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From beef to beans: Eating motives and the replacement of animal proteins with plant proteins among Finnish consumers

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ABSTRACT

A better understanding of the motives underlying the adoption of sustainable and healthy diets is needed for designing more effective policies. The aim of the study was to examine how eating motives were associated with self-reported changes in the consumption of beef, beans, and soy products, i.e., changes related to reducing animal and increasing plant proteins. The study analysed a survey of an adult population living in Finland ($N = 1048$). The eating motives were measured with the Eating Motivation Survey (TEMS), which distinguishes between 15 eating motives. Six clusters of consumers based on self-reported changes in food choices were identified with latent class analysis (LCA). Four clusters had established food consumption patterns (“Beef only”, “Beef and beans”, “Beef, beans, and soy products”, and “No beef”), one was undergoing a change, and one had attempted a change earlier. ANOVA with planned contrasts revealed that the motives relating to natural concerns, health, and weight control were higher, and convenience and price lower, among those who had an established diet including beans and soy products, as compared to those who consumed only beef. Those undergoing a dietary change expressed a higher endorsement of natural concerns as well as health, sociability, social image, and price motives than those with an established diet including beans and soy products. The results suggest that eating motives play an important role in changing towards more sustainable food consumption patterns in which meat/beef is replaced with plant proteins.

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1. Introduction

It has been widely accepted that food consumption patterns have significant impacts on human health and the environment. Recent discussions on the sustainability of food production and consumption have increasingly paid attention to the role of products of animal origin in causing environmentally hazardous effects, particularly in terms of climate change (Fiala, 2008; Popp, Lotze-Campen, & Bodirsky, 2010; Stehfest et al., 2009; York & Gossard, 2004). It has been estimated that substituting meat with plant proteins would significantly reduce the costs of climate change mitigation (Stehfest et al., 2009) and would reduce cancer risk associated with the consumption of red meat and processed meat (Nordic Council of Ministers, 2013; World Cancer Research Fund, 2013).

The consumption of meat has steadily increased in Western countries during the past decades (Natural Resources Institute Finland, 2013; Vinnari & Tapio, 2009), whereas that of plant proteins has been stable (de Boer, Helms, & Aiking, 2006). In Finland, meat maintains a central position in meals and food purchases (Vinnari, Mustonen, & Räsänen, 2010), as is the case in other European countries. However, social and cultural factors may complicate efforts to diminish meat use, as meat is culturally embedded in Western food cultures as the centre of the meal (Fiddes, 2004). Consumers also value the taste of meat, and many consider it as a healthy and necessary part of the diet (Verbeke, Pérez-Cueto, de Barcellos, Krystallis, & Grunert, 2010).

The most fundamental motivation for eating is hunger, but how and what we choose to eat is determined by other factors (Lowe & Levine, 2005). Previous dietary research has examined how behavioural change is associated with habit, motivation, goals, beliefs about own capabilities, and knowledge (Guillaumie, Godin, & Vézina-Im, 2010), as well as attitudes, social norms, self-efficacy, and intention (Rothman, Sheeran, & Wood, 2009). However, few studies exist on the association between eating motives and

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changes in food choices, particularly regarding the transition from meat-based diets to more sustainable eating practices. There is some evidence of personal motives helping in changing one's food habits. The replacement of animal proteins with plant proteins requires replacing undesired behaviours with new ones, which has been found to be more demanding than initiating new behaviour because motives associated with undesired behaviour may function as barriers (Holland, Aarts, & Langendam, 2006). In such cases, triggering personally relevant motivational cues has been found to be more effective than external situational cues (Adriaanse, de Ridder, & de Wit, 2009).

On one hand, individuals describing their diet as low in red meat have been found to attribute greater importance to health, natural content, weight control and ethical concerns in their food choice as compared to those who describe their diets as conventional, whereas vegetarians have been found to differ significantly from those describing their diets as conventional only with regard to ethical concerns (Pollard, Steptoe, & Wardle, 1998). The reasons for adopting a meat-free diet have been found to be associated with health concerns, weight control, animal welfare, and a sense of disgust related to meat (Smith, Burke, & Wing, 2000).

On the other hand, price, taste and convenience have been found to act as barriers to consuming healthy food (Lappalainen et al., 1997). More specifically, the less healthy dietary habits among individuals belonging to low socio-economic status (SES) groups are in part attributable to the higher priority given to price and familiarity and the lower priority given to health motives (Konttinen, Sarlio-Lähteenkorva, Silventoinen, Männistö, & Haukkala, 2012). In another study, price was perceived as being the most important barrier to climate-friendly food choices but was only weakly associated with actual food choices; instead, the omission of climate-friendly choices was most strongly explained by habit and disbelief in the effects of food consumption on the climate (Mäkinen & Vainio, 2014).

Previous research suggests that dietary change can be divided into different stages and that different automatic and reflective components are involved in these stages. There is evidence that the reflective processes are important in initiating of new behaviours, but also that the maintenance of dietary choices involves the formation of habits that are automatic processes operating beyond individuals' full awareness (Rothman et al., 2009). Therefore habits are likely to persist even after conscious motivation decreases (Gardner, de Bruijn, & Lally, 2011). The Transtheoretical Model of behavioural change (TTM; Prochaska & DiClemente, 1983; Rossi et al., 2001) suggests that a desired change in behaviour is associated with an increase in awareness of and concern about an issue, as well as with an increase in the perceived importance of positive motives and a decrease in that of negative ones (Freestone & McGoldrick, 2007). It has been suggested that repetition is important for habit formation, leading to automaticity characterized by efficiency, lack of awareness, unintentionality and uncontrollability (Bargh, 1994). There is considerable variation in the time taken to replace old habits with new ones, which depends on the complexity of behaviours. For example, Lally, van Jaarsveld, Potts, and Wardle (2010) found that the average of time required was 66 days but the range varied from 18 to 254.

In this article we examine how eating motives are associated with dietary changes related to reducing animal and increasing plant proteins. We focus on self-reported changes in the consumption of beef, beans, and soy products. We assumed that differences in eating motives would be associated with differences in the participants' diets, and that the endorsement of reflective motives, such as healthiness and natural concerns, would be stronger among those who are currently adopting plant proteins in their diets as compared to those who have established plant

protein consumption. Based on the results we will suggest how policy-makers can take into account the association between eating motives and dietary change in developing new policy measures. Next, we review previous research on eating motives, as well as the consumption of beef and animal proteins, before turning to our empirical analysis and results.

1.1. Eating motives

The current study uses The Eating Motivation Survey (TEMS), which is based on a review of eleven previous measures of eating/food choice motives (Renner, Sproesser, Strohbach, & Schupp, 2012). TEMS identifies 15 different motivations for food choices: liking the food, visual appeal, pleasure, affect regulation, need/hunger, sociability, social norms, social image, weight control, health, price, convenience, habits, traditional eating, and concern for nature. As a result, TEMS brings together previously developed measures allowing for a fine-grained and multifaceted characterization of motives associated with food choice. Research using TEMS has found that Liking, Habits, Need/Hunger, and Health motivate eating behaviour most often (Renner et al., 2012). There is some evidence that motives associated with health may be universal core motives of food choice that have been identified in several previous studies and measures of eating motives (Lindeman & Stark, 1999; Schupp & Renner, 2011; Steptoe, Pollard, & Wardle, 1995). It also appears that health and ethical considerations are an important part of reflective consumer practices (Hjelmar, 2011).

1.2. Meat and plant protein consumption in Finland

In Finland, average per capita meat consumption—consisting almost exclusively of pork, beef, and poultry—is slightly below the EU average, but there has been a steady increase (Lihatiedotus, 2015). Research indicates a socio-demographic variation in the consumption of meat. A survey of the health and dietary habits of 15–64-year-old Finns revealed that 43% of the population had eaten meat on three or more days during the week preceding the survey (Helldán, Helakorpi, Virtanen, & Uutela, 2013). One in ten respondents had not eaten meat at all. The frequency of meat consumption decreased with age, and men ate meat more frequently than women. The consumption frequencies also indicated that men with a higher educational level ate meat more often than less-educated men, whereas for women the opposite was found.

Beans have been a part of European diets for centuries (Cubero, 2011; Shurtleff & Aoyagi, 2013). In Finland, broad beans have been cultivated since the 15th century, and have been commonly used for bean soup, for example. Peas, too, have been cultivated and consumed in Finland for centuries and are still currently used as a side dish or as the main ingredient in traditional pea soup. Other beans or lentils have not been a part of traditional Finnish cuisine or mainstream food culture. Lately, soy products have been introduced on the Finnish market. A study conducted in Finland (Jallinoja, Niva, & Latvala, in press) has shown that Finns eat pulses infrequently. Peas were the most frequently used pulses, whereas soy milk products and other soy products were used the least. More than a half of the respondents never consumed soy products. All pulse foods were consumed much more frequently among vegetarians compared to non-vegetarians. The consumption of plant proteins appeared to increase, as frequent bean consumers also ate other plant proteins often. The study by Jallinoja et al. (in press) suggests that frequent pulse eating is largely a vegetarian practice in Finland. Indeed, vegetarianism is still a small-scale phenomenon in Finland, with about 4% of the population being vegetarians (Official Statistics of Finland, 2012). The proportion has remained

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