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Packaged Foods and Beverages: Assessment of Nutritional Quality and without Nutrition Claims

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Abstract

Nutrient content claims, health claims, and front-of-pack symbols (henceforth referred to as "nutrition claims" in the present study) are often found on food labels in Canada. However, it is currently unknown whether foods and beverages (F&Bs) carrying nutrition claims have a more favourable nutritional profile than those without such claims. This study examined differences in the global nutritional quality, as determined by the Food Standards Australia New Zealand Nutrient Profiling Scoring Criterion (FSANZ-NPSC), of Canadian F&B bearing nutrition claims as compared to those without, as well as in their nutritional composition. Data (n = 15,184) was obtained from the University of Toronto 2013 Food Label Information Program. Forty-two percent of F&Bs carrying nutrition claims (n = 2930/6990) were found to be ineligible to carry claims based on the FSANZ-NPSC, in comparison to 66% of F&Bs without (n = 5401/8194, $p < 0.001$). Sugars and sweets, and miscellaneous products were the food categories with larger proportions of foods carrying nutrition claims not meeting the FSANZ-NPSC eligibility criteria. F&Bs with nutrition claims had fewer calories, less saturated fat, sodium, and sugar, and higher content of protein and fibre than comparable products without nutrition claims ($p < 0.05$ in all cases). In conclusion, nearly half of F&Bs carrying nutrition claims in Canada did not meet the FSANZ-NPSC threshold, although Canadian products carrying nutrition claims have an overall "healthier" profile than their counterparts without such claims.

Keywords: Nutritional Quality; Nutrition claims; Nutrient profiling, Canada; Foods and Beverages; Food Label

INTRODUCTION

Nutrient content claims, health claims, and front-of-pack symbols (henceforth referred to as "nutrition claims" in the current study) are often found on food labels [1,2,3,4,5,6,7]. Nutrition claims are described by the Codex Alimentarius (CODEX) as "any representation which states, suggests or implies that a food has particular nutritional properties including, but not limited to, the energy value and to the content of protein, fat and carbohydrates, as well as the content of vitamins and minerals" [8]. Many countries have adopted CODEX recommendations and regulated the use of nutrition claims. However, many of these nutrition claims are often displayed on the labels of foods and beverages (F&Bs) of lower nutritional quality [3,9,10,11]. Research has shown that F&Bs with nutrition claims may mislead consumers by highlighting certain beneficial nutrients or components (e.g., fibre), while minimizing information on nutrients of public health concern (e.g., sodium, sugar, and saturated fat) [12,13].

Nutrition claims have also been found to have an impact on consumers' choices [14]. For example, a recent meta-analysis found that F&Bs carrying nutrition claims are 75% more likely to be chosen than an identical F&Bs without such claims [14]. Nutrition claims also appear to increase the "halo effect", which refers to the consumer tendency, in the presence of a nutrition claim on a label, to give a higher nutritional "rating" to other attributes not highlighted in the claim itself [15]. This effect increases the consumers' perceptions of the nutritional quality of less healthy F&Bs [16,17,18] and/or increases consumers' willingness to buy F&Bs with claims as compared to F&Bs with no claims [18]. Thus, public health authorities and health-focused non-governmental organizations are advocating limited use of nutrition claims, particularly in F&Bs with high contents of sodium, sugar, and saturated fat [19].

In Canada, mandatory nutrition labelling has been in place since 2003 under the Food and Drugs Act [20,21], with the primary objective to protect consumers against being misled. These regulations made compulsory for manufacturers to provide a Nutrition Facts table (NFt) and a list of ingredients on most packaged food products (except for a few products such as baked in-store products, coffee, vinegar, and spices, among others). These regulations also provided the requirements for the use of voluntary nutrition claims [20,21]. As such, in order to display nutrition claims products must meet certain nutrient thresholds and use prescribed wording, and accurate information should be provided about composition in relation to the nutrition claim being made (see Supplementary Table S1 for detailed information on each type of claim included in the present study). Regulated nutrition claims include nutrient content claims and health claims. Nutrient content claims (NCCs) are those that "describe the amount of a nutrient in a food", and some examples include "excellent source of calcium" or "low in sodium" [1]. Although nutrient content claims are the type of claim most often used on food labels worldwide as well as in Canada [2,3,4,7,9,11,22], products bearing such claims are not always indicative of higher nutritional quality [3,6,11]. Health claims are "any representation in labelling or advertising that states, suggests, or implies that a relationship exists between consumption of a food or an ingredient in the food and a person's health" [21,23], and comprises two subtypes: disease risk reduction claims (which are statements that link a food or constituent of a food to reducing the risk of developing a diet-related disease or condition; for example, "a healthy diet rich in a variety of vegetables and fruit may help reduce the risk of some types of cancer") and nutrient-function claims (which describe the well-established roles of energy or nutrients that are essential for the maintenance of good health or for normal growth and development; for example, "This product is a source of calcium. Calcium helps build strong bones and teeth") [21,23]. Although a number of disease risk reduction claims are allowed by Health Canada [24], less than 2% of labels display such claims [4].

Other general health claims (considered in the present study as "unregulated" nutrition claims) broadly representing "symbols, logos and specific words (e.g., healthy for you, etc.)" are often presented on the front-of-pack (FOP) of labels [25].

nge a decision assessed to be ill-informed, and most (88%) would attempt to persuade a patient to change a decision seen by providers as medically unreasonable or in conflict with that patient's best interest.

Several researchers have examined how providers attempt to persuade the patient (Kayser-Jones, 1995; Sullivan, Hebert, Logan, O'Connor, & McNeely, 1996; Zussman, 1992). One group of researchers described how physician providers (n=14) attempted to frame the decisions regarding mechanical ventilation and intubation to patients with end-stage chronic obstructive pulmonary disease (COPD). All but one physician admitted to framing information presented to patients in such away as to influence the patient's choice (Sullivan et al.).

The purpose of this study was to develop a grounded theory of how decisions were negotiated among providers and family members near the end of a patient's life. During the development of the theory, Reconciling Decisions Near the End of Life, identification was made of several strategies providers used to assist patients and families to shift from curative to palliative treatment choices and goals. These strategies are the focus of this article.

Method

Following institutional review board approval, provider participants were recruited via a letter of invitation (which received a 60% positive response rate), and family members were recruited via church bulletins. The sample consisted of 20 participants (10 nurses, 5 physicians, and 5 family members) from a midsize Midwestern city. Only data from the nurse and physician participants are presented in this article. Of the 15 providers, 12 were women and 3 were men (see Table 1 for additional characteristics of the provider sample).

A grounded-theory research design was used for this study (Glaser, 1992; Glaser & Strauss, 1967; Strauss, 1987). There were 18 provider interviews. Each provider was interviewed once; three providers were interviewed a second time to facilitate member checks. All interviews, which were conducted at a time and place of participant convenience, were tape-recorded and transcribed verbatim. The first four interviews were conducted using open-ended questions and lasted 60–90 min. Later interviews lasted 30–60 min, with questions becoming increasingly focused on the evolving categories as data analysis progressed (see Table 2 for examples of early and later interview questions).

Consistent with a grounded theory research design, data were analyzed using open coding, constant comparative analysis, and axial coding (Glaser, 1992; Strauss, 1987). Dimensional analysis was used as an adjunct data analysis tool. Dimensional analysis is a systematic inquiry into the "parts, attributes, interconnections, context, processes, and implications" of a phenomenon (Schatzman, 1991, p. 309). Following each interview, extensive analysis was done, theoretical questions were raised, and questions were developed for subsequent interviews.

Analysis of the first three interviews (all nurses) revealed that they engaged in a host of strategies that were directed at assessing how patients understand their situations. This included assessing whether the patient's understanding was similar to that of the health care provider (e.g., whether it was "realistic" from the provider's perspective) and whether decisions patients made seemed "reasonable" from the nurses' perspectives. Analysis of these initial interviews also revealed that providers engaged in a host of strategies aimed at assisting patients in coming to a more realistic understanding of their situations and in making more reasonable decisions. Although these strategies could be viewed as paternalistic, they also offered an opportunity to explore these issues in greater depth. Subsequent interviews were designed to gain an understanding of what the providers were doing, what was directing their assessments as well as their efforts to alter patient perceptions, and whether these strategies changed over time.

Deliberate theoretical sampling of providers who did and did not engage in these strategies was not possible because there was no way to make this distinction before interviewing. Therefore, theoretical sampling was built into the design of the interviews. This was accomplished by adding questions to the interviews that would identify whether the provider participant engaged in such assessments and perspective-altering strategies and would explore how they understood these actions and what they were trying to accomplish.

Common to all those who described such strategies was a goal of either preventing a "bad death" or hoping to achieve a "good death." Providers who were concerned about how realistic the patient's understanding was described the relationship between the patient's understanding, the decisions that resulted from that understanding, and the consequences of those decisions for the quality of their death.

This analysis raised the question of what these providers actually meant by the good death that they were trying to achieve and the bad death they were trying to avoid. Interview questions were altered to enhance understanding of these notions and to understand the relationship between being-realistic and these two possible outcomes. Analysis of the subsequent interviews (as well as reanalyzing previous interviews) revealed that these providers had experiences with patients whose unrealistic understandings led to burdensome treatment decisions and thus to deaths with unnecessary pain, suffering, overly aggressive treatment, and unresolved family issues. At this point a theoretical decision was made to pursue an understanding of the processes of shifting goals and treatment decisions.

Subsequent theoretical sampling was designed to discover whether any predictable or patterned differences existed among provider types (e.g., nurses and physicians), work settings (e.g., acute or home care), and work experience (e.g., experienced or novice). It was hypothesized that these might explain which providers or what conditions were likely to result in a provider engaging in strategies to achieve a good death or avoid a bad one and which were not. Further exploration of this relationship in subsequent interviews suggested that experience with dying patients was common to providers who were concerned about and organized their strategies around quality of death. Experience itself, however, did not necessarily lead to such an approach. Additional theoretical sampling was done in order to provide some comparisons around length of experience as a health care provider and, in particular, with patients who were dying.

Several procedures were integrated into the methodological design of this study to maximize the credibility of the results (Guba & Lincoln, 1989; Strauss, 1987). All interviews were transcribed verbatim, checked for accuracy, and entered into a computer software program designed to assist qualitative data management (QSR NUD*IST 4, 1997). Memos and matrices were used to track the evolving theory and the methodological choices made by the researcher during the study. The principal researcher met weekly with a multi-disciplinary grounded theory dimensional analysis group. The researcher was engaged in data collection and analysis for 22 months, but the majority of the data was collected during the first 16 months. Analysis and member checks continued until the study was completed. Member checks were ongoing throughout the study and included second interviews with three provider participants (chosen for the breadth and depth of their experience), fieldwork, and interactive presentations of findings to small groups of providers similar to those who participated.

Results

This section begins with a brief synopsis of the grounded theory of reconciling decisions near the end of life (Norton, 1999), which provides the con-

Reconciling Decisions Near the End of Life

Health care providers often described knowing a patient's death was imminent before the patient or family knew. When these providers believed a patient's death was near, they shifted the purpose of their interventions toward helping the patient achieve a good death. With that in mind, providers worked toward changing patients' and families' treatment decisions from what providers believed were unrealistic curative choices to more realistic palliative choices. In this context, unrealistic decisions were those intended to cure, and realistic decisions were those intended solely to palliate symptoms or to forego curative treatments.

Providers reported that when patients or families continued to make unrealistic (curative) treatment decisions near the end of life, the patient would probably not experience a good death, possibly even having a bad one. A good death was characterized by all providers in a similar way as one that includes time to resolve personal business, time to reconnect with family, time to forgive and be forgiven, time to achieve important goals, and time to say good-bye to loved ones, while maintaining good pain and symptom control. A difficult or bad death was characterized by not being able to say good-bye; having unfinished business, unresolved conflict and anger, and difficulty grieving; undergoing futile treatment, creating bad memories for the family; and having poor symptom and pain control.

According to providers, changing the patient's or proxy's understanding, that is, their "big picture," to one in accord with the providers' assessment led the patient and family to realistic goals and thus to palliative treatment choices. From the providers' perspective, the big picture was a gestalt of the patient's condition constructed from information about the diagnosis, test results, prognosis, general assessment findings (including physical, emotional, and spiritual factors), treatment options, treatment efficacy, treatment burdens, and patient goals. This information, filtered through providers' knowledge, insights, and experience, formed providers' overall picture of what was going on with the patient. In this context it was the big picture, as perceived by providers, that determined whether goals and treatment decisions were realistic.

Providers expressed a belief that understanding the big picture would probably lead to realistic decisions that in turn would lead to a good death. On the other hand, lack of understanding or acceptance of the big picture increased the likelihood of making unrealistic treatment decisions that would result in unnecessary pain and suffering and in missed opportunities for a good death (e.g., not being able to say good-bye to loved ones). Providers often imputed a lack of understanding and/or acceptance of the overall big picture as the cause of patients' or proxies' adherence to unrealistic goals. Unrealistic goals were goals that the patients could not achieve and/or that led to burdensome aggressive treatments that made it difficult, if not impossible, for patients to achieve a good death. One provider described a dying patient who wanted to continue chemotherapy:

This patient was described as having an angry and bitter death. The provider was frustrated by the patient's unwillingness to accept a realistic big picture and her continued adherence to curative treatment decisions. It is the provider big picture that providers said must be shared by patients and family members in order for them to make realistic decisions. Therefore, changing the patient's big picture became the focus of provider interactions.

Providers responded differently to perceived unrealistic patient or proxy goals. These responses included: (a) avoiding interactions with the patient and family, (b) referring the patient and family to another provider, and (c) using strategies aimed at shifting patients' unrealistic goals and treatment decisions to more realistic ones. Providers' often responded to unrealistic patient or proxy goals and decisions by using strategies to shift the patient or family picture, and to increase their understanding of what was happening. Early on these strategies were intended to "lay the groundwork" for a new picture. Laying the groundwork was typically followed by strategies focused on shifting the patient or family to a new picture. Finally, once a patient had shifted to a new, more realistic picture, provider strategies focused on helping the patient and the patient's family to accept and keep that realistic picture. Once a patient and family accepted a new picture, their treatment decisions were most likely to be palliative and thus more likely to ultimately result in a good death (Fig. 1). The individual strategies presented in the following sections are grouped under general purposes. However, most strategies were used for more than one purpose (e.g., teaching could be used to lay the groundwork, to shift the understanding of a patient or family toward the patient's picture, and/or to help the patient or family accept a new picture).

Providers' perspectives are presented here. The intent was not to imply that only one picture exists, that all providers share one picture, or even that there is such a thing as an accurate picture. Rather, the intent was to illustrate providers' behaviors when they conclude that the patient or proxy does not have an accurate big picture.

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