alltag kaum aus eigener Kraft bewältigen kann.

Lauras Freunden ist Lauras gedrückte Stimmung bereits aufgefallen. Sie versuchen wiederholt, Laura zu gemeinsamen Aktivitäten zu motivieren und sie aufzumuntern. Auch wenn es schwierig ist, lassen ihre Freunde den Kontakt nicht abbrechen. Ihre Familie kommt sie regelmäßig besuchen und auch diese versucht, zusammen mit Laura etwas zu unternehmen, was ihr Spaß machen könnte. Zusätzlich telefoniert ihre Familie täglich mit ihr, um zu sehen, wie es ihr geht. Aufgrund des sozialen Rückhalts fühlt sich Laura zeitweise besser und sie kann ihr Studium in ihren jungen Jahren weiter fortsetzen.

Figure 1. Example of stimulus material (manipulations: student’s sex: female; student’s age: young adult; outcome: positive, social support).
Table 1

Dependent Variables: Means, Standard Deviations, and Bivariate Correlations

<table>
<thead>
<tr>
<th>Scales</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification</td>
<td>3.96</td>
<td>1.91</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Distance</td>
<td>3.08</td>
<td>0.56</td>
<td>.187**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship Disruption</td>
<td>5.68</td>
<td>1.03</td>
<td>.039</td>
<td>.578**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>4.11</td>
<td>1.35</td>
<td>.018</td>
<td>.518**</td>
<td>.528**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visibility</td>
<td>2.78</td>
<td>1.58</td>
<td>-.109**</td>
<td>-.076*</td>
<td>.035</td>
<td>-.144**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recovery</td>
<td>4.98</td>
<td>0.67</td>
<td>.029</td>
<td>-.111**</td>
<td>-.225**</td>
<td>-.092**</td>
<td>-.087*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Mental Health Ideology</td>
<td>4.36</td>
<td>0.56</td>
<td>.150**</td>
<td>.541**</td>
<td>.397**</td>
<td>.405**</td>
<td>.021</td>
<td>-.132**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benevolence</td>
<td>1.57</td>
<td>0.52</td>
<td>.193**</td>
<td>.508**</td>
<td>.378**</td>
<td>.334**</td>
<td>-.060</td>
<td>.128**</td>
<td>.571**</td>
<td></td>
</tr>
<tr>
<td>Social Restrictiveness</td>
<td>3.37</td>
<td>0.29</td>
<td>-.150**</td>
<td>-.536**</td>
<td>-.529**</td>
<td>-.470**</td>
<td>-.081*</td>
<td>.218**</td>
<td>-.482**</td>
<td>-.571**</td>
</tr>
</tbody>
</table>

Note. **p < .01; * p < .05

Table 2

Effects of Recipients’ Sex on Social Distance, and Stigma-Related Attitudes

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Male</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>df</td>
<td>N</td>
<td>F</td>
<td>M</td>
<td>SE</td>
<td>M</td>
<td>SE</td>
<td>p</td>
<td>η²</td>
<td></td>
</tr>
<tr>
<td>Social Distance</td>
<td>1</td>
<td>836</td>
<td>4.369</td>
<td>3.109</td>
<td>.023</td>
<td>3.022</td>
<td>.034</td>
<td>&lt;.05</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Relationship Disruption</td>
<td>1</td>
<td>836</td>
<td>4.618</td>
<td>5.010</td>
<td>.048</td>
<td>4.827</td>
<td>.070</td>
<td>&lt;.05</td>
<td>&lt;.001</td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>1</td>
<td>836</td>
<td>9.978</td>
<td>5.754</td>
<td>.043</td>
<td>5.515</td>
<td>.063</td>
<td>&lt;.01</td>
<td>&lt;.001</td>
<td></td>
</tr>
<tr>
<td>Visibility</td>
<td>1</td>
<td>836</td>
<td>10.676</td>
<td>4.001</td>
<td>.056</td>
<td>4.326</td>
<td>.082</td>
<td>&lt;.01</td>
<td>= .001</td>
<td></td>
</tr>
<tr>
<td>Community Mental Health Ideology</td>
<td>1</td>
<td>836</td>
<td>12.857</td>
<td>4.10</td>
<td>.024</td>
<td>3.857</td>
<td>.035</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
<td></td>
</tr>
<tr>
<td>Benevolence</td>
<td>1</td>
<td>836</td>
<td>35.714</td>
<td>4.444</td>
<td>.023</td>
<td>4.199</td>
<td>.034</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
<td></td>
</tr>
<tr>
<td>Social Restrictiveness</td>
<td>1</td>
<td>834</td>
<td>10.387</td>
<td>1.532</td>
<td>.021</td>
<td>1.655</td>
<td>.032</td>
<td>&lt;.01</td>
<td>= .001</td>
<td></td>
</tr>
</tbody>
</table>

Note. Estimated marginal means for recipients’ sex on social distance, relationship disruption, anxiety, visibility, community mental health ideology, benevolence, and social restrictiveness. High values indicate a more positive attitude towards people with mental illness. Visibility and social restrictiveness are coded in reverse, high values indicating a less positive attitude.
Table 3

*Effects of Recipients’ Age on Social Distance, and Stigma-Related Attitudes*

<table>
<thead>
<tr>
<th></th>
<th>Young</th>
<th></th>
<th>Older</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>df</td>
<td>N</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>Social Distance</td>
<td>1</td>
<td>633</td>
<td>11.964</td>
<td>3.120</td>
</tr>
<tr>
<td>Relationship Disruption</td>
<td>1</td>
<td>633</td>
<td>7.049</td>
<td>5.014</td>
</tr>
<tr>
<td>Visibility</td>
<td>1</td>
<td>633</td>
<td>3.931</td>
<td>4.168</td>
</tr>
</tbody>
</table>

*Note.* Estimated marginal means for recipients’ age on social distance, relationship disruption, and visibility. High values indicate a more positive attitude towards people with mental illness.

Visibility is coded in reverse, high values indicating a less positive attitude.

Table 4

*Effects of Recipients’ Identification with the Exemplar on Social Distance, and Stigma-Related Attitudes*

<table>
<thead>
<tr>
<th></th>
<th>High Identification</th>
<th>Low Identification</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>df</td>
<td>N</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>Social Distance</td>
<td>1</td>
<td>843</td>
<td>14.433</td>
<td>3.157</td>
</tr>
<tr>
<td>Visibility</td>
<td>1</td>
<td>843</td>
<td>5.933</td>
<td>3.998</td>
</tr>
<tr>
<td>Community Mental Health Ideology</td>
<td>1</td>
<td>843</td>
<td>11.4</td>
<td>4.030</td>
</tr>
<tr>
<td>Benevolence</td>
<td>1</td>
<td>842</td>
<td>23.329</td>
<td>4.459</td>
</tr>
<tr>
<td>Social Restrictiveness</td>
<td>1</td>
<td>841</td>
<td>12.709</td>
<td>1.508</td>
</tr>
</tbody>
</table>

*Note.* Estimated marginal means for identification on social distance, visibility, community mental health ideology, benevolence, and social restrictiveness. High values indicate a more positive attitude towards people with mental illness. Visibility and social restrictiveness are coded in reverse, high values indicating a less positive attitude.
Figure 2. Estimated marginal means for the recipients’ identification × manipulated outcome two-way interaction on benevolence. Means sharing the same symbol indicate significant mean differences between recipients’ identification ($p < .001$; Sidak-corrected simple effect post-hoc comparisons). Means sharing the same lowercase letter indicate significant mean differences between the manipulated outcome ($p < .05$; Sidak-corrected simple effect post-hoc comparisons).

Figure 3. Estimated marginal means for recipients’ identification × manipulated outcome two-way interaction on social restrictiveness. Lower values indicate that fewer social constrictions are attributed. Means sharing the same symbol indicate significant mean differences between recipients’ identification ($p < .001$; Sidak-corrected simple effect post-hoc comparisons).
References


Communication issues between generations in Swiss hospitals with special emphasis on Generation Y

Dr. Sabina C. Heuss¹, Dr. Elisabeth Maidl²

Introduction

The importance of communication on team motivation, patient treatment processes, and patient safety is well documented (Kosnik, 2002; Schull, Szalai, Schwartz, & Redelmeier, 2001; Sugrue, Seger, Kerridge, Sloane, & Deane, 1995). However, according to assistant physicians in Swiss hospitals, chief physicians seriously lack communication skills. Assistant physicians request recognition for their work, more team communication, collaboration instead of strict hierarchy, more feedback, and better leadership communication skills. On the other hand, chief physicians express frustration with assistant and senior physicians because of their demanding and attendance-intensive attitude. They require more supervision, more attention, and more feedback, but less responsibility, chief physicians say.

It is obvious that these divergent perspectives lead to serious communication issues within the hospital routine. From May to August 2018 Heuss executed ten in-depth interviews with assistant and head physicians working in various Swiss hospitals (Heuss, 2018). The study analysed the point of conflicts between chief physicians and assistant and senior physicians. The results were compared to state of the art literature on generational leadership modules and literature about generational cohort characteristics. The main communication issues have been formulated based on the outcome of the interviews.

Methods

To meet the explorative nature of the research questions, the study design followed a Grounded Theory approach (Glaser & Strauss, 2017). It provides an open frame for learning from social phenomena instead of interpreting them in the light of pre-existing theoretical assumptions. This inductive principle is particularly valuable for discovering communication needs and habits among physicists from different generations in Swiss hospitals.

Results

The study has brought to light the main communication issues between assistant physicians/specialists and chief physicians in Swiss hospitals.

¹ Institute for Competitiveness and Communication, University of Applied Sciences Northwestern Switzerland FHNW, Switzerland, sabina.heuss@fhnw.ch
² Institute for Competitiveness and Communication, University of Applied Sciences Northwestern Switzerland FHNW, Switzerland
Diverging definition of the profession of a doctor

The interviews on which this article is based has brought to light a diverging understanding of the own profession and its social role between different generations. The generational cohort of Baby Boomers\(^3\) have put many hours and a lot of overtime into their profession. They are working with devotion and dedication. In their eyes, professionalism is strictly linked to long working hours and devotion. On the other hand, assistant physicians of the Generation Y have been brought up with discussions of burn-out-prevention and work-life-balance. This generational cohort demands that professionalism is not connected to working hours, that excellent work can be performed under the premise of a well-adjusted work-life-balance and that doctors have both, a private and a professional life. They look at it more as a profession not as a vocation.

Recognition of performance and effected work

Working conditions in hospitals differ dramatically from the situation forty years ago. Hospitals are under strain of delivering their services efficiently and in a competitive environment. The administrative part of the work of a doctor has raised significantly. This leads to more pressure of time and performance. Assistant and senior physicians get the impression that their overtime is not spent “meaningful” with more patient-time but with “senseless” administrative work, which provokes stress and frustration. As an additional burden, the density of the workload and the concentration of doing more work in less time is not acknowledged by the head physicians. According to the interviewees, the latter only see the time spent in the hospital and compare it with their own situation forty years ago.

Increasing demand for information and communication

Information and communication is the basis to understand Generation Y, the “digital natives”. They are used to get any information needed in seconds and care for a direct and transparent communication. The in-depth interviews have shown that chief physicians often do not forward important information about the clinic or the hospital. They rarely share stressful or difficult professional situations with their staff. This leads to a mental distance with their medical staff. Assistant physicians want to be part of the decision-making and express their desire to get information directly from their boss. The interviews revealed that chief physicians tend to share information mostly with their senior assistants/specialists not with all medical staff members. Assistant physicians criticize this as leading to a missing communication flow.

Collaboration versus strict hierarchy

The interviews showed that physicians of the younger generation in Swiss hospitals are able to accept hierarchies. Respect, however, can be less earned solely by age. Their comprehension of respect is connected to knowledge, responsibility and leadership qualities of their bosses. More than older generations and based on flatter hierarchies in modern society, the Generation Y dares to question its boss and his or her decisions – the “why” in Generation Y. The continuous questioning is less a form of disrespect than a form of permanent search for the best option and result.

\(^3\) The terms Generation Y and Baby Boomers should be used as generational models as used in research for the sake of reducing complexity (Künemund & Szydlik, 2009; Parment, 2013). Working with this definition the article is using the term Baby Boomers for chief physicians born before 1965 and the term Generation Y for physicians born between 1980 until 2000.
Formal versus informal feedback

Feedback and Generation Y seem to be linked closely together. This generation needs constant feedback and support as well from parents as from their bosses (Bund, 2014). A stream of “likes” is what they are used from social media platforms. However, it is not the same in a hospital setting. All generations see the value of feedback, but the in-depth interviews reveal a misunderstanding about feedback between assistant and chief physicians. Assistant physicians seem to appreciate the “informal” feedback more while chief physicians seem to give more “formal” feedback. Informal feedback is referred to as the feedback given immediately after an intervention, for example directly at the end of a patient-doctor-discussion. Informal feedback can be as short as 30 seconds (microfeedback) (Baseer, Mahboob, & Degnan, 2017). Assistant physicians prefer the informal feedback as they can connect directly to their area of improvement. Formal feedback is given in appointed meetings, once or twice, up to four times a year. Chief physicians are moaning about the feedback meetings as they are time consuming, lasting between 30 minutes up to an hour.

Discussion

There are many studies about the Generation Baby Boomer, the Generation Y and the difference between them. This article puts light on the communication conflicts between these two generations that can be separated in chief physicians and assistant physicians, in Swiss hospitals and generally speaking. These issues seem less due to a generational gap than based on socio-economical and medical changes.

Societal changes and the healthy economic situation have led to more women in medicine, more part-time, more work-life-balance to name a few. Demographic changes resulted in more and older patients with multiple illnesses. Medicine has changed significantly over the last forty years. The technological progress in medicine has brought up more medical specialists and transparent communication between medical teams plays a significant role. The digital medical daily routine allows for a smooth handover of patients at the end of the shift, which means that the doctor does not need to be 24 hours “on”. On the other hand, many working hours of a doctor are filled with administrative tasks today, which leads to the sensation of more “useless” time. The typical workday of an assistant physician is shorter but denser.

In all this, communication plays a vital role. The need of assistant physicians for a positive leadership communication should not be underestimated. The current article is based on ten in-depth interviews only and need to be further validated. But the six areas of conflicts have a direct impact on the job satisfaction as the interviews have brought to light and the survey on assistant physicians in Switzerland has revealed (Bolliger, Golder, & Jans, 2016). A Swiss-wide survey is currently conducted. The results are being published in spring 2020.
References


Protective factors of perceived stress in adolescence: 
A moderated mediation model of self-esteem, adaptive coping, and social support

C. Antonietti\textsuperscript{1}, A.L. Camerini\textsuperscript{1}, L. Marciano\textsuperscript{1}

Background

Adolescence is a developmental period of major emotional distress at home and at school. In general, stress occurs when an individual perceives a discrepancy between situational demands and personal resources available to deal with these demands (Caltabiano, 2008). Stress can have a detrimental effect on psychological well-being (Cohen & Park, 1992; Seiffge-Krenke et al., 2009) as it is linked to emotional and psychological problems (Friedland, 2007; Esch et al., 2002). Based on Bronfenbrenner’s Ecological System Theory, stating that personal development is influenced by different macro (community) and micro systems (family and peer relationships) (Bronfenbrenner, 1992), the ability to handle stressful situations is determined by both individual and contextual factors.

Among individual factors, self-esteem (Birndorf et al., 2005) and coping strategies (Hampel, 2006) have been widely described as protective factors. High levels of self-esteem facilitate the practice of active and positive coping strategies, helping to tolerate, escape, or minimize the negative effects of stressful situations (Delahaij, 2011; Lazarus, 1966; Lazarus and Folkman, 1984) through decreased levels of perceived stress (Mantzicopoulos, 1990). Adolescents with high self-esteem perceive themselves as more capable to react to environmental situations and more confident in their ability to deal with problems. On the contrary, low self-esteem is related to less self-efficacy in coping with situations and, consequentially, to increased stress and stress-related negative outcomes (Schraml, 2011).

Contextual protective factors of stress include, among others, supportive relationships (Cobb, 1976), which mitigate stress perceptions and, consequently, improve adolescents’ well-being (Albrecht & Adelman, 1984; Windle, 1992). Positive interactions with parents provide adolescents with a buffer against adversities and facilitate the use of effective coping strategies (Greenberg et al., 1983). Additionally, relationships with peers give opportunities to develop an adaptive coping style in stress situations, offering occasions for self-disclosure and emotional support (Berndt, 1989).

To summarize, self-esteem and adaptive coping strategies have been identified as protective factors against stress. Additionally, social support from family and peers facilitates the use of adaptive coping strategies in facing stress. However, literature on the interrelations between these factors in adolescence is still scarce. Hence, the aim of the present study is to investigate the role of individual and contextual factors and their interaction in perceived stress in a sample of early adolescents. The following hypotheses will be tested: (HP1) high levels of self-esteem are positively related to lower levels of perceived stress, both directly and indirectly through the use of adaptive coping strategies; (HP2) the efficacy of adaptive coping strategies in decreasing perceived stress is moderated by family and peer supportive relationships.

\textsuperscript{1} Faculty of Communication Sciences, Università della Svizzera Italiana, Switzerland
Methods

Participants
The analytical sample includes 1010 students from 37 middle schools in Canton Ticino, Switzerland (Mage = 13.54, SD = .58, 46.7% males). Data were collected in 2018 through paper-and-pencil questionnaires completed at school. The Cantonal education administration approved the study.

Measures

Self-esteem was measured with the 10-item Italian version of the Rosenberg Self-esteem Scale (Prezza, Trombaccia, & Armento, 1997). Response options ranged from 1 = ‘completely disagree’ to 4 = ‘completely agree’, with higher values indicating higher levels of self-esteem ($\alpha = .785$).

Use of adaptive coping strategies was measured using five items from the Negative Emotion Regulation strategies reported by Heiy (2014). Strategies comprised acceptance, problem-solving, perspective, social support, and benefit finding. Response options ranged from 1 = ‘never’ to 5 = ‘always’, with higher values indicating greater use of adaptive coping strategies ($\alpha = .665$).

Perceived stress was measured with the 4-item Italian version of the Perceived Stress Scale (Cohen, 1994). Response options ranged from 1 = ‘never’ to 5 = ‘very often’, with higher values indicating higher perceived stress levels ($\alpha = .624$).

Parental support was measured with 6 items from Venkatraman et al. (2010) about the quality of the relationship with family members. Response option ranged from 1= ‘never’ to 5 = ‘always’, with higher values representing a better quality of parental support ($\alpha = .897$).

Peer support was measured with 4 items from the HBSC questionnaire (Roberts, et al., 2009) about the quality of the relationship with friends. Response option ranged from 1 = ‘never’ to 5 = ‘always’, with higher values indicating better peer support (M=4.316, SD= .665, $\alpha = .828$).

Covariates include gender (0 = male, 1 = female) and perceived socio-economic status (SES).

Statistical analysis
After univariate and multivariate normality of data distribution were checked, bivariate correlations were computed for all variables. Eventually, two different models were run using the PROCESS macro (Hayes, 2018) in SPSS. In Model 1, the first hypothesis (HP1) was tested in a mediation model and, in Model 2, the second hypothesis (HP2) was tested, adding family and peer social support as two distinct moderator variables. All variables were mean centered.

Results
All the variables were significantly correlated to each other (see Table 1). In particular, perceived stress was significantly related to both individual and contextual factors. Model 1 explained 38.3% of variance in perceived stress. As shown in Figure 1, self-esteem was positively related to adaptive coping ($B = .287, p < .001$), and negatively related to perceived stress ($B = -.582, p < .001$). The relationship between self-esteem and stress was also significantly mediated by the use of adaptive coping strategies ($B = -.080, p = .002$) (HP1 supported). In a similar fashion, Model 2 (Figure 2) explained 5.6% additional
variance of perceived stress. Adding the two moderators to the model, the main effect of coping in reducing perceived stress was not anymore significant (\( B = -0.024, p = 0.342 \)). However, both moderators were significantly and negatively related to perceived stress. Family support significantly moderated the effect of adaptive coping strategies on perceived stress (\( B = -0.056, p = 0.036 \)) (see also Figure 3), whereas the interaction between coping and peer support was not significant (\( B = 0.019, p = 0.553 \)) (HP2 partially supported).

**Discussion**

According to the previous literature, and taking into consideration the Ecological System Theory, the relation between the individual and the environment is characterized by a mutual influence (O'Connor et al., 1998), which impacts how stress is perceived (Blau et al., 1986). The results of the present study, in line with previous literature (Birndorf et al., 2005; Hampel, 2006), support that individual factors like self-esteem decrease perceived stress levels both directly and indirectly through the use of adaptive coping strategies. However, when contextual factors are considered, only parental social support amplifies the protective effect of adaptive coping strategies in attenuating adolescents' perceived stress. Probably, positive interactions with parents, through communication and empathy, provide adolescents with resources that facilitate the use of effective coping abilities to handle stressful events. This finding is in line with previous researches on the role of family support in promoting psychological wellbeing (Rosenberg, 1997; Zambianchi & Bitti, 2013). In addition, the non-significant moderation of peer relationships suggests that, although peer support contributes to enhance well-being (Raja et al., 1992), it does not contribute to increase the use of adaptive coping strategies. It is possible that support from peers impacts perceived stress through other mechanisms, for example enhancing emotion-regulation skills (Parke, et al. 1992).
Appendix

Table 1. Correlations

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Self-esteem</td>
<td>2.868</td>
<td>.506</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Adaptive coping</td>
<td>3.177</td>
<td>.790</td>
<td>.276**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Family support</td>
<td>3.809</td>
<td>.858</td>
<td>.314**</td>
<td>.273**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Peer support</td>
<td>4.316</td>
<td>.665</td>
<td>.186**</td>
<td>.184**</td>
<td>.224**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Perceived stress</td>
<td>2.401</td>
<td>.779</td>
<td>-6.10**</td>
<td>-2.37**</td>
<td>-3.72**</td>
<td>-2.57**</td>
<td></td>
</tr>
<tr>
<td>6. SES</td>
<td>2.85</td>
<td>.736</td>
<td>.227**</td>
<td>.047</td>
<td>.228**</td>
<td>.077*</td>
<td>-1.84**</td>
</tr>
</tbody>
</table>

* = p-value < 0.05
** = p-value < 0.01

Figure 1. Model 1: Mediation Model. \[F (3, 974) = 196.684, p < .001, R^2 = .383\]

Legend: * = p< .05; ** = p< .01. Only significant path coefficients are displayed. Dotted lines display non-significant paths.
**Figure 2.** Model 2: Moderated Mediation Model. \( F(8, 966) = 92.106, p < .001, R^2 = .433 \)

Legend: *= p < .05; ** = p < .01. Only significant path coefficients are displayed. Dotted lines display non-significant paths.

**Figure 3.** Moderation effect of family support on the relationship between adaptive coping and perceived stress. The values to the 16th, 50th and 84th percentiles are shown, as suggested by Hayes (2018).
References


It’s all about the focus:
Varying the person affected by risky driving behavior in texting
and driving PSAs

Janine N. Blessing

Abstract

Health communication in general has the goal of promoting and maintaining health. In addition, it
should above all prevent damage and minimize risk behavior in order to prolong life expectancy (Lippke
& Renneberg, 2006). Road safety communication campaigns are very important in this context because
apart from natural causes of mortality, traffic accidents are among the most frequent causes of death
(WHO, 2018). Smartphone use while driving is therefore a serious and increasingly relevant public health
issue (IIHIS, 2014; National Center for Statistics & Analysis, 2019). While most unhealthy behaviors imply
immediate negative effects only for the actor’s health, risky driving behaviors also impact those of
others. In this case, the individual health behavior has social consequences as it can put other people’s
lives in danger.

Popular framing strategies such as gain-loss framing (O’Keefe, 2012) or consequence framing (Smith
& Stutts, 2003) commonly either vary the form in which (un)healthy outcomes are presented or depict
different types of outcomes resulting from the behavior. In the present case of smartphone use while
driving, however, another framing strategy might be effective: varying the person who suffers from the
negative consequences of an accident. For instance, Cismaru (2014) proposes that focusing on different
types of people suffering from texting and driving-induced accidents might be an effective
communication strategy and should increase the perceived severity of the issue. This opens up the
possibility to differentiate between three main scenarios: whether something happens to the driver
himself, to someone close to him or to an unknown person. Research suggests that this strategy should
be applied in combination with fear appeals. According to Witte (1992), fear appeals try to evoke fear
by making people aware of a health threat while at the same time emphasizing their efficacy to avoid
negative consequences.

Health behavior models, such as the extended parallel process model (EPPM; Witte, 1992), and
several meta-analyses (e.g. Harrison, Mullen, & Green, 1992; Milne, Sheeran, & Orbell, 2000) show that
emphasizing the severity of a threat positively influences behavioral intentions when efficacy is
sufficiently high. They further suggest that health-related attitudes (i.e. perceived severity of and
susceptibility to the threat, perceived efficacy to counter the threat) function as mediators of these
effects. The emotion fear, as integrated in fear appeal literature, and other emotions should also play
an important mediating role in the persuasive process (Dillard and Peck, 2000).

Drawing upon the outlined evidence, I presume that (1) person framing and (2) severity of the health
risk in texting and driving prevention PSAs influence behavioral intentions. I also expect (3) health-

1 Institut für Medien, Wissen und Kommunikation, University of Augsburg, Germany
related attitudes and (4) emotions (see Dillard & Seo, 2012) to function as mediators of these relationships.

To test these assumptions, an online experiment was conducted with a 3 (affected person frame: texting driver vs. other driver vs. uninvolved child) x 2 (severity: low vs. high) between group design. The study focused on participants between the ages of 18 and 34. This age group is one of the riskiest, often acting irresponsibly regarding alcohol and drug use while driving (Statistisches Bundesamt, 2014) and texting while driving (National Center for Statistics and Analysis, 2019). At the same time, young adults in this age group are one of the most frequent internet and smartphone users (Pew Research Center, 2018; van Eimeren, 2013). Participants were 216 individuals (62.00% female; age: $M = 22.88$ years; $SD = 3.50$) with a driver’s license. Respondents were randomly distributed across conditions, and watched one of six manipulated video versions before answering a questionnaire. The professional campaign video showed an accident as the result of texting while driving. Text manipulations were implemented in the closing credits describing either severe (deadly) or less severe injuries of the responsible driver, the other driver or an uninvolved child in the responsible driver’s car. A pretest confirmed successful manipulations (within-design; $n = 30$; framing: $p < .001$; severity: $p < .001$). In the subsequent questionnaire, emotions (anger, disgust, fear, guilt, happiness, interest, surprise; 2 to 3 items each, Cronbach’s $\alpha = .70 – .88$), the health-related attitudes (perceived severity, susceptibility, self-efficacy, response efficacy, 3 to 6 items, $\alpha = .77 – .85$), and three behavioral intentions (intention for information seeking, intention for further discussion, protection motivation; 2 to 6 items; $\alpha = .90 – .95$) were assessed with frequently used, valid scales.

ANOVA showed no main effects of the experimental factors on intentions. Other results were computed using the PROCESS macro v3.3 by Hayes (2013) for SPSS 26. All calculations (95% confidence interval, 10,000 bootstrapping samples) were done in the form of mediations (model 4; Hayes, 2013) with separate calculations for the three different intentions as dependent variables (i.e., significant $ab$-paths, see figure 1). The analyses reveal different persuasion processes for the child-frame in comparison to the driver-frame. In the condition with the uninvolved child being affected, the health-related attitude perceived severity mediated the effect on all three intentions, with increased severity leading to increased intentions. Moreover, in the other driver-condition, the emotion anger emerged as a motivator for intention to further discuss the issue and for intention for information seeking (see Table 1 for significant mediation effects). Further mediation effects could not be confirmed.

These preliminary results suggest that the affected person-frame impacts intentions merely indirectly via emotions and health-related attitudes, whereas severity does not seem to play a role in the PSAs. Nevertheless, it is important to be aware of the distinction between the three different intentions. The intention for further discussion and the intention for information seeking represent a different level of intention compared to the protection motivation. Regarding the intention for further discussion and the intention for information seeking, no statements can be made about how people perceive and evaluate the topic, but only that they would like to deal with it further. In the child condition, all three intentions were affected merely indirectly via perceived severity. Therefore, especially the portrayal of a child as a victim could obviously be of great importance for road safety communication campaigns (see also Cismaru, 2014). In the other driver-condition the emotion anger motivated people to discuss the issue and to receive more information about it. The effect on the intention to further discuss the topic can possibly reflect the assumption that the opinion of other people, like friends and family, could have an influence and the topic is therefore discussed. However, more complex modeling will be needed to further explore the relationships.
Appendix

*Figure 1.* Conceptual model of the conducted simple mediation analyses. A mediation effect is determined if the $ab$ path becomes significant ($p < .05$). The $c'$ path represents the direct effect of framing on behavioral intentions while controlling for the mediator.

Table 1

**Overview of significant mediation effects**

<table>
<thead>
<tr>
<th>Path models</th>
<th>Indirect effects</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Framing condition → mediator → dependent variable)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other driver → anger → intention for information seeking</td>
<td>$a \times b = .095$ [.003; .265]</td>
<td></td>
</tr>
<tr>
<td>Other driver → anger → intention for further discussion</td>
<td>$a \times b = .137$ [.046; .334]</td>
<td></td>
</tr>
<tr>
<td>Child → severity → protection motivation</td>
<td>$a \times b = .129$ [.016; .320]</td>
<td></td>
</tr>
<tr>
<td>Child → severity → intention for information seeking</td>
<td>$a \times b = .116$ [.022; .273]</td>
<td></td>
</tr>
<tr>
<td>Child → severity → intention for further discussion</td>
<td>$a \times b = .230$ [.035; .456]</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Reported are unstandardized OLS regression coefficients with 95% bias-corrected Bootstrap confidence intervals (10,000 bootstrap samples) for the significant indirect effects ($ab$-paths). Upper and lower limits of the confidence intervals are depicted in square brackets.
References


**My health is valuable:**

***Evidence-based health information for hard-to-reach groups***

Beate Zschorlich¹, Beate Wiegard²

**Background**

Nearly 13 million people living in Germany are at risk of poverty, representing about 16% of the total population [1]. Especially unemployed and low-skilled people, single parents and their children, young adults, and people who have migrated to Germany have a higher risk of poverty [1]. This risk is associated with less favourable prospects for health, health-related risk behaviour, less social support, and lower life expectancy [2-4]. In addition, it is often difficult for these people to make use of health-related information to help themselves. This results in special health information needs.

IQWiG (the Institute for Quality and Efficiency in Health Care, Germany) has a legal obligation to provide health information to the public in plain language. The Institute’s primary resource for doing so is its health information website [www.gesundheitsinformation.de](http://www.gesundheitsinformation.de) (in German) / [www.informedhealth.org](http://www.informedhealth.org) (in English). However, we assume that health information distributed via the internet is less likely to reach people who are socially disadvantaged or who have low health literacy [5,6]. This target group may therefore need to be reached in other ways, using other formats, editorial approaches and possibly different content [7,8].

**Objective**

To better fulfil its legal obligation, IQWiG’s Department of Health Information has taken a closer look at the needs of the target group “socially disadvantaged people” in addition to its routine work related to health topics for some time. The overall objective is to strengthen the target group’s health literacy and to thereby contribute to more equity in health.

**Previous projects**

In recent years, IQWiG has completed four projects related to the target group “socially disadvantaged people”:

**User testing of health information (2013)**

An independent institution tested how easy to understand IQWiG’s health information is for socially disadvantaged people. The user testing was designed as a qualitative study with targeted individual interviews (7 articles, each tested by 4 socially disadvantaged people).

---

¹ Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen, Germany
Development of leaflets and posters (2016/2017)

Are leaflets and posters a suitable format for the target group “socially disadvantaged people”? A 2016/2017 project investigated this issue.

Leaflets and posters on three topics were developed (Fig. 1):
- Head lice
- Fever in children
- Chronic obstructive pulmonary disease (COPD)

Surveys sent to local health authorities concerning their role as disseminators of health information (2017)

It is clear that finding a way to reach socially disadvantaged people presents a special challenge. Therefore, a further project was started to determine whether local health authorities could provide this target group with evidence-based health information, and whether they would be willing to do so. 99 local health authorities from all across Germany were contacted. 83 of these expressed interest, and the printed materials were sent to them. 44 of these 83 health authorities participated in the evaluation that followed.

Surveys sent to social service providers (2018)

To identify further possible disseminators of health information, 5 one-on-one interviews with social service providers were held in 2018 using a semi-structured interview guide. The interview participants worked for homeless assistance programmes, addiction counselling
Conclusions and next steps

The results of these four projects were combined into a single concept. A search of bibliographic databases was then carried out to look for research on the same target group in the area of health information and health literacy.

One thing that became evident was that the target group “socially disadvantaged people” is very heterogeneous and that they have a great variety of life circumstances and informational needs. This requires a more detailed re-assessment of the content of the health information, the editorial process, the channels and formats, and the means of access to the respective subgroups (Fig. 2).

Fig. 2: Means of access, formats, topics – many aspects are significant when considering the most suitable way to reach a particular target group

It therefore seems to make sense to first focus on subgroups that are generally interested in the topic of health. The homeless, for instance, may be mainly concerned with their day-today survival. Health as a topic is presumably more of a priority in other groups of people, such as single parents, families with many children and older people with a relatively secure financial base.

So we will first concentrate on the latter subgroups within the general target group of socially disadvantaged people. This will include the planning of a needs analysis in order to design the information specifically for those target groups and make it readily available to them. It entails also the evaluation of new topics, formats and channels in due course.

Because the personal conveyance of health information plays such a major role, contacts to possible disseminators of the information should be established. These could include social service providers such as food banks or outreach centres, various counselling services, or family centres. A kick-off meeting with potential disseminators of information has been scheduled for late 2019 / early 2020.
It is not enough to simply provide socially disadvantaged people with reliable information about health-related problems and their treatment in plain language. For them to be able to accept the information and make use of it for themselves, it is important to promote their self-confidence and their faith in self-efficacy and reliable health information. To achieve this, IQWiG would like to convey general messages that encourage these attitudes (Fig. 3).

- I am important.
- My health is valuable.
- I can do something for my health.
- It’s worth it to take care of my health and the health of my friends and family.
- Health information provided by IQWiG is useful and interesting.
- Health information provided by IQWiG is reliable, easy to understand, and free.

Fig. 3: Examples of possible messages designed to promote self-confidence and faith in self-efficacy and health information.

It seems to be unclear how health information should be designed to be accepted, understood and used by the target group. There is a lack of evaluated concepts in the area of (evidence-based) health information for socially disadvantaged people. This demonstrates the urgent need to increase research in this field and explore new ways of promoting communication between the various social service and health information providers.
References


Identification and typology of influencers on Twitter:  
The case of cancer prevention

Karen Pelletier¹, Patrick-Yves Badillo²

Introduction

Developed countries in Europe, North America and Oceania are the most affected by cancer epidemics. In 2018, in Western Europe, 1 370 332 new cases of cancer were diagnosed³. By avoiding the common risk factors such as smoking, heavy alcohol consumption, unhealthy eating, and physical inactivity, we could reduce many cases of cancer⁴. Health information and prevention are thus major issues in the world and especially in developed countries. This is the reason why, for example, Gough et al. (2017) have studied a mass communication Twitter campaign for the prevention of skin cancer.

This research focuses on cancer prevention on the social network Twitter. More specifically, we try to answer the following questions: Who are the influencers in the field of cancer prevention on Twitter and, what is the structure of their network?

Theory

Influence is a main issue in communication theories. Besides direct persuasive effects that a message may have on receivers, a minority of users - called influencers - are experts in persuading others (Rogers, 2003). Katz and Lazarsfeld (1955) argue that opinion leaders may achieve a large-scale chain reaction of influence driven only by word-of-mouth. More generally, any information relay can have an influence on other people. This is particularly obvious in the context of social media (SM) (Boyd & Ellison, 2008; Kaplan & Haenlein, 2010). Influence observed on SM is often broadly conceptualized as the attention paid to online information. We speak then about information networks (Alloing et al., 2012; Ackland, 2013). According to Ackland (2013), the analysis of the influence on SM answers the following question: « […] who is the most central or visible or important person in the social media network, i.e. who is garnering the most attention » (p. 106).

Academic literature proposes various measures of influence on SM. Cha et al. (2010) define three measures of influence on Twitter: the in-degree influence, which corresponds to the number of followers, the number of retweets and the number of mentions. In addition to these measures, the activity of users on the SM, meaning the number of messages posted, must be considered as well. Depending on the measure chosen, the identified influencers will have a different impact on their social online network. While an “in-degree” influencer has wide visibility and reflects the user’s popularity, influencers who get the most retweets or mentions tend to have a more engaged audience.

¹ Medi@LAB, Université de Genève, Switzerland, karen.pelletier@unige.ch  
² Medi@LABUniversité de Genève, Switzerland, patrick.badillo@unige.ch  
³ International Agency for Research on Cancer. World Health Organization.  
   https://gco.iarc.fr/ (consulted on 02.08.19)  
⁴ World Health Organization. Cancer: Key facts.  
   https://www.who.int/news-room/fact-sheets/detail/cancer (consulted on 02.08.19)
Finally, the influence of a Twitter user depends as well on his position in the network. A network analysis of Twitter conversations about political issues was conducted by the Pew Research Center in partnership with the Social Media Research Foundation. They pointed out six distinct types of conversations on Twitter based on the structure of people’s networks. These include polarized crowd, tight crowd, brand clusters, community clusters, broadcast network and support network (Smith et al., 2014).

Hypotheses

In order to answer the research questions, the following proposal and hypotheses have been developed based on the literature.

**P.1.** Influencers actively involved in cancer prevention on Twitter consist of health professionals, health organizations, specialized and mass media, research centers, patients and patients’ relatives.

**H.1.** Influencers differ according to the used measure.

**H.1.1.** The most popular influencers are specialized or mass media.

**H.1.2.** The most retweeted influencers are health organizations and specialized media.

**H.1.3.** The most mentioned influencers are personal accounts of patients, patients’ relatives or health professionals.

**H.2.** The structure of the network of influencers who are actively involved in cancer prevention consists of community clusters. Thus, we assume that different kinds of influencers (i.e. health organization, media, patients, etc.) form distinct communities with few connexions between themselves.

Methods

We developed a specific Twitter API (Application Programming Interface) to collect tweets. In order to have a large sample of tweets, we selected a period of four weeks (from April 22 to May 19, 2019). We defined the following keywords and hashtags about cancer prevention for the collection of tweets through the API:

<table>
<thead>
<tr>
<th>Key words</th>
<th>Hashtags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer prevention</td>
<td>#cancerprevention</td>
</tr>
<tr>
<td>Cancer risk</td>
<td>#cancerrisk</td>
</tr>
<tr>
<td>Cancer awareness</td>
<td>#cancerawareness</td>
</tr>
</tbody>
</table>

Only unique tweets, which are originals (and not retweets), were taken into account. Based on this unique tweets corpus, several steps of analysis were achieved. Firstly, we identified the most important contributors by observing the number of disseminated tweets during the period of the data collection. We considered as important contributors those who posted at least eight tweets during the selected
month or two tweets per week. Of course, this choice may be discussed, but we think that an average of two posts per week is an indicator of a relevant activity. Then, three measures of influence were applied to the corpus: the in-degree measure, or the number of followers, the number of retweets and the number of mentions. For each of these measures, a list of the first twenty influencers was realized. As noted above, the influence measure refers to the influence definition of Ackland (2013) on the SM but does not refer to the general process of social influence or of social selection as described by Friemel (2015). Here, digital influencer is understood as a disseminator of information or a provider of information, strategically placed within the network. Afterward, an analysis of the most influential accounts was undertaken in order to establish a typology and to answer our research proposal and hypotheses.

Preliminary Results

The data collection of tweets made during four weeks is summarized in table 2. In total, 31′907 tweets were collected from April 22 to May 19, 2019. Among these tweets, 15′528 were unique tweets posted by 8′537 Twitter accounts. Among these unique tweets, 7′479 users were mentioned (@) and 20′830 retweets were made.

Table 2. Data collected on Twitter, from April 22 to May 19, 2019

<table>
<thead>
<tr>
<th>Number of collected tweets</th>
<th>31′907</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of unique tweets</td>
<td>15′528</td>
</tr>
<tr>
<td>Number of users posting unique tweets</td>
<td>8′537</td>
</tr>
<tr>
<td>Number of users mentioned among the unique tweets</td>
<td>7′479</td>
</tr>
<tr>
<td>Number of unique tweets retweeted</td>
<td>20′830</td>
</tr>
</tbody>
</table>

Twitter influencers involved in cancer prevention

The first results are presented in tables 3, 4 and 5.

When we examine the total of the three different measures of influence, we obtain the following results: Twitter influencers involved in the thematic of cancer prevention consist of health organizations (10), research centers (5), mass media (4), blogs (4), health professionals (3), patients (3) and then, business ventures (2) and specialized media (1). Results are different depending on the used measure. In-degree influencers mainly consist of mass media (4), health organizations (4) and blogs (4). The most retweeted influencers mainly consist of health organizations (7) and research centers (4). The most mentioned influencers seem to be a less relevant measure of influence because most of these influencers are included in the “others” category (6) which gather accounts that sporadically contribute to the theme. They are therefore not part of what Himelboin and Han (2014) call the “core communities”, which are users’ clusters who tweet continuously and regularly about cancer prevention. Health organizations are the second most found influencers based on mentions number (4).
Only one influencer is included in all categories of influencers, it is the blog AHealthblog, which deals with a wide range of health subjects such as cancer prevention. Moreover, 17 influencers are at least present in two categories of influencers.

Table 3. Top 20 of the most followed influencers

<table>
<thead>
<tr>
<th>Influencer</th>
<th>In-degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHealthBlog</td>
<td>217’302</td>
</tr>
<tr>
<td>WHAS11</td>
<td>169’614</td>
</tr>
<tr>
<td>OrganicLiveFood</td>
<td>143’853</td>
</tr>
<tr>
<td>WFMY</td>
<td>131’778</td>
</tr>
<tr>
<td>wusa9</td>
<td>108’720</td>
</tr>
<tr>
<td>psswstyles</td>
<td>59’586</td>
</tr>
<tr>
<td>92QJamsBmore</td>
<td>54’953</td>
</tr>
<tr>
<td>NClprevention</td>
<td>51’785</td>
</tr>
<tr>
<td>bowelcanceruk</td>
<td>47’664</td>
</tr>
<tr>
<td>OncologyTimes</td>
<td>40’907</td>
</tr>
<tr>
<td>PinkFortitude</td>
<td>29’084</td>
</tr>
<tr>
<td>najagym</td>
<td>27’813</td>
</tr>
<tr>
<td>FarmFairyCrafts</td>
<td>27’120</td>
</tr>
<tr>
<td>EcolnternetDrGB</td>
<td>24’008</td>
</tr>
<tr>
<td>SkinCancerOrg</td>
<td>19’868</td>
</tr>
<tr>
<td>Connealy_MD</td>
<td>18’664</td>
</tr>
<tr>
<td>SonsOfHockey</td>
<td>15’589</td>
</tr>
<tr>
<td>MaryLSchmidt</td>
<td>15’234</td>
</tr>
<tr>
<td>preventcancer</td>
<td>14’405</td>
</tr>
<tr>
<td>focusedonhealth</td>
<td>11’480</td>
</tr>
</tbody>
</table>

Table 4. Top 20 of the most retweeted influencers

<table>
<thead>
<tr>
<th>Influencer</th>
<th>Number of Retweets</th>
</tr>
</thead>
<tbody>
<tr>
<td>BladderCancerUK</td>
<td>201</td>
</tr>
<tr>
<td>wcrfint</td>
<td>186</td>
</tr>
<tr>
<td>AHealthBlog</td>
<td>132</td>
</tr>
<tr>
<td>NClprevention</td>
<td>126</td>
</tr>
<tr>
<td>SkinCancerOrg</td>
<td>124</td>
</tr>
<tr>
<td>MaryLSchmidt</td>
<td>89</td>
</tr>
<tr>
<td>lgoodbu</td>
<td>82</td>
</tr>
<tr>
<td>WCRF_UK</td>
<td>78</td>
</tr>
<tr>
<td>aicrtweets</td>
<td>60</td>
</tr>
<tr>
<td>FoxySongbird</td>
<td>50</td>
</tr>
<tr>
<td>SalgiFoundation</td>
<td>49</td>
</tr>
<tr>
<td>thescpn</td>
<td>49</td>
</tr>
<tr>
<td>fscarfe</td>
<td>48</td>
</tr>
<tr>
<td>Against_3G</td>
<td>41</td>
</tr>
<tr>
<td>Robertj67437992</td>
<td>40</td>
</tr>
<tr>
<td>bowelcanceruk</td>
<td>40</td>
</tr>
<tr>
<td>OrganicLiveFood</td>
<td>35</td>
</tr>
<tr>
<td>GSLtournaments</td>
<td>30</td>
</tr>
<tr>
<td>BladderCancerCA</td>
<td>30</td>
</tr>
<tr>
<td>focusedonhealth</td>
<td>26</td>
</tr>
</tbody>
</table>

Table 4. Top 20 of the most mentioned influencers

<table>
<thead>
<tr>
<th>Influencer</th>
<th>Number of mentions</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSLtournaments</td>
<td>228</td>
</tr>
<tr>
<td>lgoodbu</td>
<td>74</td>
</tr>
<tr>
<td>fscarfe</td>
<td>65</td>
</tr>
<tr>
<td>Against_3G</td>
<td>46</td>
</tr>
<tr>
<td>Karlwrites</td>
<td>31</td>
</tr>
<tr>
<td>mbcprevention</td>
<td>15</td>
</tr>
<tr>
<td>thescpn</td>
<td>13</td>
</tr>
<tr>
<td>Robertj67437992</td>
<td>12</td>
</tr>
<tr>
<td>WCRF_UK</td>
<td>12</td>
</tr>
<tr>
<td>wcrfint</td>
<td>9</td>
</tr>
<tr>
<td>toxicreverend</td>
<td>9</td>
</tr>
<tr>
<td>hudsonalpha</td>
<td>9</td>
</tr>
<tr>
<td>CCSWatWell</td>
<td>8</td>
</tr>
<tr>
<td>OncologyTimes</td>
<td>7</td>
</tr>
<tr>
<td>absoTC</td>
<td>7</td>
</tr>
<tr>
<td>PoloForLifeOrg</td>
<td>6</td>
</tr>
<tr>
<td>AHealthBlog</td>
<td>5</td>
</tr>
<tr>
<td>preventcancer</td>
<td>4</td>
</tr>
<tr>
<td>FoxySongbird</td>
<td>4</td>
</tr>
<tr>
<td>GSL_Youth</td>
<td>4</td>
</tr>
</tbody>
</table>
Conclusion

These first results partly confirm P1 and H1. H2 will be analyzed and the result will be given in the final presentation. The in-degree measure, as well as retweets, seem to be the most relevant measures to identify influencers in the field of cancer prevention on Twitter.
References


Responsibility frames in health communication: A systematic review of their representation and effects

Linn Julia Temmann¹, Annemarie Wiedicke¹, Sophia Schaller¹, Doreen Reifegerste¹, Sebastian Scherr²

Relevance

Responsibility frames (Iyengar, 1991; Semetko & Valkenburg, 2000) play a key role in the formation of public opinion about health issues, because they can influence the recipients’ attributions of responsibility and policy support (Gollust et al., 2013), as well as intentions for individual health behavior, interpersonal behavior, and societal participation (Sun et al., 2016). In addition, attribution theory (Weiner, 2006) poses that attributions of responsibility potentially influence the perception of and behavior towards people affected by health issues. Hence, it is vital to study both the representation and effects of responsibility frames for health-related issues in the media.

In the last decades, social-ecological models (Golden & Earp, 2012) and social determinants of health have gained acceptance. According to these perspectives, an individual’s health is not only influenced by their behavior or genetics, but also by their social environment. These social aspects involve an individual’s immediate social network, e.g. family members or co-workers (Holt-Lunstead & Uchino, 2015) as well as societal determinants like socioeconomic factors, education, or the health care system (Walker et al., 2014). By applying these social aspects to the disperse literature on responsibility framing, we would expect three different levels of influence: (1) the level of the individual, (2) the level of their social network, and (3) the level of the societal structures.

A considerable amount of content analytical and experimental studies examines responsibility framing in relation to specific health issues such as obesity (e.g. Sun et al., 2016), depression (e.g. Jin et al., 2018), or diabetes (e.g. Stefanik-Sidener, 2013). Given the importance of the phenomenon, it is surprising that a systematic overview of the evidence on the representation and effects is still lacking.

We therefore aim at filling this gap by systematically reviewing the evidence on health-related responsibility framing research, guided by four main research questions:

- RQ1: Which health issues are examined in the existing literature on responsibility framing?
- RQ2: What are the influence levels at which responsibility framing is typically analyzed?
- RQ3: What attributions of responsibility are represented in the news coverage?
- RQ4: How do responsibility frames affect recipients with regard to attributions of responsibility, policy support, and behavioral intentions?

¹ Media and Communication Science, University of Erfurt, Germany
² School for Mass Communication Research, KU Leuven, Belgium
Method

To meet quality standards for reporting systematic reviews, we sought to follow the guidelines of the PRISMA statement (Moher et al., 2010). In particular, we synthesized the empirical findings about the representation and effects of responsibility frames in health communication. A standardized search string was entered into five databases, generating \( n = 545 \) records. Additional \( n = 21 \) records were identified by manual searching, resulting in a total sample of \( N = 566 \) studies. After removing duplicates, screening the abstracts and reading the full texts of eligible records, the final sample included \( n = 67 \) full texts with \( n = 69 \) individual studies.

Results

We reviewed \( n = 56 \) content analyses and \( n = 13 \) experiments published between 2004 and 2019. Regarding our first research question (RQ1), we see that issues covered in the literature range from obesity (\( n = 26 \)), to diabetes (\( n = 6 \)), depression (\( n = 5 \)), and cancer (\( n = 5 \)). Obesity was by far the most studied health issue in both content analyses (\( n = 17 \)) and experiments (\( n = 9 \)).

Concerning the analyzed influence levels (RQ2), the majority of studies (\( n = 66 \)) compared responsibility for health issues on the individual versus societal level. It is striking that only \( n = 20 \) of all studies address social network influences, and only \( n = 8 \) analyze this level explicitly. Numerous studies only include the social network level implicitly, making it impossible to separate the evidence from the individual or societal level.

Regarding the representation of responsibility frames (RQ3) for health issues, a predominance of individual responsibility attribution can be found in the studies where two or more influence levels are compared. Deviations from this finding are reported in relation to different types of media (Wu, 2017; Zhang et al., 2016; Kang et al., 2016), and different societal systems (Yang & Parrott, 2018; Zhang et al., 2015).

Two studies for obesity (Lawrence, 2004) and depression (Zhang et al., 2016) indicate that references to societal solutions have increased moderately over time. However, individual responsibility frames are still the most prevalent ones in \( n = 32 \) content analyses, as compared to \( n = 9 \) studies where societal attributions of responsibility dominated, and \( n = 13 \) studies with mixed results.

Regarding the effects of responsibility frames (RQ4) on different dependent variables, the results from the reviewed experiments are partly unexpected. While societal frames lead to more societal attributions of responsibility, and increased both policy support and behavioral intentions among the recipients, no robust effects were found for individual frames. Taken together, there is evidence that effects of responsibility frames for health issues also depend on individual recipient characteristics like gender, pre-existing causal beliefs, and political attitudes.
Conclusion

Our review shows that the media portray health issues mostly as the responsibility of individuals, with only a few exceptions regarding media type and societal system, and small trends towards more societal responsibility attribution. Thus, although the attribution of responsibility for health in the media can be described as dynamic, individualism is still particularly pronounced. This distortion towards individual responsibility is problematic, as it conceals that social network and societal influences are at least as relevant for human health. Furthermore, it might contribute to the stigmatization and discrimination of people affected by health issues—especially obesity (Frederick et al., 2016; Powroznik, 2017), which was the most researched health issue across all studies.

Regarding the effects of responsibility frames, an emphasis on societal responsibility tends to increase policy support and behavioral intentions, while effects of individual frames are inconsistent. Surprisingly, the effects of responsibility frames on responsibility attribution are not in line with Iyengar (1991) in most studies. This might be explained by the confounding of distinct frame dimensions and influence levels within the stimuli. It is also possible that individual responsibility is so normalized in individualized societies that individual frames are not powerful enough to change responsibility beliefs.

Conceptually, our review reveals that research on the representation and effects of responsibility frames in health communication predominantly analyzes the individual and the societal influence level. A reason could be that most of the studies are based on Iyengar’s (1991) concept of episodic and thematic framing, which first introduced the dualism of individual and societal responsibility attribution. This dualism, however, is simplistic and neglects the significance of the social network for a person’s health (Holt-Lunstead & Uchino, 2015).

In sum, social network influences on individual health have been sparsely recognized in responsibility framing research and media coverage. We conclude that future studies in this field, as well as media producers, should acknowledge the importance of an individual’s immediate social relationships for their health and establish the social network as a distinct influence level between individual and societal influences.
References


48.


Health information in the digital era: How to measure the digital health literacy

Alessia Bertolazzi¹, Linda Lombi², Gea Ducci³, Lucia D’Ambrosi¹, Alessandro Lovari⁴

Background

It is known that health literacy includes the knowledge, motivation and skills of individuals to access, understand, evaluate and apply health information in order to make decisions regarding their state of health (Kickbusch et al., 2013; Sorensen et al. 2012; Baker, 2006; Eichler et al., 2009; Nutbeam, 2000, 2008). Moreover, it has been shown that a low level of health literacy in adults is associated with poor use of prevention services; with difficulties in accessing health services and delays in diagnosis; with an inadequate understanding of one’s own health conditions and necessary treatments; with reduced adherence to medical prescriptions; with a poorer physical and mental health status, as well as with a higher level of mortality (Baker et al., 2007; Baker et al., 2008; Dewalt et al., 2004; Sudore et al., 2006; Wolf et al., 2005; Wolf, et al., 2006).

However, the way in which lay people draw up their health literacy is dramatically changing. The proliferation of information websites, social media sites, and apps has increased the access of individuals to health information, offering them the possibility to seek and share information and experiences of their illnesses (Eysenbach, 2008; Swan, 2009; Lupton, 2014). People could be increasingly exposed not only to accurate information, but also to misinformation (O’Connor & Weatherall, 2019). The access to misinformation can lead to higher skepticism and distrust about science and medicine, as evidenced by researches on people’s attitude regarding vaccination (Kata, 2012; Larson et al., 2011; Jolley & Douglas, 2014).

Therefore, a key concept that should be extensively studied is the digital health literacy, with which we consider the set of knowledge, competences, and attitudes that lay people need to interact properly in the digital society (Norman & Skinner, 2006). There are few instruments which have been developed to measure the digital health literacy, i.e. the E-HEALS (Norman & Skinner, 2006), and the Digital Health Literacy Instrument (Van der Vaart & Drossaert, 2017). The analysis of these tools has allowed us to identify some limits: they appear to be confined to measure the “functional” level of the digital health literacy, that is the basic digital skills and the ability to understand the information found on the Internet. Furthermore, they do not take into account the growing spread of anti-scientific attitudes, which could be related to the use of digital media.
Objectives

The study aims to increase knowledge about digital health literacy. Specifically, we want to test two hypothesis. The first hypothesis is that the exposure to web-based health information could increase the perception of being more informed, even if that perception is not actual. With the second hypothesis, we suggest that people who view themselves as more competent with regard to seeking and understanding online health information may be more exposed to misinformation and have less actual knowledge about health.

Methods

We elaborated a questionnaire, based on a multidimensional theoretical framework. We have assumed that the concept of digital health literacy was composed of two dimensions: a factual digital health literacy, which refers to actual behavior and competences that laypersons practice on the Internet; a perceived digital health literacy, which regards the laypersons’ perceived confidence about skills and knowledge that they own about online health information seeking and understanding.

Notably, the factual aspect was measured by two behavioral questions, with a frequency scale response options. The first question, named Self-Care Scale, concerned the actual practice of health information seeking and included three aspects: the information seeking (i.e. “I put symptoms into a search engine to look for information”), the advice-seeking (i.e. “I asked a doctor for advice on a health problem in a website, blog or social media”), and the self-medication (i.e. “After searching the Internet for information on a drug, I bought it”). The second question – the Digital Competences Scale – aimed to measure five digital competences, by referring to the European Digital Competence Framework 2.0 (Vuorikari et al., 2016).

The perceived digital health literacy was evaluated by the Self-confidence Scale and the Over-confidence Scale. The first one was based on the E-HEALS Scale (Norman & Skinner, 2006), with a changing response scale format (7-point Likert scale). The second question was elaborated to test the Dunning-Kruger Effect (Kruger & Dunning, 1999) and the “overconfidence thesis” (Motta et al., 2018), namely the belief of being more informed than others about health.

Medical expertise, actual health knowledge, and socio-demographics properties have been also investigated. The web-based questionnaire was administered between April and May 2019 among a non-probability purposive sample of Italian university students.

Results

The sample (N=403) was composed by female (63,5%), aged between 19 and 30 (mean = 21,9; std. dev. = 4,46). We have conducted preliminary analysis and elaborated the following indexes: a) the level of trust in medicine and medical experts (Trust Index), according to which the 27% of the respondents has low level of trust, 52% has a medium level and 21% highly trusts doctors; b) the level of actual health knowledge (Knowledge Index), by which we subdivided the sample into informed (82,4%) and misinformed/skeptic persons (17,6%); c) the use of the Web for seeking and applying health information (Self-care Index), with 61,8% of the sample that results not-frequent user, and 38,3% is frequent user; d) the perceived overconfidence about health knowledge gained by seeking information on the Web.
(Overconfidence Index), according to which the 85.6% of the respondents has lower overconfidence level, and the 14.4% has higher level; e) the perceived competences about seeking and understanding web-based health information (Self-confidence Index), with 74.9% of the respondents has high level of self-confidence and 25.1% has low level.

To test our hypothesis, we calculated the correlation (two-tailed) between Self-care Index, Self-confidence Index, Knowledge Index, and Overconfidence Index. There was a positive correlation between the Self-care Index and the Self-Confidence Index ($r = .30, p = < 0.01$), between the Self-Care Index and the Overconfidence Index ($r = .20, p = < 0.01$), and between the Self-confidence Index and the Overconfidence Index ($r = .22, p = < 0.01$). Instead, there was a negative correlation between Knowledge Index and Self-care Index ($r = -.18, p = < 0.01$), and Knowledge Index and the Overconfidence Index ($r = -.16, p = < 0.01$).

Therefore, our results suggest that the more laypersons are involved in seeking health-related information on the Internet, the more they are exposed to misinformation and they show less accurate knowledge about health. Moreover, the more laypersons feel confident regarding their ability to search, understand and assess web-based health information, the more they seem to be exposed to misinformation.

**Conclusion**

Whereas, to date, one of the main sources of health information for the adult population is the Internet (Eurobarometer, 2014), health communication studies will increasingly have to take into account the impact of digital health literacy on lay people. Today, with health information spread on the Internet and social media, individuals are vulnerable to misinformation and fake news, with potentially negative consequences for their health status. Therefore, the understanding of how digital health literacy can affect our health choice, and which population groups are more exposed to health misinformation, is becoming increasingly important. This exploratory study may provide a contribution to the development of a new instrument to assess digital health literacy among laypersons.
References


Panel 5  

Talking about health issues

14 November, 16:30 – 17:45

Room RAA-G-01

Chair: Hanneke Hendriks (Amsterdam)

Kessler, Sabrina Heike; Schmidt-Weitmann, Sabine (Zurich)
*The health narratives of online inquiries to the University Hospital Zurich: An automated content analysis*

Chen, Meng (Vienna)
*The impact of language use on social support exchange in an online breast cancer discussion group*

Bresciani, Sabrina (St. Gallen)
*Visual facilitation for health-related interpersonal communication*

Merminod, Gilles; Semlali, Imane; Terrier, Ana; Weber, Orest; Singy, Pascal (Lausanne)
*Elders’ social networks and the communication of chronic pain*
The health narratives of online inquiries to the University Hospital Zurich: An automated content analysis

Sabrina Heike Kessler¹, Sabine Schmidt-Weitmann²

Introduction

Digitalization in the healthcare sector leads to new requirements and challenges in the doctor-patient relationship (Brockes et al. 2018; Meinzer 2019). Besides the traditional social face-to-face doctor-patient interactions there are new anonymous online consultation situations which define a different social context. Since 1999, the University Hospital Zurich (USZ) has offered a web-based medical online consultation service for laymen, which is unique in this form in the German-speaking countries³. About 2500 questions are answered per year usually within 48 hours by a medical team of the USZ (Brockes et al. 2018). In this one-sided lay people-to-expert online consultation, the users got as much time and space for their anonymous inquiries and related health narratives as they would like to have.

Health narratives are individual, social, and cultural (re)constructions of a personal health issue or medical problem, subjective illness experience, and individual resulting question(s) (Birkner 2006; Gray 2009; Meinzer 2019). They are defined as „linguistic constructions of lived experiences that attempt to make sense of actions, motives, and consequences, as well as interactions, relationships, and emotions.” (Gray 2009: 259). This systems of disease/health-related ideas, knowledge, convictions, beliefs, and evaluations are the subject of substantial research (e.g., in psychology, linguistics, sociology, consumer research, and in the medical field; Birkner 2006; Birkner & Vlassenko 2015). Health narratives offer information, meaning, context, and perspectives of individuals (Gray 2009). They are context-sensitive and influenced by socialization and cultural models (Birkner 2006, 2015). Further, they are shaped, socially constructed, and the result of authorial decisions (Birkner 2006; Meinzer 2019; Verres 1989). The narrator and the assumed listener affect how a story is told (Greenhalgh & Hurwitz 1999).

All illnesses are socially constructed at the experiential level based on how individuals understand, experience, live, and cope with their illness (Conrad & Barker 2010). They are a state of disharmony, disequilibrium, and disability; there is a loss of certainty which is a cause for great personal loss of control, anxiety, and fear (Toombs 1987).

Emotions are intertwined with narratives: Narratives evoke emotions and emotions shape narratives (Beatty 2010; Kleres 2010; Rees et al. 2013). Emotions can affect health-related behaviors; the emotion.

¹ Department of Communication and Media Research (IKMZ), University of Zurich, Switzerland
² University Hospital of Zurich, Switzerland
³ How it works (Brockes et al. 2018; Schmidt-Weitmann et al. 2017): The online questionnaires of the USZ-Online counseling service are accessed via the homepage of the USZ (www.usz.ch). The request can be made anonymously, as only a valid e-mail address is required to send the answer. In addition to the general question, the questioner asks since 2003 for optional information e.g. about personal characteristics (age, sex, height, weight) of the user. Further an assignment of the ICD-10 codes of the diseases is carried out exclusively by the tele-doctors. The user can choose whether his request may be used for scientific purposes or not. Finally, the user receives an e-mail with an active link to the answer, which is stored on a server in the USZ and thus protected against unlawful access. It is charged from 2008 to June 2018 with 75CHF per inquiry.
shame is especially considered a strong barrier to talking about diseases (Dolezal 2015; Dolezal & Lyons, 2017). Emotions are elicited by and directed towards others and have a communicative function (Scherer et al. 1986; Shiota & Kalat 2012). As internal, subjective constructs based on experience and socialization (Toombs 1987), they are observable only through expressive manifestations (Schwarz-Friesel 2013). Emotions form a recurrent element of disease presentations and are frequently mentioned by affected persons as a (central) component of subjective health narratives (Lindemann 2015). Overall, the study of emotions in health communication and narratives is still in the early stages (Kleres 2010; Lindemann 2015).

**Research Questions (RQs)**

RQ1: Who are the inquirers?

RQ2: In relation to which diseases are online inquiries made?

RQ3: Which emotions are expressed in the health narratives of the online inquiries?

**Method**

We conducted an automated content analysis of all online inquiries to the USZ from 09.08.1999 to 07.06.2018 by using the software WordStat with the QDA-Miner. There was a total of 59360 inquiries in the dataset but only the inquiries with the questioner consent for scientific evaluation where used and after data cleaning there is a total of 55476 inquiries. In WordStat a dictionary for emotions was self-constructed by using the German Regressive Imagery Dictionary for emotions with supplements from German linguistic literature about emotions (Schwarz-Friesel 2013; Bergenholtz 1980; Shiota & Kalat 2012) and a German online dictionary of synonyms. To compare the diseases in the online inquiries with the statistical emergence of diseases in Switzerland, we used the annual statistics of Swiss hospitals according to the ICD-10-WHO (WHO 2016). These online statistics from 1999 to 2016 are available, open access, from the Swiss Federal Statistical Office (BFS 2016).

**Results**

The 55476 inquiries were performed by 43111 different people, most of whom were onetime users (n=35160; 81.6%); 6244 users (14.5%) made two to five inquiries, 496 (1.2%) made six to 14 inquiries, and 37 (0.1%) made 15 to 32 inquiries. As of 2008, the service was subject to a charge. In 2007, there was a record of 7134 requests per year, and from the cost barrier in 2008 on, there were only a maximum of 3,243 requests in 2011 (Figure 1). The PR activities and Google AdWord campaigns launched from 07/2010 to 09/2011 and 06/2012 to 12/2012 had a visibly positive effect on the number of inquiries. Since 2003, specific personal characteristics of the inquirers have been surveyed separately.

---

4 by C. Martindale (translated by R. Delphendahl); [https://provalisresearch.com/products/content-analysis-software/wordstat-dictionary/regressive-imagery-dictionary/](https://provalisresearch.com/products/content-analysis-software/wordstat-dictionary/regressive-imagery-dictionary/)

5 In a reliability test, a trained coder manually coded the expressed emotions of 300 cases, which was then compared with the automatic coding. Table 1 displays the reliability values. It turned out that the automated content analysis measured the expressed emotions in the inquiries with a good validity. Emotions can be expressed not only by emotion words but also syntactically or by metaphors (Habermas et al., 2009; Kleres, 2010; Schwarz-Friesel, 2013), and people make spelling mistakes, especially in the Swiss context (Swiss German is sometimes written in a way that lacks official spelling rules). This explains the expressed emotions that the automated content analysis could not capture.
The majority of the inquirers were female (58%; Figure 2) and on average, the inquirers were 38 years old. However, the inquirers changed from 1999 to 2018. Over time, significantly more men ($r(37908)=-.02, p<.001$) and more older adults began making inquiries ($r(42415)=-.12, p<.001$). Before the cost increase, the inquirers were, on average, younger than afterward (Table 3). From 12/2011 onward (after the price increase) to 08/2017, the average inquirers were older and, eventually, became younger again (Figure 3).

Most inquiries were about symptoms and signs that were not classified, about health services related to reproduction, diseases of pulmonary circulation, disorders of the skin, health services, disorders of the eye and nervous system, injuries, and disorders of the female genital tract (Table 4). The frequencies of the diseases were compared separately by year with the statistical frequencies of the diseases in the Swiss hospitals from 1999 to 2016 (Table 5). Statistically significant correlations were found for most years. Approximately one sixth of the questions addressed intimate diseases related to the genitals, gastrointestinal and venereal diseases, obesity, or mental disorders (17.7%; $n=6,586$).

Negative emotions were most frequently expressed (about 33% of health narratives; $n=18048$). These were most frequently suffering (17.4%; $n=9,677$), anxiety or fear (6.8%; $n=3,786$), worry (3.4%; $n=1,865$), sadness (3%; $n=1,670$), and shame (0.8%; $n=442$). Shame was mentioned disproportionately often in the case of diseases related to the genitals, gastrointestinal and venereal diseases, obesity, and mental disorders. Positive emotions were expressed in only 12% of cases ($n=6,667$). Overall, more negative than positive emotions were expressed (Figure 4).

**Discussion**

This study confirms the close connection between health narratives and emotions. Expressed emotions contain a communicative function and also an appeal to the addressee (Shiota & Kalat 2012), so the importance and urgency but also the justification of the inquiry should presumably be supported. Inquiries were made relatively often about those diseases that frequently are likely to cause shame. Shame is often significant when considering an individual’s health (Dolezal 2015; Dolezal & Lyons 2017). Shame is often a feeling that inhibits people from openly speaking about health concerns (Dolezal 2015; McCambidge & Consadine 2014). Online consultation services can strengthen patient empowerment and health literacy through the individual provision of health information (Brockes et al. 2018).

We would like to discuss further interpretations of the results and the limitations of the study in the presentation.
Appendix

Table 1: Comparison of the automated coding with manual coding

<table>
<thead>
<tr>
<th>Category</th>
<th>Cohen's kappa coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>negative emotions</td>
<td>0.90</td>
</tr>
<tr>
<td>positive emotions</td>
<td>0.85</td>
</tr>
<tr>
<td>joy (happiness, fun...)</td>
<td>0.92</td>
</tr>
<tr>
<td>fear (panic, fright...)</td>
<td>0.96</td>
</tr>
<tr>
<td>shame</td>
<td>0.92</td>
</tr>
<tr>
<td>uncertainty</td>
<td>0.80</td>
</tr>
</tbody>
</table>

Note: n = 300

Table 2: Information about the inquirers

<table>
<thead>
<tr>
<th>Variable</th>
<th>Descriptives</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person ID</td>
<td>n = 43111</td>
<td>persons first registration</td>
</tr>
<tr>
<td>Age</td>
<td>M = 38 (SD = 17.3); p25 = 25; p50 = 35; p75 = 49</td>
<td>missing = 13061</td>
</tr>
<tr>
<td>Sex</td>
<td>m = 15901; 41%; f = 22007; 58%</td>
<td>missing = 17568</td>
</tr>
<tr>
<td>Weight</td>
<td>M = 68kg (SD = 18kg)</td>
<td>missing = 13147</td>
</tr>
<tr>
<td>Height</td>
<td>M = 169cm (SD = 15.8cm)</td>
<td>missing = 15469</td>
</tr>
<tr>
<td>Ailments</td>
<td>no = 34057; yes = 1809</td>
<td>missing = 19610</td>
</tr>
<tr>
<td>Medication</td>
<td>no = 35790; yes = 2885</td>
<td>missing = 16598</td>
</tr>
<tr>
<td>Other diseases</td>
<td>no = 28119; yes = 998</td>
<td>missing = 26175</td>
</tr>
<tr>
<td>Treatments</td>
<td>no = 13242; yes = 970</td>
<td>missing = 41077</td>
</tr>
<tr>
<td>BMI (Body-Mass-Index)</td>
<td>M = 23.4 (SD = 4.9)</td>
<td>missing = 15706</td>
</tr>
</tbody>
</table>

Note: total n = 55476

Table 3: Average age of online inquirers per year

<table>
<thead>
<tr>
<th>Year</th>
<th>Age M(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>35.6 (15.4)</td>
</tr>
<tr>
<td>2004</td>
<td>34.5 (15.4)</td>
</tr>
<tr>
<td>2005</td>
<td>35.3 (15.5)</td>
</tr>
<tr>
<td>2006</td>
<td>35.5 (15.3)</td>
</tr>
<tr>
<td>2007</td>
<td>35.8 (15.5)</td>
</tr>
<tr>
<td>2008A</td>
<td>38.7 (17.2)</td>
</tr>
<tr>
<td>2009</td>
<td>39.2 (16.9)</td>
</tr>
<tr>
<td>2010</td>
<td>43.1 (18.2)</td>
</tr>
<tr>
<td>2011</td>
<td>45.0 (19.0)</td>
</tr>
<tr>
<td>2012</td>
<td>45.0 (19.4)</td>
</tr>
<tr>
<td>2013</td>
<td>43.4 (20.0)</td>
</tr>
<tr>
<td>2014</td>
<td>38.6 (18.8)</td>
</tr>
<tr>
<td>2015</td>
<td>36.5 (18.7)</td>
</tr>
<tr>
<td>2016</td>
<td>36.5 (18.8)</td>
</tr>
<tr>
<td>2017</td>
<td>36.6 (18.1)</td>
</tr>
<tr>
<td>2018</td>
<td>35.9 (18.8)</td>
</tr>
<tr>
<td>Total</td>
<td>38.1 (17.3)</td>
</tr>
</tbody>
</table>

Note: n = 42415; Ayear of cost introduction
Table 4: Frequencies of diseases in the inquiries

<table>
<thead>
<tr>
<th>WHO</th>
<th>International statistical classification of diseases and related health problems, ICD-10-WHO version 2016 (WHO, 2016)</th>
<th>Frequency &gt; 250</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A00-A49)</td>
<td>Intestinal infectious &amp; bacterial diseases</td>
<td>292</td>
<td>0.8</td>
</tr>
<tr>
<td>(A50-A74)</td>
<td>Infections with a predominantly sexual mode of transmission</td>
<td>525</td>
<td>1.4</td>
</tr>
<tr>
<td>(B00-B09)</td>
<td>Viral infections by skin &amp; mucous membrane lesions</td>
<td>542</td>
<td>1.5</td>
</tr>
<tr>
<td>(B15-B34)</td>
<td>Viral hepatitis &amp; other viral diseases</td>
<td>311</td>
<td>0.8</td>
</tr>
<tr>
<td>(B35-B89)</td>
<td>Mycoses, protozoal diseases, helminthiasis, &amp; pediculosis</td>
<td>508</td>
<td>1.4</td>
</tr>
<tr>
<td>(C00-C49 &amp; C69-C96)</td>
<td>Malignant neoplasms</td>
<td>848</td>
<td>2.3</td>
</tr>
<tr>
<td>(C50-C68)</td>
<td>Malignant neoplasm of breast, genital organs, &amp; urinary tract</td>
<td>459</td>
<td>1.2</td>
</tr>
<tr>
<td>(D10-D48)</td>
<td>Benign neoplasms &amp; neoplasms of uncertain</td>
<td>715</td>
<td>1.9</td>
</tr>
<tr>
<td>(D50-E14)</td>
<td>Diseases of blood, of thyroid gland, &amp; diabetes mellitus</td>
<td>667</td>
<td>1.8</td>
</tr>
<tr>
<td>(E20-E64)</td>
<td>Endocrine glands disorders, malnutrition, &amp; nutritional deficiencie</td>
<td>446</td>
<td>1.2</td>
</tr>
<tr>
<td>(E65-E68)</td>
<td>Obesity and other hyperalimentation</td>
<td>350</td>
<td>0.9</td>
</tr>
<tr>
<td>(E70-E90)</td>
<td>Metabolic disorders</td>
<td>279</td>
<td>0.7</td>
</tr>
<tr>
<td>(F00-F09, F20-F29, &amp; F60-F99)</td>
<td>Mental and behavioural disorders</td>
<td>412</td>
<td>1.1</td>
</tr>
<tr>
<td>(F10-F19)</td>
<td>Mental &amp; behavioural disorders due to psychoactive substance use</td>
<td>235</td>
<td>0.6</td>
</tr>
<tr>
<td>(F30-F39)</td>
<td>Mood (affective) disorders</td>
<td>309</td>
<td>0.8</td>
</tr>
<tr>
<td>(F40-F48)</td>
<td>Neurotic, stress-related, and somatoform disorders</td>
<td>678</td>
<td>1.8</td>
</tr>
<tr>
<td>(F50-F59)</td>
<td>Behavioural syndromes ass with psych disturbances &amp; phys factors</td>
<td>476</td>
<td>1.3</td>
</tr>
<tr>
<td>(G00-G99)</td>
<td>Disorders of the nervous system</td>
<td>1124</td>
<td>3.0</td>
</tr>
<tr>
<td>(H00-H59)</td>
<td>Disorders of eye</td>
<td>1332</td>
<td>3.6</td>
</tr>
<tr>
<td>(H60-H95)</td>
<td>Diseases of ear</td>
<td>757</td>
<td>2.0</td>
</tr>
<tr>
<td>(I00-I99)</td>
<td>Diseases of pulmonary circulation</td>
<td>1510</td>
<td>4.1</td>
</tr>
<tr>
<td>(J00-J99)</td>
<td>Diseases of respiratory tract</td>
<td>840</td>
<td>2.3</td>
</tr>
<tr>
<td>(K00-K14)</td>
<td>Diseases of oral cavity, salivary glands and jaws</td>
<td>597</td>
<td>1.6</td>
</tr>
<tr>
<td>(K20-K54 &amp; K65-K93)</td>
<td>Diseases of the digestive system</td>
<td>896</td>
<td>2.4</td>
</tr>
<tr>
<td>(K55-K64)</td>
<td>Other diseases of intestines</td>
<td>376</td>
<td>1.0</td>
</tr>
<tr>
<td>(L00-L14 &amp; L40-59)</td>
<td>Diseases of skin</td>
<td>565</td>
<td>1.5</td>
</tr>
<tr>
<td>(L20-L30)</td>
<td>Dermatitis and eczema</td>
<td>657</td>
<td>1.8</td>
</tr>
<tr>
<td>(L60-L75)</td>
<td>Disorders of skin appendages</td>
<td>1398</td>
<td>3.8</td>
</tr>
<tr>
<td>(L80-L99)</td>
<td>Other disorders of the skin and subcutaneous tissue</td>
<td>560</td>
<td>1.5</td>
</tr>
<tr>
<td>(M00-M25)</td>
<td>Arthropathies</td>
<td>992</td>
<td>2.7</td>
</tr>
<tr>
<td>(M30-M54)</td>
<td>Systemic connective tissue disorders &amp; dorsopathies</td>
<td>874</td>
<td>2.3</td>
</tr>
<tr>
<td>(M60-M79)</td>
<td>Soft tissue disorders</td>
<td>938</td>
<td>2.5</td>
</tr>
<tr>
<td>(M80-M99)</td>
<td>Disorders of bone density and structure</td>
<td>228</td>
<td>0.6</td>
</tr>
<tr>
<td>(N00-N39)</td>
<td>Disorders of the genital-urinary system</td>
<td>475</td>
<td>1.3</td>
</tr>
<tr>
<td>(N40-N51)</td>
<td>Diseases of male genital organs</td>
<td>867</td>
<td>2.3</td>
</tr>
<tr>
<td>(N60-N77)</td>
<td>Disorders of breast &amp; female pelvic organs</td>
<td>362</td>
<td>1.0</td>
</tr>
<tr>
<td>(N80-N98)</td>
<td>Noninflammatory disorders of female genital tract</td>
<td>1061</td>
<td>2.8</td>
</tr>
<tr>
<td>(O00-O99)</td>
<td>Maternal disorders predominantly related to pregnancy</td>
<td>504</td>
<td>1.4</td>
</tr>
<tr>
<td>(Q00-Q07)</td>
<td>Congenital malformations</td>
<td>814</td>
<td>2.2</td>
</tr>
<tr>
<td>(R00-R99)</td>
<td>Symptoms and signs, which are not classified</td>
<td>5357</td>
<td>14.4</td>
</tr>
<tr>
<td>(S00-T35)</td>
<td>Injuries</td>
<td>1118</td>
<td>3.0</td>
</tr>
<tr>
<td>(Y40-Y59)</td>
<td>Substances causing adverse effects in therapeutic use</td>
<td>712</td>
<td>1.9</td>
</tr>
<tr>
<td>(Z00-Z13)</td>
<td>Health services for examination &amp; investigation</td>
<td>282</td>
<td>0.8</td>
</tr>
<tr>
<td>(Z20-Z29)</td>
<td>Health hazards related to diseases</td>
<td>741</td>
<td>2.0</td>
</tr>
<tr>
<td>(Z30-Z39)</td>
<td>Health services related to reproduction</td>
<td>1586</td>
<td>4.3</td>
</tr>
<tr>
<td>(Z40-Z54)</td>
<td>Health services for specific procedures &amp; health care</td>
<td>307</td>
<td>0.8</td>
</tr>
<tr>
<td>(Z70-Z76)</td>
<td>Health services in other circumstances</td>
<td>1383</td>
<td>3.7</td>
</tr>
</tbody>
</table>

Total (18229 not categorizes=32.86%) 37247 100.0

Notes: A Summarized according to the ICD-10-WHO classification up to a frequency > 250; B Intimate diseases related to genitils, bowel, venereal diseases, obesity, & mental disorders
Table 5: Correlations between the diseases of the online inquiries and the statistical emergence of diseases in Switzerland’s hospitals

<table>
<thead>
<tr>
<th>Year</th>
<th>Pearson's r</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>2.29*</td>
</tr>
<tr>
<td>2000</td>
<td>4.90***</td>
</tr>
<tr>
<td>2001</td>
<td>4.13***</td>
</tr>
<tr>
<td>2002</td>
<td>6.07***</td>
</tr>
<tr>
<td>2003</td>
<td>4.89***</td>
</tr>
<tr>
<td>2004</td>
<td>5.62***</td>
</tr>
<tr>
<td>2005</td>
<td>4.34***</td>
</tr>
<tr>
<td>2006</td>
<td>5.14***</td>
</tr>
<tr>
<td>2007</td>
<td>4.68***</td>
</tr>
<tr>
<td>2008</td>
<td>4.05***</td>
</tr>
<tr>
<td>2009</td>
<td>3.60***</td>
</tr>
<tr>
<td>2010</td>
<td>5.04***</td>
</tr>
<tr>
<td>2011</td>
<td>3.14***</td>
</tr>
<tr>
<td>2012</td>
<td>3.09***</td>
</tr>
<tr>
<td>2013</td>
<td>2.53*</td>
</tr>
<tr>
<td>2014</td>
<td>2.02*</td>
</tr>
<tr>
<td>2015</td>
<td>2.55*</td>
</tr>
<tr>
<td>2016</td>
<td>1.57</td>
</tr>
</tbody>
</table>

Notes: ***p < .001; **p < .01; *p < .05

Figure 1: Number of inquiries over time
References


Brockes C., Barresi F., Schmidt C., Schulz E, & Schmidt-Weitmann S. (2018). Health topics of medical online inquiries at the University Hospital of Zurich: Experiences of the last 12 years. *Deutsche Medizinische Wochenschrift, 143*(22), e197-e205.


The impact of language use on social support exchange in an online breast cancer discussion group

Meng Chen

Abstract

According to the Centers for Disease Control and Prevention, breast cancer is the most common cancer among women around the world. Its diagnosis and subsequent treatments are undoubtedly a painful and traumatic experience (Ganz, 2000). Research showed that receiving the treatments can be very arduous and suffering which provoke a range of emotional distress and mood disturbances, including fear, shock, anxiety, worrisome of recurrence, feelings of isolation (Somerset, Stout, Miller, & Musselman, 2004). Online support groups are increasingly becoming the central platform for patients to share their experiences, ask questions, and solicit support (Rains, Peterson, & Wright, 2015; Wright, Johnson, Bernard, & Averbeck, 2011).

A large body of research has examined the physical and mental effects of online social support. People participating online discussion groups reported fewer physical symptoms, better subjective well-being, better life quality, and longer survival rate (Spiegel, Bloom, & Yalom, 1981). However, little research has examined the factors determining the successful solicitation of social support from online discussion groups. Adopting a computational analysis approach, this study seeks to understand the linguistic features of social support solicitation posts in an online breast cancer discussion group, and their impacts on types and amount of social support obtained from peers. The analysis is based on 21,952 threads made by 1,443 breast cancer survivors which elicited 257,130 replies from an online discussion group.

Sociolinguists have long believed that people’s word use can convey far more than just the story itself (Giles & Wilemann, 1993). To tell the same story, different people employ different content words (e.g., religion, death, occupation) and function words (e.g., pronouns, propositions). A computerized text analysis program called Linguistic Inquiry and Word Count (LIWC; Pennebaker, Francis, & Booth, 2001) was developed to examine the linguistic features given any text file. LIWC uses a word-count strategy whereby it searches for over 2,000 words or word stems which have previously been categorized into over 70 linguistic dimensions, including functional words (e.g., articles, prepositions, pronouns), psychological processes (e.g., positive and negative emotion categories, cognitive processes such as use of causation words, self-discrepancies), relativity-related words (e.g., time, verb tense, motion, space), and traditional content dimensions (e.g., sex, death, occupation) (Pennebaker et al., 2001).

This study specifically examined the impact of five linguistic categories on amount and types of received social support: emotional experience and expression (e.g., positive vs. negative emotions, hope, fear), identity and social relationships (e.g., use of first-person singular vs. plural pronouns), time orientation (e.g., past, future), and cognitive processing (e.g., because, hence, think). The research

---

1 Department of Media Communications, Webster Vienna Private University, Austria
question of this study is thus “Do these five linguistic categories of social support soliciting posts affect the amount and types of support received from peers?”

Data were extracted in July 2018 from BreastCancer.org Community. The unit of analysis was each support solicitation thread, which linguistic analysis was conducted upon. The amount of social support was measured by number of replies each thread received. 1,000 threads and their replies were randomly selected for social support type coding. The replies are manually coded into five groups: emotional, network, esteem, tangible, and informational support (Cutrona & Russell, 1990). Regression analysis was employed to examine the associations with threads’ linguistic features and social support acquired from the group.

There are three major findings. First, support soliciting threads with higher number of positive affective words received significantly greater number of replies ($\beta = .09, p < .001$), whereas negative affective words use in threads have no influence on amount of received support. Second, threads with more families and friends words received more emotional support ($\beta = .24, p < .05$). Third, more frequent use of past and future words predicted more informational and instrumental support received from their peers ($\beta = .19, p < .05$).

The present study sought a better understand of social support solicitation in online discussion groups by examining the impact of linguistic features of solicitation thread on support acquired from peers. It contributes to the literature in theoretical, methodological, and practical ways. First, it adds to the literature of social support by considering the linguistic factors in online support solicitation threads. The findings suggest a number of linguistic factors have the potential to catch people’s attention and acquire social support. This study also makes methodological advances. Unlike previous social support studies that predominantly relied on self-reports collected from limited samples, we unobtrusively web-scrapped the language use of the entire online discussion group and conducted a large-scale computational analysis. This macro approach effectively addresses recall inaccuracy, data subjectivity, and sampling bias. Third, this study provides practical insights for health practitioners and forum designers who seek to utilize online discussion groups to facilitate communication and support among patients. The results suggested that depending on different support seeking goals (emotional vs. informational), support solicitors are encouraged to refer different topics in their initial threads to obtain the most desired social support.
References


Visual facilitation for health-related interpersonal communication

Sabrina Bresciani

Images and health communication

The benefits of images for health communication are well known and utilized for mass communication health campaigns (Clarke et al., 2012; Garcia-Retamero, et al., 2012; Chang, 2013; King et al., 2014; Lazard et al., 2016; King, 2017). Multimodal messages increase understanding, recall and engagement because they are processed by both the verbal and the visual channels, according to dual coding theory (Paivio, 1990).

The advantages offered by images are seldom deployed for facilitating interpersonal communication in the healthcare sector, with few exceptions, which have focused on the use of images in participatory research (Najib Balbale et al., 2014; Estrada et al., 2018); yet, their benefits for supporting self-help (mutual aid) groups have not yet been addressed.

There is evidence from organizational studies (Paroutis et al., 2015) that sketching, knowledge maps, visual templates (also known as canvases) and visual methodologies provide numerous benefits for facilitating interpersonal communication (Perez Garcia & Bresciani, 2015). Utilizing visuals for facilitating group dialogue has three main advantages: Firstly, by leveraging visuo-spatial reasoning (Tversky, 2005) the discourse becomes tangible: ideas and opinions are annotated on paper and meaningfully mapped, allowing participants to “see” the big picture and the connections between the discussed ideas, thus augmenting mutual understanding. Secondly, visual templates provide structural restrictiveness, which is “the potential of a visual to provides guidance for a task” (Bresciani, 2019; pg. 102). In organizations, knowledge maps and visual templates are utilized to structure meetings, to increase the focus of the conversation and, consequently, the quality of the knowledge shared or of the decisions made (Meyer et al., 2013; Paroutis, et al., 2015). Thirdly, visualizing dialogue has the advantage to provide a record of the discussed topics, which is useful during the conversation itself (to make reference to earlier discussed topics), and afterwards, to have a physical recording of the issues discussed (Eppler, 2004).

Methodology

We propose that the effects of visual templates for facilitating health-related interpersonal communication should be studied. With this aim, we set-up a qualitative exploratory study in which a specific visual template is provided to facilitate self-help groups of parents of children with Autism Spectrum Disorder (ASD). It is well-known that self-help groups can provide several benefits for families (Citron et al., 1999). In particular, parents of children with ASD experience relevant difficulties (Carter, 2009; Papageorgiou & Kalyva, 2010).
In the context of a project for the support of parents and caregivers of children with ASD, lead by a NPO (non-for-profit organization), a meeting was organized to start building a self-help group of parents of children with ASD in a specific geographic area. The author proposed the meeting organizers to utilize visual moderation. For this purpose a visual template was developed jointly by the author and an experienced psychotherapist, with the purpose to guide participants in sharing their own experience in a meaningful and effective manner during the meeting. The visual template has six categories specific to the users’ group (Fig. 1), designed to provide an adequate level of structural restrictiveness (Alexander et al., 2015; Bresciani, 2019) by visually inviting participants to think about, and discuss, a range of aspects and not to be overly focused on a specific topic (i.e., experiences in school).

In order to increase the quality and quantity of shared ideas, to avoid group think, and to ensure a balanced participation of all group members, the nominal group technique can be very effective, as demonstrated by studies on knowledge sharing and creativity in organizations (Boddy, 2012): at the beginning of the meeting, participants should be asked to think and write, individually and in silence, their experiences and ideas, utilizing the visual template categories as guidance. For this reason participants should be provided with sticky-notes and pens. After the individual ideation phase, participants should share the written ideas with the group.

Sample and Procedure

A total of 18 participants took part to the meeting. They were greeted and then divided into three groups, of a maximum of six participants each, and each group was assigned to a large table which had one visual template, sticky-notes and pens. After an introduction about the purpose of the meeting, the visual self-facilitation methodology was explained to the participants. Participants were then given 10 minutes to write down individually their own ideas on sticky-notes. Afterward, participants were invited to share their sticky-notes with their group for 45 minutes, and then to present the main insights to the other groups in a plenary session. All participants were unfamiliar with the visual facilitation technique, all spoke the local language (Italian) and had very different socio-economic backgrounds.

Results

It could be observed that all members participated actively in the nominal ideation phase, writing several ideas on sticky notes. When they were then invited to share their ideas, all participants were engaged, listening and contributing. As the discussion progressed, it could be observed that participants conversed about topics which were not written on the sticky-notes. When time was over, all participants were very engaged and interested in continuing the conversation. Each group presented the template with their key shared experiences (Fig. 2-4) to the other groups. At the end of the meeting, participants were provided a brief questionnaire which asked if they wanted to sign-up for the self-help group future meetings, among other questions. All families signed-up and actually participated to the following meetings of the self-help group. The high follow-up participation is considered by the organizers a positive outcome of the first meeting.

From an interpersonal communication perspective (Duggan, 2006), we can observe from Figure 2-4 that all the six categories of the template were covered by all groups, therefore suggesting that—in this exploratory project—the structural restrictiveness of the template was useful to guide participants in
discussing the range of topics suggested, in line with findings in the organizational context (Alexander et al. 2015; Bresciani, 2019). Secondly, in line with extant studies, the filled-in visual templates (Fig. 2-4) provide a record of the discussed topics during and after the conversation (Eppler, 2004).

From a theoretical point of view we would have expected participants to exploit “visuo-spatial reasoning” (Tversky, 2005) by utilizing the 2-dimensional space of the template in a meaningful way, for instance placing closer topics which are related or drawing connections between related topics. The reason might be that participants were not familiar with visual facilitation: this aspect should be taken into account in future studies by, for instance, comparing templates which are more visually suggestive (with icons and visual metaphors), or by giving more specific training.

In addition to the hypothesized advantages, some participants shared with the organizers that they felt uncomfortable when walked into the meeting because they thought they would have had to sit in a circle and shared their experiences in front of a large group. On the contrary, they liked the experience sharing format utilized, and they felt not only comfortable but also energized. These preliminary findings suggest that future research could investigate the effect of visual facilitation on participants’ emotional well-being, relationship and social support development (Duggan, 2006) in health-related interpersonal communication settings.
Appendix

Figure 1. Self-help group facilitation template (Available with Creative Commons license, to be utilized online or printed)
Figure 2. Visual template filled-in by group 1

Figure 3. Visual template filled-in by group 2
Figure 4. Visual template filled-in by group 3
References


Elders’ social networks and the communication of chronic pain

Gilles Merminod1, Imane Semlali1, Ana Terrier1, Orest Weber2, Pascal Singy2

Introduction

Chronic pain is one of the most frequent issues leading patients to see a health practitioner. It results in an important social and economic cost, knowing that more than a half of the elderly suffers from chronic pain (Larsson et al. 2017) and that ageing is an inescapable reality of European societies (OMS 2015). As a major demographic fact, ageing commits public authorities to finding sustainable solutions to manage the increasing care needs of elderly people with chronic pain. In this context, a better understanding of elders’ ways of communicating about chronic pain within their social networks could contribute to the enhancement of their care and the “better being” of this vulnerable population.

Aims of the Study

Drawing on social networks research (Dominguez 2014; Hollstein 2011) as well as on an applied linguistics perspective on health communication (Jones 2013), the aim of our study is threefold: (1) Is pain a topic for discussion within elders’ communicative networks? When, how and why? (2) Are there gaps in health communication about chronic pain with the elderly? And what are the health care system’s answers? (3) What new institutional and educational strategies could we suggest?

Research Methodology

Our study addresses these issues in three steps. We are currently conducting interviews with 50 elders (more than 75 years old) with chronic pain, and are carrying out a network as well as a content analysis in order to map the elders’ personal network and to identify their communication needs. Then, we intend to organize focus groups with different stakeholders (elders, relative caregivers, health professionals, decision-makers), to bring out potential clinical and institutional interventions. Finally, we plan to draw out recommendations for public and institutional policies as well as community and family support.

Preliminary Results

Elders’ social networks include between 6 and more than 30 persons of importance. So far, the analysis has shown that the most important persons in the network usually are the next of kin and that networks feature a specialization of relationships (importance of close relatives for daily needs versus importance of friends of the same age for social companionship).

1 Department of English, Université de Lausanne, Switzerland
2 Department of Language and Information Sciences, Université de Lausanne, Switzerland
In addition, our study has pinpointed several barriers and facilitators to chronic pain communication. The main obstacles are the negative evaluations surrounding troubles talk, such as the fear of threatening social relationships (boredom, annoyance). Nevertheless, particular social occasions, involving particular types of social networks, facilitate the communication of chronic pain: for instance, when somebody is catching up on the person’s news (troubles talk is here a reactive rather than an initiative action), when the person is chatting with friends or acquaintances of the same age (troubles talk is here relating to life experience and social identity), and when the person sees a doctor or another health professional (troubles talk is here an expected communicative task to carry out).
References


Panel 6 (open) User comments, virtual patients, and health information seeking

14 November, 16:30 – 17:45

Room RAA-E-30

Chair: Constanze Rossmann (Erfurt)

Küchler, Constanze; Kalch, Anja; Pavicic, Robert (Augsburg)
When multi-resistant bacteria are more vivid than we want them to be – how vividness in online user comments affects risk perception

Atanasova, Sara; Petrič, Gregor (Ljubljana)
Empowered, but not fully empowered: A cluster analysis of online health community users' individual and collective empowerment

van Weert, Julia C.M.; de Bruijn, Gert-Jan; Timmers, Kristy; Smets, Ellen (Amsterdam)
Can a virtual patient help clinicians to improve their communication skills? Development and pilot-evaluation of an interactive, computer-simulated virtual patient-based eLearning

Link, Elena (Hanover); Rosset, Magdalena (Hanover); Baumann, Eva (Hanover); van Weert, Julia (Amsterdam); Fahr, Andreas (Fribourg); Schulz, Peter (Lugano)
First steps to a European perspective on health information seeking behaviors
When multi-resistant bacteria are more vivid than we want them to be – how vividness in online user comments affects risk perception

Constanze Küchler¹, Anja Kalch¹, Robert Pavicic¹

Introduction

Multi-resistant bacteria are a global problem and defined by the WHO as one of the ten biggest global health threats (WHO, 2019). According to the World Health Organization (WHO) there is a risk of a post-antibiotic era in the future (Reardon, 2019). In particular for people with a weakened immune system, even the smallest infection could have serious consequences (Meyer, 2015). Unnecessary and incorrect intake of antibiotics doesn’t only derive from medical prescriptions but also from food, because farmers use antibiotics to treat and prevent diseases in livestock or to accelerate animal growth (Centers for Disease Control and Prevention, 2013). Although it is a serious threat to global health, the topic of multi-resistant bacteria has received little attention in public discourse (Mendelson, Balasegaram, Pulcini, & Sharland, 2017). A survey conducted by the WHO in 2015 shows that over 50 % of more than 10.000 people who participated in the study never heard about antimicrobial resistance. Additionally, several misperceptions exist about the occurrence of antibiotic resistance as well as how antibiotics should be used correctly (WHO, 2015). Thus, it is recommended to increase awareness and relevance about the problem and public education about appropriate antibiotic treatments (Grigoryan et al., 2007; Trust, W., 2015; WHO, 2015).

A possible way to successfully communicate the risks of this threat, to communicate knowledge, and to raise awareness of this issue can be online news-reporting. Additionally, narratives are a popular instrument within health communication and are used with the aim of helping people to make better decisions and to guide them to a more considerate approach to dangers and diseases (Dahlstrom, 2014; Shaffer, Hulsey, & Zikmund-Fisher, 2013). In the context of online news reporting narratives can be seen in user comments, where readers reflect on their personal experiences. User comments are an indicator of public opinion (Friemel & Dötsch, 2015; Neubaum & Krämer, 2016). As such they are able to change user evaluations of news articles and affect related attitudes more than articles without user comments (Hong & Cameron, 2018; Lee, 2012).

A theoretical explanation why these user-written narratives are effective, refers to their vivid style (Betsch et al., 2011). Vividness is a concept from psychology according to which vividly presented information is more likely to attract the attention of recipients and the information then can be retained and remembered for longer (Nisbett & Ross, 1980). According to Nisbett and Ross (1980, p. 45), a message can be described as vivid when it is "... (a) emotionally interesting, (b) concrete and imagery provoking, and (c) proximate in a sensory, temporal or spatial way". Vivid messages are supposed to strongly influence people’s conclusions and behavior (Nisbett & Ross, 1980). One possible explanation for the persuasive effect of vivid information could be their potential for identification. Vividness has

¹ Institut für Medien, Wissen und Kommunikation, University of Augsburg, Germany
been shown to be strongly correlated with identification (Dillard & Main, 2013), however causal effects were not tested yet.

Regarding the need to increase awareness about multi-resistant bacteria and antibiotic treatment, an informative news article in combination with vivid user comments could be a suitable instrument for clarifying the danger and sensitizing recipients to the topic. The abovementioned explanations lead us to the following hypothesis:

H1a-c) Participants who read a user comment with emotional language, concrete language and high proximity perceive higher risk of multi-resistant bacteria infections (H1a), a higher severity (H1b) and higher problem awareness (H1c) than participants who read less vivid user comments.

H2a-c) The effect of vivid user comments on risk perception (H2a), severity (H2b) and problem awareness (H2c) is mediated by identification.

Method

To test all hypotheses, we conducted a 2x2x2 online experiment. Overall 249 people participated in the study ($n_{\text{male}} = 137, n_{\text{female}} = 110, n_{\text{missing}} = 2$). Participants’ mean age ($n_{\text{missing age}} = 10$) is $M = 32.17$ ($SD = 12.07$). Risk perception was measured on a scroll bar ranging from not risky at all (0%) to very risky (100%), $M = 55.70$, $SD = 25.31$ (Haase, Betsch, & Renkewitz, 2015). Perceived severity of the threat (Chen, Bell, & Taylor, 2016) of multi-resistant bacteria was measured with five items (e.g. “Multi-resistant germs can pose a serious threat to health.”), $\alpha = .883$, $M = 6.36$, $SD = 0.93$. Problem awareness was measured with four items (e.g. “There is a need to intensify public education about multi-resistant bacteria”), $\alpha = .883$, $M = 5.93$, $SD = 0.76$.

Stimuli

Stimuli were a newspaper article and three user comments. The article was based on an article published online in a German newspaper but was modified to fit experimental requirements. The article reports that at least every tenth patient arrives at a clinic with multi-resistant bacteria or is infected during their stay in hospital. Regarding the comment section the first and the last comment were consistent over all experimental conditions, while the middle user comment was manipulated. The manipulated comment elaborates on the threat of multi-resistant bacteria. Within the comment three experimental factors were manipulated: Emotionality was expressed through adjectives (e.g. catastrophic), and for concrete comments, metaphors were used (e.g. multi-resistant bacteria as trojan-horse). Proximity was expressed with a first-person narrator, who worked in a hospital in Frankfurt, where deaths due to multi-resistant bacteria occurred a few months ago or a third-person narrator in London, where deaths due to multi-resistant bacteria occurred over the last years.

Results

To test for hypothesis H1a-H1c we conducted three ANOVAs with all three experimental factors and risk perception, perceived severity and problem awareness as dependent variables.

In terms of perceived risk a three way interaction is visible, $F(1, 241) = 4.35$, $p = .038$. In line with our assumption, participants in the condition without any vividness indicators indicated the weakest risk
perception ($M = 45.25$, $SD = 25.46$) compared to nearly all other conditions. The comment with emotional language (but without proximity and concreteness) resulted in the highest risk perception ($M = 63.77$, $SD = 24.67$) with all vividness indicators present resulted in the second highest risk perception of all conditions ($M = 61.74$, $SD = 21.09$).

Regarding perceived severity data analysis shows again a significant three-way interaction effect $F(1, 241) = 7.52$, $p = .007$. Pairwise comparisons show, that in the conditions with an emotional language and concreteness, proximity reduces perceived severity. All other conditions are rated comparably in severity. For problem awareness no significant effects are visible in the ANOVA.

In order to test for the assumed mediation effect, we conducted three mediation analyses using PROCESS for SPSS (model 4, 5000 bootstrap samples). Given that an ANOVA shows that identification is significantly increased by proximity, but not by the other two vividness aspects, proximity was used as independent variable in both analyses, while emotional language and concreteness were entered as controls. In line with our assumptions proximity indirectly increased problem awareness through identification ($b = 0.11$, $SE = .06$, CI .01, .24). A similarly small indirect effect is visible for proximity on severity through identification ($b = 0.14$, $SE = .07$, CI .02, .29).

To conclude, the study shows that vividness in user comments increases risk perceptions compared to a non-vivid condition. In particular proximity emerged as relevant element to increase identification. However, it is necessary to further explore the concept of vividness thoroughly and in particular other possible mediating effects of narrative engagement or emotions.
References


Empowered, but not fully empowered: 
A cluster analysis of online health community users' individual and collective empowerment

Sara Atanasova¹, Gregor Petrič²

Abstract

Online health communities (OHCs) have become one of the most important sources for searching and exchanging health-related information (Johnston et al., 2013). These types of Internet-based communities present venues where users (patients, caregivers, and individuals with similar health-related interests) can share health-related experiences and social support; socialize and communicate with others that are having or have had similar experiences with health issues; compare information on health issues; exchange patient-generated guidance; and evaluate treatments with peer patients and health professionals (Hartzler & Pratt, 2011; Zhang et al., 2017). Extensive body of research on OHCs has demonstrated that the usage of, and social interactions and communication among users in OHCs can be associated with feelings of higher self-esteem, self-efficacy and control related to managing their health issues, improved confidence in the relationship with their doctors, more competent use of health services, and improved social well-being and quality of life (Bartlett & Coulson, 2011; Mo & Coulson, 2012; Petrovčič & Petrič, 2014a). OHCs have thus been characterized as fostering users’ empowerment (Barak et al., 2008), with several empirical studies having provided evidence associating socio-psychological processes in OHCs with various empowering outcomes for patients (Mo & Coulson, 2010; Petrič et al., 2017; Visser et al., 2016).

Although empowerment processes and outcomes has been one of the central topics in OHCs studies, the literature has shortcomings in addressing users’ empowerment. First, the majority of studies has been predominantly focused only on individual empowerment, which refers to self-efficacy, control, motivation and competences, as well as one’s belief in the ability to use these components to engage in practices that would bring about desired health outcomes (Schulz & Nakamoto, 2013; Zimmerman, 1995). Only small number of studies (Ammari & Schoenebeck, 2015; Li, 2016; Lundström, 2014; Petrovčič & Petrovčič, 2014; Petrovčič & Petrič, 2014b, 2014b; Wentzer & Bygholm, 2013) have in OHC contexts focused on the second dimension of empowerment, i.e. collective empowerment. This dimension of empowerment refers to critical understanding of the socio-political environment and thus to having knowledge about needed resources and problem-solving skills and methods for identifying, obtaining, cultivating, managing and collectively mobilizing those resources in order for individuals as members of community (e.g. patient associations) to gain influence as a whole and, consequently, produce change in the structure of the socio-political environment (Peterson, 2014; Speer, 2000; Speer & Peterson, 2000; Zimmerman, 1995). Second, very limited number of research has been dedicated to the investigation of relation between individual and collective empowerment. The focus on the relation between both dimensions is of high importance, since it has been suggested that the two dimensions

¹ University of Ljubljana, Slovenia
may be in conflicting relationship, i.e. that the individuals’ need to develop self-efficacy, competence and control in personal (health-related) situation may undermine the initiations of individuals to cooperatively engage in collective action (Speer, 2000; Peterson et al., 2005; Petrič & Petrovčič, 2014).

Moreover, the characteristics of OHC’s users who develop only one dimension of empowerment and the characteristics of those users who have develop both individual and collective empowerment has remain under researched. This indicates that the intersection of individual and collective empowerment is an important area of study and it could help identify crucial resources, communication strategies and processes that lead OHC users to specific individual and/or collective empowerment outcomes.

The main aim of the study is to explore how OHC users cluster together according to individual and collective empowerment components and what are the characteristics of obtained clusters. More specifically, the following research questions are pursued: a) Do OHC users group in distinctive clusters according to their individual and collective empowerment components? b) What are the health-related and demographic characteristics of obtained clusters? c) Do differences or similarities exist among cluster membership based on the association with other variables established as relevant to empowerment theory and research, i.e. sense of virtual community, received online and offline social support, e-health literacy, and involvement in online community?

The study is based on data collected with Web-based survey conducted on a random sample of 30,000 registered users of the largest OHC in Slovenia, Med.Over.Net. The analyses were performed on a subsample of 743 respondents who had provided answers to components of individual and collective empowerment scales, which were developed, tested and validated in our previous study (Atanasova, 2018). K-means cluster analysis was used to identify distinct groups of OHC users based on individual empowerment components (self-efficacy, competence, motivation control, and control) and collective empowerment components (knowledge of health-related resources, resource mobilization for collective action). The differences among clusters based on a set of relevant variables were tested with one-way multivariate analysis of covariance (MANCOVA).
The results of the cluster analysis demonstrated that four distinct clusters of OHC users can be determined as most appropriate (Figure 1) and classify to those who have relatively low or high mean scores on the components of individual empowerment and collective empowerment. Accordingly, identified clusters were named as follows: (1) Low individual and high collective empowerment, (2) High individual and low collective empowerment, (3) High individual and collective empowerment, and (4) Low individual and collective empowerment (Figure 1). The preliminary results showed that several statistically significant differences exist among the clusters, especially in relation to users’ health status, chronic condition situation and activity of posting messages in OHC. MANCOVA results demonstrated that after controlling for users’ health status, significant differences exist between the clusters on all of the conceptually relevant variables. Specifically, OHC users in the cluster with high individual and collective empowerment have reported significantly higher levels of sense of virtual community, e-health literacy and received offline social support in comparison to other groups. Received social support from users and moderators and discussion involvement in the OHC was significantly greater among users clustered in the subgroup with high individual and low collective empowerment. The lowest average level of received social support from users and moderators was detected among users grouped in cluster with low individual, but high collective empowerment. Cluster with OHC users with both low individual and collective empowerment reported the lowest average levels of e-health literacy and received offline social support in comparison to other identified clusters.

The results of this study indicate that the investigation of intersection of OHC users’ individual and collective empowerment might provide new insights on the role of specific resources and processes in the OHC, which as shown do not uniformly lead to the development of both dimensions of
empowerment. This study offers a framework to understand possible tensions between developed individual and collective patient empowerment dimensions, needed resources, processes and consequences of specific factors that can facilitate and/or hinder OHC users or patients to fully achieve empowerment outcomes. The results of this study can have important implications for managers, designers of OHCs, health professionals, public health policymakers and (online) health education and promotion programs.
References

Atanasova, S. (2018). Socio-structural properties and psychological empowerment in health-related online support communities (Doctoral dissertation). Faculty of Social Sciences, University of Ljubljana, Slovenia.


Can a virtual patient help clinicians to improve their communication skills? Development and pilot-evaluation of an interactive, computer-simulated virtual patient-based eLearning

Julia C.M. van Weert¹, Gert-Jan de Bruijn¹, Kristy Timmers¹, Ellen Smets¹

Background

Shared decision making (SDM) is endorsed for many health care situations where decisions have to be made that affect patients’ life and in which patients’ preferences are of utmost importance. SDM can be defined as "the process in which health professionals and patients communicate together in order to share their views about priorities, preferences, needs and wants" (Elwyn et al., 2012). SDM is widely propagated because of its expected benefits, including better health outcomes (e.g., Légaré, et al., 2010). Unfortunately, effective use of the principles of SDM is not yet widespread, largely because of a lack of easily accessible, dedicated educational programs for medical specialists (from now on ‘clinicians’). Traditional, group based, face-to-face training modules are infrequently offered, have serious drawbacks in terms of investment in time and costs, limited possibilities for adaptation to personal skill levels and learning needs, and few opportunities to practice new skills. The use of computer-simulated virtual patients (VPs) may provide a solution to overcome these problems by allowing clinicians to train their skills in a highly interactive and immersive way at a chosen time and location. The current project capitalizes on these promising technologies by establishing and evaluating a VP-based eLearning module. Our VPs are more advanced than most existing systems in terms of reasoning and two-way interaction, which are essential for SDM. The main aim of the study was to assess whether SDM skills can be improved by using an interactive, computer-simulated VP-based eLearning module.

Methods

Development of VPs

For the current study, a virtual program containing over a hundred VPs with varying backgrounds, values and preferences, designed for the training of SDM skills, were created. The VPs were integrated in an interactive, computer-simulated VP-based SDM eLearning. The VPs were graphical interactive character shown on the computer screen and speaking through the computer speaker. Based on computational models of data (i.e., a text corpus) obtained from previous studies on SDM in oncology (e.g., Kunneman et al., 2016), the VPs provided the trainee the illusion of being engaged in a free speech natural dialogue as part of a SDM consultation. The computational models simulated the progression of knowledge accumulation, preference forming and emotions of a VP during a SDM consultation.

¹ Universiteit van Amsterdam, Netherlands
Pilot evaluation

Design
Medical students were invited to conduct two sessions with a VP. Participants were randomly exposed to the VPs. In all cases, the VP had breast cancer and the virtual consult regarded the decision about an appropriate treatment. The options for treatments consisted of chemotherapy or hormone therapy. Participants were requested to collaboratively make a decision with the VP regarding the most suitable breast cancer treatment for the specific VP, which implied that the therapy was congruent with the values and preferences of this VP. After each of the two sessions, system-generated feedback was provided based on how well the participant applied SDM communication skills during the virtual consult. The feedback appeared in text format on the computer screen immediately after each session was completed. An example of a VP that was used in this study is displayed in Figure 1.

![Example of VP in current study](image)

Figure 1. Example of VP in current study

Participants
Participants were recruited from the University's Medical Centre. Inclusion criterion was being a second-year medical student, based on the assumption that this group would have relevant medical knowledge yet no prior experience and skills in SDM. A total of 25 participants took part in this study, nineteen female and six male (mean age =20.08, SD = 1.62).

Measurements and analysis
Baseline measurements included age, gender and prior knowledge of SDM. Prior SDM knowledge was measured on a 7-point scale ranging from 1 (no knowledge at all) to 7 (a lot of knowledge).

SDM Learning. To assess the learning of SDM skills, an assessment protocol to analyze the transcripts was developed specifically for the purposes of this study (see Appendix 1). For each virtual consult, the participant received a value between zero and four, depending on how well they used SDM communication skills. These values were based on the four steps of SDM suggested by Stiggelbout,
Pieterse & de Haes (2015), as summarized in Table 1. One coder assessed all sessions, a second coder double coded 25%. Interobserver reliability was sufficient.

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Clinician explains that a decision has to be taken and that the patients’ opinion is important.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2</td>
<td>Clinician explains pro’s and con’s of both therapies.</td>
</tr>
<tr>
<td>Step 3</td>
<td>Clinician and patient discuss the patients’ considerations and clinician supports these.</td>
</tr>
<tr>
<td>Step 4</td>
<td>Clinician and patient discuss the patients’ final preference.</td>
</tr>
</tbody>
</table>

*Table 1. Four steps of SDM (based on Strijkhout et al., 2015)*

Analyses were done by conducting Paired Samples t-test comparing the average SDM scores after the first and the second session.

**Evaluation of the VP based learning module.** After each session students completed two open questions in which they were asked to explain what they perceived positive and negative about the program. The answers were qualitatively analyzed by the first coder who coded all responses using an inductive approach. The analysis was checked by a second coder. Discrepancies were discussed.

**Results**

**Prior SDM Knowledge**

All participants reported to have limited SDM knowledge prior to the experiment (M = 1.91, SD = 0.11).

**SDM learning**

Results showed a significant difference in SDM scores between session 1 and session 2, (t(24) = 15.51, p < .001, d = .82 ). Participants on average performed better on session 2 (M = 2.84, SD = 0.70) than on session 1 (M = 2.10, SD = 0.68).

**Evaluation of the VP-based learning module**

**Positive feedback**

Nine participants mentioned that using the VP-based learning module is an effective way of learning: they appreciated the ‘easy’ way of practicing SDM skills and/or learned how to effectively ask questions to receive adequate answers. Regarding the VP, they particularly appreciated that the VP clearly expressed preferences and wishes, that the VP was good at communicating her deliberations, that the VP could ask realistic questions and that she could give realistic answers. It was also mentioned that the VP regularly showed her understanding during the consult, for instance by saying “Oh okay”, which gave the participants the feeling that she was listening.

**Negative feedback**

Seven participants mentioned that they did not agree with the system-generated feedback on SDM. Although participants appreciated it when the VP gave realistic answers, it was also often noticed that the VP did not respond adequately to questions. Many participants mentioned they felt unsure whether
the VP really understood the participant. In addition, many participants reported difficulties in reaching a decision, for instance because the VP did not make a decision or made the decision too quickly. The VP regularly repeated questions or interrupted the participant, which was perceived as irritating. The negative feedback suggested that the text corpus behind the VP was not optimal yet and needs further improvement.

There were no differences in the positive and the negative feedback after the first and the second session.

Discussion

The results revealed that the ability to apply SDM during the consult with the VP improved significantly after the first session. Hence, the VP seems to provide a valuable learning opportunity for training SDM communication skills. However, further improvement is needed, particularly on the text corpus of VPs. Next to improvements, participants also mentioned several positive points about the eLearning module and the VPs. Overall it can thus be concluded that using a VP-based eLearning seems to have potential as an effective learning tool for communication skills training.
Appendix

Appendix 1: Assessment Protocol for SDM Analysis

Step 1:
A (it is mentioned that a shared decision is to be made = 0.5 points)
B (the importance of the needs of the patient are emphasized = 0.5 points)

Step 2:
A (at least one advantage of hormone therapy is mentioned = 0.25 points)
B (at least one disadvantage of hormone therapy is mentioned = 0.25 points)
C (at least one advantage of chemotherapy is mentioned = 0.25 points)
D (at least one disadvantage of chemotherapy is mentioned = 0.25 points)

Step 3:
full points (1) = multiple deliberations of the patient are discussed,
half points (0.5) = just one deliberation of the patient is discussed
no points (0) = no deliberations of the patient are discussed

Step 4:
full points (1) = the final preference of the patient is literally stated and the doctor agrees
half points (0.5) = the final preference of the patient is not literally stated but the doctor decides
no points (0) = the final preference of the patient for a desired therapy is not discussed and no decision is made
References


First steps to a European perspective on health information seeking behaviors

Elena Link1, Magdalena Rosset1, Eva Baumann1, Julia van Weert2, Andreas Fahr3, Peter Schulz4

Introduction

The access to and adequate use of health information is highly important, especially when an individual is confronted with health challenges or affected by a disease. Relevant and accurate health information is not only needed to guide individuals’ health-related decisions, help to cope with health-related uncertainties and burdens and to find strategies for living with health threats, but also to guide health promotion and prevention efforts as well as initiatives to improve individuals’ empowerment (Johnson & Case, 2012; Kreps, 2008).

In order to exploit the described potentials, it is important to learn more about and understand health information seeking behaviors (HISB). HISB is a complex, often multi-staged process that can be defined by its triggers, channel selections, types of information sought, and outcomes (Galarce et al., 2011). Distinguishing single components illustrates that the process of seeking and making sense of information varies depending on the reasons to search, types of information sought, sources used and searching experiences. Further personal and situational factors influence the process and its outcomes. Research on HISB reveals information deficits and misperceptions and guides more effective ways to provide and distribute health information to specific groups which is a key effort in health promotion.

To promote and improve health can be understood as a global challenge (Kreps et al., 2017). Taking an international perspective on HISB allowing for cross-cultural comparisons is key, since we already know that there are similarities as well as differences in the ways health information is used, and that certain cultural and health system aspects should be taken into account (Kreps et al., 2017; Kim et al., 2013). At present, most published studies focus on the US, whereas evidence from other countries remains sparse (Higgins et al., 2011; Zschorlich et al., 2015). International research efforts like the Health Information National Trends Survey (HINTS) in the US, China and lately also in Germany are currently developing. In Europe, there are mainly topic-specific comparisons, e.g. looking for differences between European countries with regards to Internet access and health-related Internet activities (e.g. Andreassen et al., 2007; Bachl, 2016) or populations’ surrogate seeking (Reifegerste et al., 2017). So far, no comprehensive and comparable international data on HISB are available in Europe. However, those data is needed for shifting the perspective on HISB from a national to an international one.

Based on this background, our aim is to provide first insights into HISB in selected European countries. The first step is a cross-cultural comparison of HISB and its components in Germany, Switzerland and the Netherlands examining the patterns of individuals’ use of health information from different channels, trust in different sources, triggers and topics of HISB. In a second step, influencing

1 Department of Journalism and Communication Research, Hanover University of Music, Drama, and Media, Germany
2 Universiteit van Amsterdam, Netherlands
3 Universität Freiburg, Switzerland
4 Faculty of Communication Sciences, Università della Svizzera Italiana, Switzerland
factors of HISB such as personal characteristics (e.g. age, gender, education) will be added to explain country-specific patterns of HISB.

**Method**

We conducted online surveys in Germany (N = 3,000), the Switzerland (only for the German speaking part; N = 1,000) and the Netherlands (N = 1,106). The participants in every country were recruited via Online Access Panels using stratified samples by age (18 to 69 years), gender, education and region. The sample description shows that in all three samples women are represented with at least 50 % (see table 1). The average age is lowest in Switzerland (M = 43.3; SD = 14.2) and highest in the Netherlands (M = 46.5; SD = 14.8). With regard to education, it can be seen that in Switzerland low-educated participants are significantly less represented in the sample.

Parts of the questionnaire were adopted from the English and German HINTS, which was translated into Dutch for the Netherlands (e.g., online and offline health information seeking behaviors, health care, health status). We added questions about details of Online HISB (e.g. topics sought, types of websites used) as well as motives and influencing factors of information avoidance behaviors.

**Results**

Our findings show that the active search for health-related topics is widespread among the respondents in all countries. In Germany, 81.9 % of our respondents searched for health-related topics. Although this can be evaluated as high, it is considerably lower than in Switzerland (91.1 %) and the Netherlands (90.1 %). Regarding personal characteristics influencing the search for health information, the same patterns are identified in all countries. Age seems rather irrelevant, while gender and education are in a very weak but significant relationship with HISB showing that women and highly educated people are more interested in health information.

The most recently sought topics in all three countries include disease symptoms and causes (Germany: 29.2 %; Switzerland: 28.9 %; Netherlands: 44.3 %), information about drugs and medications (Germany: 17.7 %; Switzerland: 23.2 %; Netherlands: 24.9 %), and recommendations for a healthy lifestyle (Germany: 16.3 %; Switzerland: 16.8 %; Netherlands: 9.8 %; see table 2). In comparison, seeking for disease-related information is more prevalent in the Netherlands, while topics related to prevention appear less important.

With regard to the used sources at the most recent health-related information search, the Internet plays a particularly important role for the majority of respondents (Germany: 86.4 %; Switzerland: 88 %; Netherlands: 95.5 %). Especially in the Netherlands, the Internet seems to have a very dominant role in the media repertoire, whereas other sources are less frequently used. The actual use of online health information in general (independent from the most recent search) during the last year is higher in the Netherlands (74.7 %) and Switzerland (75.9 %) than in Germany (65.4 %). However, the frequency of health-related Internet use measured by the number of days during the last month is higher in Germany (Germany: $M = 3.37; SD = 4.11$; Switzerland: $M = 3.04; SD = 3.74$; Netherlands: $M = 2.55; SD = 4.2$).

In second place of used sources for the most recently search are health professionals (Germany: 35.9 %; Switzerland: 31.1 %; Netherlands: 19 %). At least in Germany and Switzerland, family members and friends are also a rather frequently used source of health information (see table 3). For both thematic
interests as well as preferred information channels we find only weak associations to personal characteristics.

The frequency of use does not correspond to the level of trust in the respective sources. The highest level of trust is given to health professionals – with the highest average in the Netherlands (Germany: $M = 4.05, SD = .92$; Switzerland: $M = 4.1, SD = .85$; Netherlands: $M = 4.31, SD = .65$: measured on a 5-point scale). In contrast, the trustworthiness of the Internet is only rated as mediocre (Germany: $M = 3.07, SD = 1.01$; Switzerland: $M = 3.05, SD = .94$; Netherlands: $M = 3.04, SD = .84$; see table 4). Considering the impact of personal characteristics on trust relationships, only individual differences for sources are found.

**Discussion**

These and further findings about health information and also avoidance behaviors that will be discussed provide first insights about HISB across national borders in Europe. In summary, the findings reveal that the influencing factors and patterns of HISB have much in common between Germany, Switzerland and the Netherlands. In particular, the important role of the Internet is evident, while health professionals remain the most trusted source. Although these results may enrich health communication initiatives, it should be noted that the selected countries are a limitation of the study. An important extension for future cross-cultural studies is the inclusion of more countries – in particular poorer countries from South-Eastern Europe.
### Appendix

#### Table 1. Overview of the Samples

<table>
<thead>
<tr>
<th></th>
<th>Germany (N = 3,000)</th>
<th>Switzerland (N = 1,000)</th>
<th>Netherlands (N = 1,106)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>50 % female</td>
<td>50.4 % female</td>
<td>54 % female</td>
</tr>
<tr>
<td>Mean age</td>
<td>M = 44.3</td>
<td>M = 43.3</td>
<td>M = 46.5</td>
</tr>
<tr>
<td></td>
<td>SD = 14.28</td>
<td>SD = 14.12</td>
<td>SD = 14.78</td>
</tr>
<tr>
<td>Education</td>
<td>30.4 % low</td>
<td>11.5 % low</td>
<td>26.8 % low</td>
</tr>
<tr>
<td></td>
<td>33.3 % medium</td>
<td>61.3 % medium</td>
<td>46.3 % medium</td>
</tr>
<tr>
<td></td>
<td>36.3 % high</td>
<td>27.2 % high</td>
<td>26.8 % high</td>
</tr>
</tbody>
</table>

#### Table 2. Sought Topic at the Most Recent Health-Related Information Search

<table>
<thead>
<tr>
<th></th>
<th>Germany (n = 2,457)</th>
<th>Switzerland (n = 911)</th>
<th>Netherlands (n = 996)</th>
</tr>
</thead>
<tbody>
<tr>
<td>healthy lifestyle, fitness, wellness</td>
<td>16.3 %</td>
<td>23.2 %</td>
<td>9.8 %</td>
</tr>
<tr>
<td>symptoms and causes of Disease</td>
<td>29.2 %</td>
<td>28.9 %</td>
<td>44.3 %</td>
</tr>
<tr>
<td>doctors, therapists, hospitals or other health professional</td>
<td>15.2 %</td>
<td>8.3 %</td>
<td>6.6 %</td>
</tr>
<tr>
<td>Drugs and medications (e.g. active substances, side effects and interactions, sources of supply)</td>
<td>17.7 %</td>
<td>16.8 %</td>
<td>24.9 %</td>
</tr>
<tr>
<td>preventive medical checkups, screening, early detection (e.g. early cancer detection)</td>
<td>7.2 %</td>
<td>4.1 %</td>
<td>1.8 %</td>
</tr>
<tr>
<td>treatment (incl. surgery) and rehabilitation measures</td>
<td>6.5 %</td>
<td>6.9 %</td>
<td>5.5 %</td>
</tr>
<tr>
<td>health system (information on health insurance funds, legal issues, health policy, etc.)</td>
<td>6.1 %</td>
<td>10.2 %</td>
<td>4.1 %</td>
</tr>
</tbody>
</table>

*Note. Only participants actively seeking for health information*
### Table 3. Used Sources at the Most Recent Health-Related Information Search

<table>
<thead>
<tr>
<th>Source</th>
<th>Germany</th>
<th>Switzerland</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Books</td>
<td>10.3 %</td>
<td>13.3 %</td>
<td>4.3 %</td>
</tr>
<tr>
<td>Brochures, leaflets or flyers</td>
<td>12.3 %</td>
<td>12.3 %</td>
<td>6.3 %</td>
</tr>
<tr>
<td>Health organization</td>
<td>8.5 %</td>
<td>9.3 %</td>
<td>9 %</td>
</tr>
<tr>
<td>Family</td>
<td>18.9 %</td>
<td>19.6 %</td>
<td>8 %</td>
</tr>
<tr>
<td>Friends/Colleagues</td>
<td>17.6 %</td>
<td>22.2 %</td>
<td>6.4 %</td>
</tr>
<tr>
<td>Doctors or other health professionals</td>
<td>35.9 %</td>
<td>31.1 %</td>
<td>19 %</td>
</tr>
<tr>
<td>Internet</td>
<td>86.4 %</td>
<td>88 %</td>
<td>95.5 %</td>
</tr>
<tr>
<td>Library</td>
<td>4.4 %</td>
<td>4.5 %</td>
<td>1.4 %</td>
</tr>
<tr>
<td>Magazines</td>
<td>12.4 %</td>
<td>11.7 %</td>
<td>2.2 %</td>
</tr>
<tr>
<td>Newspapers</td>
<td>8.2 %</td>
<td>9 %</td>
<td>1.9 %</td>
</tr>
<tr>
<td>Info telephone number</td>
<td>2.8 %</td>
<td>1.2 %</td>
<td>2 %</td>
</tr>
<tr>
<td>Providers of alternative or complementary healing methods</td>
<td>7 %</td>
<td>9.1 %</td>
<td>2.3 %</td>
</tr>
</tbody>
</table>

*Note. Only participants actively seeking for health information; multiple answers possible*

### Table 4. Trusted Sources for Health-Related Information

<table>
<thead>
<tr>
<th>Source</th>
<th>Germany (N = 3,000)</th>
<th>Switzerland (N = 1,000)</th>
<th>Netherlands (N= 1,106)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Doctor</td>
<td>4.05</td>
<td>0.92</td>
<td>4.10</td>
</tr>
<tr>
<td>Family or friends</td>
<td>3.12</td>
<td>0.98</td>
<td>3.25</td>
</tr>
<tr>
<td>Newspapers or magazines</td>
<td>2.75</td>
<td>0.99</td>
<td>2.86</td>
</tr>
<tr>
<td>Radio</td>
<td>2.55</td>
<td>1.02</td>
<td>2.67</td>
</tr>
<tr>
<td>Internet</td>
<td>3.07</td>
<td>1.01</td>
<td>3.05</td>
</tr>
<tr>
<td>Television</td>
<td>2.86</td>
<td>0.99</td>
<td>2.96</td>
</tr>
<tr>
<td>Government health agencies</td>
<td>3.29</td>
<td>1.10</td>
<td>3.33</td>
</tr>
<tr>
<td>Charitable organizations</td>
<td>2.84</td>
<td>1.06</td>
<td>2.74</td>
</tr>
</tbody>
</table>

*Note. Rated on a likert-type scale on a continuum from 1 (“not at all”) to 5 (“a lot”)*
References


Panel 7

Social aspects of health literacy and self-empowerment

15 November, 09:00 – 10:15
Room RAA-G-01
Chair: Anne-Linda Camerini (Lugano)

Koinig, Isabell (Klagenfurt); Diehl, Sandra (Klagenfurt); Mueller, Barbara (San Diego)
*Individuals’ locus of control and perceived level of self-empowerment as derived from pharmaceutical advertising: Do consumers’ responses from individualistic and collectivistic countries vary?*

Gehrig, Saskia; Gehring, Katrin; Vogt, Dominique (Zurich)
*Health literate organizations in primary care settings in Zurich – A pilot project*

Czerwinski, Fabian (Hanover); Rosset, Magdalena (Hanover); Höppner, Claudia (Berlin); Link, Elena (Hanover); Baumann, Eva (Hanover)
*How to foster health-related self-efficacy? An analysis of interconnections between social, health and informational inequalities*

Kalch, Anja; Bilandzic, Helena; Wehler, Markus (Augsburg)
*Health-literacy of emergency department patients with non-urgent conditions: An aspect of social inequality in patients’ emergency and health information behavior*
Individuals’ locus of control and perceived level of self-empowerment as derived from pharmaceutical advertising: Do consumers’ responses from individualistic and collectivistic countries vary?

Isabell Koinig¹, Sandra Diehl¹, Barbara Mueller²

Abstract

Previous studies have demonstrated that culture does influence consumers’ responses towards advertising messages. Cultural values are essential to the individual’s self-concept, shaping their very actions (McCracken 1986). A construct that is central to health-related decisions, and likely to explain variations in self-medication practices, is the Locus of Control (LoC) dimension (LoC; Rotter 1966). “Locus of control refers to the extent to which cultural members perceive themselves to be in control of their health behaviors and health outcomes” (Dutta 2008: 72f.). As a multidimensional construct, LoC consists of three distinct theoretical components: (1) it is dependent upon individuals’ evaluations of their capabilities, and their willingness to take preventive action (internal locus); (2) it is subject to the actions taken by those in one’s immediate environment (powerful-others or external locus) and, (3) it considers intangible factors, such as fate or luck (chance locus; Anderson & Dedrick 1990). The first component is of particular relevance to the area of self-medication: with health having been delegated to the individual (“personal responsibility”; Rose 1990), an internal orientation is presumed to prevail (Stewart et al. 1985). Yet, there are cultural differences in individuals’ LoC. Particularly in individualistic countries, such as Germany or the US, where autonomy and sovereignty are emphasized, it is important for individuals to be in control. An internal LoC enables individuals to actively seek out information and, for example, take both diet and exercise into their own hands; which should also correspond with high self-medication practices: “Many people will feel especially positive about medications they took the initiative to obtain” (Findlay 2001: 115). In Brazil, classified as a more collectivistic country, individuals appear to be more externally oriented and are likely to delegate responsibility to external sources or authorities (de Mooij 2011). They tend to place responsibility in the hands of acclaimed experts, reducing individual agency to a minimum (Dutta 2008). This leads us to hypothesize:

**H1:** Individuals from individualistic countries will report having a higher health LoC than individuals from collectivistic countries.

**H2:** Individuals with a higher health LoC will report having (a) a higher level of self-medication interest and (b) higher self-medication capabilities than individuals with a lower health LoC.

Having received a considerable amount of academic attention in the medical domain (e.g., Helmer et al. 2012), the LoC dimension is increasingly relevant in the health communication context, particularly when linked to the concept of empowerment. Empowerment refers to consumers assuming responsibility (CHPA 2013), affording them the ability to evolve into active agents in the health-care

1 Alpen-Adria-Universität Klagenfurt, Austria
2 San Diego State University, USA
marketplace and reinforcing their confidence in their individual capabilities (Koinig et al. 2017). Advertising messages can be seen as means of involving consumers in health-related matters (Koinig 2016; Koinig et al. 2017). Consumer Self-Empowerment can occur on three levels. Message empowerment relates to the recipients’ abilities to arrive at qualified product evaluations on the basis of the information contained in the ad, enabling them to determine the product’s suitability for their health condition. Self-medication empowerment is concerned with supporting consumers in their interest in, and beliefs about self-medication. Finally, health empowerment addresses consumers’ sense of control over health decisions by providing them with greater autonomy with regard to their health.

The present contribution seeks to explore individuals’ LoC and its effects on consumer self-empowerment as derived from pharmaceutical advertising. We propose that individuals with a higher health LoC will derive a greater degree of empowerment from such messages, given that individuals’ evaluations of their capabilities are higher, as well as their willingness to take preventive action is more pronounced. Thus, information received from external sources can involve them further in health-related decision-making. Individuals with a lower health LoC will thus derive a lesser degree of empowerment. Hence, we hypothesize:

**H3: Individuals with a higher health LoC will derive a higher level of (a) message empowerment, (b) self-medication empowerment, and (c) health empowerment from a pharmaceutical advert than individuals with a lower health LoC.**

Data was collected from three individualistic and one collectivistic country, namely the U.S., the largest single drug market globally, Germany, the largest European medications market, Austria, a second European market, and Brazil, the largest South American pharmaceutical market (MarketLine 2017). Overall, the global OTC market is forecast to significantly increase in value, and is anticipated to reach more than $1.78 trillion by 2024 (Global Market Insights 2018). The non-student sample consisted of 967 subjects (age range: 18 to 93 gender rate: 49/51), equalling ~ 240 respondents per market. Each respondent was presented with one of four print stimuli for a fictitious OTC drug.

Hypothesis H1 proposed that respondents from individualistic countries would report having a higher health LoC than respondents from a collectivistic country. While respondents from both clusters were found to have a highly pronounced health LoC ($M_{\text{ind}}=5.7795, M_{\text{coll}}=5.6279$), values from individualistic countries were significantly higher than those from Brazil ($F=5.077, p=.024$), leading to the confirmation of hypothesis H1.

Hypothesis H2 expected respondents with a higher health LoC to report not only (a) a higher level of interest in self-medication, but also (b) higher perceived self-medication capabilities than respondents with a lower health LoC. Results do point in the expected direction as both self-medication interest and self-medication ability were more pronounced for respondents with high health LoC-scores ($M_{\text{INT}}=4.4012, M_{\text{AB}}=4.3046$) than for respondents with low scores ($M_{\text{INT}}=3.8607, M_{\text{AB}}=3.8832$). Based on the highly distinct manifestations between the two cultural clusters (SM-Interest: $F=21.669, p=.000$; SM-Ability: $F=13.555, p=.000$), hypotheses H2a and H2b are supported.

Hypothesis H3 proposed that respondents with a higher health LoC would derive a higher degree of empowerment (on three levels: message empowerment, self-medication empowerment, and health empowerment) from a pharmaceutical advertisement than respondents with a lower health LoC. Findings suggest empowerment scores on all levels to be higher for individuals who report holding a higher health LoC ($M_{\text{ME}}=3.2868, M_{\text{SME}}=2.7484, M_{\text{HE}}=2.7185$) than a lower health LoC ($M_{\text{ME}}=3.0397, M_{\text{SME}}=2.6824, M_{\text{HE}}=2.6785$). In order to test differences between groups, the sample was divided into two equal parts by use of a median split.

---

1 In order to test differences between groups, the sample was divided into two equal parts by use of a median split.
M_{SME}=2.5971, M_{HE}=2.4688). Differences between the two groups point in the expected direction, and are significant for both message empowerment (F=5.403, p=.020) and health empowerment (F=5.926, p=.015). Manifestations were not significant for self-medication empowerment (F=2.029, p=.155). This leads to the confirmation of hypotheses H3a and H3c, whereas hypothesis H3b was rejected.

Results suggest that through the provision of useful and enabling information, patients can be turned into autonomous health-care consumers. While cultural differences were presumed to exist, the present investigation was able to demonstrate consumers in both advanced and emerging markets, representing individualistic and collectivistic orientations, are developing a profound interest in their health care, as reflected by highly pronounced health LoC scores. Coupled with an increasing willingness to engage in pro-active health behaviour, information incorporated into commercial messages was seen as useful to the empowerment of consumers. The study’s rationale was that such information would be particularly beneficial to consumers with a high health LoC – an assumption that was confirmed for all three levels of empowerment. Hence, pharmaceutical marketers as well as governmental agencies vested in the empowerment of consumers should strive toward providing those interested in their health-care with information-rich resources, including advertising.
## Appendix

### Operationalization of Variables

<table>
<thead>
<tr>
<th>Variables and Items</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health Locus of Control (α: .719)</strong></td>
<td>5.7415</td>
<td>0.90575</td>
</tr>
<tr>
<td>I actively try to prevent disease and illness.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am in good physical health.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I consider myself capable of taking care of my body.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Health Information Orientation (α: .703)</strong></td>
<td>5.3548</td>
<td>1.26157</td>
</tr>
<tr>
<td>The amount of health information available today makes it easier for me to take care of my health.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To be and stay healthy it’s critical to be informed about health issues.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Health Information Seeking Behavior (α: .812)</strong></td>
<td>5.4575</td>
<td>1.28087</td>
</tr>
<tr>
<td>When sick, I try to get information about my disease.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before making a decision about my health, I find out everything I can about this issue.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I like to get health information from a variety of sources.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Self-Medication Interest</strong></td>
<td>4.1293</td>
<td>1.81916</td>
</tr>
<tr>
<td>I am interested in self-medication.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Self-Medication Ability (α: .825)</strong></td>
<td>4.0936</td>
<td>1.77619</td>
</tr>
<tr>
<td>I consider myself capable of self-medication.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I already practice self-medication.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Message Empowerment (α: .887)</strong></td>
<td>3.1675</td>
<td>1.64626</td>
</tr>
<tr>
<td>The ad allows me to objectively evaluate SENZA.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can now accurately compare SENZA with other competing brands on matters that are important to me.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would have more confidence in using SENZA now than before I saw this commercial.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Self-Medication Empowerment (α: .901)</strong></td>
<td>2.6791</td>
<td>1.64742</td>
</tr>
<tr>
<td>I feel more confident in my self-medication skills/practices after having studied this ad.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am more interested in self-medication now than before seeing the ad.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Health Empowerment (α: .962)</strong></td>
<td>2.5996</td>
<td>1.58641</td>
</tr>
<tr>
<td>After seeing the ad I feel more autonomous with regard to my health.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>After seeing the ad I feel more capable with regard to my health.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel like I have a greater say in my health after seeing the ad.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The advertising message gives me stronger control over my health.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
References


Health literate organizations in primary care settings in Zurich  
- A pilot project

*Saskia Gehrig¹, Katrin Gehring², Dominique Vogt²*

**Abstract**

Health literacy is a key element of effective health communication. In fact, finding, processing and understanding oral and written health information are fundamental to health literacy.

Studies show that low health literacy is linked to poorer understanding and interpreting of health messages. In consequence, individuals with low health literacy often have poorer health outcomes and health behaviors (e.g. higher rates of hospitalizations, greater use of emergency care, inappropriate use of medications) (Berkman et al., 2011). In contrast, better health literacy increases outcomes of disease treatment and reduces need of health care (Berkman et al., 2011). Improving health literacy therefore provides great potential for health care, disease prevention and health promotion (Schaeffer & Pelikan, 2017).

A national survey in Switzerland shows that more than half of the Swiss population have limited health literacy (Bundesamt für Gesundheit, 2013). As a result, the Swiss government has defined improving health literacy as an important national goal (Bundesamt für Gesundheit, 2013). In order to improve health literacy effectively it is needed to do the both: strengthen the health literacy skills and abilities of individuals as well as reducing demands and complexities of the health system including health providers and professionals (Parker, 2009). So called health literate organizations and professionals are most important to empower patients in self-management and taking an active role in coping disease and promoting health and wellbeing. Despite the huge potential of health literate health care organizations, too little has been done so far in this systemic field (Annarumma & Palumbo, 2016). Therefore, the aim of our project is to improve health literacy of organizations in primary care settings, i.e. GP practices and outpatient care services.

In the context of our two-year project we are developing a self-assessment-tool. This self-assessment-tool allows primary care health providers to assess and improve their level of health literate organization. The assessment-tool consists of a questionnaire representing six dimensions defining a health literate organization (Brach, 2017). Key dimensions are:

- Clear and easy to understand communication with patients
- Implementation of health literacy in the organization’s mission statement and culture
- Staff training in the field of health literacy
- Efforts to strengthen health literacy skills of patients, for example by training self-management skills and using patient-oriented communication

¹ Careum Foundation, Switzerland  
² Department of Health of the Canton of Zurich, Switzerland
Based on the results of the self-assessment, organizations identify need for action and define, plan and implement improvement activities. In order to do so, they are supported by a special manual that describes a set of tools and strategies. We are developing this manual in this project as well.

In a second phase of the project we will test and evaluate the tools (assessment and manual) with GP practices and outpatient care services in the canton of Zurich. In order to evaluate the tool in terms of e.g. user friendliness we will conduct focus groups with interprofessional staff members and will do expert interviews. In order to observe any development of professionals’ knowledge and attitudes regarding health literacy we will use a standardized questionnaire.

On the basis of the evaluation results we will adapt the self-assessment-tool and manual and will provide all materials for free usage.

«Gesundheitsförderung Schweiz» funds this project. This project is realized by a collaboration of the Careum Foundation in Zurich and the Health Department of the Canton Zurich with the practice partners «medix Zürich» and «Spitex Zürich Limmat». The first version of the tool will be completed in autumn 2019. The application thereof in pilot organizations is conducted in early 2020. Therefore, the first version of the self-assessment-tool with a focus on the category of health communication will be presented within the present conference.
References


How to foster health-related self-efficacy? 
An analysis of interconnections between social, health and informational inequalities

Fabian Czerwinski¹, Magdalena Rosset¹, Elena Link¹, Eva Baumann¹, Claudia Höppner²

Introduction

Today, patients are expected to make informed medical decisions, take an active part in their health care as well as in health provision (Chewning et al., 2012; Rummer & Scheibler, 2016). Faced with these challenges of health literacy and patient empowerment (Schulz & Nakamoto, 2013), it becomes increasingly important that patients are willing and also able to choose meaningful, realistic health goals and to take action to reach these goals (Smith, Nutbeam & McCaffery, 2013). As an individuals’ belief about the own ability to perform an action and achieve desired effects as well as an important factor influencing the willingness to do so, health-related self-efficacy as part of health literacy can be understood as a relevant prerequisite of an active role of patients.

Research provides clear evidence that health literacy is linked to social and health-related factors on the one hand, and to informational self-perceptions and behaviors on the other hand (Sørensen et al., 2015; Schaeffer & Pelikan, 2017). For example, it has been shown that socioeconomic and migration status understood as causes of social inequalities strongly contributes to health inequalities (Abel, 2008; Braveman, 2006; Bleich, Jarlenski, Bell & LaVeist, 2012). Due to poorer language skills, different cultural conceptions of health, illness and treatment, individuals with migration background experience barriers in shared decision making (Suurmond & Seeleman, 2006). Further, there is evidence that health inequalities are linked to the patients’ health-related self-efficacy (e.g. Sarkar, Ali & Whooley, 2007).

On regard to opportunities and challenges of health communication efforts it is particularly relevant, that social and health inequalities are further connected to informational and communication inequalities. Informational inequalities, which are mainly considered in discussions about digital divides, might widen existing health inequalities (Bachl, 2016). Such informational inequalities could arise due to poor patient provider interaction, to a lack of a trusting social environment, or to information-related problems. Referring to the patient provider interaction, it is known that its quality influences health-related self-efficacy and improves shared decision making (Rummer & Scheibler, 2016). Further, social support from family members and friends is also a factor promoting health-related self-efficacy (Duncan & McAuley, 1993). Finally, higher social status is linked to a more elaborated and intense information seeking (Niederdeppe, 2008).

Consequently, to identify starting points for communication efforts as means to raise health-related self-efficacy, the aim of this study is to explain health-related self-efficacy by informational factors against the background of health and social inequalities.

¹ [HC]² - Hanover Center for Health Communication, Germany
² Stiftung Gesundheitswissen, Germany
Methods

Data from the first wave of HINTS (Health Information National Trends Survey) Germany comprise a representative sample of the adult population in Germany (n = 2,902) and have been collected via telephone interviews in late 2018. The data contain information on the respondents’ health status, health information behavior, several aspects of their interaction with health care providers and socio-demographics. We used these data to predict respondents’ health-related self-efficacy, which has been assessed by asking “How confident are you about your ability to take good care of your health?” using a 5-point-Likert-scale ranging from “not confident at all” to “completely confident”. Independent variables comprise the general level of respondents’ health (5-point-scales, ranging from “very bad” to “very good”), whether they are affected by a diagnosis of depression or anxiety disorder, whether they have a person they can count on when they need someone to talk, the amount of problems they experienced during their last search for health information (Information Seeking Experience Scale [ISES], four items with alpha=.72, Arora et al., 2007) and the frequency with which several aspects of their patient-provider-interaction occurred during the last 12 months. We controlled for sex, age, socioeconomic status (SES) and migration background (either of the interviewee and/or his/her parents and/or grandparents).

Results

The results of a block-wise multiple linear regression models (see tab. 1) showed no significant effects neither of problems during the search for health information nor the patient-provider-interaction on respondents’ health-related self-efficacy. Higher levels of general health (.279; p<.001) and having a trusted person to count on (.282; p=.023) are positively associated with the outcome, whereas a diagnosed depression or anxiety disorder has a significant negative impact on respondents’ health-related self-efficacy (-.261; p=.022). Among the socio-demographic characteristics, increasing age leads to significant increases in self-efficacy (.004; p=.007) while a reported migration background is associated with a significant decrease (-.159; p=.031). While a high SES is associated with a significant increase in health-related self-efficacy in model 1 (.159; p=.017), this effect is no longer significant after including the variables in the second and third model. Respondents’ sex is not significantly correlated with their health-related self-efficacy. Overall, the final model explains 16.3 % of the total variance of health-related self-efficacy.

Discussion

Our study tested the connections between social, health-related and informational factors as determinants of health-related self-efficacy. Surprisingly, the socioeconomic status had no significant effect on health-related self-efficacy when adjusting for health status. This might indicate that a person’s health status is the key factor and that the social status might rather act as a background factor. In contrast, another aspect of social inequalities, a person’s migration background, revealed as responsible for a decrease of health-related self-efficacy, which is in line with previous findings. As other studies suggested, both mental and overall health status are significant predictors of the tested health outcome. Among the informational factors, only the availability of a trusted person showed a significant effect. Surprisingly, neither patient provider interaction nor problems while searching for health information
could significantly predict health-related self-efficacy. These results suggest a more important role of the social environment than of health professionals and health information in general. This contradicts previous findings about the importance of physicians and should be the subject of further investigation.

The results of our analysis must be interpreted against the background of several limitations: data are cross-sectional and do not allow for any causal inference. All information is based on self-reported measures collected during telephone interviews, so the respondents' rating of several aspects of their health, their health care and informational processing may be partially hampered by their subjective point-of-view. Moreover, our dependent variable was measured using only one item.

Nevertheless, our results underline the importance of taking social, health and informational dimensions of inequality into account when explaining health-related self-efficacy, which plays a crucial role in modern health care systems with individuals being asked to make informed decisions and increasingly engage in their healthcare.

As health communication efforts are known to contribute to the reductions of health inequalities by educating individuals and giving them the abilities to engage in their healthcare, we are challenged to theoretically and empirically investigate the connections between a person’s communication and information-related attitudes and behaviors with a particular focus on informational self-efficacy and medial literacy on the one hand and health-related self-efficacy on the other hand in more detail.
## Appendix

Table 1. Results of the block-wise regression model predicting health-related self-efficacy

<table>
<thead>
<tr>
<th></th>
<th>Health-related self-efficacy</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coef. (SE)</td>
<td>p</td>
<td>Coef. (SE)</td>
<td>p</td>
</tr>
<tr>
<td>Sex female (Ref. male)</td>
<td>.086 (.053)</td>
<td>.109</td>
<td>.106 (.047)</td>
<td>.029</td>
</tr>
<tr>
<td>Age (for each year)</td>
<td>.0001 (.001)</td>
<td>.991</td>
<td>.004 (.001)</td>
<td>.009</td>
</tr>
<tr>
<td>SES medium (Ref. low)</td>
<td>.063 (.071)</td>
<td>.384</td>
<td>-.004 (.069)</td>
<td>.954</td>
</tr>
<tr>
<td>SES high (Ref. low)</td>
<td>.159 (.064)</td>
<td>.017</td>
<td>.047 (.061)</td>
<td>.445</td>
</tr>
<tr>
<td>Migration background</td>
<td>-.233 (.074)</td>
<td>.003</td>
<td>-.186 (.073)</td>
<td>.013</td>
</tr>
<tr>
<td>General health</td>
<td>.290 (.033)</td>
<td>.000</td>
<td>.279 (.033)</td>
<td>.000</td>
</tr>
<tr>
<td>Depression or anxiety disorder</td>
<td>-.256 (.108)</td>
<td>.022</td>
<td>-.261 (.110)</td>
<td>.022</td>
</tr>
<tr>
<td>Person to count on</td>
<td>.282 (.121)</td>
<td>.023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISES scale</td>
<td>-.014 (.011)</td>
<td>.181</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient provider interaction</td>
<td>.264 (.392)</td>
<td>.504</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>.024</td>
<td>.150</td>
<td>.163</td>
<td></td>
</tr>
</tbody>
</table>

N=1,882
References


Health-literacy of emergency department patients with non-urgent conditions: An aspect of social inequality in patients’ emergency and health information behavior

Anja Kalch, Helena Bilandzic, Markus Wehler

Abstract

Overcrowding of emergency departments is a frequent and increasing problem in most European countries (Velt et al., 2018) including Germany (M. H. Schmiedhofer, Searle, Slagman, & Mockel, 2017). Delay and overcrowding of emergency departments are associated with long waiting times (Derlet, 2000) but also have negative clinical related outcomes such as prolonged pain for patients, higher mortality and complication rates (Bernstein et al., 2009; Derlet, 2000; Pines et al., 2011; Schull, Vermeulen, Slaughter, Morrison, & Daly, 2004). One reason for overcrowding is the increased utilization of emergency departments by patients with non-urgent or not life-threatening conditions (Pines et al., 2011; M. H. Schmiedhofer et al., 2017). In countries with good primary care and existing health insurances these patients could potentially also visit a general practitioner for their health care (Pines et al., 2011). Besides problems related to appointments or consultation hours, studies show that non-urgent patients in emergency departments often overestimate their treatment urgency, share misperceptions about the medical efficiency of hospitals in contrast to general practitioners, are uncertain about their conditions and lack knowledge about their treatment options (Kickbusch, Pelikan, Apfel, & Tsoiros, 2013; M. Schmiedhofer et al., 2016; M. H. Schmiedhofer et al., 2017). These uncertainties about patients’ own health behavior in an emergency make a deficit in health literacy likely.

Health literacy is defined as “a person’s ability to access, understand and use health information from many sources” (Batterham, Hawkins, Collins, Buchbinder, & Osborne, 2016, p. 4). People with low levels of health literacy face difficulties in understanding health information and are assumed to prefer specific sources of information (Gray, Klein, Noyce, Sesselberg, & Cantrill, 2005). A study on health information seeking behavior of pregnant women shows e.g. that women with low levels of health literacy were less likely to use the internet for health information compared to women with higher levels of health literacy (Shieh, Mays, McDaniel, & Yu, 2009).

Health literacy does not only affect health information seeking and understanding but is also related to various health outcomes, such as less participation in health prevention measures, higher rates of hospitalization as well as lower health related self-management abilities and less participation in informed decision making (Edwards, Davies, & Edwards, 2009; Ginde, Weiner, Pallin, & Camargo, 2008; Griffey, Kennedy, D’Agostino McGowan, Goodman, & Kaphingst, 2014).

In terms of social consequences health literacy is unequally distributed in societies. In European societies lower levels of health literacy are related to lower levels of education, lower levels of income, older age as well as immigration backgrounds and thus are a matter of social inequalities (Kickbusch et

---

1 Institut für Medien, Wissen und Kommunikation, University of Augsburg, Germany
al., 2013). Based on the strong connections of health literacy, social inequality and health outcomes the WHO treats health literacy as a “key dimension of Health 2020, the European health policy framework” (p. v) and recommends efforts to increase health literacy in order to address social inequalities in public health (Kickbusch et al., 2013).

While general relationships between health related outcomes, social inequality and health literacy are widely investigated only a few studies give insights into emergency department use and health literacy. A systematic review of studies from US-American emergency departments shows that patients in emergency departments often have low levels of health literacy and that these patients have problems in understanding information materials provided to them during their stay in the hospital (Herndon, Chaney, & Carden, 2011). Additionally another study from an US emergency department shows that lower levels of health literacy are related to higher return rates of emergency department patients (Griffey et al., 2014). However the US medical system considerably differs from the German health system, so that conclusions for German patients in emergency departments are hard to draw. In particular the relationship between health outcomes, information behavior and health literacy of non-urgent patients was not yet investigated.

In order to develop interventions regarding non-urgent emergency usage of different patient groups, knowledge about the distribution of health literacy among these patients as well as their health information seeking behavior is required. Therefore a quantitative survey was carried out at an emergency department of a German hospital. During their stay in the emergency department 448 patients (213 men, 235 women, 48% male; mean age 37 years) categorized as patients with non-urgent conditions in the triage system (Emergency severity index category 4 and 5) were asked to fill out a questionnaire provided on tablet computers. The questionnaires were provided in German language, Turkish language or Russian language. Measures include the short version of the European Health Literacy Questionnaire (HLS-EU-Q16, HLS-EU Consortium, 2012) as well as health information seeking behavior, the feeling of information about emergency care in Germany, subjective health perceptions and socio-demographics.

Compared to the health literacy levels (hl-level) of the German population (Jordan & Hoebel, 2015) the hl-level of non-urgent patients in the emergency department was significantly lower, $\chi^2(2) = 85.70, p < .001$, Cramer’s $V = .13$. Overall 66.4 % of the patients had an inadequate or problematic hl-level, compared to 44.2 % in the general population (Jordan & Hoebel, 2015). Regarding the hl-level of patients and socio-demographic aspects no differences are visible in terms of gender, age, education or migration background.

The health literacy of patients is related to their feeling of information about emergency care in Germany ($F(2, 375) = 20.45, p < .001$, $\eta^2_{part} = .098)^2$. Patients with inadequate ($M = 2.14, SD = .55$) or problematic ($M = 2.25, SD = .60$) hl-levels feel less informed about emergency care than patients with an adequate hl-level ($M = 2.64, SD = .73$). In line with that also differences in health information seeking behavior are visible. Compared to patients with inadequate or problematic hl-levels, patients with an adequate hl-level indicate significant higher level of using information materials in their doctors practice ($F(2, 379) = 5.01, p = .007$, $\eta^2_{part} = .03$), health information on the radio ($F(2, 379) = 3.51, p = .031$, $\eta^2_{part} = .02$), health related websites ($F(2, 379) = 8.37, p < .001$, $\eta^2_{part} = .04$), health journals and newspaper articles related to health ($F(2, 379) = 3.29, p = .038$, $\eta^2_{part} = .02$) as well as health related online-newspaper articles ($F(2, 379) = 5.42, p = .005$, $\eta^2_{part} = .03$). Only complementary health related journals

---

2 All statistical analysis are controlled for age, gender, level of education, migration background and waiting room.
(e.g. supplied by pharmacies) are more often used by patients with problematic hl-levels than patients with adequate hl-levels ($F(2, 375) = 4.86, p = .008, \eta^2_{part} = .03$). No difference is visible for health information on television.

Our results indicate that health literacy is significantly weaker for patients in an emergency department with non-urgent treatment conditions than in the general population. This is not related to demographic aspects of the patients but to their knowledge about emergency care as well as their health related information behavior. Health literacy therefore seems to be an indicator for social inequalities in emergency self-care that should be addressed in health communication interventions.
References


Panel 8 (open) (Un)healthy media effects

15 November, 09:00 – 10:15
Room RAA-E-30
Chair: Andreas Fahr (Fribourg)

Gottschalk, Vivien; Schäfer, Markus (Mainz)
*News reporting about media effects on suicide: A content analysis of German media coverage on the Werther- and the Papageno-effect*

Schäfer, Markus; Schaaf, Marlene; Quiring, Oliver (Mainz)
*Brain doping on journalists’ prescription? Perception and influence of media reporting on pharmacological cognitive enhancement*

Ort, Alexander; Wirz, Dominique; Fahr, Andreas (Fribourg)
*Is binge-watching addictive? – Differential effects of motives for TV-series use on the relationship between excessive media consumption and media addiction*

Huisman, Martijn; Biltereyst, Daniël; Joye, Stijn (Ghent)
*The Alzheimer case: Perceptions, knowledge, and the acquisition of information about Alzheimer’s disease by the general public (50+) in Flanders*
News reporting about media effects on suicide:
A content analysis of German media coverage on the Werther- and the Papageno-effect

Vivien Gottschalk¹, Markus Schäfer¹

Abstract

Suicide is one of the world’s leading causes of death. Worldwide, there are about 800,000 completed suicides each year and there is still a high estimated number of attempted suicides as well as are unreported cases (WHO, 2017b; 2018). There is no doubt that suicide is a major public health problem and that suicide prevention is a challenge for societies worldwide.

Media reporting about suicide plays a crucial role in most prevention concepts (WHO, 2014; 2017a). Considerations that inappropriate media reporting about suicide might be followed by additional suicides have a long tradition. Since the pioneering studies by Phillips (1974) in the mid-seventies, this phenomenon is closely linked to the term “Werther-effect”. At the same time, there are clear indications that appropriate reporting can prevent suicides, a phenomenon which is known as “Papageno-effect” (Niederkrotenthaler et al., 2010).

Both effects can be explained by social learning theory (Bandura, 2001), according to which learning can not only occur by personal experience, but also by observing the experience of others. Observers can acquire knowledge, attitudes and behaviour not only by the observation of real-life models, but also by the observation of models that are represented symbolically via speech, characters or images as they can be found for example in mass media coverage (Bandura, 2001). Pursuant to the theory, there are at least three main scenarios of how media suicide content may have an influence on recipients’ attitudes and behaviour: 1.) New behaviour can be acquired by the observation of previously unknown media-mediated models; 2.) Media coverage can have inhibiting or disinhibiting effects on observers’ existing attitudes and behaviour and therefore strengthen or weaken suicidal behaviour that has already been learned; 3.) Social prompting: media presentation can trigger a certain behaviour that has already been learned and which is no longer inhibited. Media-mediated suicide models may function as tutor for new behaviour, (dis-)inhibit existing personal or social restraints for (not) committing suicide and trigger a certain behaviour by social prompting at the same time. If and to what extent there is a Werther- or Papageno-effect should – aside from characteristics of the recipients and situational factors – depend on how suicide content is actually presented and which models are provided.

Meanwhile, the existence of both effects is internationally well confirmed (Pirkis & Blood 2010; Scherr 2013; Sisask & Värnik 2012). Those findings are part of why organisations as the WHO consider media coverage of suicide as one of the most important issues in suicide prevention (WHO, 2014; 2017a). There are several national and international media guidelines on how suicide should (not) be reported to reduce the risk of additional suicides (Notredame et al., 2016; WHO, 2017a). Nevertheless, international studies on the quality of suicide reporting often show that central points of those

¹ Communication Science Research Group, Johannes Gutenberg-Universität Mainz, Germany
Panel 8 | Gottschalk & Schäfer

recommendations are not taken into account (e.g. Etzersdorfer & Sonneck, 1998; Pirkis et al., 2008; Reisch et al., 2010; Schäfer & Quiring, 2013; 2015; Tatum et al., 2010; Teismann, et al., 2013). This could be due to the fact that many of the recommendations contradict current reporting practices. Journalists might perceive those guidelines as advice to report in an "uninformative, uninvestigative and unattractive" way (Ziegler & Hegerl, 2002).

However, we know indeed very few about journalists’ attitudes toward the existing guidelines and the journalistic selection and reporting mechanisms behind suicide coverage. And, interestingly, there is no data yet on if respective how mass media report on the (possible) effects of media coverage themselves. Using the example of Germany, the present study therefore asks, whether respective how German media report about the Werther- and Papageno-effect.

We addressed the question by conducting a quantitative content analysis of 15 major German newspapers (national & local, quality & tabloid) and news magazines, including all articles dealing with those effects in the period from 2000 to 2018. In a first step, articles were extracted from an online database (LexisNexis) by applying a search string, which had been systematically tested and adjusted in advance to minimize false positive and false negative results. In a second step, all articles were screened manually by the coders and only those selected that hit selection criteria.

We recorded formal aspects of the articles (e.g. medium, date, type of article, article size, placement within the issue, illustrations) as well as aspects related to the content (e.g. the reasons for reporting). Most importantly to the research question, we coded, if the respective article referred to the effects on a general base by describing the (possible) influence of suicide-related media content and/or if it named the respective effect explicitly. We further investigated if the journalistic articles on (possible) suicide-related effects of media content themselves comply with the guidelines on suicide reporting and if they provide concrete information on the current state of research and/or the theoretical background of the effects. Intercoder reliability (Holsti’s method) of the categories was appropriate and had values from 0.71 to 1 for the formal and content categories.

Over the entire period, 188 articles dealing with one or both effects were identified. There was a cyclical course of reporting with regular ups and downs. Four peaks occurred within the period we looked at (2002, 2009, 2014, 2017), with a total climax of reporting in 2017 (n=25). The four peaks are each related to certain key events in the respective year (2002: school shooting in Erfurt; 2009: suicide of football international Robert Enke; 2014: broader discussion about assisted suicide after the suicide of former journalist Udo Reiter; 2017: launch of Netflix-series “13 reasons why”). However overall article frequency increased clearly over time (Figure 1). So it can be stated that the relationship between media and suicide has become more and more an issue to journalistic reporting.
Reasons for reporting on the effects are most frequently related to previous suicidal behaviour of real-life celebrities and non-celebrities (41%), followed by fictional suicide content (13%) and suicidal behaviour which is closely related to violence like mass shootings or suicide bombing (11%). The main focus of mass media reporting is clearly on the (possible) negative effects of media content. The (possible) suicide-increasing effect of suicide-related media content (Werther-effect) is addressed significantly more frequently than the (possible) suicide-preventive effect of mass media coverage (Papageno-effect). In more than 90% of the articles the Papageno-effect is not discussed at all, while 55% of the articles even provide further information on the suicide-increasing effect.

Information on the state of research was provided by 19% of the articles, however most articles do not go deeper than the historical origins of Goethe’s Werther and Phillip’s pioneering study. Although they refer to the possible effects, many articles did not completely comply with the guidelines. Even though most mistakes were found in tabloid newspapers, they also occur consistently in quality newspapers and news magazines.

A quite new phenomenon is the occurrence of footnotes under the articles that refer to media’s general intention to report in a cautious way about suicide and that e.g. provide help hotlines to their readers. Those footnotes were found in 15% of the articles. Most of them were published since 2014. But, interestingly, in many of those articles, the recommendations are ignored partially or completely, although such a footnote is appended.
References


Brain doping on journalists' prescription? 
Perception and influence of media reporting on pharmacological cognitive enhancement

Markus Schäfer¹, Marlene Schaaf², Oliver Quiring¹

Abstract

Pharmacological cognitive enhancement (PCE) is a neurotechnology which attracts increasing public interest (Ausschuss für Bildung, Forschung und Technikfolgenabschätzung, 2008; 2011; Heuser, 2009; Mieht, 2009; Sauter & Gerlinger, 2011; 2012; 2013; van den Daele, 2009). Though the use of prescription drugs to improve cognitive functioning in healthy persons has been at first and primarily discussed by bioethicists and neuroscientists, PCE meanwhile gets more and more attention in other disciplines as well as in media coverage (Partridge et al., 2011; Schäfer, 2018). In science, PCE is a highly controversial issue. While enthusiasts claim that the consumption of prescription drugs (e.g. methylphenidate, modafinil) for mental performance enhancement has many potential benefits for people and knowledge society (Greely et al., 2008), critics point out its medical and ethical risks and potential negative consequences for human community (Sahakian & Morein-Zamir, 2007).

As most people are not (yet) affected by personal experience (Bagusat et al., 2018; Franke & Lieb, 2012), it is very likely that media representation of PCE will have a significant impact on how it is seen and evaluated by potential consumers as well as in public debate in general. In communication science there is a broad consensus that under certain conditions mass media reporting can have effects on ideas, attitudes and even behaviour of its recipients (Bryant & Oliver, 2009). According to social learning theory (Bandura, 2001), a) recipients can acquire new attitudes and behaviour by the observation of previously unknown media-mediated models; b) media coverage can have inhibiting or disinhibiting effects on existing attitudes and behaviour and therefore strengthen or weaken behaviour that has already been learned; c) media-mediated models can function as a trigger for behaviour that has already been learned and which is no longer inhibited (in this case the consumption of psychoactive substances without medical need). Misleading enthusiastic or pessimistic media coverage of PCE might unrealistically raise expectations or fears about its future impact for good and ill and advantage policies mistakenly developed to facilitate or prohibit its use. An emphasis on positive effects and high prevalence in mass media reporting could favour positive attitudes towards PCE and a higher willingness to consume prescription drugs without medical need. An emphasis on risks, side effects and low prevalence could reduce the acceptance and willingness to take such drugs for enhancement purposes.

In the public debate about PCE, stakeholders often assume that there is an intense and misleading media reporting on the phenomenon, and that this could have negative effects on ideas, attitudes and behaviour of potential consumers (Lieb, 2010; Racine & Forlini, 2010; Sahakian & Morein-Zamir, 2007). By contrast, current content analyses from Germany show that the extent of media coverage is indeed comparatively low and that there is little evidence for a “media hype” (Partridge et al., 2011) about PCE (Schäfer, 2018; Schäfer, Reifegerste & Quiring, 2016). But at the same time, these studies reveal an

¹ Communication Science Research Group, Johannes Gutenberg-Universität Mainz, Germany
unbalanced media presentation of effects and side effects as well as mass media’s tendency to present 
PCE as widespread and increasing, which both contradicts the scientific findings on efficacy and 
prevalence (Bagusat et al., 2018; DAK, 2009; 2015; Schröder et al., 2015). Critics see this as a possible 
starting point for a “self-fulfilling prophecy” (Langlitz, 2010) or a “spiral of prevalence” (Schäfer, 2018), 
at the end of which there could be an actually increased consumption of psychoactive substances by 
healthy people.

However, until now, if and how media reporting on PCE is actually perceived and if respective how 
media presentation actually has an influence on conceptions, attitudes and behavioural intentions (e.g. 
the willingness of healthy recipients to consume such substances), has not yet been investigated. We 
therefore ask
- if respective how people perceive media coverage of PCE and
- what effects media presentation of PCE has on their ideas, attitudes and behaviour.

We examine these questions with the help of a) a survey representative of the German population 
(Face-to-Face, n=1.128) and b) an online experiment with college students (n=153). College students, 
due to their comparatively high willingness to take risks in general and the special intellectual 
requirements of their studies, are often considered a central risk group with respect to PCE (e.g. Dietz 
et al., 2013; Middendorff et al., 2015).

The survey took place in August and September 2016. Participants were selected according to the 
quota procedure and represented the population in Germany aged 18 and above. The online 
experiment was conducted in a 2x2 design. The participants (69% female, age: M = 23.4, SD = 2.9) were 
confronted with a fictitious, but in terms of content and appearance realistic online article of a leading 
German (online) health magazine (“Apotheken Umschau”) (Figure 1). We varied the information on a) 
the prevalence (“widespread”: 20%, increasing vs. “marginal”: 1-2%, decreasing) and b) the efficacy and 
effects of PCE (“positive”: effective, health risks low vs. “negative”: not effective, health risks high). The 
article of the control group dealt with the topic “backache among college students".
According to the survey, 92 percent of the German population have already heard of PCE. Mass media coverage is one of the main sources of information (60%). Interpersonal sources such as friends (68%), colleagues (40%) or relatives (37%) are also particularly important. The Internet in general (30%) is less common as information source. Doctors (19%) and pharmacists (11%) represent a rather subordinate source of information. One in five respondents stated that they had already searched specifically for information on PCE. More than half of them use the Internet for this purpose (51%).

Of those respondents who came in contact with media coverage of PCE, 36 percent consider the extent of reporting to be appropriate, 34 percent consider the extent of reporting to be (too) small. Only 18 percent felt that the media coverage was too extensive, twelve percent did not want to or could not provide information on this issue. 35 percent of the respondents felt that the tone of media coverage of PCE was exclusively or predominantly negative, 28 percent that it was balanced, 19 percent that it was predominantly or exclusively positive.

The results of the online experiment show that differences in media presentation of prevalence, efficacy and health consequences of PCE are reflected in the test persons’ personal evaluation of PCE (Table 1). If PCE was described as widespread and increasing or marginal and declining, the college students also estimated the prevalence of PCE as higher respective lower. If the article presented the risks of PCE as low and assessed the substances as effective, the participants were less critical in their evaluation of PCE. A positive evaluation contributed to an increased willingness to inform oneself about the topic, but there were no direct effects on the willingness to take drugs for cognitive enhancement.
Our results thus provide empirical evidence for the first time that a) media reporting on PCE in Germany is widely perceived and that b) the way in which media present PCE can indeed have an influence on how recipients evaluate PCE and how they act. This gives rise to questions of media ethics. Against the background of the possible consequences, it seems particularly problematic that journalistic mechanisms (Schäfer, 2018) lead apparently to at least some media framing PCE as effective, widespread and increasing (Scheufele, 1999), although the state of research does not support such a conclusion.

Table 1: Influence of media representation on ideas of PCE dissemination, PCE assessment and PCE-related behavioural intentions

<table>
<thead>
<tr>
<th></th>
<th>PCE widespread</th>
<th>PCE marginal</th>
<th>control group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>negative n = 32</td>
<td>positive n = 35</td>
<td>negative n = 30</td>
</tr>
<tr>
<td>PCE: Concept of prevalence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>prevalence</td>
<td>28,19</td>
<td>30,40</td>
<td>21,77</td>
</tr>
<tr>
<td>trend</td>
<td>5,75^a</td>
<td>5,60^a</td>
<td>4,17^bc</td>
</tr>
<tr>
<td>PCE: Evaluation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>efficacy</td>
<td>4,34</td>
<td>5,03</td>
<td>4,57</td>
</tr>
<tr>
<td>harmfulness</td>
<td>6,41^a</td>
<td>5,23^b</td>
<td>5,80</td>
</tr>
<tr>
<td>PCE: Behavioural Intentions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>willingness to inform oneself</td>
<td>2,25</td>
<td>3,37^a</td>
<td>2,57</td>
</tr>
<tr>
<td>willingness to consume</td>
<td>1,75</td>
<td>1,94</td>
<td>1,67</td>
</tr>
</tbody>
</table>

Base: n = 153, one-way analysis of variance (ANOVA) [post hoc test: Bonferroni / Tamhane T2]
* p < .05; ** p < .01; *** p < .001
Note: Groups with different characters differ significantly (p < .05).

Concept of prevalence: prevalence (open question, in percent); trend (1=decreasing; 7=increasing); Evaluation: efficacy (1=low; 7=high); harmfulness: (1=low; 7=high); Behavioural Intentions: willingness to inform oneself (1=low probability; 7= high probability); willingness to consume (1=low probability; 7= high probability).
References


Is binge-watching addictive?
Differential effects of motives for TV-series use on the relationship between excessive media consumption and media addiction

Alexander Ort¹, Dominique Wirz²

Theoretical background and research interest

Streaming platforms such as Netflix have significantly changed the way people watch TV. According to a report of the European Audiovisual Observatory (2017), the number of subscriptions to video-on-demand services has grown by 91.3 percent per year from 2011 to 2016, resulting in 43.5 million subscribers in Europe by the end of 2016. Video-on-demand services allow individuals to watch TV content whenever they like and they often release whole seasons of TV series at once, which gives users a nearly unrestricted autonomy in their media consumption (Granow, Reinecke, & Ziegele, 2018). This development is often associated with an increase in excessive media consumption, also referred to as binge-watching. Binge-watching can be defined as a continuous, high-dosage media consumption (Conlin & Tefertiller, 2016), which goes along with a commitment to watch a series until its end (Rubenking, Bracken, Sandoval, & Rister, 2018). As opposed to traditional series consumption, it is also often characterized by watching two or more episodes of the same series within one sitting (e.g., Pittman & Sheehan 2015).

Generally, the term binge has been used to describe activities in which individuals engage excessively and in an uncontrolled manner. On the one hand, the term refers to diseases included in the Diagnostic and Statistical Manual of Mental Disorders (DSM), such as binge-eating (DSM-5, 2013); on the other hand, it has been applied to excessive behaviors, such as binge writing (Kellogg, 1994) or binge drinking (Wechsler et al., 2002), for which there is no clinical evidence to be categorized as disorders. Although binge-watching falls more likely into this second category, especially unintended binge-watching has been associated with addiction symptoms (Riddle, Peebles, Davis, Xu, & Schroeder, 2018). Further, if performed regularly, binge-watching is associated with decreased well-being and negative effects on sleep (Exelmans & van den Bulck, 2017). This suggests that binge-watching may be a problematic behavior for some individuals or under some circumstances.

Previous research has shown that motives for binge-watching differ for heavy and light binge-watchers (Sung, Kang, Lee, 2018). As positive and negative outcomes of binge-watching are likely to depend on the individuals’ appraisal of the media reception (Granow et al. 2018), it the aim of this study was to explore influence of viewer’s motives for TV-series use on the relationship of binge-watching behavior and addiction symptoms. So far, binge-watching has been related to several motives, such as entertainment and passing time (Sung et al. 2018), relaxation (Steiner & Xu, 2018), emotional enhancement, escapism and social interaction (Flayelle et al., 2019). It remains however unclear, which

¹ Department of Communication and Media Research, University of Fribourg, Switzerland, alexander.ort@unifr.ch
² Department of Communication and Media Research, University of Fribourg, Switzerland, dominique.wirz@unifr.ch
of these motives could be responsible to foster the development of problematic (addictive) binge-watching behavior.

**Method**

To investigate which motives potentially lead to problematic binge-watching behavior, an online survey was conducted in October 2018. Participants were recruited through Amazon mTurk. The questionnaire assessed, inter alia, participants binge-watching behavior (“How often do you watch more than two series in one sitting?”; 1 = less than once a month, 6 = daily; \(M = 4.14; SD = 1.50\)). Moreover, following Rubin’s (1983) work, motives to use series, such as, entertainment (e.g., “I watch TV series because they are entertaining.”; 1 = not at all, 5 = exactly), relaxation, loneliness, escapism, etc., were measured with three items each. Participants risk of developing a binge-watching addiction was measured by applying an adapted version of the 37 item DSM-5 scale (Falkai & Wittchen, 2015; 1 = low risk of addiction, 5 = high risk of addiction; \(M = 2.37, SD = .96, \alpha = .98\)). The final sample consisted of 415 participants aged between 19 and 82 years (\(M_{age} = 38.2, SD_{age} = 17.1; 54.7\% \text{ female}; \text{ formal education: } 62.9\% \text{ bachelor’s degree or higher}; \text{ mother tongue: English}; \text{ ethnicity: } 76.9\% \text{ Caucasian}).

To investigate the influence of different gratifications related to series use on participants risk to develop a binge-watching addiction, moderation analyses were conducted using PROCESS (V3.1; Hayes, 2018, Model 1; 5000 bootstrapping samples, 95% confidence intervals, using HC3 correction and mean-centering variables for products). Binge-watching frequency was entered as the independent variable and the index of participants’ risk to develop a binge-watching addiction as the dependent variable. Motives were included as moderators in separate moderation analyses (see Figure 1), while controlling for all other motives, which were introduced as covariates. All regression coefficients \([b]\) are unstandardized (see Table 1).

**Results**

Throughout all moderation analyses, a positive significant effect of binge-watching frequency on the risk to develop a binge-watching addiction was found (.09 < \(b < .11; p < .001\)); a higher frequency of binge-watching sessions is associated with potentially problematic addictive behavior. Furthermore, escapism \((b = .15; p < .001)\), loneliness \((b = .18; p < .001)\), stimulation \((b = .11; p = .011)\), social interaction \((b = .22; p < .001)\), and learning \((b = .15; p < .001)\) were positively related to participants addiction score, indicating that recipients using series for these reasons also might be more at risk to develop an addiction. On the other hand, entertainment as a motive was negatively related to participants addiction score \((b = -.20; p < .001)\). No relationships emerged for pastime and relaxation. Regarding the moderating role of participants’ motives on their addiction symptoms, escapism \((b = .04; p = .038)\), social interaction \((b = .07; p < .001)\), and learning \((b = .06; p = .004)\) had a significant impact (while loneliness \([b = .03; p = .077]\) and stimulation \([b = .04; p = .083]\) marginally missed significance). According to these results, the more participants use series for these reasons, the stronger is the positive relationship between binge-watching frequency and addictive behavior.
Discussion

Results of this study show that the mere frequency of binge-watching alone should not be considered as factor related to the development of problematic (addictive) binge-watching habits. Data provide evidence that media users motives to watch series can be of greater importance to understand problematic viewing behavior. Interestingly, not only more “problematic” motives, such as escapism, loneliness, and stimulation, but also the urge for social interaction or learning, were positively related to participants’ addiction score. On the other hand, binge-watching for entertainment or relaxation was not related to problematic addiction symptoms. Our results thus suggest that binge-watching should not generally be considered as a problematic behavior, but that it can be problematic for some individuals depending on their motivation. Interestingly, also media use motives that are generally considered as functional, such as learning and social interaction, are related to problematic viewing behavior. Future research should investigate this relationship in more detail.

Because of limitations with regard to space for this abstract, addiction was only investigated as a whole, thereby neglecting the potential varying relationships of binge-watching behavior and motives on distinct subdimensions of the applied addiction scale, i.e., impaired control, social impairment, and risky use. Details with regard to these dimensions and further analyses, e.g., concerning the role of personality traits, will be presented at the conference.
Appendix

Figure 1. Moderation model.

Table 1

<table>
<thead>
<tr>
<th>Escapism</th>
<th>.10***</th>
<th>.15***</th>
<th>.04*</th>
<th>.59***</th>
<th>.004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loneliness</td>
<td>.10***</td>
<td>.18***</td>
<td>.03a</td>
<td>.59***</td>
<td>.004a</td>
</tr>
<tr>
<td>Stimulation</td>
<td>.10***</td>
<td>.11**</td>
<td>.04b</td>
<td>.59***</td>
<td>.003b</td>
</tr>
<tr>
<td>Social Interaction</td>
<td>.11***</td>
<td>.22***</td>
<td>.07***</td>
<td>.60***</td>
<td>.01***</td>
</tr>
<tr>
<td>Learning</td>
<td>.10***</td>
<td>.15***</td>
<td>.06**</td>
<td>.59***</td>
<td>.01**</td>
</tr>
<tr>
<td>Pastime</td>
<td>.09***</td>
<td>−.03</td>
<td>.03</td>
<td>.59***</td>
<td>.002</td>
</tr>
<tr>
<td>Relaxation</td>
<td>.09***</td>
<td>−.08c</td>
<td>.01</td>
<td>.58***</td>
<td>.000</td>
</tr>
<tr>
<td>Entertainment</td>
<td>.09***</td>
<td>−.20***</td>
<td>−.01</td>
<td>.59***</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note. $b =$ unstandardized regression weights; $X =$ binge-watching frequency; $Y =$ DSM-5 binge-watching score; $W =$ moderators (motifs of series use); $R^2 =$ variance explained by the model; $\Delta R^2 =$ additional variance explained by the interaction between $X$ and $W$.

*p < .05. **p < .01. ***p < .001; *p = .077, ^p = .083, c p = .075
References


Conlin, L., & Tefertiller, A. C. (2016). Binge-watching is the new reading: Comparing the entertainment and transportation outcomes of reading, playing video games, and watching TV. In annual conference of the National Communication Association, Philadelphia, PA.


The Alzheimer case: Perceptions, knowledge, and the acquisition of information about Alzheimer’s disease by the general public (50+) in Flanders

Martijn Huisman1, Stijn Joye1, Daniël Biltereyst1

Introduction

Alzheimer’s disease (AD) is deemed one of the biggest contemporary health threats (Johnstone, 2013; World Health Organization [WHO], 2017) and said to strike fear in the minds of the public (Cantegreil-Kallen & Pin, 2012; Clarke, 2006; Johnstone, 2013; Kessler & Schwender, 2012; Van Gorp & Vercruysse, 2012). Yet, few studies have examined what the public knows about AD and where it gets its information from. Most work on public perceptions and knowledge of AD is based on quantitative surveys (Anderson, Day, Beard, Reed, & Wu, 2009; Cantegreil-Kallen & Pin, 2012; Rimmer, Wojciechowska, Stave, Sganga, & O’Connell, 2005), while qualitative studies are dated and/or limited to the United States. Our study examines knowledge of AD and sources of information among middle aged and older adults (50-80 years old) in Flanders, the Dutch-speaking northern region of Belgium. We answer the following research question: What do Flemish adults aged 50 and over know about AD, and where do they obtain this knowledge?

Background & theoretical framework

Communication and media scholars have examined mass media representations of AD (Stone, 2014) and how these shape public perceptions of and attitudes towards dementia (Johnstone, 2013). Media narratives of AD and dementia generally focus on decline and deficits caused by these afflictions (Kessler & Schwender, 2012; Van Gorp & Vercruysse, 2012). They tend to portray and emphasize a rapid development of AD and its symptoms, focussing on the latter and terminal stages in which severe memory loss and erratic and bizarre behaviour manifests. Two dominant yet competing AD media narratives have been exposed in earlier studies. In the medical or biological perspective, AD stems from the malfunctioning of the individual body (Clarke, 2006; Peel, 2014) and is detached from the natural aging process (Johnstone, 2013; Stone, 2014; WHO, 2017). The lifestyle perspective emphasizes individual responsibility as AD is viewed as the result of individual health behaviour and lifestyle choices (e.g. unhealthy diet, lack of exercise, smoking, consumption of alcohol) (Clarke, 2006; Peel, 2014).

Our theoretical framework is formed by the concepts of media complementarity and information behaviour, specifically health information acquisition. The extant literature suggests that people obtain health information actively and purposively (seeking) as well as unintentional and non-purposive (encountering) from a variety of mediated and interpersonal channels and sources. Following Tian and Robinson (2008; 2009), who extend Dutta-Bergman’s (2004) media complementarity theory to include interpersonal communication, we expect that complementarity between mass- and digital media

1 Centre for Cinema and Media Studies (CIMS), Ghent University, Belgium
extends to interpersonal interactions with regards to AD. This ‘expanded media complementarity theory’, that is, including interpersonal channels of information and the notion of purposive and non-purposive information acquisition, serves as the theoretical starting point for our study.

Method & Data

Between April and September 2015, forty in-depth, semi-structured interviews were conducted with Flemish adults aged 50 to 80. The interviews were conducted using a predefined topic list (Mortelmans, 2013), keeping the questioning as open as possible to fully immerse and understand health attitudes and information needs and behaviours. Alzheimer’s disease was discussed in depth as a concrete case of health information. The interviews were recorded and transcribed verbatim to be analysed qualitatively. After a meticulous first reading of the transcripts and an exhaustive literature review, we employed semi-open coding to identify and code relevant parts of the transcripts (Mortelmans, 2013). Following the Grounded Theory approach to data analysis (Mortelmans, 2013), ongoing comparisons were made between the empirical data and their place within conceptual frameworks and the literature.

Results

Respondents obtain and compile their knowledge of AD from a variety of channels and sources, both mass and digital media as well as everyday interpersonal interactions. While information about AD is sometimes actively sought for on the internet in response to an information need or want, the majority of AD information seems to be obtained accidently during routine exposure to mass media sources, for example when watching television or reading the newspaper. While acknowledging implicitly and explicitly that their knowledge of AD comes from multiple sources (media complementarity), most respondents could not recall or only vaguely remember from which channels or sources exactly. We found four distinctive exceptions, namely novels, films, personal experiences/social proximity, and the public influence of well-known individuals. The first two suggest that fictional narratives, through their vividness and potential for readers/viewers to engage with the story and identify with the characters, are able to offer memorable representations of AD. Personal experiences and social proximity offer first-hand impressions and stories, while the involvement of well-known individuals (e.g. researchers, doctors, celebrities) gives AD a recognizable face.

The most surprising finding is the prominence of film, particularly the Flemish film The Alzheimer Case (2003, also released internationally), in exposing respondents to AD. The Alzheimer Case contributes to respondents’ understanding of AD – and perhaps by extension a sizeable part of the Flemish population, given the films’ commercial and critical success. While dramatized depictions might offer engaging and vivid narratives of illness (Kline, 2011), thereby communicating health information and messages, they are first and foremost cinematic entertainment (Medina, 2018; Segers, 2007). Kline (2011) finds that such health messages in popular media are often obfuscated by factual inaccuracies, misrepresentations, and omissions, as entertainment values rank higher than factual and medical accuracy. In The Alzheimer Case, the rapid development of the disease and its symptoms in the main character, as well as his use of experimental medicines to get a temporary boost, possibly rise to public misperceptions, misunderstandings, and unrealistic expectations.
The perpetuation of misperceptions brings us back to the first part of our research question, namely respondents’ knowledge of AD. We found that AD is dreaded by all respondents and deemed the beginning of the end, so much so that some talked about wanting to die a quick and painful death rather than living with AD. At the same time, respondents did not always know what AD exactly is and what it is not (confused with Parkinson’s disease). Moreover, respondents fostered misconceptions such as AD being inherent to the natural aging process, while competing medical and lifestyle perspectives raised uncertainty about what is true with regards to avoiding dementia. This all suggests that media narratives about AD, particularly depicting the rapid development of AD and its symptoms as well as disturbing stories about the latter stages of the disease, shape respondents’ perceptions of AD.

**Conclusion**

Respondents’ knowledge of AD is limited and often characterized by misconceptions and uncertainty. Bits and pieces of information about AD are gathered largely unconsciously from mass media and interpersonal sources, while the internet mostly serves to facilitate active seeking for information. Typically, novels and films and personal experience/social proximity to people living with AD as well as well-known individuals stand out as sources of AD information to respondents because of their vivid, compelling narratives and/or because they give a face to AD. As the world population ages and the amount of individuals living with AD is expected to rise, the findings of this study might be particularly relevant for public health and AD patient organisations seeking to raise awareness and educate the general public.
References


Panel 9

Social media and health technologies

15 November, 10:45 – 12:00
Room RAA-G-01
Chair: Sabrina Kessler (Zurich)

Eckler, Petya; Tonner, Andrea (Strathclyde)
*How healthy are health posts on Instagram? A content analysis of #healthyliving and #healthylifestyle posts*

Hendriks, Hanneke (Amsterdam); Nooy, Wouter de (Amsterdam); Gebhard, Winifred (Leiden); Putte, Bas van den (Amsterdam)
*What’s there to like? Testing the causal effects of alcohol posts on Facebook on drinking behavior*

Kalch, Anja; Küchler, Constanze; Bueß, Bettina (Augsburg)
*Do satirical Instagram posts influence social norms and the acceptance of compulsory vaccination?*

Karnowski, Veronika (Munich); Reifegerste, Doreen (Erfurt)
*“Do I really need to walk another 1,346 steps?” The role of self-tracking technologies between norm-setting socializing agents and topics of conversation*
Abstracts

Health is defined by the World Health Organisation as not merely the absence of disease, but as one’s complete physical, mental and social well-being (WHO, 2019). The social and mental aspects of health should be receiving equal attention to the physical aspects, according to this definition. One of the ways through which health becomes social is via our communication and shared information about it, either face to face or on social media, whether that concerns specific health conditions or health and wellness in general.

A recent survey of chronic disease patients who were active on social media revealed that 52% used Facebook for health at least monthly (Health Union, 2016). The experiences of patients online go beyond consuming health information and into engaging socially on the topic. From the same survey, 74% had followed social media discussions or forum threads, 70% had liked a post, photo or video, 61% had commented on health-related posts, photos or videos in the past six months. Furthermore, 48% of patients had shared a third party’s health-related content online or through social media (Health Union, 2016). Thus, the authors concluded that “the online experience for health is an exchange of information.”

Daily living or lifestyle tips were among the top 10 health topics that patients read or watched online (Health Union, 2016). But pursuing and sharing information about healthy living goes beyond chronic disease patients. The health and wellness trend has swept consumers across the globe and is predicted to continue its growth. In 2016, the global market for health and wellness reached $686 billion and is expected to grow to $815 by 2021 (Weinswig, 2017).

The most active group behind this trend is millennials. “For millennials, wellness is a daily, active pursuit, and one they are willing to spend on,” according to Weinswig (2017). Millennials are also the biggest age group on Instagram, with 63% of global Instagram users being ages 18-34 (Statista, 2019).

Unlike condition-specific websites, Instagram is a platform for sharing and commenting. Thus, Instagram is the place where the two trends of health/wellness and social life of health information converge most vividly for millennial users. This study will explore the topic by examining posts on Instagram tagged with #healthyliving and #healthylifestyle. The goal is to examine what content is shared under the banner of health, how it is presented, and whether it pertains to a healthy lifestyle.

While the general definition of health covers one’s complete physical, mental and social well-being (WHO, 2019), a healthy lifestyle is defined in more concrete terms. That includes: a healthy diet, healthy physical activity level, healthy body weight, no smoking, moderate alcohol intake (Li et al., 2018).

Several studies have examined the presentation of women and men in health magazines. The predominant body type in Men’s Health and Men’s Fitness magazines was low in body fat and very
muscular (Labre, 2005), which is not a realistic portrayal of men’s bodies. Women’s bodies in health magazines also subscribed to unattainable ideals, but less so compared to fashion magazines (Wasyliw, Emms, Meuse, & Poirier, 2009). While 95% of the models in fashion magazines were considered lean, 55% of models in health magazines were seen as such, and another 36% of models in health magazines were considered muscular. Additionally, models in advertisements in health magazines were more active than those in fashion magazines, which fits with the ethos of the publication, but they showed greater degree of nudity (Wasyliw et al., 2009).

Studies of the editorial content of women’s health and fitness magazines have revealed that headlines referenced appearance-related behaviours significantly more often than health-related behaviours (Willis & Knobloch-Westerwick, 2014). Headlines also contained appearance frames (33.3%) more often than health frames (29.3%), and only 3.3% contained body confidence frames (Aubrey, 2010).

More recent studies of content posted online explored 21 healthy living blogs in terms of the blogger’s characteristics and the content they posted (Boepple & Thompson, 2014). The authors found “a variety of content indicative of problematic eating and body image information” (p. 362). Such content included photos that make bloggers look thinner (n=12), stigmatizing language for being overweight, praise for being thin, guilt-inducing/negative messages about food. On the other hand, there was little content on general health issues (Boepple & Thompson, 2014).

The above content analyses reveal, perhaps unsurprisingly, a heavy focus on appearance versus health. This finding is important in light of social cognitive theory, as it situates the pursuit of better appearance as more important than the pursuit of good/better health.

Social cognitive theory (SCT) suggests that people are not only passive consumers of content but they use it to learn about the world through observing models in the immediate environment or the media (Bandura, 2001). Modeling is more than mere imitation, Bandura argues, and serves for rule learning rather than mimicry. Models who are the same age as the viewer are more likely to be influential, as well as models who viewers perceive as good-looking, financially well-off, or powerful (Stern, 2005). This relates strongly to Instagram, as people there are typically perceived as similar others, unlike celebrities on TV or magazines, thus Instagram content would be more influential.

This study examines Instagram posts tagged with #healthyliving and #healthylifestyle and looks into how these posts relate to health. As of 30 May 2019, #healthylifestyle had over 48 mln posts and #healthyliving had over 24 mln posts. The two hashtags were scraped for data on 30 May 2019 with a data-scraping tool designed by the Digital Methods Initiative at University of Amsterdam. The scraping tool returned 2,578 posts for #healthyliving and 2,339 for #healthylifestyle. Of each hashtag a 5% sample was pulled for analysis via random sampling, resulting in 129 posts with #healthyliving and 117 posts with #healthylifestyle, equalling 246 in total.

Photos were examined for content, gender, body type, objectification, posing, activity and valence of the captured people. When items were portrayed, their type was recorded. Photos were also examined for presence of commercial products/services and for any promotional aspects. The captions of posts were examined for valence and healthy positioning of the post.

Complete results are upcoming and will be presented at the conference. But preliminary results indicate a heavy presence of women in the photos, whether alone or in groups with men. The majority were of average built. Items were displayed commonly in photos, whether together with people or
alone. Half of the displayed items were various types of food, including supplements, powdered drinks, etc. Photos also displayed clothing and health programmes/screening.

Half of posts were made by commercial actors: food/drinks distributors, fitness trainers, course providers, and were promotional in nature.

The above results, albeit preliminary, begin to paint a varied picture of the content tagged as healthy living on Instagram. Of particular interest is the commercial nature of many of the posts, which aligns with the article by Weinswig (2017), which discussed the commercialisation of health and wellness.
References


World Health Organisation. (2019). Constitution. [https://www.who.int/about/who-we-are/constitution](https://www.who.int/about/who-we-are/constitution)
What’s there to like?
Testing the causal effects of alcoholposts on Facebook on drinking behavior

Hanneke Hendriks, Wouter de Nooij, Winifred A. Gebhardt, Bas van den Putte

Introduction

Adolescent alcohol abuse results in severe accidents, brain damage, and future alcohol addiction (Perkins, 2002). Studies in offline, face-to-face, contexts show that interpersonal communication about alcohol influences alcohol consumption (Hendriks, Van den Putte & De Bruijn, 2014). However, as a result of significant changes in today’s interpersonal communication and media landscape, communication nowadays often takes place online. In particular, adolescents frequently visit Social Network Sites (SNS), such as Facebook, and often post (i.e., place) alcohol-related content on these sites (Hendriks, Van den Putte, Gebhardt & Moreno; Beullens & Schepers, 2013). Given this prevalence, it is paramount to understand the effects of alcohol-related SNS-content (henceforth: alcoholposts) on viewers. Some recent studies have examined the relationship between alcoholposts on social media and alcohol use and suggest that alcoholposts are related to increased alcohol consumption (Moreno, Christakis, Egan, et al., 2012; Boyle, LaBrie, Froidevaux & Witkovic, 2016). Unfortunately however, these studies limit conclusions about causality, because they most often use cross-sectional data. Furthermore, these studies often rely on self-report, which can be problematic because people may have difficulty remembering what they have encountered on social media, especially if the recollection concerns a period that occurred a while ago (e.g., in the past year). Therefore there is an urgent need for a (1) longitudinal study that combines daily measurements of alcohol consumption with (2) objectively measured daily exposure to alcohol-related social media content.

Method

The current study employs such a design. That is, students (N = 280), who participating in ‘friends-groups’, were followed for 6 weeks during which alcohol-related social media use and alcohol consumption was measured daily. Alcohol consumption (i.e., whether people drink [occurrence] and how much people drink [quantity]) was measured with a short daily questionnaire (i.e., “Did you drink alcohol yesterday?”, and if so, “How many alcoholic drinks did you consume?”). Alcohol-related social media use was measured by using an innovative SNS-tool especially developed for this study. This SNS-tool is an app that resembles Facebook and copies what participants post on Facebook and places this in the SNS-tool. In this way, the 280 participants could access the app and see and interact with the Facebook posts of other participants.

The study had two phases: during the first 3 weeks social media use was observed. During the next 3 weeks, however, fake-participants (i.e., profiles made by the experimenter) posted alcohol-posts. The

1 School of Communication Research, Universiteit van Amsterdam, Netherlands
2 Department of Health, Medical and Neuropsychology, Universiteit Leiden, Netherlands
fake posts could be distinguished in four categories: negative (about alcohol) social posts, negative non-social posts, positive social posts, and positive non-social posts. In this manner the effects of alcohol posts could be examined for natural posts and for fake posts.

Results

Analyses. We tested multilevel models with three levels (i.e., alcohol use reports [level 1] nested within participants [level 2], nested within groups [level 3]). To examine the effects of alcohol posts on alcohol occurrence a logistic regression was conducted, and to investigate effects of alcohol quantity a negative binomial model was tested. Covariates were previous drinking behavior, regular drinking at that weekday, gender, and study year.

Descriptives. There were 548 posts in total. 34 posts were natural alcohol posts. Coding of these posts revealed that 23 showed a positive context, 10 were neutral, and 1 showed a negative context. Furthermore, 30 of these posts were social (i.e., showing people) and 4 were non-social (no people visible). This confirms previous research that alcohol posts show a positive and social context.¹

Effects of natural posts. Results show that the number of natural alcohol posts had a positive (predictive) effect on the probability of a drinking day that following day. A single additional alcohol post increases the probability of a drinking day by at least 11 percent (CI: 4-18 percent). This means that seeing one alcohol post the day before increases the chance of a drinking day from 35% (the mean chance of a drinking day in our sample) to 39%, and seeing four alcohol posts the day before increases the chance of a drinking day to 53%. Furthermore, not only frequency of alcohol use was influenced by alcohol post exposure, also alcohol quantity was affected. That is, the number of natural posts also had a positive (predictive) effect on the number of glasses drunk.

Effects of fake posts. Although natural alcohol posts affected alcohol occurrence and quantity, the fake alcohol posts had no effect on the possibility of a drinking day or the number of glasses drunk.

Conclusion

This study is the first to prove the causal effects that alcohol posts have on whether and how much people drink. If young people encounter alcohol posts in their social media environment, this increases the chance that and how much they drink. This is quite problematic given the abundance of alcohol-related content on SNS (Hendriks, et al.; Beullens & Schepers, 2013; Moreno, et al., 2012; Boyle, et al. 2016). The fact that our experimental posts had no effects at all was surprising, especially since we expected differences between the negative and positive posts. A possible explanation may be that the fake posts did not resemble the natural posts closely enough. Future research is needed to explore how the negative effects of alcohol posts on drinking behavior can be countered.
References


Do satirical Instagram posts influence social norms and the acceptance of compulsory vaccination?

Anja Kalch¹, Constanze Küchler², Bettina Bueß²

Abstract

The WHO lists vaccine hesitancy as one of the biggest ten global health threats in 2019, since it impedes the elimination of vaccine-preventable diseases (WHO, 2019). In particular, measles increase globally but could be eliminated by strict vaccination programs (WHO, 2019). Even Germany is one of the European countries that are still endemic for measles (ECDC, 2019), because of a lower overall coverage and regional differences in obtaining the second dose of the measles vaccination (Takla, Wichmann, Rieck, & Matysiak-Klose, 2014). In order to close existing vaccination gaps the German Health Minister presented a draft law about compulsory MMR vaccination in May 2019 that intends to punish parents who do not vaccinate their child twice until school enrolment with a fine (Bundesministerium für Gesundheit, 2019). Additionally non-vaccinated children won’t be allowed to attend kindergarten (Bundesministerium für Gesundheit, 2019).

It is controversially discussed, whether or not such a compulsory vaccination program is useful to close vaccination gaps (o.V., 2019). Arguments in favor of compulsory vaccination refer e.g. to an increase in vaccination rates that is necessary to eliminate measles, establish herd immunity and thus to protect people that can’t be vaccinated. Arguments against compulsory vaccination (pro voluntary vaccination) include e.g. the right of parents and people to freely decide about medical treatments. In line with that, the German society for General Practice and Family Medicine (DEGAM, 2019) published a position statement against compulsory measles vaccination, arguing that it is matter of the doctor patient relationship and may even increase resistance of vaccine hesitant patients (DEGAM, 2019). This negative effect of compulsory vaccination programs on people with negative attitudes towards vaccination is empirically shown by Betsch and Bohm (2016). In the experimental study using a vaccination game, compulsory vaccination increased anger and reactance and thus decreased uptake of the second vaccination in people with vaccine skeptical attitudes, while voluntary vaccination did not.

In order to communicate the compulsory vaccination program, the question how such negative effects due to reactance can be reduced arises. As a promising communication strategy satirical messages about measles vaccines have been shown to decrease vaccine hesitancy in US-American parents by reducing reactance and increasing perceived severity of measles (Moyer-Gusé, Robinson, & Mcknight, 2018). This is in line with other research showing that humor has the potential to decrease defensive reactions (Polk, Young, & Holbert, 2009; Skalski, Tamborini, Glazer, & Smith, 2009; Young, 2008).

A second mechanism through which satirical messages may be effective is their potential to uncover social norms (Chen, Gan, & Sun, 2017). Research from political communication shows that satirical content that criticizes political actions and thus shows violations of social norms has the potential to increase political engagement (Chen et al., 2017). The relationship of humor and social norms is

---

¹ Institut für Medien, Wissen und Kommunikation, University of Augsburg, Germany

293
explained by an increase of awareness about existing norms: “humorous references to existing norms direct group members’ attention toward them and keep the members from ignoring their existence.” (Ziv, 2010).

Based on these existing results we assume that satirical messages about compulsory measles vaccination increase acceptance of compulsory vaccination while decreasing reactance and increasing social norms.

However, while satire may have the potential to uncover social norms and to reduce reactance, humorous messages are at risk to be perceived as less severe due to its entertaining character (Moyer-Guse, Madhood, & Brooks, 2011; Nabi, Moyer-Guse, & Byrne, 2007). Likes, as one type of indirect social online information may be an indicator of the public opinion in social media (Peter, Rossmann, & Keyling, 2014) and as such make social norms visible (Neubaum & Krämer, 2016). Therefore, we assume that likes counteract the trivialization effect of satire and increase the acceptance of compulsory vaccination through the perception of social norms.

In order to test the assumed relationships a 2 (satirical versus non-satirical message) x 2 (likes versus no likes) online experiment was carried out, n = 227 (82 men, 145 women; M_age = 32, SD_age = 12.91). We created two Instagram posts in the style of the German children’s book series “Jakob”. The satirical version shows two gravestones (one for Jakob, one for his friend), while in the non-satirical version Jakob and his friends are shown playing. Both posts are labeled with #compulsoryvaccination and captioned with “For the protection of your own health as well as the health of others”. In the like condition, the post displayed 4.509 likes, while in the other condition no likes are visible. After reading the post, reactance (M = 2.77, SD = 1.82, α = .84), perceptions of social norms (M = 5.58, SD = 1.55, α = .93), acceptance of compulsory vaccination against measles (M = 5.55, SD = 1.55, α = .94) as well as control variables were measured.

A preliminary analysis shows that parents indicated slightly lower acceptance of a compulsory vaccination (M = 5.08, SD = 1.81) than people without children (M = 5.72, SD = 1.41), t(225) = -2.81, p = .005. Therefore the variable was included as control variable in all analyses.

In line with our assumptions a satirical post (M = 5.80, SD = 1.36) increased acceptance of compulsory vaccination compared to a non-satirical post, M = 5.29, SD = 1.69, F(1, 222) = 4.17, p = .042, η²_part = .018. Similarly, the post with likes resulted in a slightly higher acceptance of compulsory vaccination (M = 5.72, SD = 1.39) compared to the post without likes (M = 5.39, SD = 1.68), F(1, 222) = 4.43, p = .036, η²_part = .02.

In order to test whether perceived social norms and reactance mediate the effect, a mediation analysis using PROCESS for SPSS was conducted (model 4, 5000 bootstraps). Experimental conditions were used as multicategorical independent variable using indicator coding. The condition with a non-satirical message and no likes was used as indicator group.

Regarding the effect of message conditions on social norms, all three experimental conditions increased perceptions of social norms (non-satirical message + likes: B = 0.59, SE = .29, t = 2.04, p = .04; satire + no likes: B = 0.86, SE = .28, t = 3.02, p = .003; satire + likes: B = 0.73, SE = .28, t = 2.59, p = .01). In turn perceived social norms also increase acceptance of compulsory vaccination, B = 0.38, SE = .05, t = 8.45, p < .001. Thus, in line with our assumptions two indirect effects are visible: satire + no likes: B = 0.33, SE = .13, CI .10; .62; satire + likes: B = 0.28, SE = .12, CI .07; .55. For the experimental condition non-satirical message + likes the indirect effect is not significant.
No effect of the experimental conditions is visible on reactance. Only the control variable showed a significant influence on reactance: Parents indicated slightly more reactance than people without children, $B = -1.06, SE = .27, t = -3.86, p < .001$. Finally, reactance decreased acceptance of compulsory vaccination, $B = -0.47, SE = .04, t = 12.28, p < .001$.

Results suggest that a satirical message can arise awareness of social norms about compulsory vaccination and thus can slightly increase the acceptance of it. Likes also increased the acceptance of compulsory vaccination, although the effect was not statistically explained through an increase of social norms. Given that only one post was used the assumed relationships need to be replicated and further evaluated in future studies.
References


“Do I really need to walk another 1,346 steps?”
The role of self-tracking technologies between norm-setting socializing agents and topics of conversation

Veronika Karnowski¹, Doreen Reifegerste²

Introduction

Nowadays most health-related apps, smartwatches, or wearables rely on some sort of self-tracking processes (Karnowski & Reifegerste, 2018). And these applications have become very popular. About 27% of all smartphone users in Germany log health-related parameters (Bitkom Research, 2016). Similar rates apply for other countries with one in three internet users (33%) monitoring their fitness via an app (GfK, 2016). Among young adults (aged 20 – 29) this rate is even higher: more than one in three young adults (39%) use self-tracking applications (Grieger, 2016). Hereby, mostly physical activity is tracked (Bitkom Research, 2016) either manually or automatically with parameters such as a step count, distance travelled, active time, or stairs climbed (Matthews, Win, Oinas-Kukkonen, & Freeman, 2016).

Accordingly, many interventions use self-tracking technologies to enhance physical activity (Rossmann & Karnowski, 2014) – one of the most crucial behaviors to both prevent and/or manage chronic diseases and to enhance overall health and well-being (Sullivan & Lachman, 2017). Self-tracking technologies’ features such as self-monitoring, peer exchange, and goal-setting seem to motivate users to be more physically active (Wang et al., 2015).

Despite these encouraging results for health promotion through self-tracking, our knowledge on further (unintended) consequences of self-tracking physical activity is still limited. Critics warn about possible (non-intended) social effects of these technologies and the ‘quantify yourself’ movement. They name norm activation, stigmatization, permanent optimization, illusions of control and the ignorance of social determinants of health as possible risks (Selke, 2016). These fears are especially relevant in young adulthood, because this is a phase of substantial transformations highly relevant for the development of identity and health behavior (Böhnisch & Lenz, 2015).

To untangle possible consequences of self-tracking on young adults, we rely on Lomborg et al.’s (2018) differentiation of typical functions of self-tracking technologies. While registration only reports the logged data (e.g. the number of steps), the feedback functions also provide advice that is based on the collected data. These advices or recommendations are mostly based on goals (e.g. 10.000 steps a day) that are either set by the system (default values) or set by the user. The conversation function even allows for data exchange and social comparison with other users of the app. To assess the basis of potential consequences of self-tracking we therefore ask first:

RQ1: Which function types of self-tracking technologies are used among young adults?

Similar to chat bots, i.e. automated computer scripts on social media platforms (Woolley & Howard, 2016), the messages embedded in most of the above-mentioned functions of self-tracking apps may

¹ Department of Media and Communication, Ludwig-Maximilians-Universität, Germany
² Media and Communication Science, University of Erfurt, Germany
serve as guides, advice givers, or autonomous agents with potential persuasive power. Taken together, these messages can be perceived as social norms exerting a certain socialization function in users’ health socialization. Given the high potential impact of such norms on users’ behaviors – given our general knowledge of norms being important determinants of health-related behaviors (Geber, Baumann, & Klimmt, 2016) – it seems worthwhile to assess in how far these messages actually are perceived as social norms. We hence also ask:

**RQ2: Do young adults perceive the algorithm-based feedback of self-tracking apps as norm-setting?**

Research on social norms suggests (e.g., Granfield, 2002) that the impact of such social norm messages is moderated by either users’ trust in or their reactance towards the message. The need to investigate perceived trustworthiness in the context of algorithm-based messages in self-tracking is amplified by the obscure nature of these integrated algorithms, whose origin or scientific basis is mostly not reported within the apps (Karnowski & Reifegerste, 2018). Hence users’ perception of and engagement with these potential norms (e.g., active change of goals) should be analyzed as well, resulting in our third question:

**RQ3: Do young adults perceive these algorithm-based messages as trustworthy and how do they engage with them?**

**Methods**

To answer these questions, we conducted an online survey with a quota sample of young adults in Germany aged 18 to 30 years, who use mobile technologies to track their physical activities. The final sample (after exclusion of participants due to unrealistically fast response times and failure of a simple reading check) consists of 367 participants (56.9% female; 13.4% low, 29.2% middle, 57.5% high educational levels) roughly representing the German population in this age range (Statista, 2017).

In addition to the function types of self-tracking (Lomborg et al., 2018), we also measured the perception of injunctive norms (Rimal & Real, 2016) on four items (Cronbach’s alpha 0.77), reactance (Herzberg, 2002) on three items (Cronbach’s alpha 0.84), and the perceived trustworthiness (McGinnies & Ward, 1980) of the algorithm-based messages included in self-tracking apps on a mean-index based on nine items (Cronbach’s alpha 0.83).

**Results**

With regard to the first research question, young adults use self-tracking technologies across all three function types (see Table 1). Registration, i.e. the mere recording of physical activities, is not surprisingly used by (nearly) all participants. The majority of participants (83.4%) do get some sort of algorithmic feedback from their devices, albeit with some variance concerning the types of feedback provided. General advice and visualized results are the most common types of feedback, whereas only about one third reports to get personalized feedback. Finally, the data tracked by self-tracking technologies is also an important source for conversation, with 82.6% of our participants engaging in some sort of conversation with others based on their self-tracking. Hereby, despite the possibilities

---

3 With the exception of one participant who wasn’t sure whether and which parameters exactly his/ her device tracked
offered by these technologies, interpersonal follow-up communication still is the dominant way to discuss self-tracked parameters.

Given the high presence of algorithmic feedback when exercising self-tracking, our second RQ concerning the norm setting perception of the messages becomes especially relevant. Our results suggest that users are still somewhat undecided whether to perceive these messages as norm-setting or not, reflected by a mean of 3.76 (SD = 0.83) on the mean index of norm-setting perceptions.

This undecidedness is also reflected in the ways our participants engage with these potentially norm-setting goals. With regards to RQ3, we see that the largest part (86.1%) of our respondents receiving feedback, reports to be able to alter at least one of the goals set by his or her self-tracking app. Whereas only a minority of them (7.9%) do make use of this possibility to actively engage with the goals set by the algorithm at least weekly, the biggest part (80.3%) does so at least sometimes. This rather infrequent engagement with the goals set by the algorithm is also reflected in the high levels of trust (M = 5.1, SD = 0.86) and low levels of reactance (M = 1.98, SD = 0.99) towards the algorithmic feedback.

**Conclusion**

Our results indicate that algorithm-based feedback is a popular function in self-tracking technologies among young adults. While these messages are perceived as less norm-setting, they are still judged to produce trustworthy recommendations. This implicates that such messages might nonetheless exert a socialization function and persuasive power, although they are not perceived as norm-setting by users. We will discuss further theoretical and practical implications of our findings for health communication.
References


Panel 10  

Health professionals’ communication

15 November, 10:45 – 12:00
Room RAA-E-30
Chair: Hao Nguyen (Zurich)

Jäger, Simone (Erfurt)
*Patient-centered communication for cancer treatment decision-making in the Internet age: Best practice strategies, doctor’s main role(s), and communication goals*

Gille, Svea (Bielefeld); Vogt, Dominique (Zurich); Schaeffer, Doris (Bielefeld)
*The health care system from patient’s view: Relevance of different health care settings for health communication*

Blumer, Eliane; Pimmer, Christoph (Basel)
*Health professional communication in social media – and digital literacy. Findings from a systematic review*

Link, Elena (Hanover)
*Why do we trust health professionals and does it make a difference for health information seeking behaviors*
Patient-centered communication for cancer treatment decision-making in the Internet age: Best practice strategies, doctor’s main role(s), and communication goals

Simone Jäger

Background

On the interpersonal level in the offline healthcare context, patient-centered communication stimulated by the online context can be observed, and with that also its challenges: Information on symptoms, diseases and therapies aren’t only a direct matter of interest for medical practitioners but also for patients with their click on the Web. Patients increasingly seek health information on the Internet prior to the consultation to better cope with diseases and treatments, and this trend is growing rapidly (cf. Johnson & Case, 2012; Kummervold et al., 2008; Skopos-Institut, 2010). The Internet gains special meaning for treatment decision-making in chronic and highly mortal diseases like cancer as it offers a flood of information on therapies, their side effects, and success rates. Internet-informed patients often confront their physicians with their search results, including the online information and related expectations. The physician-patient relationship has developed from a paternalistic to a patient-centered approach where patients want to be heard and actively involved in treatment decisions (cf. Roter, 2000).

Doctor-patient communication plays a central role in health care, especially in terms of improving patient involvement across the cancer control continuum. Effective doctor-patient communication has specific functions preparing for and complementing the decision making, such as building and fostering the relationship, information exchange, emotional support, uncertainty management, and support of self-management (cf. Street, Makoul, Arora, & Epstein, 2009). Different studies indicate that good communication should be appreciated as part of the treatment since it fosters the doctor-patient relationship and positively impacts health outcomes (cf. Dean & Street, 2015; Epstein & Street, 2007; Roter, 2000; Roter & Hall, 2006; Street, Makoul, Arora, & Epstein, 2009; Street, 2013). Among other current practical developments, the National Cancer Plan in Germany includes the goals of fostering healthcare providers’ communicative competence and active patient involvement in the medical decision-making process.

Objective

Given this background, the present study looks into doctors’ effective communication in this setting for treatment-leading physicians and focuses on a patient-centered style. It’s supposed to reveal best practice strategies which can be implemented in medical guidelines for the face-to-face consultation. A theoretical framework integrating approaches of communication and medical science was developed.

1 Media and Communication Science, University of Erfurt, Germany
to promote better understanding of this context and to link doctor-patient interaction under the influence of the growing online context to effectiveness indicators (basic components: Epstein & Street, 2007; Kreps, O’Hair, & Clowers, 1994; Politi & Street, 2011; Street, 2003). From this framework, several research questions are derived. The main question this study wants to answer is: How can treatment-leading doctors communicate most effectively with Internet-informed cancer patients in the decision-making context? Here, best practice strategies, doctors’ resulting main role(s) and concrete patient outcomes as goals being aimed at with this communication are explored.

**Methods**

Built upon this theoretical basis, the two main perspectives of the medical interaction for the three most prevalent cancer types, i.e. breast, colon and prostate cancer, are compared in two steps, both online and nationwide in Germany. The present part is the first step which is a qualitative-quantitative Delphi survey for identifying the consensus on best practice strategies (the desired state of doctor’s communication) and determinants on doctors’ part. The survey was conducted with treatment-leading physicians in the oncology setting as experts for the provider’s perspective and patients’ representatives as experts for the patient’s perspective. It consists of two rounds: three months in 2018 with 268 participants and two months in 2018/19 with 115 participants; in both rounds, about one third were doctors and about two thirds patients’ representatives. On the basis of a comprehensive literature review, the 1st round started with 73 strategies. In the 1st round, the draft of strategies was rated in terms of the estimated importance where 25 communicative strategies were identified and 14 further ones were put in. In the 2nd round, only the 61 strategies where no consensus was reached so far were looked at. The participants rated them in terms of cut-out versus must-include where another 19 strategies were identified.

**Results**

The consensus on ideal patient-centered communication can be clustered into seven categories: doctor-patient relationship, information exchange, dealing with emotions, uncertainty management, decision making, self-management, and the cross-cutting elements structure and time. In the first category, real talk—talking openly with each other and putting the cards on the table, considering treatment options, side effects, and new therapies the doctor doesn’t know so far—was important among other strategies. Other examples include the deep dive—dealing with the patients’ Internet information so that she or he feels to be at the right place to talk about that by appreciating, evaluating, and explaining it—in the second category or the structural flexibility—adjusting the structure of the talk to the individual situation, basically, including the patient’s Internet information—in the last category. In total, 43 best strategies for this specific context were identified. Moreover, complementing general conditions were found, they could be clustered into two categories: creating a setting ensuring stability and safety, like one main doctor or relative staying on the patient’s side from the beginning to the end of the treatment process, and closing gaps together in the doctor-patient interaction, with extra personal or technical support. The no. 1 reason for less or non-use of these strategies is time pressure, followed by payment issues, the need for practice, and other. Additional factors include none the doctor can deliberately control: underlying conditions in the interaction, e.g. a missing connection, attributed to physician’s traits, like not enough empathy, and patient’s characteristics, such as limits in
understanding or not enough insisting. When using these strategies, doctor’s resulting main role(s) are clearly patient-centered: the subject matter expert (48.1%), the counselor (20.1%), and the advisor (11.7%). Additional positive concepts were identified: a holistic/integral perspective, a partnership basis, and the individual accuracy of fit. Then, concrete patient outcomes as goals being aimed at with these strategies were rated: The most important one is interaction-related: satisfaction with the consultation and care, especially, the treatment decision. The second one is health-related: mental/psychological well-being as a quality of life indicator. And the last one is intermediate: adherence as keeping to the treatment plan both partners have agreed on.

**Conclusion**

First, a catalogue with 43 communicative strategies in total for this context was produced. Main areas as the basis are relationship, information exchange, and dealing with emotions; then comes decision-making, self-management, structure and time, and finally uncertainty management. With this, it becomes clear that preparation is key to the decision-making, so doctors should invest in the whole process from the beginning of the encounter. Second, by using these strategies the doctor’s role can be best described as subject matter expert, counselor, and advisor, all of them confirm a patient-centered approach. Third, with this communication, the doctor primarily aims at the patient’s satisfaction with the consultation and care, especially the treatment decision.
References


The health care system from patient's view: 
Relevance of different health care settings for 
health communication

Svea Gille¹, Dominique Vogt², Doris Schaeffer¹

Background

Communication is an essential part of dealing with health information. Especially coping with chronic diseases poses a number of challenges that require skills and abilities to find, understand, appraise and apply health information (Schaeffer, 2017). At the same time, international studies indicate that especially people with chronic diseases often have difficulties in accessing health information and therefore have lower health literacy levels than the general population (Schaeffer, 2017). However, insights on how people with chronic illness proceed in their search for and dealing with health information is scarce.

Methods

In order to investigate the relevance of different health care settings which affect how chronically ill deal with health information, 12 focus groups with people with chronic conditions were conducted between November 2017 and February 2018. 10 Focus groups were composed naturally via different self-help groups for various diseases (HIV, AIDS, chronic pain, breast and colon cancer, heart diseases). Two focus groups were mixed and recruited by a survey institute. The focus groups followed key questions, which were closely related to findings of the German Health Literacy Survey (HLS-GER) (Schaeffer, Vogt, Berens & Hurrelmann, 2016). With the consent of the participants, the discussions were recorded and then transcribed using a simplified transcription system (Dresing & Pehl, 2018). Subsequently, a topic-related sequencing and coding was carried out and internal and external codes were assigned. Additionally, code trees were created to improve the organization and visualization of the data material. The results were discussed and validated in the research team.

Results

The results show that face-to-face communication is most important for people with chronic diseases. When focussing on health care settings, doctors (both general practitioners as well as specialists) are the most important source of information, followed by self-help groups, the social network and pharmacies. If there is a good relationship with doctors, they are the first source of information. Patients also remain 'loyal' to them, follow the information and treatment suggestions and rarely continue to look for information elsewhere. The relationship with the doctor is influenced by

¹ School of Public Health, Bielefeld University, Germany
² Careum Foundation, Switzerland
factors as trust, time, expertise as well as comprehensible and understandable communication. Trust is approached as a prerequisite for compliance and forms the basis of the relationship between doctor and patient. If trust is lacking, a termination of the relationship or a change of doctor is often be considered. Time is an important dimension in establishing and maintaining trust. Long waiting times for appointments and the lack of time for doctors to interact with patients and especially for detailed and understandable information and communication lead often to a decrease in trust and finally in a termination of the patient doctor interaction. On the other hand, patients have a certain understanding for the time pressure of doctors and the excessive demand that go with it. For this reason, patients usually try to deal constructively and effectively with the limited time available, e.g. through good preparation. Medical competence ranks at almost the same level as trust in the list of priorities. Competence is usually assumed tacitly. It is only when doubts about competence arise that patients become aware of it as an important quality criterion. Communication is also criticized. The focus group participants argue that doctors often express themselves too abstractly and use too many technical terms. Therefore, patients increasingly ask for explanations, which is seen as difficult, as it requires to step out of the traditional patient role and reduce inhibitions.

Self-help groups are also an important contact point for people with chronic illnesses and/or disabilities. They offer chronically ill and their relatives both (emotional) support in coping with their illness as well as a platform to share information and experiences. They help them to normalise the exceptional situation of a chronic disease and alleviate anxiety. In addition, self-help groups have great relevance for gathering trustable information. They provide the patients with information that they have not received from professionals and with factual information, including structural information or information about informal networks.

The family and the social network also play an important role in health and coping with chronic diseases. The family provides reinsurance, social and emotional support, and usually takes over large parts of care and control. It is also of great importance in dealing with information. The family is not only a source of information, it also provides access to information and is important for the processing of information or the explanation of misunderstood information. In the case of serious illness or need of care, the family often even takes over the information management on behalf of the person concerned. The same applies to the social network.

The pharmacy is not mentioned in all focus groups as a contact point for information searching. If it is mentioned, it is primarily in connection with questions about the use of medicines. As a result, pharmacies are of greater importance for people who are prescribed medication due to illness and usually have a complex medication intake, such as people with chronic pain, with oncological diseases or multiple illnesses. In addition, the focus group participants perceive less time pressure in pharmacies as in a doctor’s appointment. There is rather enough time for detailed information and explanations. Trust is also seen as an important prerequisite and there is something like pharmacy loyalty. Particularly in the case of difficult diseases, there is often a close relationship to the pharmacy. It functions not only as a dispensing point for medicines, but also as an information and control centre.

**Conclusion**

People with chronic illnesses have a special need for health and disease information, which they often pursue via oral communication channels. However, the focus groups point to communication deficits between health professionals and patients. To improve this situation, a National Action Plan on
Health Literacy in Germany was published in February 2018 (Schaeffer, Hurrelmann, Bauer & Kolpatzik, 2018). Among other areas, it focuses on the life with chronic illness and makes concrete recommendations on how communication and information can be improved in order to enable people with chronic illnesses to deal with their illness in a health-literate way.
References


Health professional communication in social media and digital literacy. Findings from a systematic review.

Christoph Pimmer¹, Eliane Blumer¹

Background and rationale

Health professionals are increasingly adopting social and networked media. While a prior review has identified significant benefits for their use in health communication (1), social media use carries considerable risks and require professionals to develop digital literacy. General approaches to digital and media literacy fall short of comprehensively capturing the specificities and contingencies that play out in the field of health professional communication. The main question that this research addresses is thus the identification of key problem areas linked to the use of social media by health professionals and the digital professional literacies required to tackle these issues.

Approach & methods

To address this question, a systematic literature review was carried out (2) in the databases PubMed and Ovid Medline - due to their focus on global and public health literature. The search strategy connected keywords from the three fields of digital literacy (e.g., media literacy, digital professionalism, digital literacy), social media (e.g., social network sites), and health profession (e.g. health profession, health workers). Figure 1 outlines the search process. To be included, texts needed to refer to the use of social media platforms by health professionals, discuss any form of digital literacy, and be scientific publications.

¹ Institute for Information Systems, FHNW University of Applied Sciences and Arts Northwestern Switzerland, Switzerland
The final corpus of studies (n=40) was subjected to qualitative synthesis using the technique of thematic analysis in which themes were identified iteratively and inductively by reading and re-reading the papers (2).

Results and discussion

A short summary of the four key themes that emerged in the analysis is presented in the next sections:

Ensuring patient privacy, dignity and trust in the digital space

Whereas the protection of patient privacy is a key principle in all health professional contexts, the ease and fluidity with which information can be documented and shared on social media amplifies this issue considerably (4-28). The most direct way of breaching privacy is to share identifiable patient information without the consent of patients (6). An example is the exchange of information about shift changes on Facebook among health professionals, which enabled third parties to identify the patient (7). Privacy breaches also concern healthcare provider-patient communication. An example is a case in which the discussion between a psychiatrist and a patient on Facebook disclosed the client’s health status to his Facebook connections (21). An additional challenges is that privacy settings are deceptive in that they cannot prevent communication partners from spreading sensitive information, and, once shared, it can go quickly viral (6). The uncontrollability of information dissemination makes it even more important that professionals never share any identifiable information and critically reflect potential risks before posting a message.
Preventing distraction and navigating information overload

The volume and intensity of social media communication amounts to the second problem space, which is health professionals who are affected by information overload (1,3,4,6,9,10,12,13,15,18, 20,28,29). In many situations, healthcare providers struggle to find relevant information in the flood of irrelevant data, and if they do not apply specific strategies, searching information can lead to significant inefficiencies (4,10). A further aspect is that the amount of information which is constantly pushed through social media channels can distract professionals from their actual tasks (6). Although every communication feature can be distractive, the nature of mobile social media apps makes them particularly intrusive and interruptive. In addition, the use of intrusive apps at the bedside can cause feelings of neglect in patients (30). Accordingly, health care providers do not only need to learn how to retrieve knowledgeable resources efficiently, but also understand how and when to integrate mobile and networked communication in a sensible manner in clinical practice.

Evaluating the quality and establishing the trustworthiness of information

Another critical issue is the quality of health-related information circulated on social media (1,6,8,9,14,16,20,27,27–40). The underlying challenge is that the very nature of web 2.0 enables users to easily produce appealing but often inappropriate health content. For example, an analysis of YouTube videos on the Parkinson disease found that only 28% came from a trusted source (31). This dynamic is aggravated by the observation that social media act as echo chambers that amplify incomplete, misleading or false information (20), which is particularly critical in the context of a health crisis. For example, only one third of tweets on Ebola were correct, most incorrect information was left undisputed (40) and false information tended to be shared more often than truthful one (33). As global and public health debate is increasingly moving into digital, networked spaces, health professionals have to follow this trail. Due to their professional authority, it is particularly critical that they do not bestow credibility to false messages by circulating them further. Instead, health professionals need to act vigilantly at the “digital frontline”, being equipped with the skill to spot, question and mark misinformation and prevent it from spreading further.

Managing personal and professional boundaries

More subtle but no less profound is the issue regarding the management of professional and personal boundaries (7–9,11,13–16,18,19,21,28,41,42). Social media are inherently private tools and their integration in professional spaces creates tensions in itself, in particular when their use impacts the relationship with patients (41,42). A resulting and often-discussed question is whether or not “friend” a patient. Whereas these bonds can enhance the connectedness between providers and clients, they may also release private information which would remain undisclosed in a typical patient encounter (43). For example, a study showed that many young doctors did not protect their Facebook account, revealing sexual and political orientation, drug and alcohol consumption, or memberships in questionable groups (44). Moreover, much less offensive issues, such as the display of humour or cynicism might also affect relationships with patients. Accordingly, health professionals need to be aware of potentially damaging communication behaviour and the manifold and intricate ways in which it can impact their privacy and their relationship with patients.
Conclusion

The scope of these problem areas suggests that the requirements of the professional use of social media affirms classic media literacy concepts that centre on cognitive and behavioural processes linked to the processing of messages (45), particularly analysis and evaluation (46), which should enhance users’ criticality towards media (45). One example is the assessment of the trustworthiness of messages, which is particularly relevant in the light of the proliferation of false health news. However, an aspect that many classic definitions lack is the issue of renegotiating sociocultural and private-professional boundaries. Social media act as boundary objects that facilitate interaction across socio-culturally different worlds (47) and they even disintegrate established personal and professional boundaries, connecting patients and health care providers ever more tightly. Consequently, the digital skill set required to navigate social media successfully is interdependent and intersubjective, i.e., the subject of continuous negotiations among professionals and between professionals and their clients. This means that media literacy training should extend beyond the inoculation of learners with the “right” knowledge and skills, also raising awareness of literacy development as a social process.
References


30. Pimmer C. The professional use of instant messaging and other mobile social media apps by health professionals in Sub-Saharan Africa. 2019;


Why do we trust health professionals and does it make a difference for health information seeking behaviors

Elena Link

Introduction

Trust is a fundamental component of relationships like patient-physician relationships. It is especially essential in health contexts, because the vulnerability associated with being ill, perceived uncertainties, and the lack of knowledge yields a need to trust (Goold, 2001; McDonald et al., 2008). According to Mayer et al. (1995) trust can be understood as the willingness to assign responsibility to a third party and engage in meaningful interaction to cope with the experience of being ill. In particular, the high value of trust in health care is linked to its significance for patient satisfaction, patients’ willingness to seek advice, to accept help, and their compliance to treatment recommendations (Balkrishnan et al. 2003; Fiscella et al., 2004). Therefore, addressing trust in health communication may be promising for individuals’ successful coping with health challenges.

However, changes such as demands for an active patient role and the increase in information sources are challenging trust (Braun & Marsteadt, 2014; Lee, 2008; Rummer & Scheibler, 2016). It can be assumed that the participatory role of patients and the improved availability of health information on the Internet reduce dependence on information provided by physicians causing a lower need to trust health professionals. This assumption is supported by findings showing that patients are increasingly skeptical about health professionals (Bittner, 2016; Thielischer & Schulte-Sutrum, 2016; Wallenfels, 2015). So the question arises, which sources for health information are perceived as trustworthy? Potential alternative sources to health professionals are relatives as well as the Internet (Couper et al., 2010; Hesse et al., 2005). Whereas the Internet offers a wide range of information and enables a problem-oriented, fast and low-cost opportunity to find health information (Cline & Haynes, 2001), support from relatives provide assistance in coping with the variety and complexity of information (Reifegerste et al., 2017).

Furthermore, because the factors of earning patients’ trust are not well understood (Hall et al., 2002), it is necessary to advance the understanding about influencing factors to maintain trust in physician, relatives and the Internet. In our study, the role of general personal characteristics (propensity to trust, age, gender, education), health-related factors and attitudes (e.g. health status, health consciousness, coping styles, information and decision making preferences) and characteristics of media use (experience, self-efficacy) are examined.

However, the present study will not only focus on the development of trust, but will also examine its role for health information seeking behaviors (HISB). For this purpose, a special focus will be laid on the Internet. As trust is a characteristic of communication relations, it is assumed that trust serves as an influencing factor for Online HISB and can be seen as one important criterion whether to use or avoid a source (Knobloch-Westerwick, 2015; Winter & Krämer, 2014). With the aim to better understand motivations to use the Internet, we examine whether trust in physicians, relatives and the Internet

1 Department of Journalism and Communication Research, Hanover University of Music, Drama, and Media, Germany
influences the intentions for Online HISB and its dimensions as they were identified in the Planned Risk Information Seeking Model (PRISM; Kahlor, 2010).

Therefore, the main research questions are:

1. What is the level of trust in doctors, relatives and the Internet as sources for health information?
2. How do personal, health and media usage characteristics influence trust in different sources?
3. How does trust influence Online HISB and its dimensions?

**Methods**

To answer our research question, we conducted a standardized personal survey with a quoted representative sample of the German population (N = 1,001). Because this study has a special focus on the internet as a source for health information, the sample was restricted to German Internet users (N = 822). The respondents’ age was between 14 and 88 (M=43.9; SD=17.05) and nearly half of them are female (49.2 %).

Our questionnaire measured trust in health professionals using an adaption of the Wake Forest Physician Trust Scale (Hall et al., 2002), trust in online health information based on Flanagan and Metzger (2000) and trust in relatives using an adaption of the Internet Social Capital Scale (Williams, 2006; Schenk, Jers, & Götz, 2013). In addition, we also measured potential influencing factors of trust and HISB like propensity to trust (Beierlein et al., 2012), health status, information and decision preferences (Autonomy Preference Index; Ende et al., 1989), monitoring and blunting (TMSI; Ong et al., 1999; van Zuuren et al., 1996), health consciousness (Dutta-Bergman, 2003), health locus of control (Wallston et al., 1978). The dimensions of HISB were measured according to the PRISM (Kahlor, 2010).

**Findings**

To answer the first research question about the trustworthiness of different sources, our results indicate that health professionals are still the most trustworthy source for health information (M = 3.75; SD = .72). Relatives occupy the second position (M = 3.67; SD = .73), whereas trust in online health information is comparably weaker (M = 3.12; SD = .71).

Regarding the second research question asking for factors influencing trust, our focus lies on physicians and the Internet (see table 1 and 2). For both sources, separate block-wise regression analyses show that person-, health-related determinants and media use are associated with trust in physicians (R² = .38) as well as the Internet (R² = .19) – being of higher relevance for trust in physicians. Among the personal characteristics, only the propensity to trust is significantly associated with trust in both sources (see table 1 and 2); gender, age and health status have no influence. For physicians in particular, the most relevant health-related predictors are a high preference to delegate medical decisions (β = .29; p ≤ .01) and high information preferences (β = .28; p ≤ .01). In contrast, higher trust in the Internet is associated with a stronger internal health locus of control (β = .26; p ≤ .01). With regard to media use, the experience of searching for information on the Internet plays a minor role for health professionals (β = .07; p ≤ .01) and an important role for the Internet (β = .21; p ≤ .01).
Giving first insights into the influence of trust on Online HISB (RQ3), we only refer to the direct effects of trust in the Internet and physicians on the intention to search for information online. Further indirect effects will be discussed in the presentation. The results show that trust in the Internet has no direct influence on the intention to search for health-related information online ($\beta = .11; p = .076$), whereas trust in health professionals has a weak, negative influence ($\beta = -.14; p \leq .01$) resulting in a lower intention to turn to the Internet.

**Discussion**

The results show that physicians remain the most trusted source of health information, whereas the Internet is perceived as less trustworthy. For both sources health-related characteristics and attitudes are most important to earn trust. In particular, trusting physicians is shaped by patients’ individual preferences regarding types of medical decision-making and the amount of information desired. This can be challenging for physician-patient interactions, since the required active patient role does not necessarily correspond to such expectations. In addition, the results also indicate that the health-related use of the Internet can serve to compensate deficits in the doctor-patient interaction. These findings suggest that it is important to promote and maintain trust in physicians and to monitor it as a key factor in healthcare.
## Table 1. Determinants of Trust in Health Professionals (Block-wise Regression Analysis)

<table>
<thead>
<tr>
<th>Predictors</th>
<th>( \Delta R^2 )</th>
<th>( B )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Person-related characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propensity to trust</td>
<td>0.08***</td>
<td></td>
</tr>
<tr>
<td>Model 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health-related characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tendency to delegate decisions</td>
<td>0.17***</td>
<td></td>
</tr>
<tr>
<td>Model 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information preferences</td>
<td>0.068***</td>
<td></td>
</tr>
<tr>
<td>Model 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blunting</td>
<td>0.028***</td>
<td></td>
</tr>
<tr>
<td>Model 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring</td>
<td>0.012***</td>
<td></td>
</tr>
<tr>
<td>Model 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health consciousness</td>
<td>0.006*</td>
<td></td>
</tr>
<tr>
<td>Model 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Characteristics of media use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health-related Internet use</td>
<td>0.011***</td>
<td></td>
</tr>
<tr>
<td>Model 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>0.004*</td>
<td></td>
</tr>
<tr>
<td>Total ( R^2_{\text{total}} )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Total R²)</td>
<td>0.37***</td>
<td></td>
</tr>
</tbody>
</table>

\( N=810 \); Block-wise Regression Analysis/stepwise; non-significant predictors: age, gender, education (block 1), health status, health locus of control, SDM preference (block 2).

* \( p \leq .05 \), ** \( p \leq .01 \), *** \( p \leq .001 \)
Table 2. Determinants of Trust in Online Health Information (block-wise Regression Analysis)

<table>
<thead>
<tr>
<th>Predictors</th>
<th>$\Delta R^2$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1</strong></td>
<td>0.033***</td>
<td>-</td>
</tr>
<tr>
<td><strong>Person-related characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propensity to trust</td>
<td></td>
<td>0.14***</td>
</tr>
<tr>
<td><strong>Model 2</strong></td>
<td>0.105***</td>
<td>-</td>
</tr>
<tr>
<td><strong>Health-related characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal health locus of control</td>
<td></td>
<td>0.26***</td>
</tr>
<tr>
<td><strong>Model 3</strong></td>
<td>0.008**</td>
<td>-</td>
</tr>
<tr>
<td>Monitoring</td>
<td></td>
<td>0.10***</td>
</tr>
<tr>
<td><strong>Model 4</strong></td>
<td>0.010**</td>
<td>-</td>
</tr>
<tr>
<td>Information preferences</td>
<td></td>
<td>0.12***</td>
</tr>
<tr>
<td><strong>Model 5</strong></td>
<td>0.005*</td>
<td>-</td>
</tr>
<tr>
<td>Tendency to delegate decisions</td>
<td></td>
<td>0.10***</td>
</tr>
<tr>
<td><strong>Model 6</strong></td>
<td>0.036***</td>
<td>-</td>
</tr>
<tr>
<td><strong>Characteristics of media use</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health-related Internet use</td>
<td></td>
<td>0.21***</td>
</tr>
</tbody>
</table>

Total $R^2_{\text{final}}$ (Total $R^2$)

0.190***
0.196***

Note. n = 810; Block-wise multiple Regressions Analysis / stepwise; non-significant predictors: age, gender, education (block 1), current health status, health consciousness, SDM preference, blunting (block 2), self-efficacy (block 3).

* p ≤ .05, ** p ≤ .01, *** p ≤ .001
References


