



# Healthy, sustainable and plant-based eating: Perceived (mis)match and involvement-based consumer segments as targets for future policy



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## ARTICLE INFO

### Article history:

Received 12 October 2015

Received in revised form 27 February 2017

Accepted 4 March 2017

### Keywords:

Food policy

Healthy eating

Involvement

Plant-based diets

Sustainable eating

## ABSTRACT

Given the inseparable environmental and health impact of dietary habits, integrating health and sustainability goals has become a highly topical issue in policy development and communication to encourage consumers to adopt healthier and more sustainable diets. Increasing evidence indicates that it is possible to develop diets that are both environmentally sustainable and healthy, but their potential success largely depends on consumers' willingness and ability to change their behavior. This study investigates consumer perceptions of the match, or mismatch, between healthy and sustainable diets, and gives insight into consumers' motivation to eat healthily and sustainably, as measured by involvement. Data were collected in Spring 2014 through a cross-sectional quantitative online survey with samples representative for age, gender and region in four European Union (EU) countries (United Kingdom, Germany, Belgium, and the Netherlands) ( $n = 2783$ ). The images of a healthy diet, a sustainable diet and a plant-based diet were found to be highly compatible based on a strongly observed match between European consumers' perceptions of these concepts. Half of the participants were highly involved in healthy eating and one third in both healthy and sustainable eating. Informational food policy actions targeting both healthy and sustainable food consumption behavior are recommended to address issues relevant to the target segments, taking into account their levels of involvement. Increasing consumers' motivation and involvement in health and sustainability emerges as a key trigger for increasing healthy and sustainable eating.

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## 1. Introduction

### 1.1. Integrating health and sustainability goals in food policy

Increasing evidence shows that western dietary habits negatively impact on both the environment and people's health, leading to resource depletion and pollution, as well as the rising incidence of diet-related, non-communicable chronic diseases (Linseisen et al., 2002; FAO, 2006; Tukker et al., 2006; Westhoek et al., 2014). Given these two burdens associated with contemporary western food and dietary choices, there is an urgent need for policies that integrate public health nutrition and environmental sustainability goals, and aim to encourage the adoption of healthy diets that are also environmentally sustainable (Lang and Barling, 2013). It is also expected that the effectiveness of such policies can be greatly improved through a better understanding of the complexity of human behavior and the diversity of factors associated with it (Lehner et al., 2016; Guthrie et al., 2015). The present

study fits this challenge by providing behavioral insight based on consumer research that can be integrated into sustainable and healthy eating policy design and implementation.

Several organizations have attempted to define a sustainable and healthy diet. The World Wide Fund for Nature (WWF) defines it as "a diet that is healthy, affordable, environmentally sustainable and culturally acceptable, . . . its focus is on mitigating greenhouse gas emissions, but it incorporates health, socio-cultural, economic and qualitative elements as well" (WWF LiveWell, 2013, p 4). The Food and Agriculture Organization of the United Nations (FAO, 2012, p 7) considers health aspects to be inextricably linked to sustainability in the food context and defines sustainable diets as "diets with low environmental impacts which contribute to food and nutrition security and to a healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources". As argued by Garnett (2014, p 4), most people can agree on these definitions of (healthy and) sustainable diets but "broad definitions tend to lack meaningful specificity". Sustainability is a broad and multidimensional concept with three dimensions or pillars: envi-

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ronmental, economic and social. However, when referring to a sustainable diet, the concept is often narrowed down to environmental sustainability (Garnett, 2014), which will also be the focal meaning of sustainability in the context of sustainable diets, as covered in the present study.

Various studies have shown the potential to develop diets that are healthy and have a low environmental impact (Ciati and Ruini, 2012; Garnett, 2011, 2014; Macdiarmid et al., 2012; Van Dooren et al., 2014; Westhoek et al., 2014), although trade-offs may be needed as the healthiest option may not necessarily represent the most sustainable or affordable option (Aschemann-Witzel, 2015; Macdiarmid, 2013). Specifically, consuming less greenhouse-gas-intensive animal-based foods, such as meat, while eating more plant-based foods, have been put forward as behaviors that are beneficial for both the environment (Baroni et al., 2006; Biesbroek et al., 2014; Reynolds et al., 2014; Pimentel and Pimentel, 2003; Sabaté and Soret, 2014; Stehfest et al., 2009) and public health (Reiss et al., 2012; Van Dooren et al., 2014). Previous consumer studies have focused either primarily on healthy food consumption (Carrillo et al., 2011; Hoefkens et al., 2013; Mazzocchi et al., 2015) or on sustainable food consumption (Grebitus et al., 2015; Grunert et al., 2014; Peschel et al., 2016; Siegrist et al., 2015; Vanhonacker et al., 2013; Van Loo et al., 2014, 2015). However, there is scant literature investigating both aspects simultaneously (Aschemann-Witzel, 2015; de Boer et al., 2014; De Marchi et al., 2016; Garnett et al., 2015; Apostolidis and McLeay, 2016; Verain et al., 2016). Important questions are to what extent consumers perceive the concepts of a healthy and a sustainable diet as compatible, and whether these diets are perceived as compatible with a plant-based diet. Furthermore, it is of interest to understand whether a greater involvement with healthy and sustainable eating is associated with more favorable attitudes and behavior towards plant-based eating.

It has been recognized that health and environmental sustainability challenges with respect to food are closely connected and need to be tackled together (Aschemann-Witzel, 2015; Kjærgård et al., 2014; Stehfest, 2014). Garnett et al. (2015) highlighted the imbalance between policies and actions that focus on health and the environment, and emphasized the fact that few policies and actions thus far have been designed with the aim of achieving integrated health and sustainability outcomes. Although, in the past, the majority of food policy actions indeed focused primarily on achieving specific health-related goals (Capacci et al., 2012), some more recent policy initiatives initiated by national governments, or at the European Union (EU) level, have started to explicitly address healthy and sustainable food consumption and production (Barling, 2011; HCN, 2011; Gonzalez Fischer and Garnett, 2016). Policy advice to help consumers make environmentally sustainable food choices has emerged in the EU in Estonia, France, the United Kingdom (UK), Germany, the Netherlands, and the Nordic countries (Barling, 2011; Gonzalez Fischer and Garnett, 2016). However, Germany and Sweden are currently the only two EU countries that have developed official national dietary guidelines to integrate sustainability within their food and nutrition policies.<sup>1</sup> Other “quasi-official”<sup>2</sup> dietary guidelines or advice that integrate sustainability goals exist in the Netherlands, UK, Estonia, France and the Nordic countries (Gonzalez Fischer and Garnett, 2016) (Table 1).

<sup>1</sup> There are countries outside of the EU which have embedded sustainability in their official dietary guidelines such as Brazil and Qatar. In Australia and United States, the inclusion of sustainability has been discussed but not yet implemented.

<sup>2</sup> A term used by Gonzalez Fischer and Garnett (2016) to refer to guidelines from “government agencies or government funded entities”. They explain it as: “guidelines or recommendations from institutions that are recognized or accredited by the government but that do not sit within a ministerial department and whose recommendations do not constitute official policy (Gonzalez Fischer and Garnett, 2016, p2 and p17).

Reisch et al. (2013) provided an overview of policy instruments that can foster healthy and sustainable food choices, including those that are information-based (e.g. food labeling), market-based (e.g. taxation), regulatory (e.g. restrictions on advertising) and self-committing (e.g. green public procurement). In a similar vein, Garnett et al. (2015) and the European Commission (EC, 2012) referred to possible communication or information provision tools (e.g. food labeling, public information campaigns, advertising and marketing campaigns, educational programs), economic or fiscal tools (e.g. taxation, incentives, subsidies), regulatory tools (e.g. laws, directives and regulations) and behavioral tools (e.g. nudging). In general, so-called soft policy approaches, i.e. policies supporting informed choice, such as public information campaigns, education and labeling to increase awareness and engagement, have been suggested as a first focus (Garnett et al., 2015), rather than hard policy approaches, i.e. policies targeting the market environment, such as fiscal measures, regulations and mandatory standards. Such soft approaches were also by far the most common policy action in the domain of food and health within the EU with suggestive evidence of positive impact (Capacci et al., 2012).

## 1.2. Theoretical background and research objectives

In order for promotion of healthy and sustainable consumption to be effective, consumers should be motivated, able and given the opportunity to make healthy and sustainable food choices as described by the motivation-ability-opportunity framework (Grunert et al., 2014; Rothschild, 1999). The health and sustainability characteristics of foods are typical credence attributes, which are not directly observable by consumers before purchase and cannot be experienced after purchase. Consumers should thus be informed about their presence, nature and benefits to be able to make informed decisions. This justifies the use of informational approaches as a policy instrument, at least in the early stages of awareness raising and fostering attitude change among consumers.

The theoretical underpinning of the present study refers to the Elaboration Likelihood Model (ELM) of persuasion (Petty and Cacioppo, 1986). This model explains two major routes of persuasion, eventually leading to attitude change, following exposure to information stimuli or arguments: the central and the peripheral route. Central route information processing involves careful and thoughtful consideration of the information, and a higher likelihood of permanent positive attitude change, which is also more predictive of behavior. Peripheral route information processing is associated with fairly passive decisions, minimizing efforts to obtain products, and sticking to routines and habits. Factors such as message credibility and attractiveness, as well as personal motivation and ability, are more important in this case to trigger attitude change.

Personal importance or relevance – also referred to as ‘involvement’ (Zaichkowsky, 1985) – attached to the issue at stake is one of the most influential factors affecting the route of information processing. Involvement is defined as the degree to which an object or idea is centrally related to an individual’s value system. Higher levels of involvement are typically associated with a higher likelihood of central route information processing, with individuals being more active, e.g. engaging in higher levels of information search and processing, extended decision-making processes, and a higher likelihood of using information in attempting to align choice behavior with the information received. By contrast, low involvement is typically associated with peripheral route information processing. Involvement also has a significant effect on consumer behavior (Marshall and Bell, 2004). For example, studies have identified health-related involvement and involvement in healthy eating as important factors explaining eating behavior (Olsen, 2001; Pieniak et al., 2010a, 2010b). Vermeir and Verbeke

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