

The Influence of Uncertainty Avoidance on Health Risk-Information Seeking

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In order to test the effect of Ease of Retrieval manipulation on Information Seeking and Perceived Knowledge mediated by Uncertainty Avoidance, an online experiment was conducted. Perceived Knowledge is a major predictor of information seeking according to RISP. There has been only limited research about the direct effect of manipulating Perceived Knowledge in the model. Additionally, it was hypothesized that Uncertainty Avoidance of Hofstede`s Cultural dimensions has a mediating effect on the effect of Perceived Knowledge on Information Seeking. The 138 participants were randomized into one of the two Ease-of-Retrieval conditions. A moderated mediation analysis was used, which showed no significant results. The non-significant results might be explained by the fact that the health risk was for most participants not self-relevant. Missing self-relevance can be one of the main factors for the EoR manipulation to not work as planned.

1. Introduction

More and more people travel nowadays, in fact, the number of travel arrivals has increased since the recording started in 1950 (Statista, 2022). It is likely that in the post-Covid-19 times this trend of more and more travelling will be continued. According to the CDC (2022), it is hard to determine how many travellers are ill and infectious and where these infections come from because of the mobility of the travellers. This makes research about protecting the health of travellers harder, as the cause of infection can be unclear. Furthermore, if travellers have a mild illness, they may not search for health care and would not be able to get recognized in a statistic. Still, it can be said that travellers are an important factor in epidemiology (*UNWTO*, 2019; Walker, 2019). As most have seen during the early outbreaks of Covid-19 in Europe, travellers can greatly impact infection in different countries. Furthermore, it is not researched how many people that infect themselves while travelling are practising protective measures while and before their travel. Looking at this statistic and the effect that Covid-19 had, it might be interesting to look into how people protect their health when they travel.

One of the main reasons for illness while travelling is the lack of preventive measures before and while travelling. Many travellers underestimate the importance of those preventive measures and are overly confident about their knowledge of preventive measures (Zimmermann et al., 2013). This confidence often leads to less motivation for seeking new information about precautions. The Risk Information Seeking and Processing (RISP) model by Griffin et al. (1999) defines the extent to which someone seeks out risk information. Information sufficiency was determined as one of the most direct factors in RISP to influence information seeking (Zimmermann et al., 2013). When the perceived

knowledge that is needed is more than the knowledge available, one will feel the motivation to seek new information. Furthermore, this motivation can lead to behavioural changes according to Li and Zheng (2020). According to them, if one has high motivation to search for more information one is more likely to execute the researched behaviour than people that have rather low motivation. In addition, Li and Zheng (2020) describe that this behaviour change is very strong for people that intentionally informed themselves of preventive measures for Covid-19.

Previous studies have mostly influenced actual level of information, but Perceived Knowledge has rarely been influenced. In order to do this the ease of recalling information will be investigated. Fortunately, there is a connection between Ease of Retrieval (the ease of recalling information) and Perceived Knowledge (Schwarz et al., 1991), which means that knowledge can be influenced by the ease with which risk-related information is accessible from memory. Ease of Retrieval (EoR) can be understood as an individual's relative difficulty in recalling an item. This is influenced by how prominent certain items are for an individual Schwarz et al. (1991). For example, how often one takes precautions before travelling. Furthermore, Perceived Knowledge can be defined as the amount of knowledge an individual believes they have. This concept is linked to Information sufficiency as one has sufficient information if there is no gap between the knowledge one thinks is needed and the perceived knowledge (Kahlor et al., 2019).

RISP focuses on the individual factors that influence perceived knowledge; however, the differences in treatment of the spread of Covid internationally suggest cultural influences to be important as well. Specifically, in the pandemic situation of Covid-19, it was interesting to see how different countries have reacted very differently to the spread of Covid-19. According to Research of Voegel and Wachsmann (2021) Uncertainty Avoidance (UA), from Hofstede`s Cultural Dimensions (2011), impacted the covid cases in a country significantly. It was especially interesting how countries like New Zealand and Australia were handling the Covid-19 Outbreak compared to countries in southern America or Europe, therefore one might be curious to see how Uncertainty Avoidance has an effect on protecting one's own health. A way to assess this could be the influence of Uncertainty Avoidance on someone`s confidence to research information-seeking behaviour. Uncertainty avoidance is of special interest in this study as it suggests that different cultures avoid unknown and uncertain situations to a different degree. For example, people from the USA have a relatively lower score than people from Germany which can be seen in many forms of culture such as being spontaneous or being relied on rules and laws. Interestingly there is no research on how Hofstede`s Cultural dimensions have an influence on information seeking.

Consequently, one research question will be “Is the effect of Ease of Retrieval on perceived knowledge stronger when people score low on Hofstede`s Cultural dimensions` Uncertainty avoidance?”

1.1 Theoretical Framework

1.1.1 Risk-Information-seeking and Processing (RISP)

The Risk Information Seeking and Processing (RISP) Model (Griffin, Dunwoody, & Neuwirth, 1999) includes two routes of information processing, the first one is systematic and the second is heuristic. According to Griffin et al. (1999), this is based on The Heuristic Systematic Model (HSM) by Chaiken (1987). The heuristic way of information seeking is the usage of heuristic and routes that the person is used to, for example always seeking information about news at a specific paper instead of going to a different one all the time. The systematic way of information seeking is the opposite of heuristic information seeking as here one looks especially at channels they are not very used to. Lastly, one can also decide to purposely not look at any risk-related information. This was labelled by Dunwoody and Griffin (2015) as information avoidance.

1.1.2 Information Seeking

Information sufficiency is one of the most direct factors in RISP to influence information seeking. When Perceived Knowledge of a specific topic is higher than the actual knowledge, one will feel motivated to seek enough new motivation to close the gap between actual knowledge and perceived needed knowledge. Furthermore, the RISP incorporates the view, that Information seeking can be different in depth depending on the Gap between perceived knowledge and information sufficiency. This means that, if someone is far under the level of information, they are more likely to do deep research than someone who is just slightly under their information sufficiency threshold (Griffin et al. 1991).

It is very important here that this motivation can lead to behavioural change (Li & Zheng 2020). Basically, if one has a high motivation to search for more information one is more likely to execute the researched behaviour than people that have rather low motivation (Griffin et al. 1991).

1.1.3 Ease-of-retrieval effect.

Formerly, psychology used to focus models and theories for decision making on content information and seeing human beings as rational (Greifeneder et al., 2011). Nevertheless, these beliefs are challenged as participants often base their judgements rather on the Ease-of-Retrieval than being fully rational (Schwarz et al., 1991). In the experiment of Schwarz et al. (1991) participants evaluated their assertiveness based on the feeling of ease when recalling examples of their assertive behaviours. The main finding from this experiment was that participants which had to answer fewer questions about their assertiveness rated themselves higher in assertiveness than people which had to answer more questions about assertiveness (Schwarz et al., 1991; Weingarten & Hutchinson, 2018). At first, this result seems unexpected but can be explained by Tversky and Kahneman (1973), as they described such a phenomenon as availability heuristics. Furthermore, they describe availability heuristics as the ease with which relevant

items come to mind. Not surprisingly the findings about ease-of-retrieval are well known and have influenced many studies, especially in psychology (Winkielman & Schwarz, 2001)

The Ease-of-Retrieval manipulation in this experiment will be used to influence the overconfidence of travellers about their knowledge of Precautions of travelling. Furthermore, Ease-of-Retrieval has an effect on perceived knowledge. Research by Kelley and Lindsay (1993) has shown that manipulating the ease of answering a question contributed positively to the perceived knowledge of that individual. This concludes that the ease of retrieval influences perceived knowledge (Tybout et al., 2005).

1.1.4 Hofstede`s Cultural dimensions

Hofstede`s cultural dimensions are especially interesting because it has been tested in a lot of different fields already. Foremost in international business as Soares et al. (2007) confirmed the relevance of this model until today. Furthermore, there is a significant relationship between national culture and political indicators of a society (Kale & Barnes, 1992).

Hofstede`s cultural dimensions (2011) encompass five factors, which are: Power Distance, Uncertainty Avoidance, Individualism, Masculinity-Femininity, and Long-Term vs. Short-Term Orientation. The most important one for this study is the Uncertainty Avoidance scale which is defined as “the extent to which the members of a culture feel threatened by uncertain or unknown situations.” as Aliperti and Cruz (2019) found that especially for tourism uncertainty avoidance plays an important role in one`s health protection.

Furthermore, Seo et al (2018) made a connection between perceived knowledge and Uncertainty avoidance, the link is described as that those with low scores in UA have a higher perceived knowledge than those with a high score in UA. Additionally, Voegel and Wachsman (2021) found a link between Uncertainty Avoidance and health precautions. They concluded that people and cultures with a higher score in Uncertainty Avoidance would take more precautions to protect their health.

Likewise, Uncertainty avoidance will be used in this study to investigate the above-mentioned effect.

1.1.5 The Current Study

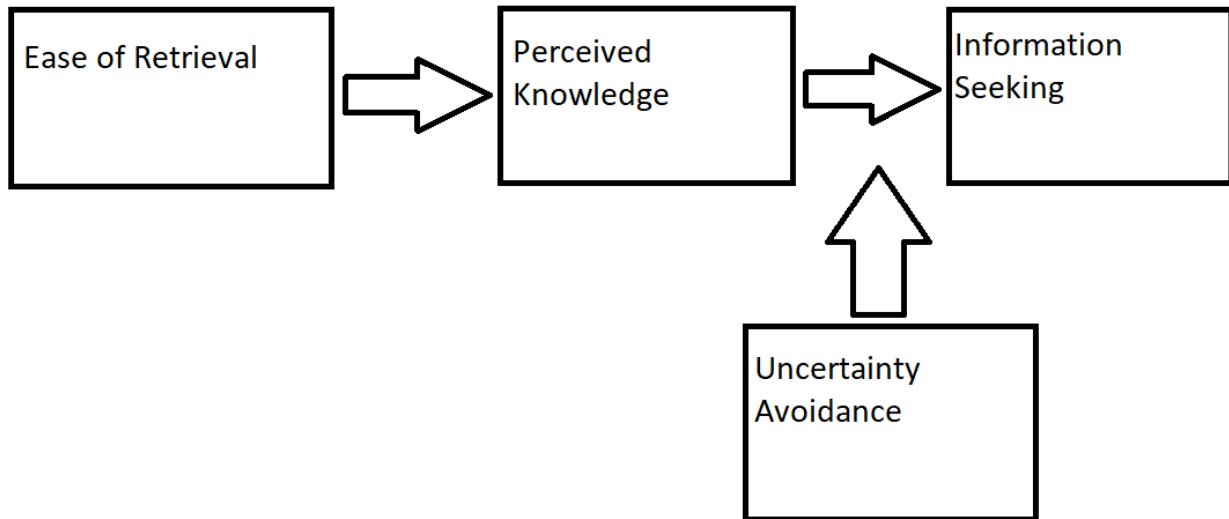
The aim of this study is to influence the perceived knowledge by manipulating the ease of retrieval and connect this to Uncertainty avoidance from Hofstede`s cultural dimensions. The different conditions in the experiment are randomly assigned and are there to minimize or maximize the perceived knowledge of the participants. This manipulation is thought to affect their information seeking and processing.

H1: The effect of Ease of Retrieval influences the Perceived Knowledge of an individual. The reliance on Perceived Knowledge is stronger among individuals characterized by a low score in Uncertainty avoidance than for those with a high score in Uncertainty Avoidance. This is reflected in more information

seeking for Participants with a high score in Uncertainty Avoidance than for participants with a low score in Uncertainty Avoidance.

Figure 1

Proposed Model for Hypothesis 1



2. Methods

2.1 Participants and Design

A one-factor experimental design was used to test the direct effect of the dichotomous independent variable Ease-of-Retrieval on the dependent variable Information Seeking through the mediator Perceived Knowledge. Also, the association between Ease-of-Retrieval Perceived Knowledge and Information Seeking mediated by Uncertainty avoidance was examined. All participants were selected with a non-probability convenience sampling technique. 30 subjects were recruited through the test subject pool system SONA of the University of Twente and were rewarded with SONA credits. 144 subjects were collected from the social environment of the researchers who were recruited by sending the survey link via WhatsApp and Instagram. 36 out of 174 people were excluded from analyses because they did not finish the survey, left out important items or did not give informed consent. Inclusion criteria for the survey were a minimum age of 18 years and sufficient English skills to understand the survey. The study was approved by the BMS ethical committee of the University of Twente on the 14th of April 2022, the Approval number is 220412

The age of the 138 included respondents ranged from 18 to 70 years with a mean age of 27.38 ($SD = 11.44$). 70 participants were in the "many" Ease-of-Retrieval condition and 68 respondents were in the

"few" ease-of-retrieval condition. The sample included 83 women (60%) and 55 men (40%). A very high proportion of the sample was German (78%). Moreover, 13 participants were Dutch (9%) and 17 participants indicated their nationality as 'Other' (12%). The 17 respondents who indicated their nationality as 'Other' were, i.e., American, Colombian, French, Greek, Italian Turkish, Mexican, and Polish. A high proportion of the sample were students (69%) or employees (24%). Moreover, it was a highly educated sample with 67 participants possessing as highest education a high school degree (49%), 40 participants a bachelor's degree (29%), 18 participants a master's degree (13%) and one participant a PhD degree (1%).

2.2 Procedure

The experiment was an online survey; therefore, the link was distributed online by the researchers via the SONA system. The survey was created with Qualtrics, the program assigned the participants randomly to the easy retrieval or the difficult retrieval. Before the start of the survey, informed consent was presented to all participants. Then one could continue with the real survey which started by asking the participants for their gender, age, nationality, education, current occupation, and several questions about their travel experiences

Subsequently, the participants filled out questionnaires with items about health education, promotion/prevention and Uncertainty Avoidance of Hofstede's cultural dimensions (2011).

After this, the participants were divided into "few" and "many" retrieval conditions. The "few"-condition participants were asked to name two precautions that can protect their health while travelling, and the "many"-condition participants must name six precautions: "Please name two (or six) precautions to protect your health against tropical diseases before travelling".

Afterwards, a manipulation check was done on the participants: "How easy or difficult would it have been for you to list even more behaviours?" As suggested in Greifeneder and Keller (2011).

On the next page, participants needed to indicate if they would like to seek more information about possible precautions by answering the question: "Would you like to receive more information about tropical disease prevention?". Participants could either select topics and websites related to tropical disease prevention, e.g., travel vaccinations, food and water safety, travel pharmacy or World Health Organization (WHO), and enter their e-mail address to receive a one-time e-mail about tropical disease prevention. This indicated information-seeking behaviour. Or they could choose "I am not interested" which indicated no information-seeking behaviour. If a participant selected "I am not interested", the reason was assessed (i.e., no time, enough knowledge, no travel plans). Lastly, participants were debriefed about the aim of the study and the reason why they got incomplete information at the beginning of the study. They were also informed about the fact that they would not receive an e-mail with information

about tropical disease prevention, as this was only used by the researchers as an indicator for information-seeking behaviour. An overview of the online experiment setup can be found in the Appendix.

2.3 Measures

2.3.1 Uncertainty Avoidance

For Uncertainty Avoidance, the participants were examined in the Uncertainty Avoidance (UA) scale of Hofstede (2011). The measure was designed to assess people`s orientation toward new situations and how much they avoid those. It has 5 items using a 5-point scale (1 = *not at all true for me* to 5 = *very true for me*), including the items " It is important to closely follow instructions and procedures." and " Rules and regulations are important because they inform me of what is expected of me". All the items can be found in Appendix B. Higher scores indicated higher avoidance of Uncertain situations. The Cronbach's alpha and lambda-2 was acceptable at $\alpha = .63$ and $\lambda = .63$.

2.3.2 Subjective ease

For Subjective ease three items by Greifeneder and Keller (2012) were used to assess the subjective ease experienced during the ease-of-retrieval manipulation. The three items were "How easy or difficult was it to list precautions against tropical diseases?", "How easy would it have been for you to list even more precautions?" and "How easy was it to list the last precaution?". Answers were given on 7-point scale (1 = *extremely difficult* to 7 = *extremely easy*). Higher scores on this measure indicate higher experienced ease. The Cronbach's alpha and lambda-2 was high at $\alpha = .84$ and $\lambda = .84$.

2.3.3 Perceived knowledge

Perceived Knowledge was tested using one item created by the researchers of this study and three items by Radecki and Jaccard (1995). Three items were assessed on a 5-point scale (1 = *not at all true for me* to 5 = *very true for me*), including the items "I don't know much about precautions against tropical diseases" which were reverse coded in order to fit in with the other items, and "In general, I am quite knowledgeable about possible precautions against tropical diseases". The three items were scaled from 1 = *strongly disagree* to 5 = *strongly agree*. For the item "How much do you think you know about the topic of precautions against tropical diseases?" a 7-point scale was used with answers from 1, *not at all knowledgeable*, to 7, *extremely knowledgeable*. The item using the 7-point scale was later recoded into a 5-point scale to ensure a stabilized weighing of the items of Perceived Knowledge. Higher scores indicated higher perceived knowledge. The Cronbach's alpha and lambda-2 was high at $\alpha = .87$ and $\lambda = .87$.

2.3.4 Travel experience

Five Items were assessed including two of the items which read, "If you have travelled internationally before, how many times have you travelled to tropical destinations?" and "If you have travelled internationally before, how many times have you travelled outside of Europe?" with four answer options rated by frequency (Never, 1-2 times, 3-5 times, more than 5 times). The five items were summed and averaged to get the variable Travel Experience which had a good internal consistency with a Cronbach`s alpha of $\alpha = .79$, and a lambda-2 of $\lambda = .83$.

3. Results

Table 1

Descriptives of and Pearson Correlations between main variables and demographic variables

	Mean	SD	1	2	3	4	5	6	7	8
1. Subjective Ease	3.98	0.88	-	.48*	-.31*	.00	.27	.00	.14	.33
2. Perceived Knowledge	2.56			-	.01*	.00	.29	-.13*	.19	.23
3. EoR		0.88			-	-.10*	.07		-.02*	.19
4. Information Seeking	2.17	0.91				-	.01*	-.16*	-.01*	.43
5. Age	xx	1.49					-	.00	.38	.34
6. Gender								-	-.26*	.12
7. Highest Education		0.96							-	.19
8. Uncertainty Avoidance										-

Descriptives of and Pearson Correlations between main variables and demographical variables

Note * $p < .05$

3.1 Moderated mediation analysis.

In order to test the hypothesis, “The effect of Ease of Retrieval influences the Perceived Knowledge of an individual. The reliance on Perceived Knowledge is stronger among individuals characterized by a low score in Uncertainty avoidance than for those with a high score in Uncertainty Avoidance. This is reflected in more information seeking for Participants with a high score in Uncertainty Avoidance than for participants with a low score in Uncertainty Avoidance.” A moderated mediation model was conducted using the PROCESS macro in SPSS to estimate the direct and indirect effects of the Perceived Knowledge on Information Seeking moderated by Uncertainty Avoidance (Hayes, 2017; Model 14). The index of moderated mediation (IMM) was used to test if the indirect effects differ depending on different levels of Uncertainty avoidance (-1SD, Mean, +1SD). The significance of the direct and indirect effects was tested using 5000 bootstrap samples to create bias-corrected 95% confidence intervals. A significant direct effect between Perceived Knowledge and Information Seeking could not be detected ($b = 0.29$, $SE = 0.15$, $p = .06$). The effect of Uncertainty Avoidance on Perceived knowledge could also not be detected ($b = -0.27$, $SE = 0.19$, $p = .023$). This shows that participants with a high score on Uncertainty avoidance did not have higher Perceived Knowledge. Overall, the predictors accounted for a significant variation in Perceived Knowledge ($R^2 = 0.30$; $F(4, 133) = 13.97$, $p < .001$). Moreover, the Index of Moderated Mediation (IMM) was .03; the bootstrap 95% CI = [-.06, .16]. Since zero fell between the lower and upper bound of the confidence interval, which indicates a non-significant moderation effect, the overall moderated mediation model was not supported with the IMM. Subsequently, the Hypothesis had to be rejected.

4. Discussion

The aim of this study was to investigate the influence of ease-of-retrieval on perceived knowledge and information-seeking behaviour. It was further explored if uncertainty avoidance affects the link between perceived knowledge and information seeking. The results indicated that uncertainty avoidance did not influence the connection between perceived knowledge and information seeking. Furthermore, it was also investigated whether Perceived knowledge had a mediating effect on the influence of Ease-of-retrieval and Information Sufficiency. The results pointed out, that there was no effect between Ease-of-Retrieval on information sufficiency and that there was no mediation of Perceived knowledge.

The finding of no significant effect of ease-of-retrieval on perceived knowledge and information-seeking behaviour is contrary to the study of Li and Zheng (2020) where a significant effect of EoR on perceived knowledge and Information Seeking behaviour was found. This could be explained by the fact that the health risk that participants in this study were presented with could be seen as not very relevant to most participants. The health risk of tropical diseases is for most European travellers an uncommon health

risk, which makes it less self-relevant for the participants. Furthermore, research has shown, that a less self-relevant health risk makes the participants rely more on heuristics rather than a systematic approach (Rotliman and Schwarz 1998). This might have happened here as well which could explain no significant effect of the ease-of-retrieval manipulation.

Moreover, there was also no significant effect of UA on the connection between perceived knowledge and information seeking. These findings contradict the study of Voegel and Wachsmann (2021) as they found UA moderating the effect of perceived Knowledge on information seeking. In the current study, the ease of retrieval effect was found but the uncertainty avoidance score did not influence this effect. This study investigated whether UA moderated the effect of perceived knowledge on information seeking. To test this, the moderating role of uncertainty avoidance between perceived knowledge and information seeking was examined in a moderated mediation model. The moderated-mediation model has the advantage that the total EoR effect is split into a direct and indirect effect. This method can ensure a more precise association between multiple variables (Miles, 2015).

In their own study, they focus mainly on Covid-19 and as their study was in 2021 this was also a health risk that was very relevant for all the participants. As mentioned above, when health risks are non-self-relevant for the participants they rely more on heuristics and therefore the manipulation almost never works as intended. This can lead to the assumption that a more self-relevant health risk might have resulted in significant results.

The RISP model assumes that perceived knowledge is one of the key predictors of information seeking, which could not be confirmed in the study. This could be explained by a floor effect of information seeking. This means that many participants did not seek further information in the study which indicates a low motivation. Interestingly, perceived knowledge did not show any effect on information seeking. As mentioned above the most common reason for the lack of motivation can be traced to the absence of self-relevance of the presented health risk.

4.1 Strengths and Limitations

Firstly, perceived knowledge has been tested with several items. In previous studies, perceived knowledge was commonly tested with a single item (Kahlor et al., 2019). In most cases multi-item measures show a higher validity compared to single-item measures (Diamantopoulos et al., 2012; Jacoby, 1978). Furthermore, Sarstedt and Wilczynski (2009) compared multi-item scales with single-item scales and found that multi-item scales show higher reliability and validity. Moreover, they advise researchers

A limitation of this study is that a convenience sample was used. In the sample, there are mostly students because of the social environment of the research and the availability of the study on the

Universities SONA system which is exclusively used by the students at the University of Twente. A convenience sample which mostly consists of students can be mostly criticized because of a lack of generalizability. Another sample technique like a simple random sample might have given this research other insights. This is because from a simple random sample people from all backgrounds might have taken part which could result in, for example, a more diverse sample of educational backgrounds or a lot more different nationalities and therefore other travelling experiences. Especially the different travelling experiences might have been interesting as many students often did some travelling either in Europe or might have already done a time abroad in Australia for example. Nevertheless, there has been research that suggests that students still provide comparable results to a corresponding more diverse/heterogeneous sample. (Kardes 1996). Furthermore, Kardes (1996) explained that basic research focuses more on relative effects rather than absolute effects and that these relative effects can still be seen in samples with mostly students or even only students. This means that the convenience sample is still a limitation, but research, in general, is not hindered or less informative because a convenience sample was used.

4.2 Future directions

The findings of this study suggest that uncertainty avoidance does not influence the perceived knowledge of an individual. However, the findings of further research imply that there might be a link between Uncertainty avoidance and perceived knowledge. As it is outlined in those reports, the link is still very unclear and a significant influence has only been found very recently and still needs to be replicated to signify a valid influence (Moser & Deichmann, 2020; Shi et al., 2009). Thus, the influence of uncertainty avoidance on perceived knowledge should be researched more. A way to investigate further in this topic is the inspecting the influence of uncertainty avoidance on individual motivation which then could be connected to perceived knowledge (Moser & Deichmann 2020).

4.3 Conclusion

The current study aimed at answering the two research questions, "Is the effect on Ease of Retrieval on Information Seeking mediated by Perceived Knowledge?" and "Is the effect of Perceived Knowledge on Information Seeking stronger for those low in UA than those high in UA?". The ease-of-retrieval manipulation did not lead to different levels of Information Seeking via the mediator perceived knowledge. Future research could focus on the influences of Uncertainty Avoidance on individual motivation or moderators of the ease-of-retrieval effect to understand when individuals form judgements based on their feelings. Furthermore, Tropical diseases turned out to be of less relevance for a lot of participants, therefore a health risk with higher personal relevance could be chosen for

Concluding, no effect of uncertainty avoidance on perceived knowledge or perceived knowledge on information seeking could be found.

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Appendix

1. Informed Consent

Dear participant!

Thank you for taking part in this experiment! In this study, we investigate individuals' information-seeking behavior concerning tropical diseases. The term '**tropical disease**' refers to any disease that is indigenous to tropical or subtropical areas of the world, such as geographical areas near the equator and parts of North and South America, Africa, Asia, and Australia. Common tropical diseases include malaria, yellow fever, and dengue.

Due to the nature of the experiment, we are not able to fully disclose the purpose of our research at this point. However, we will debrief you at the end of this experiment and be available via email to answer any questions that you might have.

Furthermore, your participation is completely voluntary and if you decide to withdraw your response during the study or after being informed about its full purpose, you can withdraw your consent without the need to provide an explanation. Your response will then be deleted. Your participation in this experiment is anonymous and your data will be handled with confidentiality, meaning that the information you provide cannot be used to reveal your identity. No risks are known to possibly affect you by participating in this experiment. With your participation, you can contribute to the understanding and improvement of tropical disease prevention.

This experiment is part of our bachelor theses in the department of psychology at the University of Twente and its results might be published on the University of Twente's website. The research team is supervised by Dr. Ir. Peter de Vries (1st supervisor) and Karla Duarte (2nd supervisor). The study was reviewed and approved by the BMS ethics committee of the University of Twente in April 2022. If you have any concerns or questions about this experiment, feel free to contact one of the research team members via one of the following e-mail addresses:

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By selecting '**I agree**', I confirm that I have read and understood the information above and agree to participate in this experiment. I understand that my participation is voluntary and that I am allowed to

withdraw from the study at any time. I understand that I will be informed about the full purpose of this research at the end of the experiment. Furthermore, I was provided with contact details in case I have any questions or concerns about the experiment.

- I agree
- I disagree

2. Demographics

3. Study-specific questionnaires

3.1 General Regulatory Focus Measure (GRFM)

For each statement, please select the answer that most closely represents what you believe to be true for yourself.

1= very untrue, 2 = untrue, 3 = somewhat untrue, 4 = neutral, 5 = somewhat true, 6 = true, 7 = very true

1. In general, I am focused on preventing negative events in my life.
2. I am anxious that I will fall short of my responsibilities and obligations.
3. I frequently imagine how I will achieve my hopes and aspirations.
4. I often think about the person I am afraid I might become in the future.
5. I often think about the person I would ideally like to be in the future.
6. I typically focus on the success I hope to achieve in the future.
7. I often worry that I will fail to accomplish my academic goals.
8. I often think about how I will achieve academic success.
9. I often imagine myself experiencing bad things that I fear might happen to me.
10. I frequently think about how I can prevent failures in my life.
11. I am more oriented toward preventing losses than I am toward achieving gains.
12. My major goal in school right now is to achieve my academic ambitions.
13. My major goal in school right now is to avoid becoming an academic failure.
14. I see myself as someone who is primarily striving to reach my “ideal self”—to fulfill my hopes, wishes, and aspirations.
15. I see myself as someone who is primarily striving to become the self I “ought” to be—to fulfill my duties, responsibilities, and obligations.
16. In general, I am focused on achieving positive outcomes in my life.
17. I often imagine myself experiencing good things that I hope will happen to me.
18. Overall, I am more oriented toward achieving success than preventing failure.

3.2 HLS-Q12 short version

3.3 Uncertainty Avoidance Index

For each statement, please select the answer that most closely represents what you believe to be true for yourself.

1 = *not at all true for me* to 5 = *very true for me*

1. It is important to have instructions spelled out in detail so that I always know what I'm expected to do.
2. It is important to closely follow instructions and procedures.
3. Rules and regulations are important because they inform me of what is expected of me.
4. Standardized work procedures are helpful.
5. Instructions for operations are important.

4. Ease-of-Retrieval manipulation

In the following, we ask you to name 2 (6) precautions that people can take to protect their health against tropical diseases before traveling abroad.

Note: Please take your time and try to name as many precautions as you can come up with (max. 6). However, if you cannot come up with 6 precautions, that is fine as well. Name as many as you can and proceed to the next section.

- 'Few' condition: Name 2 precautions
- 'Many' condition: Name 6 precautions

5. Subjective Ease

Please answer the following questions based on how easy or difficult you perceived the previous task to be.

On a scale from 1= extremely difficult to 7= extremely easy.

- How easy was it to list precautions against tropical diseases?
- How easy would it have been for you to list even more precautions?
- How easy was it to list the last precaution?

6. Perceived Knowledge

We ask you to rate your knowledge on tropical disease prevention. On a scale from 1= not knowledgeable at all to 7= extremely knowledgeable.

- How much do you think you know about the topic of precautions against tropical diseases?

On a scale from 1= strongly disagree to 5= strongly agree, how much do you agree with the following statements?

- I don't know much about precautions against tropical diseases.
- In general, I am quite knowledgeable about possible precautions against tropical diseases.

- I'm confident in my own knowledge about precautions against tropical diseases.

7. Information-seeking behaviour

Would you like to receive more information about tropical disease prevention?

If yes, you would receive a one-time email (no spam) with information from websites and about topics of your choice. Your email address will not be used for other purposes.

If you would like to receive further information, please select the topic(s) and/or website you would like to receive information from (multiple answers possible) and enter your email address below.

If you do not wish to receive further information, please select "I am not interested".

8. Reasons for 'No' information-seeking behaviour

What reason describes best why you do not want to receive information about tropical disease prevention?

9. Debriefing