

# Can you handle the truth? Motivational and Emotion Regulatory Antecedents of Selective Exposure to Health Information

Anita Chasiotis, Oliver Wedderhoff, & Tom Rosman

Leibniz Institute for Psychology Information

The structure of this protocol is based on the template of the OSF's preregistration challenge (<https://cos.io/prereg/>).

## Study Information

### Introduction

When dealing with a health threat, health information seeking (HIS) is a prominent way of engagement coping (Shiloh & Orgler-Shoob, 2006). If potentially threatening information is not wholly avoided, HIS can vary on a wide continuum with regard to its comprehensiveness or selectiveness: Individuals may conduct an exhaustive (comprehensive) search, taking into account many perspectives and facets of a topic. They may also, however, conduct a rather shallow or biased (selective) search which is mainly driven by the motivation to find reassuring or confirming, rather than accurate, information (Hart et al., 2009). This latter case is also referred to as “selective exposure”, implying certain motivational processes that may underlie biased information seeking and appraisal, e.g. the motivation to be reassured that there is no significant threat to one's health and physical integrity and discrediting or ignoring information which (potentially) implies a corresponding threat (Knobloch-Westerwick, Johnson, & Westerwick). Helping individuals to adequately cope with a threatening situation via comprehensive, exhaustive and balanced (as opposed to selective) health information seeking requires research focusing on motivational and affective dispositions which impact coping behavior (Lazarus, 2006). Past research has identified motivational and affective dispositions as most pertinent in explaining interindividual differences in HIS (Gerend & Shepherd, 2007; Hastall & Wagner, 2017; Hevey & Dolan, 2014; van't Riet & Ruiter, 2013). For example, in an experimental study, Hastall and Wagner (2017) found that low-anxious individuals who were highly avoidance-motivated selected more loss-framed (compared to gain-framed) health information articles for reading. Literature on health message framing and congruency (e.g., Sherman, Mann, & Updegraff, 2006;

Updegraff, Brick, Emanuel, Mintzer, & Sherman, 2014; Updegraff, Sherman, Luyster, & Mann, 2007) indicates a relevant impact of dispositional approach and avoidance motivation on health message preference dependent on perceived susceptibility to a specific risk. Furthermore, in a comprehensive literature review, van't Riet and Ruiter (2013) pointed out that differing levels of emotion regulation ability affect the exposure to various kinds of health-promoting information. Accordingly, the ability to downregulate threat-related emotions such as anxiety has been shown to play an important role in non-defensive (i.e., comprehensive) health information seeking and appraisal (Das, 2012; van't Riet & Ruiter, 2013).

We developed a theoretical model to improve our understanding of how motivational and emotion regulatory dispositions impact comprehensiveness of HIS via simultaneously identifying relevant mediators and unique modes of effects. A better understanding should, on the one hand, be fruitful for future research on the relationship between personality and health information behavior. On the other hand, scrutinizing the impact of these dispositions on selective vs. more comprehensive exposure provides clinical practitioners with professionally relevant insights concerning the interindividually differing information needs of their patients. Our model includes dispositional approach and avoidance motivation, emotion regulation, self-efficacy related to health information seeking, problem and emotion coping foci and selective exposure to health information. The model was initially validated in a relatively small student sample with a self-report measure (intention for a comprehensive, balanced search) as a proxy for actual selective exposure to health information (Chasiotis, Wedderhoff, Rosman, & Meyer, submitted). The model had an acceptable fit and our hypotheses regarding certain effect pathways within the model were supported.

## Research Questions and Hypotheses

The aim of this study is to further validate our theoretical model of motivational and emotion regulatory antecedents of a comprehensive search for health information (see Figure 1). We aim at testing our theoretical model in a larger sample which is more representative of the general population with regard to age and education, and, in addition, in using a behavioral measure as outcome for comprehensive vs. selective exposure to health information. Instead of using a self-report measure for intended comprehensiveness of HIS, as in our first study, we will present various text-snippets to our participants, which display either information implying a threat to one's health, or information implying no threat. Participants would then have to choose a certain amount of text snippets they would like to read as full texts. We will measure selective exposure

as difference between selected “risk”- and “no risk”-text snippets (see detailed description below).

In addition to determining the model fit, we will also test the following hypotheses:

H1. Approach and avoidance motivation have a direct effect on emotion regulation ability (positive and negative, respectively) in the overall sample.

H2. Approach and avoidance motivation have indirect effects on selective exposure to health information via emotion regulation, HIS self-efficacy and problem coping focus in the overall sample.

H3. Avoidance motivation has a direct effect on emotion coping focus in the overall sample.

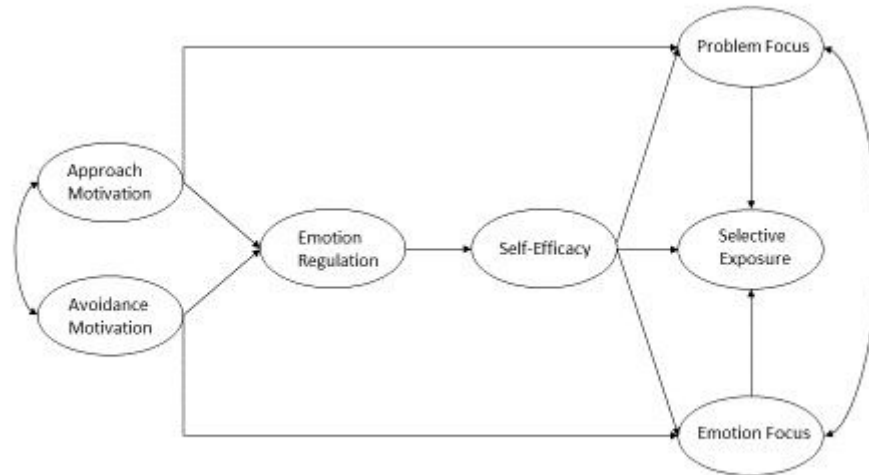
H4. Experimental condition moderates the indirect effects postulated in H2: The effect will be more pronounced for conditions in which a health threat is present, and most pronounced in the condition where perceived and suggested risk is high.

H5. Experimental condition moderates the effect from emotion focus on selective exposure: The effect will be more pronounced for conditions in which a health threat is present, and most pronounced in the condition where perceived and suggested risk is high.

H6. Negative affect (state) after risk feedback mediates the effect from emotion regulation on self-efficacy that is postulated in the model<sup>1</sup>.

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<sup>1</sup> This hypothesis tests the justification of a model extension by adding a factor (negative affect). If H6 is confirmed, this extended model will be compared to the original model based on differences in information criteria (AIC, BIC).



*Figure 1.* Theoretical model including approach and avoidance motivation, emotion regulation, health information seeking self-efficacy and coping focus in health information seeking, and their effects on intended comprehensiveness of search, that will be tested in the current study and is based on Chasiotis et al. (submitted).

## Sampling Plan

### Existing Data

Registration prior to creation of data

### Explanation of existing data

Not applicable

### Data collection procedures

Participants will be recruited through a panel, administered by a professional agency. Only German speaking participants aged 30-65. Data collection will be performed online using the survey software Unipark. Participants can complete the data collection independently using their own device.

### Sample size

Our target sample size is 800 participants.

## Sample size rationale

This study is part of another study for which the sample size was already determined (power analysis for F tests (ANOVA) assuming small effect sizes was conducted (effect size  $f = .1$ ,  $\alpha = .05$ ,  $1-\beta$  err =  $.8$ ,  $df = 1$ )). However, considering the relative complexity of our model, a sample size of  $N = 800$  also constitutes a very reasonable quantity for the purpose of our study.

## Stopping rule

Recruitment should be stopped if a minimum of 800 participants have completed the survey. If the planned sample size cannot be achieved due to practical reasons, the study will be carried out with a reduced sample size.

## Variables

### Manipulated variable

Increased risk of heart disease (yes vs. no): after feedback about the individual score on a measure of dispositional achievement motivation (low vs. high score), participants are confronted with a short informative text stating that a) a low score is associated with a higher risk of developing a heart disease, or b) a high score is associated with a higher risk of developing a heart disease. Thus, 50 % of the participants will receive a statement suggesting their score increases their risk of developing a heart disease (risk-feedback condition), whereas 50 % of the participants will receive a statement suggesting the opposite score increases that risk (no risk-feedback condition).

### Measured variables

For this study, we will measure: health information seeking self-efficacy (SES; Behm, 2015), approach and avoidance motivation (ARES-K; Hartig & Moosbrugger, 2003), emotion regulation (SEK-ES; Ebert, Christ, & Berking, 2013), positive and negative affective state (measured before and after risk feedback; German version of the PANAS; Breyer & Bluemke, 2016), perceived threat/worry (as manipulation check; self-developed scale), information seeking goals (GAINS; Chasiotis, Wedderhoff, Rosman, & Mayer, 2018), current information need (measured after risk

feedback as manipulation check; self-developed scale), achievement motivation (achievement motivation scale from the BIP; Hossiep & Paschen, 2003), perceived risk of developing a heart disease within the next 5 years (single item), selected text-snippets including their information valence (“risk” or “no risk”), perceived credibility of risk statement following feedback about achievement motivation (single item), social desirability, sociodemographic variables

For the purpose of another study, we will measure: objective health information literacy (HILK; Mayer, Holzhäuser, Chasiotis, & Wedderhoff, 2018), subjective knowledge about heart diseases (self-developed scale), objective knowledge about heart diseases (Bergman et al., 2011), source quality rating

## Indices

Scale means are used as indices, if not suggested otherwise in the respective test manual.

## Design Plan

### Blinding

Participants are blind to the real purpose of the study and are presented a cover story in which is stated that the study is about the prevalence of achievement motivation and the effects our present performance-oriented society has on perceived risk of developing a heart disease.

Participants are also blind to the nature of the two randomized conditions as they do not know there are two such conditions.

### Study design

2x2 design: quasi-experimental factor perceived risk (high vs. low, median-split) and experimental factor suggested risk (“risk” vs. “no risk”) for developing a heart disease, thus, four experimental conditions; cross-sectional

### Randomization

Participants are randomly assigned to two conditions: increased risk of heart disease (yes vs. no); for a description of the exact procedure, see “manipulated variable”.

## Study duration

Study duration will be about 60 minutes.

## Analysis Plan

### Statistical models

Similar to Adams et al. (2018) , we will encode our search bias DV as measure of selective exposure as a difference variable between the frequency of text-snippet selection "risk" and "no risk". The DV is calculated for subjects according to the respective risk indicator (high or low achievement motivation, see "manipulated variable"). To test our model, we will use structural equation modeling via lavaan (Rosseel, 2012). To test our path-related hypotheses, for direct effects from one latent factor to another, the corresponding path coefficient is regarded. For indirect effects, new parameters are defined as the product of the involved path coefficients. Maximum likelihood estimation will be used to estimate the model parameters.

### Transformations

If our search bias DV turns out to be non-normally distributed, we will apply appropriate transformations which will depend on the kind of deviation from normal distribution.

### Inference criteria

Level of significance is  $p < .05$ .

### Data exclusion

Multivariate outliers will be excluded based on mahalanobis distance. If outlier-corrected analyses are performed, results of analyses including these outliers will also be reported. Participants may be excluded from analyses if major protocol deviations occur (e.g., if they produce more than 50% of missing data).

### Missing data

Full information maximum likelihood estimation, as provided by the lavaan package, will be used to determine if the missing mechanism can be regarded as missing at random or missing completely at random.

### Exploratory analysis

When testing potential moderations by experimental condition on certain indirect and direct effects (see hypotheses 4 and 5), we will additionally exploratorily inspect potential moderations by experimental condition on other effects that are postulated in the model.



## References

- Adams, J. M., Hart, W., Richardson, K., Tortoriello, G. K., & Rentschler, A. (2018). Monkey see, monkey do: The effect of social influence on selective-exposure bias. *European Journal of Social Psychology, 48*(6), 850-865.
- Behm, T. (2015). Informationskompetenz und Selbstregulation: Zur Relevanz bereichsspezifischer Selbstwirksamkeitsüberzeugungen [Information competence and self-regulation: The relevance of domain-specific self-efficacy]. In A.-K. Mayer (Ed.), *Informationskompetenz im Hochschulkontext [Information competence in the higher education context.]: Interdisziplinäre Forschungsperspektiven [Interdisciplinary research perspectives]* (pp. 151–162). Lengerich, Germany: Pabst Science Publishers.
- Breyer, B. & Bluemke, M. (2016). Deutsche Version der Positive and Negative Affect Schedule PANAS (GESIS Panel). *Zusammenstellung sozialwissenschaftlicher Items und Skalen*. doi:10.6102/zis242
- Chasiotis, A., Wedderhoff, O., Rosman, T., & Mayer, A.-K. (2018). GAINS. Goals Associated with Health Information Seeking. In Leibniz Institute for Psychology Information (ZPID) (Ed.), *Electronic Test Archives*. Trier, Germany: ZPID. Retrieved from <https://www.testarchiv.eu/retrieval/PSYNDEXTests.php?id=9007528>
- Chasiotis, A., Wedderhoff, O., Rosman, T., & Mayer, A.-K. (submitted). *The role of approach and avoidance motivation and emotion regulation in coping via health information seeking*. Manuscript submitted for publication.
- Das, E. (2012). Rethinking the role of affect in health communication. *European Health Psychologist, 14*(2), 27-31.
- Dijkstra, A. (2009). Disengagement beliefs in smokers: Do they influence the effects of a tailored persuasive message advocating smoking cessation? *Psychology and Health, 24*, 791-804.
- Ebert, D. D., Christ, O., & Berking, M. (2013). Entwicklung und Validierung eines Fragebogens zur emotionsspezifischen Selbsteinschätzung emotionaler Kompetenzen (SEK-ES) [Development and validation of a emotion-specific self-report measurement of emotional competences]. *Diagnostica, 59*(1), 17–32.
- Gerend, M. A., & Shepherd, J. E. (2007). Using message framing to promote acceptance of the human papillomavirus vaccine. *Health Psychology, 26*(6), 745–752.

- Hart, W., Albarracín, D., Eagly, A. H., Brechan, I., Lindberg, M. J., & Merrill, L. (2009). Feeling validated versus being correct: a meta-analysis of selective exposure to information. *Psychological Bulletin, 135*(4), 555-588.
- Hartig, J., & Moosbrugger, H. (2003). Die "ARES-Skalen" zur Erfassung der individuellen BIS- und BAS-Sensitivität [The ARES-Scales as a Measurement of Individual BIS- and BAS-sensitivity: Development of a Long and a Short Questionnaire Version]. *Zeitschrift Für Differentielle Und Diagnostische Psychologie, 24*(4), 293–310.
- Hastall, M. R., & Wagner, A. J. M. (2017). Enhancing selective exposure to health messages and health intentions. *Journal of Media Psychology, 30*.  
<https://doi.org/10.1027/1864-1105/a000197>
- Hevey, D., & Dolan, M. (2014). Approach/avoidance motivation, message framing and skin cancer prevention: A test of the congruency hypothesis. *Journal of Health Psychology, 19*(8), 1003–1012.
- Hossiep, R. & Paschen, M. (2003). *Bochumer Inventar zur berufsbezogenen Persönlichkeitsbeschreibung (BIP)* (2nd Ed.). Göttingen, Germany: Hogrefe.
- Knobloch-Westerwick, S., Johnson, B. K., & Westerwick, A. (2013). To your health: Self-regulation of health behavior through selective exposure to online health messages. *Journal of Communication, 63*(5), 807-829.
- Mayer, A.-K., Holzhäuser, J., Chasiotis, A. & Wedderhoff, O. (2018). Assessing health literacy by performance tests: The Health Information Literacy Knowledge Test (HILK). In A.-K. Mayer (Ed.), *Health literacy across the life span* (pp. 127-145). Lengerich, Germany: Pabst Science Publishers.
- Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software, 48*(2), 1–36.
- Sherman, D. K., Mann, T., & Updegraff, J. A. (2006). Approach/avoidance motivation, message framing, and health behavior: Understanding the congruency effect. *Motivation and Emotion, 30*(2), 164-168.
- Shiloh, S., & Orgler-Shoob, M. (2006). Monitoring: A dual-function coping style. *Journal of Personality, 74*(2), 457–478.

- Updegraff, J. A., Brick, C., Emanuel, A. S., Mintzer, R. E., & Sherman, D. K. (2015). Message framing for health: Moderation by perceived susceptibility and motivational orientation in a diverse sample of Americans. *Health Psychology, 34*(1), 20-29.
- Updegraff, J. A., Sherman, D. K., Luyster, F. S., & Mann, T. L. (2007). The effects of message quality and congruency on perceptions of tailored health communications. *Journal of Experimental Social Psychology, 43*(2), 249-257.
- van 't Riet, J., & Ruiter, R. A. (2013). Defensive reactions to health-promoting information: An overview and implications for future research. *Health Psychology Review, 7*(1), 104-136.