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Predictors of food decision making: A systematic interdisciplinary mapping (SIM) review

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ABSTRACT

The number of publications on consumer food decision making and its predictors and correlates has been steadily increasing over the last three decades. Given that different scientific disciplines illuminate this topic from different perspectives, it is necessary to develop an interdisciplinary overview. The aim of this study is to conduct a systematic interdisciplinary mapping (SIM) review by using rapid review techniques to explore the state-of-the-art, and to identify hot topics and research gaps in this field. This interdisciplinary review includes 1,820 publications in 485 different journals and other types of publications from more than ten disciplines (including nutritional science, medicine/health science, psychology, food science and technology, business research, etc.) across a period of 60 years. The identified predictors of food decision making were categorized in line with the recently proposed DONE (Determinants Of Nutrition and Eating behavior) framework. After applying qualitative and quantitative analyses, this study reveals that most of the research emphasizes biological, psychological, and product-related predictors, whereas policy-related influences on food choice are scarcely considered.

1. Introduction

The topic of food decision making is central to many research disciplines, including nutritional science (Hoppert, Mai, Zahn, Hoffmann, & Rohm, 2012; Keim, Forester, Witbracht, Widaman, & Laugero, 2012; Vella, Stratton, Sheeshka, & Duncan, 2014), psychology (Chandon & Wansink, 2012; Hollands, Prestwich, & Marteau, 2011; Renner, Sproesser, Strohbach, & Schupp, 2012; Rozin, 1996; Wohldmann, 2013), business research (Ackermann & Palmer, 2014; Carroll & Vallen, 2014), and food science and technology (Jaros, Thamke, Raddatz, & Rohm, 2009; O'Neill, Hess, & Campbell, 2014). Each discipline contributes to the knowledge on food decision making from its own point of view and with its unique theories and methods. Despite a growing number of publications and although the disciplines share the same topic, there is still potential to merge findings. Some time ago, Köster (2009) highlighted that many factors jointly determine food choice, but interdisciplinary approaches are still scarce. The large amount of literature with heterogeneous, sometimes contradictory findings calls for ways to synthesize and generalize evidence about the key factors that guide food choice.

The scientific disciplines that explore food decision making focus on different aspects, behaviors, and mechanisms. Comparing respective studies is particularly challenging because different terms may be used for similar concepts, or because identical terms may be used for different concepts. In the marketing and consumer behavior literature, food decision making has been conceptualized, for instance, in terms of purchase intention or purchase decision (Baker, McCabe, Swithers, Payne, & Kranz, 2015; Mai & Hoffmann, 2015; Papies, Potjes, Keesman, Schwinghammer, & van Koningsbruggen, 2014; Tirelli & Martínez-Ruiz, 2014), or food choice (Carroll & Vallen, 2014; Peters-Texeira & Badrie, 2005). In the food science and technology literature, food acceptance or

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preference (Alm, Olsen, & Honkanen, 2015; García-Segovia, Harrington, & Seo, 2015; Hoppert et al., 2013; Miyagi & Ogaki, 2014) are commonly related to food decision making, and psychological research has a stronger focus on eating behavior (Schüz, Schüz, & Ferguson, 2015; Sproesser, Schupp, & Renner, 2013).

The aim of the present study is to achieve an enhanced understanding of the predictors of food decision making of adults. We intend to provide a comprehensive overview of existing knowledge in order to identify gaps in the literature, and to unravel promising contributors that are apparently under-researched. Our main research questions (RQ), derived from this general aim, focus on categorizing and structuring the research in food decision making:

RQ 1: What are the main disciplines that examine food decision making?
RQ 2: What are the predictors of food decision making that are mainly addressed, and which predictors suffer from a lack of research?
RQ 3: What are the most common predictors analyzed in the various disciplines?
RQ 4: In what way did the number and frequency of publications, and topics change over time?

To achieve these goals, we conduct an extensive and systematic screening of the current literature. More precisely, to obtain a better overview on the actual scientific discussion, and on research gaps that need to be addressed in interdisciplinary work, (a) we are looking at individual cognitive and affective processes that are mainly examined in psychology, consumer behavior research, and neuroscience, (b) we consider biological predictors, sensory processes and the influence of intrinsic product attributes to cover food science and technology, nutritional science, biology, and medicine, and (c) we focus on predictors within the physical and social environment of consumers that play a major role in sociology, marketing, and social psychology.

2. Conceptual background: The DONE framework

The conceptual frameworks of food decision making that are available (e. g., Booth et al., 2001; Furst, Connors, Bisogni, Sobal, & Falk, 1996; Köster, 2009; van der Merwe, Kempen, Breedt, & de Beer, 2010) have in common that they generally stem from one specific discipline (Köster, 2009), or that they focus only on specific factors that affect food choice (Booth et al., 2001). Keeping these limitations in mind, the interdisciplinary DONE framework (**D**eterminants **O**f **N**utrition and **E**ating behavior framework) was recently developed to structure food choice determinants and influencing factors (Stok et al., 2016; Fig. 1). The aim of this framework is to identify all determinants of nutrition and eating that are relevant across age groups, and across research disciplines. It is intended as a dynamic, interactive framework that evolves and improves as experts can continue to contribute to it. The DONE framework is meant to facilitate the evolvement of a "common language" across disciplines, and to encourage collaboration and joint research efforts between the disciplines.

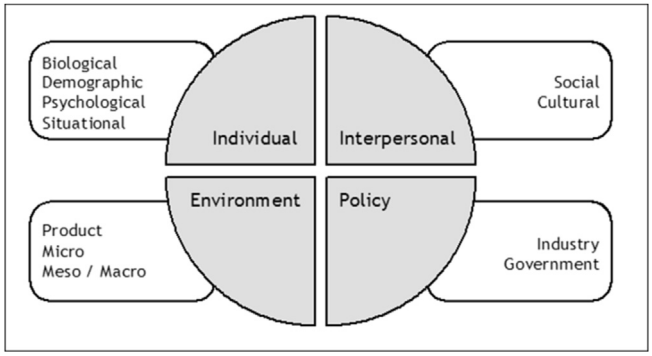

Fig. 1. Simplified representation of main levels (grey) and stem-categories (white) in the DONE framework.

The DONE framework was developed, evaluated and visualized in a multiphase process over a period of almost two years. The work took place in the context of the European research network and knowledge hub DEDIPAC (Determinants of Diet and Physical Activity) (Lakerveld et al., 2014). One working group with more than 80 scholars of different academic background was assigned to develop a multidisciplinary life-course framework of the determinants of nutrition and eating. This group of DEDIPAC partners developed the DONE framework in two steps. After creating a taxonomy of relevant outcomes (food choice, intake of nutrients, eating behavior, etc.) for which the DONE framework should provide potential determinants, the partners systematically nominated relevant determinants per age group (children – adults – elderly) and integrated and categorized these determinants into one life-course framework. The framework follows a socio-ecological structure, with determinants being structured along four main levels of influence: individual, interpersonal, environment, and policy. Within each of these main levels, determinants are grouped into eleven distinct stem-categories (see Fig. 1). Each stem-category is further subclassified into 51 more specific leaf-categories of which 47 currently exist in the framework of determinants shaping nutrition and eating of adults.

For the evaluation of the framework, the DEDIPAC partners as well as 123 external experts from different disciplines and different countries rated the determinants on the dimensions modifiability, relationship strength and population-level effect to identify areas of priority for research. In the second step, 129 external experts with different background evaluated the usefulness, completeness and applicability of the DONE framework for research, intervention, and policy making. Feedback from the evaluation phase was incorporated into the framework. The current, visualized version of the DONE framework is freely accessible and can be utilized in a highly flexible and interactive way (www.uni-konstanz.de/DONE). The 441 determinants[1] that are currently included can be filtered, selected, sorted, and visualized for specific research questions, but also for more general overview approaches. Moreover, new determinants and categories can continuously be added to the framework, and the framework's evolution can be tracked and recorded.

3. Design

3.1. Research approach

To the best of our knowledge, no study has attempted to synthesize the literature on food decision making across different disciplines. Given that traditional review methods have severe limitations, previous interdisciplinary reviews on food choice are centred on specific domains to handle a large number of publications (e.g., Hollands et al., 2015). This work examines prior investigations at the meta-level of the food decision making complex by applying a method that we denote as systematic interdisciplinary mapping (SIM) review. Our SIM approach builds on the rapid review method, a specific form of literature review that

[1] Note: As causality was not checked, we further use the term predictor instead of determinant in this study.