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Information avoidance during health crises: Predictors of avoiding information about the COVID-19 pandemic among german news consumers

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ABSTRACT

This study investigates the prevalence of source-specific information avoidance among German consumers and predictors of information-avoidance behavior in the context of the COVID-19 pandemic. Guided by the Risk Information Seeking and Processing Model (RISP), we propose that the perceived social norms, information insufficiency, risk perception, affective risk response, and attitudes toward seeking predict information avoidance. We supplement the RISP model by considering information overload as the vast volume and the incredulous quality of information in the COVID-19 pandemic challenge individuals' information acquisition and processing. Using a stratified demographic sample of news consumers of a federal German state (N = 1,000), we empirically examined the proposed model, answered the research question, and tested our hypotheses using structural equation modeling. The results reveal information avoidance among one-third of the respondents. They avoided online sources, including online-mediated interpersonal sources, more often than interpersonal sources and traditional mass media. Information avoidance was linked to more negative attitudes toward seeking and negative affective risk responses, more pronounced descriptive and injunctive avoidance norms, and perceived information overload. Attitudes and information overload were the most influential predictors of avoidance. In contrast, risk perception and information insufficiency were not associated with information avoidance. This study provides insights into theory development, contributes to the information behavior literature, and identifies barriers to communication during health crises.

1. Introduction

During health crises such as the COVID-19 pandemic characterized by a rapid global propagation, high mortality (Bento et al., 2020; Song et al., 2021), scientific uncertainty (Karlsen & Kruke, 2018; Rosenthal et al., 1989; Tandoc & Lee, 2020) and strict restrictions in everyday life (Bento et al., 2020; Soroya et al., 2021), Siebenhaar et al. (2020) describe information as a mixed blessing. On the one hand, information helps individuals develop adequate risk perceptions, empowers them with informed decision-making about preventive behaviors (Garfin et al., 2020; Liu, 2020; Zarocostas, 2020), and aids them in coping with uncertainties (Tandoc & Lee, 2020). On the other hand, information triggers negative emotions and impairs psychological well-being (Soroya et al., 2021).

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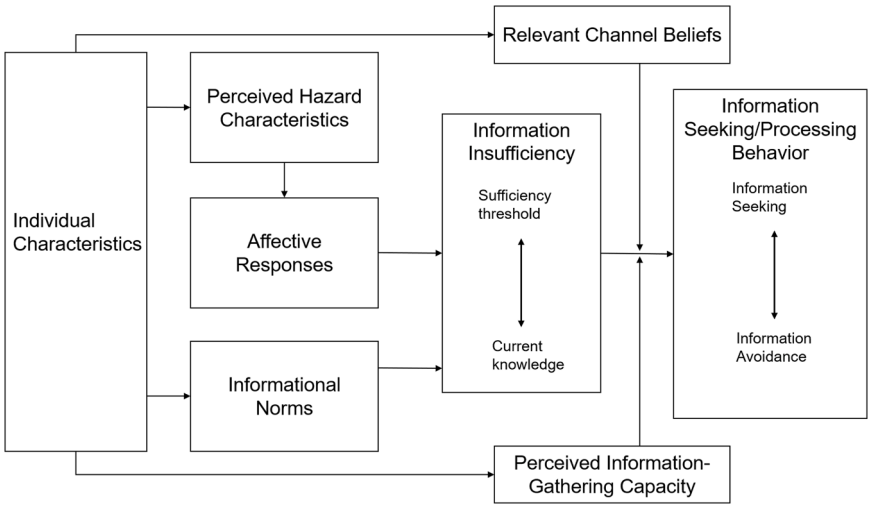

Fig. 1. Overview of the proposed Risk Information Seeking and Processing Model (Griffin et al., 1999)

Particularly during the COVID-19 pandemic—also termed as 'infodemic' (Cinelli et al., 2020; Galotti et al., 2020; United Nations, 2020; Zarocostas, 2020)—the amount and spread of misinformation can create a sense of information overload (Bawden & Robinson, 2009; Galotti, 2020). Misinformation can increase the news consumer's uncertainty perceptions and discourage decision-making on how to behave during the pandemic (Galotti et al., 2020; Garrett, 2020).

Under these conditions, news consumers may start avoiding information on COVID-19 (Barbour et al., 2012; Carcioppollo et al., 2016; Soroya et al., 2021). Despite the human drive to understand the world (Berger & Calabrese, 1975) and modern life in information-rich societies (Narayan et al., 2011), information avoidance is a widely prevalent communication phenomenon (Brashers et al., 2002; Deline & Kahlor, 2019; Sweeny et al., 2010). This strategy allows people to minimize the attention paid to threatening or unwanted information (Howell et al., 2014; McQueen et al., 2014), which can be associated with not being updated with and knowledgeable of novel information and erroneous information processing (Soroya et al., 2021). Consequently, underestimated severity of the situation, biased perceptions of one's actual risk, and stronger resistance to necessary changes in attitudes might undermine consumers' adoption of and compliance with self-protective behaviors (Siebenhaar et al., 2020; Song et al., 2021). However, information avoidance also serves as a strategy to control negative emotions and maintain optimism and hope (Barbour et al., 2012; Brashers et al., 2002; Brashers, 2001). It can help individuals cope with threatening or overwhelming information (Bawden & Robinson, 2009; Galotti, 2020; van't Riet & Ruiter, 2013).

Despite the positive and negative consequences of information avoidance on effective coping behaviors and crisis management, information avoidance has received less attention than other coping strategies such as information seeking (Brashers et al., 2002; Yang et al., 2020). The prevalence and predictors of avoidance are not well-understood (Emanuel et al., 2015; Narayan et al., 2011). Therefore, through an online survey with a stratified sample of residents of a federal state in Germany, we sought to understand information avoidance in regard to the COVID-19 pandemic, addressing two objectives: First, the study aims to identify the prevalence of source-specific information avoidance regarding the COVID-19 pandemic. Second, we examine the predictors of information avoidance to explain the underlying conditions of this behavior. The field of research addressing these predictors appears to be in the intermediate state of development (Kahlor et al., 2020), and no common understanding of them prevails. Therefore, the Risk Information Seeking and Processing Model (RISP; for a complete description of the model, see Griffin et al., 1999; Yang et al., 2014) and its advancements (Deline & Kahlor, 2019; Kahlor, 2010) guide the present study. Although information avoidance is not at the center of the model (Griffin et al., 1999), the assumption that information seeking and avoidance are two active and conscious as well as cognitively determined modes of information transaction (Atkin, 1973; Kahlor et al., 2020) that can be interpreted as co-existing orthogonal constructs relevant to coping with uncertainties or risks (Barbour et al., 2012; Kim et al., 2020) justifies our adaption of the RISP to information avoidance. This justification is supported by evidence for the applicability of the RISP to information avoidance (e.g., Dunwoody & Griffin, 2015; Yang & Kahlor, 2013). Further, we assume that a novel and worldwide risk, such as COVID-19, provides a fertile context to test whether the RISP can predict information avoidance while the risk is still unfolding (Hubner & Hovick, 2020; Kahlor et al., 2019) and whether the model suits a situation characterized by high personal risks and affective risk responses (Siebenhaar et al., 2020; Wang et al., 2020). When we address the features of the infodemic, the RISP is supplemented by considering information overload as a predictor of information avoidance (Soroya et al., 2021).

2. Theoretical Foundation

2.1. Construct Clarification of Information Avoidance

Shutting off the television or changing the topic in conversations are two of the various strategies to avoid learning or processing

specific information (Barbour et al., 2012; Narayan et al., 2012). Information avoidance as a term subsuming these proactive strategies refers to any behavior intended to avoid attention for and exposure to certain available information although the information might be personally relevant (Chae, 2016; Howell & Shepperd, 2012; Sweeny et al., 2010). The level of information avoidance can differ depending on the type of content and source (Chae et al., 2020), which is relevant to consider the problematic quality and spread of misinformation regarding COVID-19 (e.g., Cinelli, 2020).

Information avoidance is a coping behavior occurring when learning or remembering information is associated with aversive emotions or requires consumers to take undesired actions such as attitude or behavior change (Sweeny et al., 2010). These motivational responses underlying information avoidance are highly relevant in the case of the COVID-19 pandemic, as the topic is threatening, and self-protective behaviors such as social distancing impel individuals to take undesired actions.

2.2. From Seeking to Avoidance: A Framework to Predict Information Avoidance

The RISP is one of the most comprehensive models focusing on cognitive and sociopsychological motivators of behavior such as seeking risk information (Yang et al., 2014). The RISP was developed to understand how individuals respond to health risk messages. Based on the Heuristic Systematic Model (Chen & Chaiken, 1993) and the Theory of Planned Behavior (Ajzen, 1991), the RISP postulates the importance of seven factors determining variations in information-seeking and processing behaviors (see Fig. 1 for overview of the original RISP version).

The RISP posits that active information seeking is motivated by (1) individual characteristics, (2) the perceived social pressure to perform a search, also known as perceived subjective or social norms, and (3) individuals' perception of their state of knowledge and knowledge insufficiency as a basis to determine their level of information insufficiency. The RISP also included (4) perceived hazard characteristics comprising individuals' risk perception, (5) affective responses to the risk, (6) beliefs about the usefulness of information in various channels (termed as channel beliefs), and (7) one's abilities to seek for information, known as perceived information-gathering capacity. All predictors are postulated to be positively related to active information seeking.

In line with the understanding that information seeking and avoidance are both cognitively determined behavior used to cope with risks and uncertainties, the RISP is perceived as a fruitful model to predict information avoidance. To specify our research model for information avoidance, the RISP is supplemented by its expanded iterations such as the Planned Risk Information Seeking Model (PRISM, Kahlor, 2007, 2010). Further, construct-specific studies examining single components such as social norms in more depth, overview articles on information avoidance (Case et al., 2005; Deline & Kahlor, 2019; Sweeny et al., 2010) and studies on the occurrence and predictors of information avoidance during the COVID-19 pandemic (Song et al., 2021; Soroya et al., 2021) are considered and weigh against the assumptions of the RISP. Against this background, it is postulated that and explained in the following how the considered predictors of the RISP are associated with information avoidance.

3. Research Model and Hypotheses

3.1. Source-Specific Information Avoidance

Before focusing on the predictors of information avoidance, we aim to examine information avoidance in more depth. Recent studies revealed that news consumers reported the need to take a break from COVID-19 news (Kim et al., 2020; Mitchel et al., 2020; Soroya et al., 2021; Tandoc & Lee, 2020). In addition to the occurrence of information avoidance, critically assessed information sharing using online and social media (Bento et al., 2020; Cinelli, 2020; Farooq et al., 2020) underscores the importance of shedding light on the source-specific prevalence of information avoidance (Chae et al., 2020). This knowledge informs governmental institutions and campaign practitioners about the sources to be deployed to disseminate information for crisis management. Therefore, we state the following research question:

RQ: Which sources of information about the COVID-19 pandemic are avoided and how frequently are they avoided?

3.2. Predictors of Information Avoidance Guided by the RISP

Based on former research (e.g. Dunwoody & Griffin, 2015; Yang & Kahlor, 2013), the understanding of the key variables of the RISP, their adaption and supplementation for explaining information avoidance during the COVID-19 pandemic will be explained in more detail below.

3.2.1. Perceived social norms

Particularly in times of uncertainty such as the COVID-19 pandemic, perceived social norms influence individuals' behavioral choices reflecting their desire for conformity with their social surroundings (Smith et al., 2007). Perceived social norms subsume injunctive and descriptive norms (Cialdini et al., 1990). Both are group identity-based codes of conduct (Dunwoody & Griffin, 2015; Lapinski & Rimal, 2005; Rimal & Real, 2003, 2005). Injunctive norms describe individuals' perceptions of others' approval of certain behavior and the sense that others expect someone to behave in a certain pattern (Geber et al., 2019; Lapinski & Rimal, 2005; Rimal & Real, 2005). Descriptive norms define beliefs about the prevalence of certain behavior in one's social surroundings that influence one's behaviors because of an individual's desire to behave appropriately (Geber et al., 2019; Rimal & Lapinski, 2015; Rimal & Real, 2005). On the basis of the Theory of Planned Behavior (TPB; Ajzen, 1991), the RISP model (Griffin et al., 1999) considers normative influences

on information behaviors but aggregates injunctive and descriptive norms to one normative judgment. Aggregating both neglects the fact that they both represent separate sources of motivation (Smith et al., 2012) with diverse influences on behavior (Cialdini et al., 1990; Smith et al., 2012). Therefore, the current study distinguishes injunctive and descriptive avoidance norms.

Though seeking-related norms are often considered and found to be highly relevant for information-seeking behaviors (Yang et al., 2014), research examining the impact of avoidance-related norms is missing. In line with the first findings on the relationship between avoidance-related norms and risk information avoidance about earthquakes (Kahlor et al., 2020), it is assumed that if consumers' perceive information avoidance as socially tolerated (injunctive norms) and as frequently performed behavior during the COVID-19 pandemic (descriptive norms), individuals are more likely to avoid information. Therefore, hypotheses H1a and b assume the following:

H1a/b: (a) Injunctive and (b) descriptive avoidance norms are positively related to information avoidance.

3.2.2. Information insufficiency

The prevailing high degree of uncertainty and the vast volume of (mis-)information about the COVID-19 pandemic might also influence an individual's perception that his or her level of information is insufficient to cope with the situation. Based on the Heuristic Systematic Model (Chen & Chaiken, 1999), the RISP model postulates that information behaviors are driven by individuals' accuracy motivation, which encourages them to achieve the desired level of confidence in their knowledge (Griffin et al., 1999, 2008; Kahlor, 2010). The level of confidence is described by information insufficiency. Information insufficiency is the gap between what an individual knows about the risk and what an individual thinks he or she needs to know about the risk to feel confident (Dunwoody & Griffin, 2015; Yang et al., 2014).

Information insufficiency is a well-supported predictor of information seeking and processing (Brinker et al., 2020; Griffin et al., 1999; Yang et al., 2014). In contrast, there is only limited research with mixed findings on the postulate that information avoidance occurs when individuals perceive a higher degree of confidence in their level of knowledge (Brinker et al., 2020; Dunwoody & Griffin, 2015; Kahlor et al., 2020; Kim et al., 2020; Yang & Kahlor, 2013). This theoretical argument is underpinned by the assumption that information avoidance is motivated by the desire to protect formed attitudes or behaviors as new information might force people to give up or adjust these (Case et al., 2005; Sweeny et al., 2010). Hence, we posit the following hypothesis about the relation between information insufficiency and information avoidance:

H2: Information insufficiency is negatively related to information avoidance.

Based on the assumption of the TPB (Ajzen, 1991), the RISP model postulates that an individuals' desire for information mediates the relationship between perceived social norms and information behaviors (Griffin et al., 1999; Kahlor, 2010). The group-based codes of conduct are assumed to influence the sense of information insufficiency. When this is applied to information avoidance, we assume that internalized injunctive and descriptive avoidance norms reduce consumers' sense of information insufficiency. Therefore, we expect that injunctive and descriptive avoidance norms are negatively related to information insufficiency, increasing information avoidance.

1 H3a/b: (a) Injunctive and (b) descriptive avoidance norms are negatively related to information insufficiency resulting in higher information avoidance.

3.2.3. Risk perception and affective risk response

Our study also considers the perceived threat posed by the COVID-19 pandemic to explain information avoidance. In line with the RISP, we posit that risk perceptions and affective risk responses predict information avoidance. Risk perceptions describe the relevance of a risk to the individual conceptualized as a combination of the susceptibility and severity of a risk (Kahlor, 2010; So et al., 2013). Related to the rapid propagation and high mortality as features of the COVID-19 pandemic (Bento et al., 2020; Song et al., 2021), the susceptibility and severity of COVID-19 are assumed to be high.

Regarding information avoidance, the role of risk perception is not fully explored yet (Yang & Kahlor, 2013), and contradictory theoretical assumptions exist. Dunwoody and Griffin (2015) assume that higher risk perception can motivate an individual to avoid information if the information is perceived as too threatening (see also Deline & Kahlor, 2019). This argument is consistent with the assumption that individuals avoid information to mitigate emotional burdens (Barbour et al., 2012; Sweeny et al., 2010; van't Riet & Ruiter, 2013). In contrast, higher risk perceptions combined with consumers' perception that the threat is likely to be realized are assumed to trigger information seeking instead of avoidance (Turner et al., 2006). The first findings related to the COVID-19 pandemic confirmed the second assumption and proved that risk perception was negatively associated with information avoidance (Kim et al., 2020). Based on these findings, the fourth hypothesis is as follows:

H4: Risk perceptions are negatively related to information avoidance.

Besides the cognitive judgment the affective response is a dominant driver of most meaningful decisions in life (Lerner et al., 2015), serves as a mental shortcut (So et al., 2013), and involves cognitive appraisal and action tendency (Brashers, 2001; Lazarus, 2001). In line with the RISP, the current study does not consider discrete emotions but the valence of affective responses focusing on negative ones. Recent theoretical conceptualizations and research (Deline & Kahlor, 2019; Yang & Kahlor, 2013) posit that the more negative

affective risk responses individuals feel, the less they are willing to avoid information. This association is underpinned by the assumption that a negative affect is associated with the desire to reduce this state instead of maintaining or increasing it (Brashers, 2001; Yang & Kahlor, 2013). Hence, the fifth hypothesis assumes:

H5: Negative affective risk response is negatively related to information avoidance.

In line with the RISP, we expect that affective risk responses mediate the relationship between risk perception and information avoidance. The cognitive dimension of risk perception is understood as an antecedent to the affective responses and assumed to be positively associated (Griffin et al., 1999; Kahlor, 2010). Applying this to information avoidance, we postulate that higher risk perceptions raise negative affective responses resulting in reduced information avoidance.

H6: Higher risk perceptions increase negative affective risk responses resulting in lower information avoidance.

3.2.4. From channel beliefs to attitudes towards information seeking

To choose further predictors of relevance in the context of the COVID-19 pandemic, the increased challenge to select and make use of information (e.g., Song et al., 2021; Soroya et al., 2021) underscore to consider channel beliefs—perceived characteristics and utility of specific information channels— as an antecedent of news consumers' information behaviors. Instead of beliefs about one particular information channel, the current study uses a broader understanding of attitudes towards information seeking (Kahlor, 2010), as the vast volume of (mis-)information is a general, cross-channel feature of the COVID-19 pandemic.

Attitudes toward information seeking refer to favorable or unfavorable instrumental or affective evaluations of information (Dunwoody & Griffin, 2015) and describe an individual's perception of whether the information will be useful and valuable (Ajzen, 1991; Kahlor, 2007, 2010). As the current state of research indicates that more positive attitudes towards information seeking strongly predict lower information avoidance, whereas more negative attitudes strongly predict higher information avoidance (Dunwoody & Griffin, 2015; Yang & Kahlor, 2013), we postulate the following hypothesis:

H7: Attitude toward information seeking is negatively related to information avoidance.

The eighth hypothesis reflects the relationship between attitudes towards information seeking and injunctive and descriptive norms, which is modeled in the TPB (Ajzen, 1991), and underlies the arguments of the RISP and its expanded iteration, the PRISM (Kahlor, 2007, 2010). We postulate that perceived social norms to behave in a certain manner also influence the attitudes towards this behavior. Applying it to information avoidance, we posit that the attitude towards information seeking mediates the relationship between injunctive and descriptive avoidance norms and information avoidance:

H8a/b: (a) Injunctive and (b) descriptive avoidance norms are negatively related to attitudes towards information seeking resulting in higher information avoidance.

3.2.5. Perceived information overload

We expanded our model beyond the assumptions of the RISP (Griffin et al., 1999) by considering perceived information overload as a predictor of information avoidance (Song et al., 2021; Soroya et al., 2021). Information overload refers to a state where an individual`s efficiency in selecting, using, processing, and making sense of information is hampered "by the amount of relevant, and potentially useful, information" (Bawden & Robinson, 2009, p. 183). This state is associated with feelings of a loss of control and being overwhelmed, stressed, confused, and anxious (Bawden & Robinson, 2009; Case et al., 2005; Chae, 2016). Besides the amount of information, causes of information overload include information characteristics such as problematic quality, uncertainty, ambiguity, inconsistency, and complexity (Bawden & Robinson, 2009; Chae et al., 2016; Eppler & Mengis, 2004), which are widely prevalent during the infodemic (Song et al., 2021; Soroya et al., 2021; Zarocostas, 2020).

Information overload is a known reason not to consume information during a crisis (Austin et al., 2012; Barbour et al., 2012; Chae, 2016), which is also true for the COVID-19 pandemic (Song et al., 2021; Soroya et al., 2021; Tandoc & Lee, 2020). Therefore, perceived information overload is expected to be positively related to information avoidance.

H9: Perceived information overload is positively related to information avoidance.

Furthermore, we assume that information overload is indirectly associated with information avoidance via other predictors considered in the RISP model. As information overload can be understood as a negative perception of concepts such as the perceived information-gathering capacity (Griffin et al., 1999) or perceived seeking control (Kahlor, 2010) (both understood as abilities to select and process information), two additional relationships of interest should be outlined. Kahlor (2010) showed that perceived information insufficiency also depends on individuals' efficacy in performing a behavior (see also Hovick et al., 2014; Willoughby & Myrick, 2016). When it is transferred to perceived information overload, we assume that the perception that the environmental demands exceed news consumers' cognitive capacities is negatively related to the perceived need for more information. The corresponding hypothesis is as follows:

H10: Perceived information overload is negatively related to information insufficiency resulting in higher information avoidance.

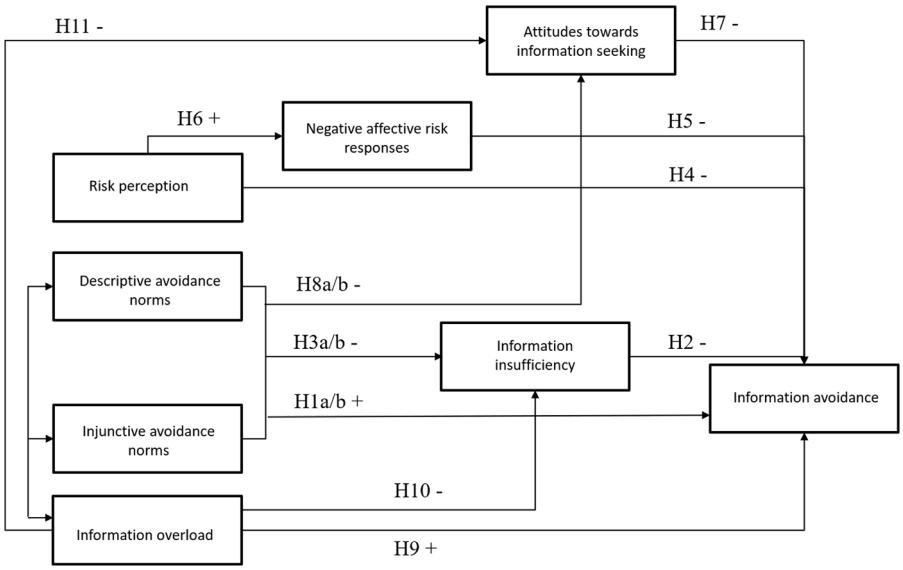

Fig. 2. Theoretically derived predictors of information avoidance.

Whether the potential avoider of information on the COVID-19 pandemic feels efficacious enough to deal with it or is overwhelmed by information might also influence the attitudes towards information seeking (Kahlor, 2010). We propose the following indirect effect of information overload on information avoidance:

H11: Perceived information overload is negatively related to attitudes towards information seeking resulting in higher information avoidance.

3.2.6. Overview of the research model

With the aim of explaining information avoidance regarding the COVID-19 pandemic, the key variables derived from the RISP and its advancements adapted to and considered in our study are perceived injunctive and descriptive avoidance norms, information insufficiency, risk perceptions, negative affective risk response, and information-seeking attitudes (Deline & Kahlor, 2019; Dunwoody & Griffin, 2015; Griffin et al., 1999). Concerning the vast amount of (mis-)information already challenging news consumers' information acquisition and processing (Soroya et al., 2021), we integrated information overload into the RISP model (see Fig. 2). We postulate that information avoidance is associated with lower perceived information insufficiency, lower risk perceptions, and less negative affective risk responses as well as less positive attitudes towards information seeking. In contrast, we assume that information avoidance occurs more frequently when individuals possess more pronounced injunctive and descriptive avoidance norms and when a higher degree of information overload is perceived by them.

4. Methodology

4.1. Survey Design and Sample

During the first German lockdown in May 2020 (May 14th to May 21st), we conducted an online survey (N = 1,000) in the federal state of Lower Saxony, the fourth-largest German state by population (7.9 million) situated in northwestern Germany. The participants were recruited via an online access panel by a market research company using stratified samples. The constructs of interest (see Fig. 2) were asked after the introductory paragraph, informed consent, and demographic questions relevant for quota-based sampling. The quotes for age, gender, and education used for stratification were based on representative samples of Internet users of the German population. The respondents were aged between 18 and 85 (M = 47.1; SD = 16.41), half were female (50 %), 35.4 % had no school certificate or had completed junior high school, 30.2 % had a general certificate of upper secondary education, and 36.6 % had at least Abitur. Compared with the German population as a whole, which is on average 44.5 years old, the population of Lower Saxony is older (Destatis, 2020). The gender ratio in the sample is balanced, while in the overall population, the proportion of women slightly prevails.

4.2. Measures

The survey questionnaire employed in this study included both single and multi-item constructs. The items for the questionnaire were adapted from earlier literature. Except for information insufficiency, risk perception, and attitudes towards information seeking, all items were rated on 5-point Likert type scales, ranging from 1 (does not apply at all) to 5 (does apply at all). Information avoidance

Table 1
Descriptive statistics of the source-specific prevalence of information avoidance.

Source-specific information avoidance about the COVID-19-pandemic	*M*	*SD*
Social media	3.00	1.55
Websites and blogs	2.90	1.58
Newspapers and magazines	2.48	1.44
Television shows, reports, and talk shows	2.46	1.41
Radio and podcasts	2.67	1.51
Chat groups/messages from family and friends	2.63	1.43
Personal interactions with family and friends	2.05	1.16

Note. N = 1,000; measured on a 5-point Likert-type scale ranging from 1(does not apply at all) to 5 (does apply at all)

was measured with seven items adapted from McQueen et al. (2013) and Chae et al. (2020), referring to avoidance behaviors during the past month. Injunctive and descriptive avoidance norms were both measured with a single item adapted from Geber et al. (2019). Information insufficiency was assessed according to Kahlor (2010) using two scales ranging from 0 to 100 to measure the current and the needed levels of information. In line with Kim et al. (2020), we employed analysis of partial variance (Cohen & Cohen, 1983; Rosenthal, 2013) to compute information insufficiency as an index of change containing the residual variance of the needed level of information accounting for the variance of the current state of information. The measurement of risk perception was adapted from Griffin et al. (2008). Items capturing perceived susceptibility and severity of COVID-19 were multiplied to create an index of risk perception (Griffin et al., 2008; Weinstein, 2000). Negative affective risk responses were measured with three items adapted from Kahlor (2010). Also, the measure for attitudes towards information seeking was adapted from Kahlor (2010), consisting of seven differential pairs rated on a 5-point scale describing respondents' attitudes. Information overload was measured using three items adapted from Williamson, Eaker, and Lounsbury (2012).

All the questions were mandatory, so missing data was not an issue. Several questions to identify invalid responses were included (e.g., selecting specific responses in an item battery) and prescreening the dataset revealed no random responses. Details of the constructs, items, and their references are given in the Appendix; see Table A1.

4.3. Data Analysis

To describe the source-specific prevalence of information avoidance (cf. RQ), we examined the percentages of participants who reported avoiding information about the COVID-19 pandemic. To test differences between sources, we conducted paired sample t-tests. To test our hypotheses about the predictors of information avoidance across different sources (cf. H1–11), we used the R-package lavaan for latent variable structural equation modeling. A maximum likelihood estimator was used to account for issues with multivariate normality. We used two-step modeling to verify all measurement models before testing the structural model. Indicators of model fit included chi-square, comparative fit index (CFI; values close to or greater than .95), root mean square error approximation (RMSEA; values lower than .08), and standardized root mean residual (SRMR; values lower than .08; Brown & Cudeck, 1993; Hu & Bentler, 1999). The data fit of the measurement models for information avoidance, negative affective risk response, attitudes towards information seeking, and information overload was evaluated as satisfying (see Appendix, Table A2).

5. Results

5.1. Source-specific Prevalence of Information Avoidance

One RQ asked about the source-specific prevalence of avoiding information about the COVID-19 pandemic. In total, 34.1% reported avoiding information to some extent as they had a value above the scale average ($M = 2.60$; $SD = 1.08$). The highest share of respondents reported (fully) avoiding COVID-19-related information on social media (38.8 %) and websites (37.7 %). Traditional mass media such as newspapers, television, or radio broadcasts were avoided by 24.2% to 30.7% of the participants. A total of 27.4% reported avoiding information about COVID-19 shared in chatgroups with family and friends, whereas only 11.4% agreed to avoiding information in personal interactions with family and friends (see Table 1).

Paired sample t-tests demonstrated that avoiding messages from family and friends did not significantly differ from television, newspapers, and radio, whereas all other sources differed significantly. Effect sizes were small to mediocre (Cohen`s d varies between .12 to .64). Major differences were observed between avoiding interpersonal communication with family and friends and avoiding websites ($t(999) = 17.97$, $p \leq .001$, Cohen's $d = .57$), avoiding social media newsfeeds ($t(999) = 20.35$, $p \leq .001$, Cohen's $d = .64$), and avoiding chatgroups with family and friends ($t(999) = 15.08$, $p \leq .001$, Cohen's $d = .48$). Hence, individuals avoided online sources, including online-mediated interpersonal sources more often than interpersonal sources and traditional mass media.

5.2. Predictors of Information Avoidance

Hypotheses 1 to 11 postulate direct and indirect influences on avoiding information about the COVID-19 pandemic. The model fit indices showed a satisfactory model fit ($\chi^2(240) = 641.18$, $p \leq .001$, CFI = .965, RMSEA = .041, 90% CI [.037, .044], SRMR = .056; Hu & Bentler, 1999). Overall, the model accounted for 31.6% of the variance in information avoidance. The hypotheses tests (standardized beta coefficients and their significance) are reported in Table 2 and

Table 2
Hypotheses testing results.

Path		β-Coefficients	*p*-values	Supported
H1a	Injunctive avoidance norms → information avoidance	.10	.03	Supported
H1b	Descriptive avoidance norms → information avoidance	.14	.001	Supported
H2	Information insufficiency → information avoidance	.01	.69	Not supported
H3a	Injunctive avoidance norms → information insufficiency → information avoidance	.00	.83	Not supported
H3b	Descriptive avoidance norms → information insufficiency → information avoidance	-.00	.71	Not supported
H4	Risk perception → information avoidance	.03	.49	Not supported
H5	Negative affective risk response → information avoidance	-.09	.03	Supported
H6	Risk perception → negative affective risk response → information avoidance	-.01	.03	Supported
H7	Attitude towards information seeking → information avoidance	-.30	.001	Supported
H8a	Injunctive avoidance norms → attitudes towards information seeking → information avoidance	.05	.001	Supported
H8b	Descriptive avoidance norms → attitudes towards information seeking → information avoidance	.05	.001	Supported
H9	Information overload → information avoidance	.21	.001	Supported
H10	Information overload → information insufficiency → information avoidance	.00	.85	Not supported
H11	Information overload → attitudes towards information seeking → information avoidance	.09	.001	Supported

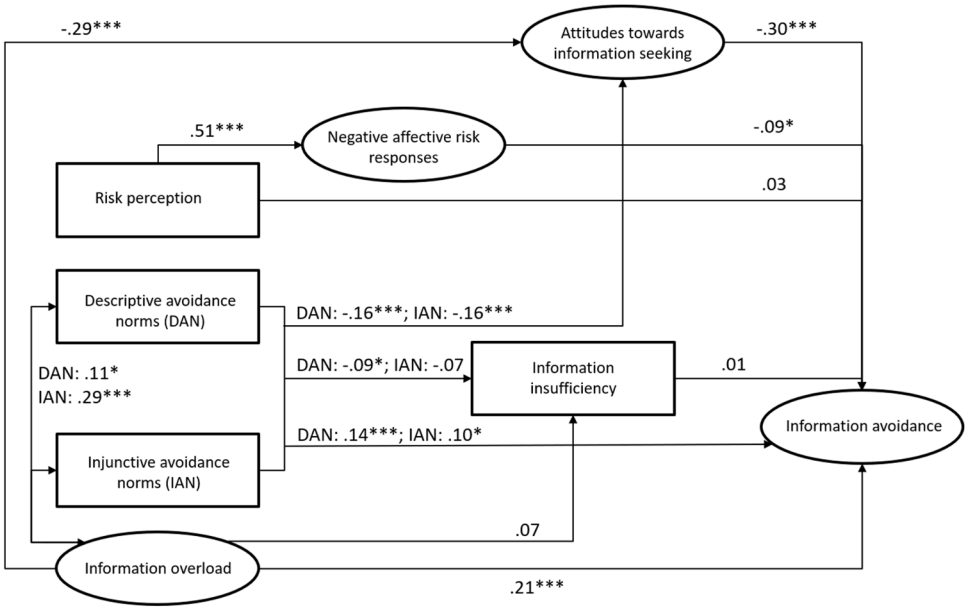

Fig.. 3. Predictors of information avoidance regarding the COVID-19 pandemic.
Note. MLR; standardized beta coefficients; N = 997; χ^2 (240) = 641.18, p ≤ .001, CFI = .962, RMSEA = .041, 90% CI [.037, .044], SRMR = .056; significant differences indicated by *** $p \leq .001$, ** $p \leq .01$, * $p < .05$; DAN = Descriptive avoidance norms; IAN = Injunctive avoidance norms

Fig. 3. Overall, 7 of the 11 hypotheses were confirmed.

Focusing on direct effects on information avoidance, the postulates that injunctive (cf. H1a; β = .10; $p = .03$) and descriptive avoidance norms (cf. H1b; β = .14; p < .001) as well as information overload (cf. H9; β = .21; $p < .001$) are positively related to information avoidance regarding the COVID-19 pandemic were confirmed. Further, the findings support the fact that negative affective risk responses (cf. H5; β = -.09; $p = .03$) and attitudes towards information seeking (cf. H7; β = -.30; $p < .001$) were associated with lower information avoidance. The assumed impact of information insufficiency (cf. H2; β = .01; $p = .69$) and risk perception (cf. H4; β = .03; $p = .49$) on information avoidance could not be confirmed.

With regard to the indirect effects on information avoidance, the results confirmed that attitudes towards information seeking mediate the relationship between injunctive avoidance norms (cf. H8a; β = .05; $p = .001$), descriptive avoidance norms (cf. H8b; β = .05; $p = .001$), information overload (cf. H11; β = .09; $p = .000$), and information avoidance. Furthermore, negative affective risk responses mediated the path between risk perception and lower information avoidance. The indirect effect was significant but very weak (cf. H6; β = -.01; $p = .03$).

Indirect effects that could not be confirmed were related to the missing association between information insufficiency and information avoidance. Therefore, it could not be proved that the relationships between injunctive avoidance norms (cf. H3a; β = .00; $p = .83$), descriptive avoidance norms (cf. H3b; β = -.00; $p = .71$), information overload (cf. H10; β = .00; $p = .85$) and information avoidance were mediated by information insufficiency (see Fig. 3 and Table 2).

6. Discussion

6.1. Key Findings

This study provides several interesting insights related to the source-specific prevalence and predictors of information avoidance regarding the COVID-19 pandemic. Regarding the source-specific prevalence, one-third of the respondents of an online survey of residents of a federal German state demonstrated information avoidance in regard to the COVID-19 pandemic. The most-often-avoided sources are websites and social media, whereas personal conversations with family and friends are the least avoided. These results suggest cross-thematic patterns of information avoidance behaviors as we discover shared source preferences in the cancer and COVID-19 context (Chae et al., 2020). The patterns can be related to awareness of the questionable quality of online information, which is particularly prevalent during the COVID-19 pandemic as it is the objective of public announcements of the WHO and the German federal ministry of health (Cuan-Baltazar et al., 2020; Farooq et al., 2020; Hernández-García & Giménez-Júlvez, 2020; Kim et al., 2020).

Concerning the predictors of information avoidance, our study highlights the RISP as a fruitful starting point for theory development with the aim of explaining information avoidance. The test of the adapted and extended version of the RISP supports the fact that information avoidance is enhanced by more negative attitudes toward seeking information, more negative affective risk response, and more pronounced information overload and injunctive as well as descriptive avoidance norms.

We find the most potent associations between attitudes towards information seeking and information overload with information avoidance. Whereas the role of attitudes confirms recent research (Dunwoody & Griffin, 2015; Yang & Kahlor, 2013), supplementing the RISP by integrating information overload forms a unique feature of the current study (Austin et al., 2012; Kim et al., 2020; Soroya et al., 2021; Tandoc & Lee, 2020). We expand recent research focusing on information overload (Song et al., 2020; Soroya et al., 2021) by showing a direct link between information overload and information avoidance. Further, we clarify its relation to other predictors relevant to information avoidance. Whereas information overload is negatively linked to attitudes, the association with information insufficiency cannot be confirmed in the context of the COVID-19 pandemic.

As our study is one of the first considering avoidance norms and distinguishing between injunctive and descriptive norms in the RISP, our findings are key for theory development. Our findings support that if information avoidance is perceived as approved by relevant others (injunctive avoidance norms) or as an often-performed behavior (descriptive avoidance norms), individuals avoid information about the COVID-19 pandemic more often.

Further, our findings support that negative risk responses such as fear or uncertainty are associated with less information avoidance, which is in line with postulates of the RISP (Deline & Kahlor, 2019; Yang & Kahlor, 2013). However, injunctive and descriptive avoidance norms and negative affective risk responses are observed to be only weakly related to information avoidance.

Additionally, the unconfirmed paths of the RISP indicate the potential for theory development and further research. The assumed direct links between risk perception, information insufficiency, and information avoidance are not confirmed. Notwithstanding the inconclusive state of research on the role of risk perception, our finding is in line with research that questions the importance of risk perceptions for information avoidance (Emanuel et al., 2015; Kim et al., 2020) and raises questions about the conditions in which risk perception influences avoidance at all. On the basing of El-Toukhy (2015), examining the respective association between susceptibility and severity with information avoidance might provide further insights.

Moreover, the indirect effect of risk perceptions via affective risk responses is weak (Dunwoody & Griffin, 2015; Kahlor, 2010), which may be attributed to individuals' relatively low-risk perceptions and negative affective risk responses. Despite the high mortality and rapid propagation of COVID-19 (Bento et al., 2020; Song et al., 2021), relatively low prevailing risk perceptions and responses might be associated with a high amount of conflicting information and misinformation, making it somewhat challenging to access the susceptibility and severity of COVID-19 (Liu, 2020).

The missing path between information insufficiency and information avoidance—although contradicting preliminary findings (Kim et al., 2020)—provides the first evidence supporting the theoretical assumption of Deline and Kahlor (2019) that information insufficiency describing the achieved level of confidence in one's knowledge is less relevant for information avoidance. For this kind of protective behavior, the psychological motivation for accuracy seems to be less relevant. In contrast, other types of need for closure concerning defensive or impression motivations are suggested to determine information avoidance (Deline & Kahlor, 2019). Our findings highlight that further research is needed to explore the need for closure relevant to explain information avoidance. Furthermore, the heterogenous findings might point out certain conditions under which information insufficiency gains or loses relevance for information avoidance. These conditions can be associated with the risk context and the amount of individuals' information insufficiency. In our sample, information insufficiency can be rated as mediocre but higher than scores reported by Kim et al. (2020). This difference suggests that in risk contexts with lower information insufficiency, an association between information insufficiency and information avoidance prevails.

6.2. Theoretical Implications

The study has theoretical implications as it is one of the first studies guided by the RISP model (Griffin et al., 1999), focusing on information avoidance related to the COVID-19 pandemic. Our findings confirm the predictors subsumed in the RISP model successfully tested in various contexts related to information seeking to predict information avoidance in a worldwide pandemic with ubiquitous amounts of information from myriad sources. The applicability of the predictors supports that information avoidance is a cognitively determined behavior, similar to information seeking (Kahlor et al., 2020; Kahlor, 2010).

However, the dominance of the predictors is different compared to studies on information seeking (Dunwoody & Griffin, 2015; Yang et al., 2014). Our findings confirm the relevance of attitudes towards behaviors, social norms, and affective risk responses for information avoidance. This corresponds to the recent research examining predictors of information avoidance in other contexts (Kahlor et al., 2019; Kahlor et al., 2020; Yang & Kahlor, 2013). In contrast, the role of risk perception cannot be confirmed. This finding is consistent with research in the context of cancers (Emanuel et al., 2015), suggesting that the affective response to risks is more relevant than the cognitive-based judgment. However, before we conclude that less-complex models can be limited to the affective risk response as a predictor of information avoidance, further studies are needed to test whether in other risk contexts (e.g., with higher levels of risk perception) an influence of risk perception can be confirmed. Furthermore, research is needed to examine whether distinguishing the elements of risk perception (susceptibility and severity) helps identify specific influencing patterns (El-Toukhy, 2015).

Our findings support Deline and Kahlor's (2019) theoretical assumptions that information insufficiency is less relevant for information avoidance. This finding highlights the need for a comprehensive adaptation of the RISP model to information avoidance. Instead of the accuracy motivation, defensive and impression motivations or the need for closure might need consideration in a RISP model adapted to information avoidance (Deline & Kahlor, 2019; Dunwoody & Griffin, 2015). Exploratory research is needed for model construction and theory development, focusing on this area of the RISP model.

Additionally, our findings supplement the current state of research testing the paths of the RISP for information avoidance (e.g., Dunwoody & Griffin, 2015; Yang & Kahlor, 2013). To the best of our knowledge, the study is one of the first in the context of risk communication that tests the role of injunctive and descriptive norms separately and applies norms to avoidance (Kahlor et al., 2020). We found that both types of norms are confirmed as promoting predictors for information avoidance. However, the findings suggest that descriptive avoidance norms tend to be more critical than injunctive avoidance norms in the COVID-19 context, resulting in the need to understand how avoidance norms are shaped. Both types of norms are assumed to be shaped through communication processes (Rimal & Lapinski, 2015). Especially for descriptive avoidance norms, it needs to be questioned how people can observe avoidance behaviors and how this behavior is communicable. Past experiences with information seeking and avoidance might be the first indication of a more profound understanding (Hovick et al., 2014).

Further, integrating information overload into the RISP as a predictor of information avoidance is a unique feature of the current study. In the COVID-19 pandemic context, the inclusion vitally supplements the RISP model. Supplementing studies focusing on information overload (e.g., Song et al., 2020; Soroya et al., 2021), we examined the direct and indirect relations of information overload and avoidance. We found information overload to be unrelated to information insufficiency but a relatively strong predictor of attitudes towards information seeking.

The study provides insights for model adaptation to information avoidance. It should be understood as one of many necessary steps to test the applicability and adapt the RISP and related models (Deline & Kahlor, 2019; Kahlor et al., 2020) to contribute to a better and shared understanding of information avoidance.

6.3. *Practical Implications*

Examining the source-specific prevalence of information avoidance demonstrates that people more often avoided websites and social media than interpersonal conversations and mass media. We suggest that this results from being more skeptical about and aware of the high share of misinformation online, particularly on social media. Avoiding less trustworthy sources should be perceived as a central part of adequate information seeking and avoidance during health crises. Avoiding misinformation is essential to reduce risks such as misperceptions or biased decision-making about preventive behaviors. Furthermore, the source-specific perspective highlights relevant ways of information distribution. It stresses the social support role and a two-step flow of information to address groups of people with higher avoidance tendencies.

Furthermore, information avoidance caused by short-term information overload might benefit in reducing feeling overwhelmed in a crisis. In the long term, perceived information overload is problematic. It increases the likelihood that public announcements and new scientific evidence about self-protective measures fail to reach relevant segments of the population. Therefore, the question of how to prevent information overload is essential for crisis management. Similar implications related to the risk of information inequalities are related to more pronounced injunctive and descriptive avoidance norms. Besides understanding how both are shaped, this raises the need to promote relevant abilities such as media and health literacy. Furthermore, specific communication strategies need to be implemented to address groups of people with higher avoidance tendencies (e.g., using relevant others as support givers).

6.4. *Limitations and Resulting Tasks for Future Research*

This study involves several limitations and provides starting points for further research. First, accurately measuring avoidance can be problematic as individuals may be unable to report their avoidance behavior with the required accuracy and precision. Besides self-reported measurement, in situ sampling and measurement can bring gain to observe information avoidance and provide more details on which specific offerings or information is avoided. Second, our study is based on cross-sectional data, and the causality statements underlining structural equation modeling are solely based on theoretical assumptions. Longitudinal designs are required in future research to analyze causal relationships and parse the dynamics of information avoidance and its predictors during a health crisis. Considering dynamics over time seems to be very valuable as it is possible that the timing of the survey conducted in the early phase of the COVID-19 pandemic may have impacted the findings. Third, we used a relatively large sample but considered only one federal German state. This region is not assumed to differ from other federal German states. However, the transferability of our results to the

whole German population or even to other countries must be critically examined. Cross-cultural studies are needed as it can be assumed that, for example, perceived social norms are culturally determined. Fourth, according to the TPB (Ajzen, 1991), future studies should consider attitudes towards information avoidance instead of information seeking as the relevant reference for the behavior under investigation.

Furthermore, future research should examine different influencing patterns of susceptibility and severity (El-Toukhy 2015), distinguish different social norms, and consider emotions more comprehensively. Concerning social norms, the current study focuses on injunctive and descriptive avoidance norms but does not include subjective norms, which are also perceived as predictors of information avoidance behaviors (Deline & Kahlor, 2019). Besides, the existing theoretical postulates can be extended concerning norms referring to different reference groups, distinguishing perceived and collective norms (Rimal & Lapinski, 2015). While the present study includes only negative affective responses, future research should consider different discrete emotions in addition to positive valence affective responses (see also Deline & Kahlor, 2019; Lazarus, 2001).

7. Conclusion

The purpose of this study was to understand information avoidance during the COVID-19 pandemic in Germany. The study empirically validated the core constructs of the RISP model by confirming that news consumers' information avoidance is enhanced by more negative attitudes towards information seeking, perceived information overload, more pronounced injunctive and descriptive avoidance norms, and more negative affective risk responses.

CRediT authorship contribution statement

Elena Link: Conceptualization, Methodology, Formal analysis, Investigation, Writing – original draft, Writing – review & editing.

Appendix

Table. A1
Overview of the measures.

Construct	Item wording	Source	*M* (*SD*)
Information Avoidance [1]	IA1 - I avoided television reports, features, and talk shows about COVID-19. IA2 - I avoided reading newspaper or magazine articles about COVID-19. IA3 - I avoided listening to radio shows or podcasts about COVID-19. IA4 - I intentionally avoided looking at websites or blogs about COVID-19. IA5 - I avoided talking with family and friends about COVID-19. IA6 - I have tried to pay as little attention as possible to private messages (e.g., via WhatsApp) from family and friends about COVID-19. IA7 - I deliberately ignored posts about COVID-19 in my newsfeed on social media.	McQueen et al. (2013) & Chae et al. (2020)	2.60 (1.08)
Injunctive Avoidance Norms[1]	Most people in my personal environment think that it is okay to avoid information about COVID-19.	Geber et al. (2019)	2.33 (1.12)
Descriptive Avoidance Norms[1]	Most people in my personal environment avoid information about COVID-19.	Geber et al. (2019)	2.20 (1.08)
Information Insufficiency	Current state of information: Please rate your current knowledge about the COVID-19 pandemic on a scale of 0 to 100. Zero means knowing nothing. 100 means knowing everything you could know about the COVID-19 pandemic.	Kahlor (2010)	65.16 (19.90)
	Sufficiency threshold: Think of that same 0 to 100 scale again. This time, estimate how much information you need to deal adequately with the COVID-19 pandemic. How much information would be sufficient for you, that is, good enough for your purposes?	Kahlor (2010)	72.42 (19.35)
Risk Perception	Perceived likelihood: In your estimations, how likely is it that you will be infected with COVID-19? [2] Perceived severity: If you would be infected with COVID-19, how serious do you think this would be? [3]	Griffin et al. (2008)	8.28 (4.90)
Negative Affective Risk Response[4]	When you think about how you feel about COVID-19: How … AFF1 - … worried do you feel? AFF2 - … scared do you feel? AFF3 - … uncertain do you feel?	Kahlor (2010)	2.92 (1.05)
Attitudes towards information seeking	How do you feel about obtaining information about COVID-19? Dealing with information about COVID-19 is AT1 - … bad or good. AT2 - … harmful or beneficial. AT3 - … unhelpful or helpful. AT4 - … unproductive or productive. AT5 - … wise or foolish. AT6 - … useful or not useful.	Kahlor (2010)	4.00 (0.89)
Information Overload[1]	IO1 – I regularly feel overwhelmed by too much information about COVID-19 these days. IO2 – I am stressed out by the sheer volume of information about COVID-19 I have to manage on a daily basis. IO3 – There is so much information available to me on the subject of COVID-19 that I have trouble choosing what is important and what's not.	Williamson et al. (2012)	2.80 (1.12)

[1]measured on five-point Likert-type scales ranging from 1 (does not apply at all) to 5 (does apply at all)
[2]measured on a five-point Likert-type scale ranging from 1 (extremely unlikely) to 5 (extremely likely)
[3]measured on a five-point Likert-type scale ranging 1 (completely harmless) to 5 (extremely dangerous)
[4]measured on a five-point Likert-type scale ranging from 1 (not at all) to 5 (extremely)

Table. A2
Overview of the fit measures for the single measurement models.

Measurement Models	Fit to the Data						
	α	χ^2	Df	*p*	CFI	RMSEA	SRMR
Information avoidance	.87	63.07	12	.000	.972	.065	.030
Negative affective risk response	.90	12.292	2	.002	.995	.071	.050
Attitudes towards seeking	.95	36.403	14	.001	.992	.040	.015
Information overload	.83	8.964	2	.011	.993	.061	.038

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