Food Quality and Preference 39 (2015) 82–94

Contents lists available at ScienceDirect

Food Quality and Preference

journal homepage: www.elsevier.com/locate/foodqual

Development of a questionnaire to measure consumer wellness associated with foods: The WellSense Profile™

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ARTICLE INFO

Article history:
Received 11 March 2014
Received in revised form 4 June 2014
Accepted 5 June 2014
Available online 23 June 2014

Keywords:
Wellness
Consumer
Food
Questionnaire

ABSTRACT

This paper presents the development of a questionnaire to measure consumer wellness associated with food. The paper describes the selection of the questionnaire items, the validation of the questionnaire content, and the stability of the results. This new questionnaire, consisting of 5 dimensions (emotional, intellectual, physical, social and spiritual), and a total of 45 items, measures expected or perceived wellness response to food names or consumed food. The questionnaire was tested using internet surveys (names of aromatics, peppermint and lavender), and central location tests (different recipes of meatloaf and vegetables). The construct of this questionnaire and data analyses provide not only an overall (calculated) wellness score, but also insights into the dimensions that drive the wellness response and specific foods or ingredient characteristics that drive the wellness response.

Introduction

The goal of this research was the development of a questionnaire to measure the consumer's subjective experience of wellness associated with foods and/or ingredients. The application of the questionnaire focuses on measuring wellness responses based on expected responses or perceived wellness responses while consuming a food. This method aims to measure wellness in a variety of eating and testing environments, including the commercial environment, with product users or potential users.

There has been criticism of the lack of a standard definition of wellness as well as the associated challenges for developing wellness measurement methods (Corbin & Pangrazi, 2001). Reviews of wellness in the context of counseling, note that "clarifying the definition of wellness is difficult because of the subjective nature of the construct" (Roscoe, 2009) and "Despite the philosophical congruence between the concept of wellness and the fields of counseling psychology, health psychology and humanistic psychology, and their related objectives, there has been little empirical examination of the construct; one possible reason for the lack of empirical studies may be the difficulty in translating this broad, highly personalized concept into a measurable entity" (Harari, Waehler, & Rogers, 2005).

Despite the lack of a clear definition, there are some dominant themes in the conceptualization of wellness that emerge from the literature. In their extensive review of wellness theory and research, Miller and Foster (2010) note:

> Adams, Bezner, and Steinhardt (1997) refers to four main principles of wellness: (1) wellness is multi-dimensional; (2) wellness research and practice should be oriented toward identifying causes of wellness rather than causes of illness; (3) wellness is about balance, (4) wellness is relative, subjective and perceptual. Schuster et al. (2004, p. 351) state there is generally a feeling of consensus that definitions of health include multiple domains, among them physical, psychological, (mental, intellectual, emotional), social, and spiritual. Wellness is described as "a higher order construct integrating these domains, drawing on individual self-perception." (p. 10).

This statement reflects some key themes noted in other reviews (Foster & Keller, 2007; Foster, Keller, McKee, & Ostry, 2011; Roscoe, 2009). Wellness is viewed almost universally as a positive

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http://dx.doi.org/10.1016/j.foodqual.2014.06.003
0950-3293/

construct involving more than the absence of negative states (i.e. illness and disease) (Adams et al., 1997; Corbin & Pangrazi, 2001; Myers, Sweeney, & Witmer, 2000; Travis & Ryan, 2004). This positive nature has been consistently described since Dunn (1977) introduced the modern usage of the term in his text High Level Wellness. Wellness is seen as multidimensional, typically involving the balance of five or more dimensions (Adams et al., 1997; Anspaugh, Hamrick, & Rosato, 2010; Depken, 1994; Hettler, 1980; Renger et al., 2000). Historically the most common dimensions are physical, emotional, social, intellectual, and spiritual (Depken, 1994; Roscoe, 2009). Finally, wellness is commonly conceptualized as having a strong subjective component (Adams et al., 1997; Jensen & Allen, 1994; Kelly, 2000). The subjective nature of wellness is one of the key factors that make it challenging to define (Miller & Foster, 2010; Roscoe, 2009). Regardless of the specific definition, an effective method for measuring wellness must incorporate positive, subjective components in multiple dimensions.

Attempts to measure wellness have included direct wellness tools as well as quality of life (QOL) and well-being tools (for reviews see Miller & Foster, 2010; Roscoe, 2009). The variety of tools is not surprising given the ambiguity around wellness and its interconnection with QOL and well-being; for example, *The President's Council on Physical Fitness and Sports* (Corbin & Pangrazi, 2001, p. 1) defined wellness as "a multidimensional state of being describing the existence of positive health in an individual as exemplified by quality of life and a sense of well-being." In developing the wellness measurement tool described in this paper, previous methods measuring all three of these related constructs were considered. Given our interest in evaluating the subjective experience of wellness in response to food, we focused our inquiry and restricted our final questionnaire to subjective assessment, similar to the sample of QOL, subjective well-being and wellness tools noted below.

The World Health Organization has a long history of addressing positive constructs of health, quality of life, and well-being. The WHO measuring instruments most relevant to the subjective experience of wellness are the 100 item WHOQOL and the shorter 26 item WHOQOL-BREF (WHOQOL, 1995, 1997, 1998a, 1998b; WHO, 2004). *The* WHOQOL (1997) *noted "WHOQOL instruments place primary importance on the perception of the individual.* Most assessments in medicine are obtained by examinations by health workers and laboratory tests. The WHOQOL instruments, by focusing on individuals' own views of their well-being, provide a new perspective on disease." (WHOQOL, 1997, p. 2). In the work reported here, the WHOQOL was used to identify key characteristics among wellness questionnaires.

Evaluation of Subjective Well-Being (SWB) is diverse and of growing interest (Conceica~o & Bandura, 2008; Diener, 2012; Linley, Maltby, Wood, Osborne, & Hurling, 2009). SWB is conceptualized as "a multidimensional evaluation of life, including cognitive judgments of life satisfaction and affective evaluations of emotions and moods" (McGillivray & Clarke, 2006, p. 4). Prominent SWB researcher Ed Diener recently developed the Scale of Positive and Negative Experience (SPANE), a method for evaluating a full range of subjective experiences beyond the emotional feelings central to most scales (Diener et al., 2010). Given the multidimensional nature of wellness, the ability to capture subjective experiences within domains other than the emotional is a key element of a mature wellness measurement tool.

Measurement tools designed to directly measure the construct of individual wellness include TestWell (National Wellness Institute, 1992; Owen, 1999); the Wellness Evaluation of Lifestyle (WEL) and its variants (Myers, Sweeney, & Witmer, 1996; Myers, Luecht, & Sweeney, 2004); Wellness Assessment ("Wellness Assessment", n.d.), and the Wellness Inventory (Travis, 1981) and subsequent Wellness Index (Travis & Ryan, 2004). These wellness tools are diverse in their approach and scope, reflecting the myriad of ways in which wellness is defined. In the work reported here, these Wellness instruments were studied to further identify key characteristics. For example, the Perceived Wellness Survey (PWS) (Adams et al., 1997) is an instrument designed to measure the individual's self-perception of wellness across multiple dimensions and theoretically matches the needs of the current project. Unfortunately, empirical investigation of the PWS failed to support the validity of its separate dimensions, pointing toward the challenges in developing a robust multidimensional tool (Harari et al., 2005).

Based on the study of existing wellness instruments, a new questionnaire was constructed using words rather than phrases. Many of the phrases used in other wellness surveys were not pertinent to food/product evaluations. Words seem to be more adaptable in different applications; specifically, there are no time constraints; the questionnaire can be used to measure an individual's wellness response in the past days or weeks, or the perceived wellness associated with the product, immediately after evaluation of the product. The words can be easily associated with different foods and ingredients; more importantly, the words measure different aspects of wellness providing a more comprehensive view of the consumer experience with the product.

Further analysis of the wellness literature demonstrates that different models of wellness incorporate multiple but different dimensions or components. Miller and Foster (2010) summarized 13 wellness models and Roscoe (2009) summarized 7 more (after removing duplicates). Both the number and type of dimensions varied across the 20 models. Miller and Foster (2010) and Roscoe (2009) identified 10 dimensions of wellness within the 20 published wellness models. Combining the data from the two reviews, each dimension of wellness was found with the following frequency of occurrence (in parenthesis): physical (19), emotional/psychological (19), social (19), spiritual (18), intellectual (16), occupational (12), environmental (12), cultural (7), economic (4) and climate (1). Five dimensions (i.e. physical, emotional, social, intellectual, and spiritual) were selected for inclusion in the present questionnaire based on a combination of their almost universal appearance ($\geqslant$80% usage in wellness models) as well as their likely relevance to the food industry.

Analysis of available wellness surveys and application of the WHOQOL-BREF questionnaire helped identify some other key elements to incorporate or avoid in a wellness questionnaire:

(i) The number of items within each dimension varies within and between questionnaires.
(ii) Calculations of the wellness questionnaire often lead to a single score. The label used to describe this measure varies across surveys. In some cases, dimensions are calculated first, followed by an overall score.
(iii) In some cases, there is one item used to capture overall wellness, such as in WHOQOL-BREF, 2004 questionnaire which includes the question "*how would you rate your quality of life?*"
(iv) The items capture information that varies in timeframe (day, weeks) and type of question (subjective vs. objective).
(v) Items may be phrases and/or single terms; many of these phrases are not appropriate for food testing.

There have been several papers addressing wellness/well-being/ and quality of life related to food in the context of food sourcing and quality of food sources. Grunert, Dean, Raats, Nielsen, and Lumbers (2007) developed a questionnaire measure of Satisfaction with Food Related Life (SFRL) noting that "Quality of life is not a clearly defined construct" ... (and) no consensus about its definition or measurement has emerged. Analysis of the instruments used shows that these include both objective indicators and subjective