

Research Report

# Food risk perceptions, gender, and individual differences in avoidance and approach motivation, intuitive and analytic thinking styles, and anxiety

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## Abstract

Risks appear to be perceived in two different ways, affectively and rationally. Finnish adult internet users were contacted via e-mail and asked to fill an internet questionnaire consisting of questions of food risks and measures of avoidance and approach motivation, analytic and intuitive information processing style, trait anxiety, and gender in order to find out (1) whether food risks are perceived two-dimensionally, (2) how individual differences in motivation, information processing, and anxiety are associated with the different dimensions of food risk perceptions, and (3) whether gender moderates these associations. The data were analyzed by factor, correlation and regression analyses. Three factors emerged: risk scariness, risk likelihood, and risks of cardiovascular disease. Personality and gender  $\times$  personality interactions predicted food risk perceptions. Results showed that food risk perceptions generally form two dimensions; scariness and likelihood, but that this may depend on the nature of the risk. In addition, results imply that individuals with high avoidance motivation perceive food risks as scarier and more likely than others, and that individuals with an analytic information processing style perceive food risks as less likely than others. Trait anxiety seems to be associated with higher food risk perceptions only among men.

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## Introduction

Food risks have a special standing in people's risk appraisals (Knox, 2000), and concern about food risks has steadily increased in the last few decades (Payson, 1994). However, until recently, research on food risk perceptions has been sparse. In particular, personality differences in relation to food risk perceptions have not been studied. However, this kind of research has both theoretical and practical implications. Food issues are always present in our daily lives, food choices are preferably made with little

effort (Green, Draper, & Dowler, 2003), and food offers immediate rewards in the form of pleasure. Therefore, it is possible that associations between personality and risk perceptions are different in food risk—than in other risk domains. For example, trait neuroticism is generally associated with higher risk perceptions (Zelenski & Larsen, 2002); however, it is also associated with many indicators of unhealthy eating (Goldberg & Strycker, 2002), which may be regarded as food-related risk taking. Therefore, studying food risk perceptions from the viewpoint of individual differences may help us better understand the link between personality and risk perception.

Research on food risk perceptions and individual differences is also important from the perspective of food safety and health education. Perceived risk is considered by most health education theories to be one of the most important factors affecting the acceptance of and

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compliance with health and safety messages (e.g. Van der Pligt, 1996). Therefore, results concerning personality and risk perceptions may help communicators to design more detailed and effective messages. For instance, if we find out that certain personality trait is associated both with lower risk perceptions and with certain kind of information processing style, health educators could design safety messages highlighting personal risk detailed to tap this information processing style.

However, we still do not know much about how food risks are perceived in the first place. The two most important research lines in risk perception are judgment/decision-making research and the psychometric approach. The former research line has not usually considered food risk perception, while in psychometric approach food risk perceptions have been targeted (Fife-Schaw & Rowe, 1996; Sparks & Shepherd, 1994). In both of these research traditions, it has been found that in addition to considering risk probability and outcome people also take other issues into account when forming their risk perceptions. For example, judgment/decision making research has shown that people's risk assessments are also often influenced by presumably irrelevant issues, such as problem formulation (Kahneman, Slovic, & Tversky, 1982; Sharif, 1993), conceptual priming (Erb, Bioy, & Hilton, 2002), affective tone associated with options (Finucane, Alhakami, Slovic, & Johnson, 2000), and incidental mood states (Schwarz, 1990). Similarly, studies conducted from the psychometric viewpoint (e.g. Fischhoff, Slovic, Lichtenstein, Read, & Combs, 1978; Slovic, 1992) indicate that many risk characteristics not associated with probability or outcome, such as dread, controllability and familiarity, are relevant for people's risk perceptions, also for their food risk perceptions (Sparks & Shepherd, 1994). Indeed, many researchers have recently proposed that risk perceptions are two-dimensional: on the one hand, risks are perceived rationally, through their expected value, and, on the other hand, through intuitive, instinctive and affective evaluation (Loewenstein, Weber, Hsee, & Welch, 2001; Rottenstreich & Hsee, 2001; Rundmo, 2002; Slovic, Finucane, Peters, & MacGregor, 2004).

However, neither of these risk perception research lines has considered what causes the two risk perception types. It is possible that individual differences in some personality traits are associated with rational risk perception, whereas others may be associated with affective risk perception. We aim at establishing that there are two dimensions of risk perceptions also in the food risk domain, and at exploring whether different personality traits and information processing styles are associated with different risk dimensions.

We measure affective food risk perceptions by asking participants to appraise their affective responses to food risks, namely, to indicate how scary they consider each risk. Rational risk perceptions are measured by asking participants to evaluate the likelihood of the risk. Of course people's likelihood perceptions are biased in many ways

(e.g. Tversky & Kahneman, 1981), and they are also influenced by affects (Schwarz, 2000), but the appraisal process is different from the appraisal process concerning own affective reaction towards the risk. The appraisal of the scariness of the risk consists simply of appraising the intensity of the fear associated with the risk. In contrast, likelihood appraisals are made through memory retrieval, comparison of the topic in question with similar topics (other risks, for example), and perceived availability of the topic in mind, among other things (Dougherty, Gettys, & Ogden, 1999; Hertwig, Pachur, & Kurzenhäuser, 2005).

In addition, Sinaceur, Heath, and Cole (2005) exposed their participants either to a message concerning the BSE crisis. Participants exposed to a message using the term "mad cow disease" used their affective reactions, but not their risk likelihood judgments as a basis for their subsequent behavioral intentions towards consuming meat. In contrast, participants exposed to a message in which terms "bovine spongiform encephalitis" (BSE) or "Creutzfeld-Jacob disease" (CJD) were used instead used their risk likelihood judgments, but not their affective reactions as a basis for their subsequent behavior (Sinaceur et al., 2005). This implies that priming people with scientific labels (such as BSE and CJD) makes them to rely more on their likelihood judgments than on their affective reactions, whereas priming them with an emotionally vivid label lowers their reliance on likelihood judgments. Therefore, likelihood judgments appear to be associated with non-affective, more deliberate processing.

One of the most appealing psychological theories for explaining the dual perceptions of risk is the theory of two information processing systems (Chaiken, 1980; Denes-Raj & Epstein, 1994; Evans, 2003; Petty & Cacioppo, 1984; Slovic, 1996; Stanovich & West, 2000). According to the theory, individuals differ in their tendencies to rely on these systems. Intuitive system is fast, automatic, effortless, associative, implicit, governed by habit, susceptible to affective reactions, difficult to control consciously, and has a long evolutionary history. In contrast, the analytic system is conscious, deliberate, effortful, slow, controlled, affectively neutral, and rule-based and evolutionarily young. It is plausible that the intuitive system is responsible for the affective perception of risk, because it enhances reliance on feelings evoked by the information, and risks usually evoke negative feelings. Therefore, a positive association between intuitive thinking style and affective food risk perception is expected. Analytic system, on the other hand, is likely to tap the rational perception of risk. In particular, it is predicted to be negatively associated with the rational perception of the risk. This is because analytic thinking style prompts more careful and detailed processing (e.g. Chaiken, Liberman, & Eagly, 1989), thereby increasing reliance on the content of the information. This should draw attention away from the negative affective tone of the food risk information and, hence, lower risk perceptions compared to perceptions of those with a low tendency to analytic thinking.

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