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Abstract

The present study aims to explore the relationship between perceived message source (spokesperson) credibility and message compliance in response to a health risk message. Based on an experiment in Ireland (n = 406) and Belgium (n = 410), we test how the relationship between source credibility and message compliance is mediated by perceived threat and efficacy of the message, and moderated by power distance and uncertainty avoidance. A source that is perceived as more credible is found to increase message compliance by increasing both the perceived message threat and efficacy. The indirect effect of source credibility on message compliance through perceived efficacy is stronger for individuals with lower power distance and higher uncertainty avoidance.

Keywords: Power distance, uncertainty avoidance, source credibility, threat, efficacy, message compliance

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Health campaigns often take the form of health risk messages or fear appeals to persuade people to take on a desired action. Fear appeals are "persuasive messages designed to scare people by describing the terrible things that will happen to them if they do not do what the message recommends" (Witte, 1992, p. 329). One of the ways to increase message compliance with a health risk message can be by depicting a credible source (Schouten, 2008; Umeh, 2012). Authors have encouraged research into the mediators and moderators of the effects of source credibility to unravel the mechanisms through which it can influence compliance, depending on situational or individual difference factors (Nan, 2013; Umeh, 2012).

The Protection Motivation Theory (Rogers, 1975) predicts that higher levels of perceived threat and perceived efficacy in a (health risk) fear appeal increase message compliance. The first contribution of this paper is the examination of source credibility as a potential antecedent to the main components of the Protection Motivation Theory, i.e. perceived threat and perceived efficacy. While it is well documented that these two components strongly influence message compliance (e.g., De Meulenaer, De Pelsmacker, & Dens, 2015),, the effect of source credibility on these variables has not been researched, to our knowledge.

Further, moderating variables may help to refine the understanding of the effects of source credibility, threat and efficacy on message compliance. There is a growing awareness in literature, that, in order to make health communication as effective as possible, researchers and practitioners should take the values of the audience into account (De Meulenaer et al., 2015; Hastall & Knobloch-Westerwick, 2013). Our second contribution is that we consider two cultural variables, power distance (the extent to which an individual accepts the unequal

distribution) and uncertainty avoidance (the degree to which individuals feel uncomfortable with uncertainty and ambiguity) (Hofstede, 2001).

Two studies (Pornpitakpan and Francis, 2000; Hornikx and Hoeken, 2007) have looked into the effects of power distance and uncertainty avoidance on credibility and expertise. However, it is unclear which cultural dimension is most important because these two previous studies are based on cross-country comparisons. Therefore, the question remains to what extent the influence of source credibility is culture-specific, and more research is needed to shed more light on why and when this might be the case (Schouten, 2008). The conceptual framework of this study is shown in Figure 1.

[Figure 1: *Conceptual Framework: Message Compliance in Response to a Health Risk Message*]

Theoretical Background and Hypotheses

Message source credibility refers to judgments made by a message receiver concerning the believability of a communicator (K.-H. Yoo & Gretzel, 2011). Source credibility consists of two dimensions: source expertise, the degree of knowledge or expertise a source has on the message topic, and source trustworthiness, the degree to which an audience perceives the assertions made by a source to be valid (Nan, 2013). Previous research has indicated that, overall, a higher source credibility leads to a greater message compliance - the intention to adopt the recommended behavior (e.g., Popova, 2012; Umeh, 2012). This effect has been ascribed to a persuasion heuristic —"experts' statements are valid"— that is available in most people's cognitive repertoire and may (automatically) guide their judgment whenever information about a communicator's credibility is salient (Bohner, Ruder, & Erb, 2002). People use mental shortcuts of assuming that people who display symbols of authority such as titles, tailors and tone should be listened to (K.-H. Yoo & Gretzel, 2011). Hence,

credible authorities can bring about compliance with their recommendations and directives (Cialdini & Rhoads, 2001). This leads to the first hypothesis:

H1: Perceived source credibility has a positive influence on message compliance.

Health risk messages are typically organized in such a way that, first, threat information is presented followed by information outlining the efficacy of a recommended action (Rogers, 1975). The Protection Motivation Theory (PMT) explains when and why health risk messages work (Rogers, 1975), and has received extensive empirical support (e.g., De Hoog, Stroebe, & de Wit, 2007). According to the PMT, threat and efficacy information in a message lead to two cognitive mediating processes: threat appraisal and efficacy appraisal which, in turn, affect message compliance positively (Rogers, 1975). Originally, the PMT (Rogers, 1975), and also the Extended Parallel Process Model (EPPM) (Witte, 1992), predict that there is an interaction between these two components, such that threat information has a positive impact on behavior only if efficacy beliefs are high. However, five meta-analyses did not find support for this interaction effect between threat and efficacy on a range of different outcomes (De Hoog et al., 2007; Earl & Albarracín, 2007; Floyd, Prentice-Dunn, & Rogers, 2000; Milne, Sheeran, & Orbell, 2000; Witte & Allen, 2000). Based on this evidence, we do not hypothesize an interaction between threat and efficacy, but consider both as independent mediators.

Note that the PMT focuses on the intention to adopt the recommend response (Rogers, 1975). Some other fear appeal frameworks (such as the EPPM) also focus on message reactance, meaning that recipients may tend to minimize the message and perceive its intent as manipulative (Witte, 1994). Because we explicitly test extensions of the PMT, in line with previous research (e.g., De Pelsmacker, Cauberghe, & Dens, 2011), we only measure message compliance,

The Mediating Effect of Perceived Threat

Threat appraisal involves an individual's assessment of the severity of the threat and his or her susceptibility to the threat (Rogers, 1975; Witte, 1992). We argue that a greater perceived source credibility leads to a higher perceived threat, which in turn leads to more message compliance. Koomen, Visser, and Stapel (2000) found that participants who read an article on street robberies in a credible newspaper reported a higher level of perceived threat of robbery than when they read the article in a less credible newspaper. In their study, source credibility derives from the medium, but we argue that the same will hold for a spokesperson. If individuals believe that a source has high levels of expertise and/or trustworthiness, this will lead them to take the source and, as a result, the advocated threat, more seriously. Subsequently, the PMT suggests that a higher perceived threat should increase message compliance (Rogers, 1975). While some research has documented the contrary (e.g., De Meulenaer et al., 2015; Earl & Albarracín, 2007), the meta-analyses of Witte and Allen (2000) and Floyd et al. (2000) indeed corroborate the positive relationship between perceived threat and message compliance. This leads to the following hypothesis:

H2: Perceived threat mediates the effect of perceived source credibility on message compliance, such that a higher perceived source credibility leads to a higher perceived threat and, in turn, a higher perceived threat leads to greater message compliance.

The Mediating Effect of Perceived Efficacy

The second process in the PMT is efficacy appraisal, which includes evaluating the effectiveness of a coping mechanism to alleviate the threat (response efficacy), and one's own ability to undertake the coping response (self-efficacy) (Rogers, 1975). We expect that a greater perceived source credibility leads to a higher perceived efficacy. If the source of a recommended solution to a threat is more credible, individuals will be more likely believe that this solution is effective and feasible. Subsequently, perceived efficacy increases message compliance, according to the PMT and several experimental studies (Cauberghe, De

Pelsmacker, Janssens, & Dens, 2009; De Meulenaer et al., 2015). Hence, we expect the following:

H3: Perceived efficacy mediates the effect of perceived source credibility on message compliance, such that a higher perceived source credibility leads to a higher perceived efficacy and in turn, a higher perceived efficacy leads to greater message compliance.

The Moderating Role of Power Distance

Power distance refers to the extent to which differences in power are expected and accepted (Hofstede, 2001). It reflects beliefs about the appropriate power relationship between authorities and their subordinates (Tyler, Lind, & Huo, 2000). High power distant individuals are reluctant to refuse a request from or disagree with authority figures and give priority to the opinions of people in authority (Jung & Kellaris, 2006). Pornpitakpan and Francis (2000) found that advertising source expertise had a greater impact on persuasion in the Thai culture (high power distance) than in the Canadian culture (low power distance), whereas argument strength in the ad has more influence in the Canadian than in the Thai culture. Hornikx and Hoeken (2007) found that the Dutch (low power distance) were more susceptible to statistical evidence than to expert evidence. While the French (high power distance), contrary to expectations, were not more susceptible to expert evidence than to statistical evidence in their first study, they did document in a second study that the French were as susceptible to strong as to weak expert evidence, whereas the Dutch did make the distinction.

These findings indicate that high power distance individuals are less likely to question the (relevance of the) expertise of a claimed expert, while low power distant individuals focus more on the evidence provided. Low power distance individuals are more likely to question the legitimacy of authority figures and will therefore be less influenced by them.

We expect that power distance will not only reinforce the effect of source credibility on message compliance, but also on perceived threat and perceived efficacy. As Rogers

(1975) argues, perceived threat and perceived efficacy are two antecedents of message compliance. High power distant individuals may take a threatening message of a highly credible source more seriously, and will feel more threatened by it than low power distant individuals. Similarly, compared to low power distant individuals, high power distant individuals may feel that a source with authority should be taken seriously with respect to the coping solution this source recommends. Thus:

H4: Power distance moderates the (indirect) effect of perceived source credibility on (a) message compliance (b) via perceived threat, (c) via perceived efficacy, such that increased power distance strengthens the positive relationship between perceived source credibility and message compliance.

The Moderating Role of Uncertainty Avoidance

Uncertainty avoidance is the degree to which individuals feel uncomfortable with uncertainty and ambiguity (Hofstede, 2001). High uncertainty avoidant individuals are concerned with security in life and search for ultimate, absolute truths and values (Hofstede, 2001). Strong uncertainty avoidance translates into the need for explanations, testing, and testimonials by experts (De Mooij, 2010). Hence, we expect that uncertainty avoidance will moderate the relationship between perceived source credibility and message compliance. There is preliminary evidence found that individuals from Thailand (high uncertainty avoidance) are more influenced by source expertise than individuals from Canada (low uncertainty avoidance) (Pornpitakpan & Francis, 2000).

Because perceived threat and perceived efficacy are antecedents of message compliance, the same moderating effect of uncertainty avoidance for the indirect as for the direct effect on message compliance is expected to hold. Highly uncertainty avoidant individuals will also take threats from a highly credible source more seriously. High

uncertainty avoidant individuals will attach more weight to the proposed solution of a high credible source, leading to a positive influence on perceived efficacy. Hence:

H5: Uncertainty avoidance moderates the (indirect) effect of perceived source credibility on (a) message compliance (b) via perceived threat, (c) via perceived efficacy, such that increased uncertainty avoidance strengthens the positive relationship between perceived source credibility and message compliance.

Method

Country Selection

To increase the variation in the individual levels of power distance and uncertainty avoidance, we collected data in Flanders (the Dutch-speaking part of Belgium) and in Ireland. According to Hofstede (2001), Flanders scores 97/100 on uncertainty avoidance and 61/100 on power distance, whereas Ireland scores 35/100 on uncertainty avoidance and 28/100 on power distance, indicating that they are substantially different.

Although the different EU countries have each developed their own funding mechanisms, similar objectives and common historical developments have resulted in systems which have much in common. Both Belgium and Ireland offer free public health coverage through centralized unitary state systems (WHO, 2016). .Both countries are marked as "green" in the Euro Health Consumer Index 2015, indicating that they have good health care (Björnberg, 2016). Health awareness campaigns are prevalent in both countries, with many of the issues being similar. For example, both countries run or ran campaigns on (childhood) obesity, heart disease, sexual health, anti-smoking, alcohol and drug misuse, cancer awareness and mental health.

The data were collected through an online survey. Both countries have similar online environments. The level of internet access in households in 2015 is 82% in Belgium and 85% in Ireland (Eurostat, 2016). The percentage of individuals using the internet for seeking

health-related information (injury, disease, nutrition, improving health etc.) is 47% in Belgium and 35% in Ireland (Eurostat, 2016).

Pre-test and Stimulus Development

We set up an experiment to test our hypotheses. In order to maximize the variance in the different indicators in our framework, we did not only explicitly manipulate the spokesperson (for source credibility), but also the actual levels of threat and efficacy. This approach is not uncommon in fear appeal research (Witte & Allen, 2000). The resulting design is a 2 (spokesperson: doctor, patient) x 2 (threat: low, high) x 2 (efficacy: low, high) full-factorial between-subjects experiment. Similar to Schouten (2008), we used a doctor versus patient source manipulation. Previous research indicates that people generally perceive physicians as a highly credible group (Schouten, 2008). By contrast, patients should be perceived as less credible, because they do not possess specific expertise through education or professional achievement.

As the topic of the health risk message, a non-existing health issue was chosen to avoid confounding effects due to respondents' prior knowledge of the health risk. Previous research has found that responses to health risk messages are stronger in case of unfamiliar issues (De Pelsmacker et al., 2011). We developed a health risk message warning against the threat of a fictitious PSZ-mosquito, which could hypothetically lead to infections.

In order to ensure adequate manipulations of threat and efficacy, we conducted a pre-test in Belgium (n = 30, 30% men, M_{age} = 30.00 years). The measures of perceived threat and perceived efficacy were the same as in the main study. We tested four informative messages and ten visuals on their level of perceived threat. The two messages (M_{Low} = 3.52, M_{High} = 4.67, $t(29) = 4.09$, $p < .001$) and visuals (M_{Low} = 3.58, M_{High} = 5.97, $t(29) = 6.76$, $p < .001$) that differed the most in perceived threat were selected for use in the final stimuli. We also tested five different recommendations, which represented different levels of efficacy. The two

recommendations differing the most in terms of perceived efficacy were selected (M_{Low} = 2.88, M_{High} = 4.39, $t(29) = 6.44$, $p < .001$). Both recommendations were found to be equally credible (M_{Low} = 3.07, M_{High} = 2.97, $t(29) = 0.04$, $p = .70$). This indicates that a possible confound of difference in credibility between the recommendations can be ruled out.

The stimuli (available from the corresponding author) were drafted in Dutch in Belgium and in English in Ireland. The advertising copy was translated from English to Dutch and back-translated by two native speakers to ensure meaning equivalence. All stimuli contained the logo of the World Health Organization.

Data Collection and Measures

A professional market research agency collected data in the Dutch-speaking part of Belgium (n = 410) and in Ireland (n = 406) through an online survey. The samples in the two countries are not significantly different in terms of gender (Belgium: 50% male, Ireland: 49% male, χ^2 (1, N = 816) = 0.08, p = .78), age ($M_{Belgium}$ = 43.73 years, $M_{Ireland}$ = 43.29 years, $t(814) = 0.50$, p = .62). On education level, they do differ significantly, with more lower educated people in the Belgian sample (Belgium: 5% primary school, 43% high school, 52% higher education; Ireland: 2% primary school, 46% high school, 52% higher education, chi-square (2) = 6.66, p = 0.04).

First, respondents were asked to report their age, gender and education. Next, they were randomly exposed to one of the eight health risk messages. Respondents could look at the stimulus for as long as they wanted. After that, they completed the measures that represent the different components of the conceptual model in Figure 1. Table 1 shows the used measures. All constructs are 7-point Likert or semantic differential scales. The Cronbach's alphas of all constructs exceed .70, indicating good internal consistency. Scores on the individual items are averaged to compute the construct scores.

Since we focus on the moderating effect of cultural values on individuals' responses to messages, we follow the suggestions of prior research and define and operationalize the cultural values at an individual level (B. Yoo, Donthu, & Lenartowicz, 2011). We used the actual perceptual states of perceived threat and efficacy, instead of the message manipulations because the PMT identifies a number of perceptual states (perceived threat and perceived efficacy) as influences of message compliance. O'Keefe (2003) and Popova (2012) recommend using the perceptual states because it allows for a more refined exploration of the causal pathway involved in PMT message effects.

[Table 1: *Measures*]

Testing of the Measurement Model

Confirmatory Factor Analyses

First, we test reliability, convergent validity and discriminant validity of the scales based on confirmatory factor analysis. We ran the analyses separately per country, analysing separate models with power distance as the moderator, and with uncertainty avoidance as the moderator. The model with power distance as a moderator has a good fit in both countries (CFI > .96, TLI > .96, RMSEA < .06), compared to standard thresholds (CFI > .90, TLI > .90, RMSEA < .08) (Hair, Black, Babin, Anderson, & Tatham, 2006). The composite reliabilities (CR) range from .86 to .95 and are thus above the recommended threshold of .70 (Hair et al., 2006). The average variances extracted (AVE) range from .62 to .87, above the recommended threshold of .50, confirming convergent validity (Hair et al., 2006). The maximum shared variance (MSV) and average shared variance (ASV) are smaller than the AVE for all constructs and the square root of AVE is greater than inter-construct correlations, confirming discriminant validity (Hair et al., 2006).

The models with uncertainty avoidance as a moderator equally show a good model fit (CFI > .96, TLI > .95, RMSEA < .06). The CRs range from .77 to .95, confirming reliability

(Hair et al., 2006). However, convergent validity is not achieved because the AVE for uncertainty avoidance is .50 in Belgium and .47 in Ireland, which is less than the recommended value of .50. After deleting one item (i.e., "It is important to have instructions spelled out in detail so that I know what I'm expected to do"), the AVEs now range from .53 to .87, confirming convergent validity. We conduct the further analyses based on the three-item scale of uncertainty avoidance ($\alpha = .78$). Discriminant validity is also confirmed.

Measurement Invariance

The cross-country measurement invariance of the two models is tested with AMOS Graphics. The fit of the configural invariance models is satisfactory (Power distance: CFI= .96, TLI = .96, RMSEA = .04, Uncertainty avoidance: CFI = .96, TLI = .96, RMSEA = .04). All factor loadings are highly significant, and the majority of the within-country standardized factor loadings exceeded .60 (all factor loadings > .54). It can be concluded that the scales exhibit configural invariance across Belgium and Ireland, meaning that the constructs are conceptualized in the same way across the countries (Steenkamp & Baumgartner, 1998).

Results

Hypotheses Testing (H1-H3): The Mediating Role of Perceived Threat and Perceived Efficacy

We first test H1 through H3 in an analysis without moderators using Hayes'(2013) model 4 Process Macro. The results show a positive direct effect of perceived source credibility on message compliance ($\beta = .14$, $p = .03$), confirming H1. Perceived threat mediates the relationship between credibility and message compliance, since the 95% confidence interval [-.09, -.01] of the indirect effect does not include zero. However, while perceived source credibility exerts a significant positive influence on perceived threat ($\beta = .30$, $p < .001$), the effect of perceived threat on message compliance is negative ($\beta = -.15$, $p = .03$).

Thus, the direction of this mediated relationship is opposite to what we expected, rejecting H2.

Perceived efficacy also mediates the relationship between credibility and message compliance (effect = .39, confidence interval = [.31, .47]). Credibility has a positive influence on perceived efficacy (β =.49, p < .001), and perceived efficacy has a positive influence on message compliance (β =.79, p <.001), confirming H3. The indirect effect through efficacy (.39) is larger than the direct effect of credibility (.14) and the indirect effect through threat (-.05), indicating that perceived efficacy has a relatively strong influence on message compliance.

In the theoretical background, we argued that we did not expect an interaction effect between perceived threat and perceived efficacy on message compliance. For completeness, we tested an additional model in which we entered perceived efficacy as a moderator to the relationship between perceived threat and message compliance (Model 14 in the Hayes Process Macro). As expected, the interaction was not significant. Importantly, including this interaction does not affect the hypothesized relationships as described above. In the next step, we test whether these relationships are moderated by power distance and uncertainty avoidance.

Hypotheses Testing (H4): The Moderating Role of Power Distance.

We test hypothesis 4 by means of Hayes'(2013) Process Macro model 8. The first part of Table 2 shows the regression results. To test the moderating effect of power distance, we use conditional effects analyses. The second and third part of Table 2 illustrate the nature of the moderation by showing the effect of source credibility on message compliance at three values of the moderator, i.e. the mean and the mean minus and plus one standard deviation (as shown in the first column of the table). Confidence intervals that do not contain zero represent a significant effect. The direct effect of source credibility on message compliance increases

when power distance increases, supporting H4a. The conditional indirect effect of credibility on message compliance through perceived threat is not different for different values of power distance. H4b is rejected. The conditional indirect effect of credibility on message compliance through perceived efficacy decreases when power distance increases. As this effect is in the opposite direction of what we expected, we also reject H4c.

[Table 1: *Regression Results - Power Distance*]

Hypotheses Testing (H5): The Moderating Role of Uncertainty Avoidance.

The direct effect of perceived source credibility and message compliance is not moderated by uncertainty avoidance (Table 3), rejecting H5a. Uncertainty avoidance has no moderating effect on the indirect effect of perceived source credibility through perceived threat, rejecting H5b. The effect of perceived source credibility on message compliance through perceived efficacy increases when uncertainty avoidance increases, accepting H5c.

[Table 3: *Regression Results - Uncertainty Avoidance*]

Discussion

This paper examines the relationship between perceived source credibility and message compliance, its mediators (i.e., perceived threat and perceived efficacy) and its moderators (i.e., power distance and uncertainty avoidance) as an extension of the PMT. The relationship between perceived source credibility and message compliance is positive, which support previous health communication results (Umeh, 2012; Umeh & Stanley, 2005).

As hypothesized, perceived source credibility increases perceived efficacy and perceived efficacy increases message compliance. Contrary to our expectations, however, the indirect effect of source credibility through perceived threat is negative. Perceived source credibility increases the perceived threat and, in turn, perceived threat decreases message compliance. This latter result contradicts the proposition of the PMT. While the positive relationship between threat and compliance was confirmed in meta-analyses (Floyd et al.,

2000; Witte & Allen, 2000), a number of more recent studies have also found a negative effect of threat on message compliance (De Meulenaer et al., 2015; Earl & Albarracín, 2007; Peters, Ruiter, & Kok, 2013). Peters et al. (2013) indicate that methodological flaws may explain why previous studies recommend in favor of threatening information, as many of these studies seem to suffer from flaws in the design (not manipulating efficacy), population (high in baseline efficacy), or outcome measures (other than behavior). Our study tried to take these recommendations into account by manipulating both self- and response efficacy and susceptibility to and severity of the threat. The negative effect of threat on compliance can be explained by a self-defensive bias. High personal relevance, in combination with low efficacy for the recommended action, leads to defensive reactions (Peters et al., 2013). This "psychological immune system" helps in maintaining a positive self-image and may operate largely outside of awareness (Goldenberg & Arndt, 2008; Ruiter & Kok, 2005). Defensive reactions serve to get rid of the fear, not necessarily the threat (Ruiter & Kok, 2005).
The direct relationship between credibility and compliance is stronger when power distance increases. On the other hand, the indirect effect of perceived source credibility on message compliance through perceived efficacy decreases when power distance increases. These results support the idea that more power distant individuals are more likely to take source credibility into account as a relevant cue as such (Hornikx & Hoeken, 2007). Low power distant individuals, on the other hand, focus more on the message content (Pornpitakpan & Francis, 2000). For them, source credibility can contribute to the perceived efficacy of the message as an argument for compliance. Hence, while source credibility exerts a positive effect for both low and high power distance individuals, the way in which they process these health risk messages is different.

The direct relation between source credibility and message compliance is not moderated by uncertainty avoidance. In contrast, the effect of perceived source credibility on

message compliance through perceived efficacy is stronger when uncertainty avoidance increases. When uncertainty avoidance increases, perceived source credibility has a more positive influence on perceived efficacy, which has a positive effect on message compliance. Thus, as expected, in comparison with low uncertainty avoidant individuals, high uncertainty avoidant individuals rely more on highly credible sources. This seems to be because their advice leads to a stronger perception of efficacy (Pornpitakpan & Francis, 2000). The effect of perceived source credibility on perceived threat is not moderated by the level of power distance or uncertainty avoidance. This indicates that the level of threat a credible source arouses is the same across cultural values.

Implications

The use of a more credible source increases people's compliance with health recommendations. Credibility exists of two dimensions: expertise and trustworthiness. Practitioners should be aware that both these dimensions should be high. Expertise can be increased by using acknowledged experts who use messages that non-experts cannot understand the details of (Dillard & Pfau, 2002). Trustworthiness can be enhanced by providing both the pros and the cons of an argument (Cialdini, 2003). By listing cons before delivering the pros, strong pros have more impact because the message recipients will have lowered their cognitive defenses to a source who is now seen as more trustworthy (Cialdini, 2003; Dillard & Pfau, 2002). Lastly, symbols of authority, such as titles (Dr. or Prof.), uniforms or business suits, increase credibility and induce compliance (Dillard & Pfau, 2002).

At the same time, advertisers should be aware that source credibility also influences perceived threat, and this increase could reduce compliance. Therefore, when relying on source credibility to induce compliance, advertisers should not increase the conveyed threat in the rest of the message.

Finally, credibility is important for all target groups differing in cultural values, but the message is processed differently. High power distant individuals have a direct compliance with the message based on the credibility of the source. For low power distant individuals and high uncertainty avoidant individuals, the effect of source credibility on message compliance is mediated through efficacy, thus the focus should be more on the relationship between source credibility and efficacy. This could be done emphasizing the relevance of the source's credibility for the validity of the recommended behavior or treatment.

Limitations and Further Research

Other cultural values, such as collectivism, could play a role in the processing of health risk messages, and the effect of perceived credibility (Pornpitakpan & Francis, 2000). We did not examine collectivism because Yoon, Kim, and Kim (1998) and Schouten (2008) found no differences in the effect of source credibility on compliance between individualistic and collectivistic cultures. However, Ko and Kim (2010) did found differences for that type of framing. Thus, looking at the moderating effect of different cultural values will extent the knowledge about source credibility and health risk message.

We measured intention to comply with the recommendations in the health risk message, similar to previous research (e.g., De Meulenaer et al., 2015; Umeh, 2012). Measuring actual behavior chance, by for example assessing behaviors at a six-week follow-up (Witte, 1994), will enhance the results. Additionally, we focus solely on message compliance. Future studies could also measure message reactance. Finally, we manipulated credibility based on occupation and used perceived credibility in the models. Different antecedents of source credibility should also be examined, such as age, gender, attractiveness, or similarity between the message source and the target.

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Figure 1

Conceptual Framework: Message Compliance in Response to a Health Risk Message

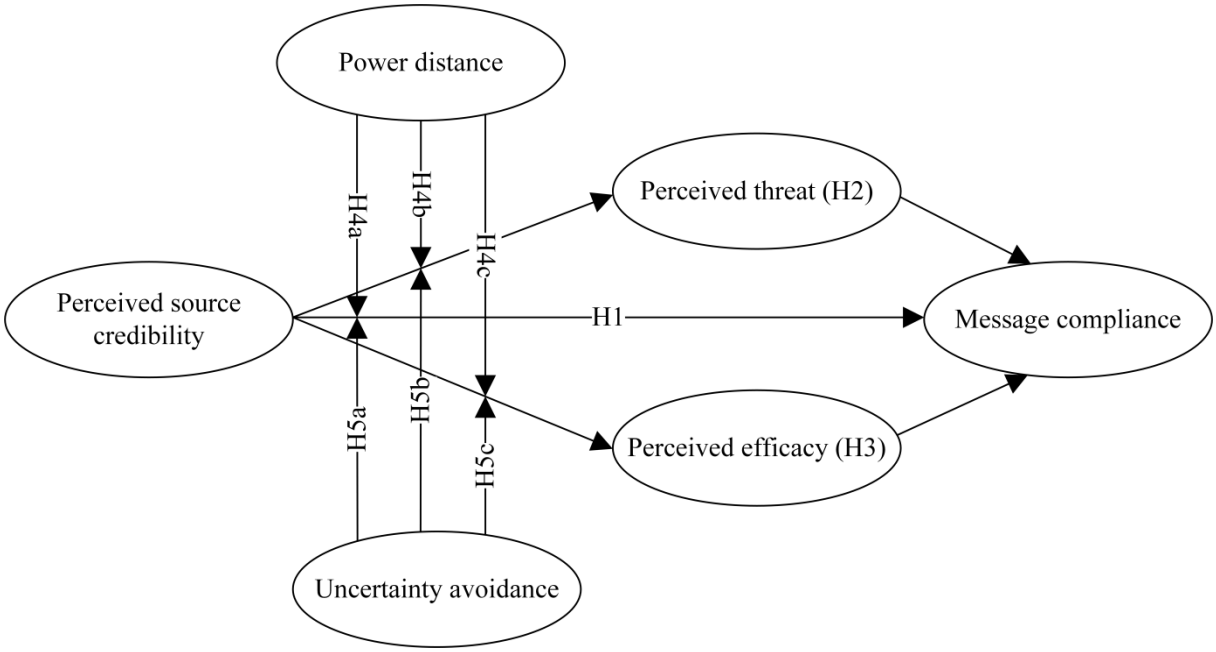

Table 1

Measures

Variables	Source	Number of items	Cronbach's alpha	Mean	Standard deviation
Perceived threat	(Witte, 1994)	6	0.79	3.83	0.97
Perceived efficacy	(Witte, 1994)	6	0.92	3.80	1.43
Perceived source credibility	(Till & Busler, 2000)	6	0.95	4.22	1.13
Power distance	(B. Yoo et al., 2011)	4	0.88	2.85	1.26
Uncertainty avoidance	(B. Yoo et al., 2011)	4	0.76	4.69	0.92
Message compliance	(Witte, 1994)	4	0.92	4.07	1.89

Table 2

Regression Results – Power Distance

	Mediator variable model		Dependent variable model
Predictor	Perceived threat	Perceived efficacy	Message compliance
Perceived source credibility	β =.29**	β =.46**	β =.14**
Power distance	β =.04	β =.15**	β =.00
Perceived threat	/	/	β = -.16**
Perceived efficacy	/	/	β =.80**
Power distance * Perceived source credibility	β = -.01	β =-.08**	β =.07*

Conditional Direct Effects at Power Distance = Mean +- 1 SD

Power distance	Effect	t(df)	Significance-level
-1.27	.06	0.79 (811)	.43
0.00	.14	2.30 (811)	.02
1.27	.23	2.74 (811)	.006

Conditional Indirect Effect at Power Distance = Mean +- 1 SD

Power distance	Mediator: Perceived threat		Mediator: Perceived efficacy	
	Effect	Confidence interval	Effect	Confidence interval
-1.27	-.05	[-.10; -.01]	.44	[.33; .54]
0.00	-.05	[-.10; -.01]	.36	[.28; .44]
1.27	-.04	[-.10; -.01]	.29	[.19; .38]

Note. ** means p < .05, * means p < .10, SD = standard deviation

Table 3

Regression Results – Uncertainty Avoidance

	Mediator variable model		Dependent variable model
Predictor	Perceived threat	Perceived efficacy	Message compliance
Perceived source credibility	β =.29**	β =.49**	β =.12**
Uncertainty avoidance	β = -.04	β =-.08	β=.10*
Perceived threat	/	/	β =-.15**
Perceived efficacy	/	/	β =.80**
Uncertainty avoidance * Perceived source credibility	β =.05	β =.08*	β =.00

Conditional Direct Effects at Uncertainty Avoidance = Mean +- 1 SD

Uncertainty avoidance	Effect	t(df)	Significance-level
-0.96	.12	1.60 (811)	.11
0.00	.12	1.94 (811)	.05
0.96	.13	1.53 (811)	.13

Conditional Indirect Effect at Uncertainty Avoidance = Mean +- 1 SD

Uncertainty	Mediator: Perceived threat		Mediator: Perceived efficacy	
avoidance	Effect	Confidence interval	Effect	Confidence interval
-0.96	-.04	[-.08; -.01]	.32	[.21; .44]
0.00	-.04	[-.09; -.01]	.39	[.31; .47]
0.96	-.05	[-.11; -.01]	.45	[.36; .56]

Note. ** means p < .05, * means p < .10, SD = standard deviation