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The appeal of alternative diets – stories of carbohydrate-conscious eaters regarding motives, credibility of dietary advice and the authority of experiences

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ABSTRACT

Low-carbohydrate diets promote the idea that reducing carbohydrate intake is a key to a healthier life and more natural way to eat. The proponents of these diets form food communities, which share common ideas about food, put forward their own 'alternative' expertise and challenge mainstream dietary advice. This study focuses on the perspectives of self-identified followers of low-carbohydrate diets. We explore their rationales for choosing the diet and how they navigate between different sources of dietary information. The data consists of open-ended responses (n=996) to a food survey published in a leading national Finnish newspaper. The responses have been analyzed using thematic narrative analysis. Our results highlight how uncertainties and disappointments can increase the appeal of 'alternative' diets and expertise. Low-carbohydrate diets are used as a form of self-care, illness prevention, risk management and weight loss by people with chronic conditions and lingering symptoms. They offer a sense of control, an alternative to medications and bring together communities of like minded people. The stories intertwine with health populist discourses, casting doubt on traditional experts. In a world of complex food systems and conflicting information the diets offer clear explanations. Additionally, the results emphasise the credibility and authority of lived experiences.

KEYWORDS

Expertise; lay perspective; low-carbohydrate diet; self-care

Introduction

People are surrounded by various theories about what to eat in order to stay healthy (Bugge 2015) and there is an ever-growing number of alternative dietary repertoires (Halkier 2020). People's relationship to food is complex and multidimensional (Fischler 1988). Hence, health is by no means the only reason people make certain food choices. Nevertheless, it plays a central role as the pursuit of healthiness has become deeply engrained within our social fabric and staying healthy is a way to be a "good" and responsible citizen (Ayo 2012). Information and guidance regarding food choices and nutrition is also widely available. However, this information is also multiple and at times contradictory. Au and Eyal (2021) have argued that in situations where advice is

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conflicting or people feel let down with official advice, they may turn to alternative sources for guidance. Additionally, people may also use their "gut feeling" to evaluate dietary evidence (Halkier 2020).

Food choices and diets can also be central to our identity, as individuals and as members of a cultural group (Fischler 1988). Adhering to a diet can be a source of empowerment and control (Gressier 2018) and a signal of one's personal beliefs. Bildtgård (2008) has suggested that the promoters and followers of specific diets create collectives or *food communities*, which are formed around common agendas instead of geography and are united through shared thinking around food. Food communities can even constitute counter-nutritional movements, challenging exiting orthodoxies around healthy eating and putting forward their own dietary expertise (Scrinis 2013). This study focuses on one such community, as we explore the appeal of low-carbohydrate diets. We do not set out to assess the merits of low-carbohydrate diets or the truthfulness claims made by the proponents of these diets. Instead, we are interested how "lay" people make dietary choices in a complex environment.

Prior research on low-carbohydrate diets have predominantly focused on evaluating their nutritional value and health effects (e.g., Paoli et al. 2013; Seckold et al. 2019). Surveys and questionnaires (e.g., Jallinoja, Jauho, and Mäkelä 2016; Clarke and Best 2019; Churuangsuk, Lean, and Combet 2020) have described people's motives for choosing low-carbohydrate diets. Additionally, there have been qualitative studies focusing on media controversies and how promoters of low-carbohydrate diets have challenged nutritional guidelines and doctrines in several countries (Gunnarsson and Elam 2012; Holmberg 2015; Jauho 2016).

In this study we wish to expand the scope and focus on self-identified followers of low-carbohydrate diets to understand their perspectives in more depth. Our aim is to view their food choices within the wider context of their lives that include experiences and life events that lead them to follow low-carbohydrate diets and explore what they feel they are gaining from them. Additionally, we are interested in how they distinguish between different sources of dietary guidance and expertise. O'Kane and Pamphilon (2016) have argued that understanding people's complex relationship with food and dietary choices could be improved by examining more closely the storied landscape of people's everyday food experiences. Hence, our goal is to analyze the stories of people following low-carbohydrate diets by asking:

(1) *How do people become interested in low-carbohydrate diets and how do they describe the health consequences of their dietary choices?*
(2) *How do people adhering to low-carbohydrate diets evaluate different sources of information and expertise related to healthy eating?*

Low-carbohydrate diets and carbohydrate-conscious eaters

Low-carbohydrate diets have enjoyed peaks in their popularity dating back to the nineteenth century, experiencing upsurges again in the 1920s and 1930s (Knight 2015). However, Dr. Atkins' Diet Revolution from 1972 is often deemed as one of the most influential examples of a low-carbohydrate diet. This particular diet surfaced during

a period when nutritional ideas began to emphasize what not to eat and excess weight was increasingly discussed in terms of health (Levenstein 1993). Since then, several variations of a low-carbohydrate diet have emerged, such as paleo, gluten-free and ketogenic diets, which have gathered interest and followers in various countries between the 1990s and the present day (Knight 2015; Gressier 2018). Although low-carbohydrate diets can be described as fashionable or fad diets, they have been popular for decades and during their peak years, they can have significant effects on food consumption and production beyond those who follow these diets strictly (Jauho et al. 2021). Several studies have shown that core products of low-carbohydrate diets – such as eggs, red meat, fatty dairy products and butter can experience significant sales growth in a number of countries (e.g., Knight 2005; Bugge 2015; Jallinoja et al. 2015).

The discussion about these diets can be challenging as there is a lack of a consensus regarding what constitutes a low-carbohydrate diet (Churuangsuk, Lean, and Combet 2020). Additionally, it can be difficult to distinguish what a low-carbohydrate diet means to the lay population, as their views are likely to vary (Churuangsuk, Lean, and Combet 2020). In this study, we recognize this challenge and use low-carbohydrate diets (henceforth referred to as *LCDs*) as an umbrella term for diets such as Atkins, Ketogenic or Paleolithic (paleo, caveman diet) or a combination of dietary regimens aimed at reducing carbohydrate intake. We will also use the term *carbohydrate-conscious eaters* (Jauho 2016) in reference to the people following varied LCDs.

Low-carbohydrate diets in Finland

Kamiński et al. (2020) have studied diet related Google search trends around the world between 2004–2019. Their results illustrate that LCDs appear to interest people around the world. However, there are also differences between countries and regions. For example, in some regions the Atkins diet and ketogenic diet were among the most searched LCDs, whereas in the Nordic countries the low-carbohydrate diet attracted the most interest. (Kamiński et al. 2020). The data for this study is gathered in Finland, where according to a recent study, LCDs have had peak years during 2002–07 and 2011–13, when they have attracted more interest online (Jauho et al. 2021). More recently, particularly the ketogenic diet has been featured in the media.

There is limited information regarding the number of people adhering to LCDs in Finland. According to a survey, the proportion of those following LCDs has varied in the 2010s, depending on the term used. In 2016, 14,5% reported following a sugarless/low-sugar diet, 5,9% low-carbohydrate diet, 3,5% gluten free diet (without having celiac disease), and 0,3% paleo diet. (Jallinoja, Jauho, and Pöyry 2019). More recent statistics suggest that these numbers have remained similar over the past years (Jallinoja 2021). This indicates that LCDs have managed to establish themselves in Finland and attract consumer interest.

We argue that there are certain characteristics that position LCDs as "alternative" and controversial in many countries, including Finland. These characteristics can also contribute to LCDs popularity and appeal. *First*, proponents of LDCs clearly position the diets as an "alternative" to "the Western diet", high in refined carbohydrates. Indeed, carbohydrates are seen as the main culprit behind obesity and illnesses such as heart disease and type 2 diabetes (Taubes 2007; Scrinis 2013; Knight 2015). LCDs are also

positioned as the "alternative" to national guidelines and question the use of traditional products such as bread, potatoes, rice, and dairy (Bugge 2015). This has led to heated media debates in many countries, where proponents of LCDs have also publicly questioned the validity of national nutritional guidelines produced by nutritional councils, ministries, and research institutions (e.g., Gunnarson & Elam 2012; Bugge 2015; Holmberg 2015; Jallinoja et al. 2016; Jauho 2016). Some have even suggested that governments and biomedicine have failed in their tasks to avert a health crisis by promoting unhealthy eating habits. Gressier (2018) has suggested that this line of argumentation is a form of health populism where mainstream leadership is portrayed as incompetent, corrupt, and self-serving, while offering simple, clear solutions.

In Finland, the promoters of LCDs have publicly criticized national dietary guidelines. These guidelines are based on the Nordic Nutrition Recommendation (Nordic Council of Ministries 2014) and the latest national guidelines were published in 2014 (National Nutritional Council 2014). The guidelines recommend eating vegetables, fruits, and berries frequently and wholegrain cereals (bread, porridge, pasta, etc.) several times a day; using soft vegetable oils and consuming fat-free/low-fat milk products daily. Additionally, the recommend eating fish two to three times a week and limit the amount of red meat and meat products. (Food and Agriculture Organization of the United Nations 2022).

The main causes of contention between LCDs and national guidelines relate to carbohydrates. However, they also intersect with other long-term debates around the use of fat, dairy, and consumption of red meat in Finnish diets (see Jallinoja, Jauho, and Mäkelä 2016). Unlike the national guidelines, many LCDs encourage the use of saturated fats and red meat as well as giving up dairy and other staples in Finnish diets such as potatoes and bread. This reflects a wider trend where official dietary guidelines are nowadays situated in a competitive field of food and dietary advice (Halkier 2020). This is also the landscape that people need to navigate as they try to make decisions about eating. A study conducted in Finland and based on social media discussion data suggested that people adhere to LCDs to find relief for complaints such as food cravings or gastric issues and to lose weight and normalize their blood pressure and cholesterol (Jauho et al. 2021). In this study, we hope to further explore these reasons and address how carbohydrate conscious eaters evaluate the credibility of dietary information.

Second, LCDs put forward their own nutritional advice and expertise. They promise weight-reduction, good and energetic feeling (Feinman, Vernon, and Westman 2006) and a way to eat "natural," unprocessed foods (Knight 2012) that are pleasurable (Pettigrew 2016). LCDs are endorsed by celebrities and even some medical professionals (Rousseau 2015) as well as various *field experts* such as fitness and nutritional coaches or health bloggers, who give advice and encourage people to lead a healthy lifestyle (Setälä and Väliverronen 2014). A number of these alternative experts should also be mentioned here, as they are also referred to in our data. In Finland, vocal LCD promoters include, Antti Heikkilä, an orthopedic doctor and a controversial public figure, who has published several books and has been a regular guest in a number of TV programmes. There are also companies such as Fitfarm that offer a range on online training courses based on LCDs and trainers like Anni Sirviö, who claim to have helped over 20,000 people overcome their health and wellbeing challenges by adhering to LDCs and following their programme.

These alternative "experts" can become a source of guidance and information in relation to food choices and healthy eating, especially as the growth of social media has made it easier for alternative dietary experts to share their theories and connect with people around the world. They also share personal experiences, which may increase the appeal of LCDs. In fact, personal stories and experiences have increasingly begun to be presented as evidence of the effects of dietary choices on human health (Jallinoja, Jauho, and Mäkelä 2016).

Materials and methods

This section contains two main parts. In the first part we will provide information about the survey our materials are from and give quantitative background information about the survey respondents and their diets. In the second part, we will focus on the qualitative materials and go through the qualitative analysis of the open-ended survey answers upon which the Results section is based.

The survey

The materials were collected as part of an online survey regarding food choices published in a national newspaper Helsingin Sanomat – the largest and oldest subscription newspaper in Finland, published in the nation's capital – March 1, 2020. The link to the survey was published on the Sunday pages, as a part of a feature article, titled "Sinun valintasi" [Your choice] on food choices and eating motives. On March 4, 2020 an additional shorter article titled "Hei mies, millä perusteella valitset, mitä syöt?" [Hey man, how do you make decisions on what you eat?] was published with a link to the survey to gather more responses from men.

The survey was designed by Piia Jallinoja, Johanna Nurmi and Marjaana Jones (Tampere University), Mari Niva and Johanna Mäkelä (University of Helsinki) and Anna-Stina Nykänen (Helsingin Sanomat), and it is a part of the Academy of Finland funded research projects "Nutrition, expertise and media" (MEX) led by Piia Jallinoja and "Eating and Energy Use Reconfigured" (EE-TRANS) led by Mari Niva. The Finnish version of the survey can be openly accessed (for link see Jallinoja 2022). The online survey contained quantitative questions about food consumption, food choice motives, attitudes toward eating, nutrition recommendations, food in the media and food policy and about special diets. In addition, the respondents were asked background information: gender, age, household size, income, geographical location, occupational status, and the political party they had voted in the previous parliamentary elections in 2019. The survey also contained four open-ended questions regarding special diets and their effects on health and wellbeing, animal welfare and food sustainability. Overall, 22803 respondents took part in the survey.

In relation to research ethics and Finnish legislation, the present study does not fall under the scope of the Finnish Medical Research Act and Decree (Finlex 488/1999) and consequently, is not guided by its' obligation to seek approval by an ethics board. Currently, ethical review is not obligatory for research that does not fall under the legislation mentioned above.

The online survey began with a statement about the study, its general aims, and the names of principal investigators, as well as about confidentiality of all answers. Participation was completely voluntary. We concluded that the study does not cause harm to the study participants. Moreover, there was no personal identification in the survey, and we do not report any information that would make the identification of study participants possible.

Quantitative description of the respondents and their diet adherence

The process of narrowing down the materials for this specific study began by locating the followers of low-carbohydrate diets. For this, we used the question "Do you follow a special diet?," followed by a list of diets (the options were: low-lactose, gluten-free due to celiac diseases, low-gluten due to other reasons, no red meat, vegetarian with eggs and/or dairy, vegan, ketogenic, intermittent fasting, low-carbohydrate, without added sugar, high-protein, raw food). For all these diets the respondents were then asked to choose one of the following options to describe their adherence: "Yes, strictly," "Yes, quite strictly," "I aim to follow" and "I don't follow at the moment."

We selected those who had chosen the options "Yes, strictly" or "Yes, quite strictly" to following a *low-carbohydrate diet*, resulting in 1442 respondents. Out of the 1442 respondents, we included those who had provided an answer to the open-ended question "Has a particular diet helped you to heal or feel better? Tell us about your experiences, for example, what did the diet include, where did the idea come from, where did you get information about the diet and how did it help you." Hence, those who had left the answer blank, responded "no" or merely mentioned the diet they were following e.g., "ketogenic" were excluded from the following stage. This left us with 996 respondents. Out of them, 500 reported that they were following the diet "quite strictly" and the remaining 496 told that they followed it "strictly." Their answers were chosen for further analysis. In Table 1 below, we provide some background characteristics of the 996 respondents. Overall, the survey received more responses from women, which is also reflected in this study. 82% of the respondents whose answers we have analyzed are women. Additionally, the table shows us that the respondents following a low-carbohydrate diet were more likely to live in a smaller municipality and hold a higher education degree (either University of Applied Sciences or University level).

Although the respondents reported following a low-carbohydrate diet strictly or quite strictly, it soon became apparent that they often followed various diets in combination. Indeed, an earlier study by Jallinoja et al. (2014) has shown that there is variation in food choices among the followers of LCDs. As we read through the respondents' answers, it was clear that they did not necessarily talk about one specific diet but wrote about various combinations. They could also use the words sugar(s) and carbohydrates interchangeably. Hence, we decided to make another table (Table 2), which highlights the overlap between diets and shows that the respondents tended to gravitate toward diets where one of the core ideas was to restrict carbohydrates and – in some cases – increase protein intake. As mentioned earlier, this variation has prompted us to describe the respondents of this study as *carbohydrate-conscious eaters*, rather than suggesting that they were only following one specific diet. The respondents of this study (n = 996) also form a distinct subgroup amongst the respondents of the entire survey (N = 22 803), with whom their diet choices are often in

Table 1. Background characteristics of the respondents.

	All respondents N =22,803	All respondents (not following low-carbohydrate diet strictly or very strictly) n = 21 361	Followers of a low-carbohydrate diet (very strictly or strictly) n = 1 442	Followers of a low-carbohydrate diet (very strictly or strictly) who had filled in the open-ended question on health (n = 996)
Women	71,9%	71,3%	81,8%	82%
Age (mean, min-max)	43,09 yrs (10–100 yrs)	42,9 yrs (10–100 yrs)	45,8 yrs (10–100 yrs)	46,8 yrs (10–100 yrs)
Living in the capital area	46,0%	47,1%	30,3%	29,3%
Other cities with over 100000 inhabitants	18,8%	18,8%	18,1%	17,5%
Other municipalities	35,3%	34,1%	51,6%	53,1%
Education				
Basic	4,3%	2,3%	3,2%	3,0%
Vocational school	10,5%	9,7%	20,7%	19,8%
High school	10,1%	10,2%	8,6%	7,8%
College/University of Applied Sciences	38,5%	38,0%	45,5%	47,7%
University degree or higher	38,6%	39,7%	21,9%	21,3%

Table 2. Respondents' answers to the questions/claims: 1) *Do you follow a special diet?* (followed by a list of diets), 2) *Are you currently trying to lose weight?* (Yes, No); 3) *Finnish dietary guidelines are reliable* (1 = disagree completely – 5 = agree completely).

	All respondents N = 22.803	All respondents (not following low-carbohydrate diet strictly or very strictly) n = 21 361	Followers of a low-carbohydrate diet (very strictly or strictly) n = 1 442	Followers of a low-carbohydrate diet (very strictly or strictly) who had filled in the open-ended question on health (n = 996)
Follows a diet quite strictly or strictly				
Ketogenic diet	4,6%	0,8%	60,7%	63,3%
Gluten-free diet (non-celiac disease)	9,5%	6,3%	55,7%	59,5%
High-protein diet	7,8%	5,6%	39,8%	38,0%
Intermittent fasting	4,3%	2,4%	33,4%	36,5%
Vegetarian diet	23,9%	24,4%	15,5%	14,7%
Vegan diet	10,9%	11,4%	3,4%	3,2%
Raw food diet	0,4%	0,3%		2,6%
Currently trying to lose weight	16,8%	14,7%	45,9%	45,1%
Finnish dietary guidelines not are reliable (% of respondents who answered 1 or 2)	22,1%	18,3%	76,3%	75,0%

contrast. Vegetarian and vegan diets were rather popular amongst the other survey respondents, but not as commonly followed by those on LCDs. Conversely, the ketogenic, gluten-free, and high-protein diets were popular amongst the respondents of this study but not widely followed by the other survey respondents.

The survey also contained questions regarding the national dietary guidelines and weight loss. An interesting characteristic of the 996 respondents selected for this study, was that 75% of them expressed distrust toward the national guidelines. Amongst all the survey respondents the corresponding figure was significantly lower at 22,1%. Additionally, nearly half (45%) of the respondents reported that they were currently trying to lose weight. These answers informed the next stage as we began to analyze the open-ended answers in more detail.

Qualitative analysis of the open-ended survey answers

The results of this study are based on our analysis of open-ended survey answers. In this part we will provide a brief description of this data and the analysis process. The respondents' answers ranged from short descriptions of the diet and its health consequences to very long descriptions that included the respondent's background, diagnostic information, and detailed accounts of the experienced impacts of dietary changes. Typical answers were between a few sentences to about half a page long and included information about the diet, its content, and the difference it has made to the respondent's health. Additionally, the respondents mentioned where the information regarding the diet came from and what had motivated them to try LCDs in the first place. Those with pre-exiting conditions also elaborated on their interactions with health professionals and health services.

We approached these answers as short stories about healthy eating and dietary choices, using a thematic narrative analysis, which places an emphasis on "what" is said more than "how" it is said (Riessman 2008, 54). Hence, our analysis focused particularly on the content of the stories and sought to identify common elements across the respondents' answers. We wanted to explore what kinds of life events and experiences could lead people to try LCDs, what the respondents felt they were gaining by following LCDs and how they made decisions regarding the credibility and suitability of dietary advice. This analytic approach enables us to explore the complexities and contingencies of people's everyday experiences with food, revealing the "hows" and "whats" of their storytelling and the consequent meaning-making (Chase 2005).

The analysis was based on Riessman's (2008) thematic model and followed the stages illustrated by Esin (2011). We used a predominantly inductive approach, meaning data was open-coded and data-based meanings were emphasized. After reading through the materials, we coded segments – sentences or groups of sentences – where the respondents wrote about the different reasons behind following a specific diet (e.g., unhappy about how their illness is managed, experiencing physical symptoms, wanting to lose weight); how the diet has reportedly benefitted them; what kind of "evidence" do they provide to illustrate health benefits; and what kinds of information sources do they use.

Based on the coding, we began to formulate initial themes. Initially, we constructed two main themes, first of which included codes around initial motivations and self-reported health benefits. The second included codes regarding information sources. However, we were then left with codes, which were difficult to place under the initial themes. These codes related to bodily experiences, descriptions of how they rely on their

own body, and a sense of community and belonging. Hence, the initial themes needed to be revised. We rearranged the codes to create three main themes, first of which focuses on the respondents' motives and LCD health benefits. This first theme also explores the overall form of the respondents' stories in more detail and discusses them in relation to wider narrative conventions. The other two themes focus on more specific issues within the stories. The second theme looks at LCD communities, information sources and their credibility. The final theme focuses solely on the importance of felt and measured bodily experiences.

In the last stage, we collected the narrative content of each theme together and finalized the name of each theme. Although the initial coding was done on a sentence level, we decided to select longer segments or even the respondent's entire answer under the themes. We feel that this provides more context and allows us to highlight several of the common elements found across the data. It can also ensure that both the stories and the people remain visible in the interpretive text (Pinnegar and Daynes 2007).

Results

The first theme is titled: 1) *This diet has transformed my life – stories of recovery* and focuses on the overall form and content of the respondents' stories. We explore why they have chosen to follow LCDs and how they describe the diets health consequences. The other two themes highlight on specific aspects in the respondents' stories. In the second theme: 2) *How can we all be wrong about a diet? – Food communities and credible information* is divided into two subsections. The first subsection focuses on low-carbohydrate communities and other sources of dietary information that the respondents described as reliable. In the second subsection, we discuss why official institutions and guidelines are criticized and questioned. In the final theme: 3) *The body will tell what it needs – The authority of physical experiences*, emphasizes the importance of bodily signals, information from "within" as the respondents were trying to find a personalized way to eat.

This diet has transformed my life – *stories of recovery*

This theme focuses on the reasons for and consequences of following LCDs. Overall, the stories written by the respondents could be described as redemption or recovery narratives (Jauho 2016; Raipola 2020) and the claim that *this diet has transformed my life* was repeatedly mentioned. The decision to try LCDs stemmed from a combination of health reasons and the stories began with respondents describing various health problems or symptoms.

First, some of the respondents lived with diagnosed conditions such as diabetes or irritable bowel syndrome but felt that their condition was not sufficiently managed. Second, the respondents reported experiencing various symptoms such as abdominal pain, tiredness, and indigestion, but did not mention a medical diagnosis. In both cases, the stories contained suggestions that healthcare services were unresponsive, rigid, and unable to provide help, which had led the participants to seek advice and support elsewhere. Third, respondents reported having a genetic predisposition to certain illnesses by referring to *diabetes in the family* or having a gene that *predisposes to*

autoimmune diseases. The knowledge of being at risk had motivated them to make dietary changes in the hope of preventing illnesses from developing in the future by taking preventative measures. Last, limiting carbohydrate intake was a way to lose weight. The following story is an illustrative example of a typical recovery narrative, which we will now analyze in more detail. The story also highlights how people switch between LCDs or use them in various combinations.

> "The ketogenic diet and nowadays the carnivore diet has given me my life back. In 2010 I was a fat, slouching, depressed diabetic, who dreamt of early retirement due to health reasons. In early 2011 I became a ketogenic dieter [. . .] I continued to follow the ketogenic diet until summer 2018, when I became a carnivore. When I left out all plant-based foods from my diet, my weight dropped to 83 kg and has stayed there for the past year. I can no longer be diagnosed as a diabetic, my blood pressure is 115/75, my fatty liver has been healed, insulin levels are low, gout is no longer a problem, my mind is stable and energetic. I can barely remember what it was like to be depressed. I retired a few years back, but if asked, I would go back to work since I have enough energy to work full time. I discovered the ketogenic diet when I no longer wanted to inject insulin or take blood pressure medication and statins. Those were all useless anyway, as based on my experiences the right diet keeps chronic illnesses at bay. [. . .]" (man, 66)

As with this story, many of the answers regarding LCDs took the narrative forms utilized in religious tales, which describe miraculous healing and self-discovery. The participant begins the story by outlining his journey from a *fat, slouchy, depressed diabetic* dreaming of retirement into a fit and energetic individual ready to return to work. He also refers to discovering *the ketogenic diet when I no longer wanted to inject insulin or take blood pressure medication and statins*. Indeed, *giving up medication* and living life without pharmaceuticals was portrayed as highly desirable in many of the stories. The respondents accepted that in certain situations taking medicine was deemed necessary (e.g., cancer) but there was a strong belief that diabetes, high blood pressure and weight could be controlled through individual dietary choices. However, food was often portrayed as a form of treatment and an alternative to medication. In the story, the participant positions LCDs as a direct alternative to *injecting insulin*.

Additionally, there were stories where food choices were used to manage the risk of developing conditions and to control weight. One of the respondents wrote how their *eternal struggle with weight was over* and they were able to *enjoy every mouthful with a good conscience*. Trying to maintain desirable body weight was an *endless battle* to some and the stories were often intertwined with guilt associated with food choices. This reflects the pressures placed on individuals to pursue better health and to reach a normative body shape and size.

Overall, the stories about following LCDs and their health consequences appear positive and empowering, as the respondents felt that they had personally *taken control of the progression of their illness*. Being ill, feeling unwell or lacking in energy prompted them to seek alternative ways to treat themselves and discover ways to take back control of their lives and their bodies. In these situations, making different dietary choices seemed like an appealing option. However, the

stories also tended to simplify complex health issues by reinforcing the idea that personal lifestyle choices play a primary role in the management of health problems.

How can we all be wrong about a diet? – *food communities and credible information*

This theme focuses on dietary information sources. In the stories, respondents described discovering new information that allowed them to start following a new diet or a combination of LCDs. Additionally, they expressed their opinions and views about the credibility of different information sources and raised concerns about public officials and the healthcare system failing at their task of keeping people healthy. We have divided this theme under two subsections: The first *Low-carb communities and silencing of information* focuses on information sources deemed as reliable and the second *Tensions with established authorities* deals with strenuous relationship carbohydrate-conscious eaters have with various institutions of dietic authority.

Low-carb communities and silencing of credible information

The desire to make a change led the respondents to seek out dietary information from various sources including magazines, books, documentaries, and websites as well as recommendations from friends and family. The respondents wrote about following both Finnish (e.g., Antti Heikkilä) and international (mainly US) diet experts. There is also a growing market for LCD training courses, which many of the participants had attended. One example is the Keto Kickstart, developed by Anni Sirviö, a wellbeing coach who talks about "*struggles with being overweight, yo-yo dieting and continuous bloating* before she *became obsessed with solving her own wellbeing challenges"* (Sirviö 2021). In the stories, together with the online networks and Facebook groups, these courses produced spaces where likeminded people could interact, share advice, experiences, and information. These networks also enabled the respondents to become part of a food community (Bildtgård 2008), which could offer a sense of belonging.

> "When I began to follow the ketogenic diet, Keto Kickstart only had about 2000 members. Now there's over 11000 of us. How can we all be wrong about a diet? This diet has helped many people and those who have not received help have probably slipped a little bit on the carb side and hence doubt the diet. Pharmaceutical companies and food companies would be screwed if people could heal themselves by eating right, which many have succeeded in doing by following this diet. There are lots of people who have managed to take less medication or have stopped taking blood pressure medication, thyroid medication, diabetes medication and so forth. They've gotten help for atopic rashes or other autoimmune conditions. But no-one listens to them. Instead, they get blamed since they don't drink alcohol, eat buns etc. Heikkilä is on the right track, but he is being silenced and so are many other doctors who are speaking up for the ketogenic diet." (woman, 52y)

In the story above, becoming part of the community allowed the respondent to position herself as a forerunner, having joined the ketogenic *kickstart* program early on. She sees the growing number of participants as proof that the diet is undoubtedly helping thousands of people to *cure themselves* instead of supporting the pharmaceutical or

food industries. The story also highlights how the participants have internalized the idea that they are personally responsible for their health and wellbeing, placing a strong emphasis on lifestyle choices as prerequisites for good health. Hence, both success and potential failure were down to the individual. If someone is not benefitting from the diet, they must have *slipped* and eaten carbohydrates.

In the latter part of the story, the respondent directly addresses the issues around credible information and expertise. By claiming that *no one listens to them*, the respondent draws attention to the critical and resistive aspects of LCDs. Some felt that credible knowledge came from inside the community and from those brave enough to challenge the established authorities. The feeling that the followers and promoters of diets are being silenced and criticized in the media further contributed to the idea that the LCD community was alternative and held information that established authorities would or could not accept. The perceived underdog and alternative position could make LCDs and the people promoting them more appealing. Mainstream media and expert institutions were depicted as less credible due to their *economic connections to food producers*. Despite these worries and criticism, the industry connections or commercial interests of the LCD promoters were not questioned in any of the stories.

Tensions with established authorities

In the stories, the respondents expressed conflicting attitudes toward the more established forms of nutritional expertise. Hence, they could be critical of current care guidelines and health professionals, the National Nutritional Council or institutions such as the Ministry of Health or the Finnish Institute for Health and Welfare. In the next story, the respondent writes about his relationship with his diabetes care provider and his opinions regarding nutritional research information.

> "I am a type 1 diabetic and my health and blood sugar balance have significantly changed since I decided to defy the advice of my "current care guideline" following diabetes doctor and began to treat my diabetes with a ketogenic diet. It's a shame I didn't make this change earlier. It would have saved me from a 15-year battle of trying to find a balance with my treatment (and from the additional illnesses it has led to). My doctor is still not supporting me. On the contrary, he's telling me to give up the diet. However, the doctor must admit that my blood levels have "significantly improved". Of course, I know that whatever the personal views of the doctors at the diabetes treatment center are, they would lose their license if they recommended the ketogenic diet to type 1 diabetics. It's a shame. Lots of diabetic bodies will be destroyed due to high blood sugar levels, until eventually, backed by valid research data, it will be proven that the ketogenic diet is also an excellent alternative in the treatment of diabetes." (woman, 37y.)

Ambivalence or an openly critical stance toward official dietary advice could stem from feeling dissatisfied. In the story above, the participant talks about not getting sufficient help from her healthcare provider and argues that she has only been able to get better by going against official advice. This has led her to question the reliability of the advice given by health professionals. However, her feelings toward scientific research information were rather ambivalent. She does not feel that current care guidelines, based in research information, provide help for people with diabetes. Concurrently, they refer to *wide, reliable research data* that will eventually prove LCDs to be great alternatives in the treatment of diabetes. Thus, although the respondents expressed reservations toward

established experts and institutions, they did not dismiss all scientific and research information. A commonly raised suggestion was that there was reliable scientific information and unreliable, industry influenced scientific information. The respondents portrayed carbohydrate-conscious eaters as critical because they can distinguish between reliable and unreliable information and follow *real* expert advice.

Specific criticism was directed toward national dietary guidelines, described as outdated and influenced by food industry. One of the main arguments was that national guidelines were not the solution to health issues but the cause of physical symptoms and even disease (e.g., flu, asthma, lack of energy, joint pains, diabetes). However, whilst public institutions, authorities and guidance were being questioned, the respondents also expected decision makers to recognize the dangers of carbohydrates and help solve public health problems:

> "I've been avoiding added sugar for about three years and succeeded in it. Although, it has been made extremely difficult. Almost every shop product contains sugar and often unnecessarily. Sugar makes you fat and has been a considerable contributor to Western weight gain. Politicians should protect citizens' health and intervene in companies' actions by for example setting a strict sugar tax." (woman, 64y.)

The arguments provided in the stories share many similarities with the health populist discourses, which suggest that leaders and experts are not doing enough to prevent public health problems (Gressier 2018). The respondent argues that avoiding carbohydrates has been made extremely difficult for consumers and calls for political intervention in the form of higher taxation on products high in carbohydrates. This story also reveals the political potential of the LCD community. As a collective, they could advocate for issues such as sugar tax or the reduction of sugar in food products.

The body will tell what it needs – *the authority of physical experiences*

This final theme focuses on the centrality of physical experiences in making dietary choices. We acknowledge that this is an issue that was touched upon in the stories presented in the previous sections. However, in this theme we want to highlight three things. First, that bodily experiences and physical measurements such as weight, blood pressure or cholesterol levels could be used to legitimize claims and used as a proof that LCDs were working. Indeed, the participants often attributed all positive physical changes to their diet and offered numerical information about their own body as evidence, e.g., *my weight dropped to 83 kg* or *my insulin levels are low*. Second, that despite placing trust in various forms of "outside" expertise offered by LCD promoters, the respondents did not blindly follow LCD diet experts or guidance from various online communities. Personal bodily experiences also had their own inherent authority and information gathered from the "inside" was described as credible and valued, or as one of the respondents expressed: *I believe that the body is wiser than the head. The body will tell what it needs. You just have to learn how to listen*. In the story below, the respondent writes about experiencing health problems for a long time, but instead of seeking outside help, they decide to make *a research journey into their body and diet*. This has led them to give up various food items and use their bodily responses as evidence, suggesting that the body will signal what it needs.

> "Already at age 15 I became interested in wellbeing and nutrition. I suffered from constant stomach pains, but the investigations were inconclusive. I made a 10-year research journey into my body and diet and at 25 I discovered the answer. I don't eat gluten, dairy, sugars or sweeteners, yeast or products that contain yeast, don't drink alcohol or smoke. My body is well, and my mind is alert. (. . .) I have once again proven to myself that the body will tell me what it needs and what it doesn't want." (woman, 44y.)

Third, in addition to acting as enforcers, bodily experiences could also lead to people dismissing a particular diet, becoming more flexible with their food choices, or combining various diets together. Hence, listening to bodily signals could in some cases lead the respondents away from LCDs if they felt that the diet was not working for them. One of the central aims of the respondents was to find the *correct diet for their body*. This was often a process of trial and error that required dietary combinations and adjustments. The following story shows that some of those that reported currently following an LCD did not choose to align themselves with this specific food community. They were testing diets, trying to balance between different sources of information and personalize the diet to their body's individual requirements:

> "I don't follow a specific diet but made changes by listening to my own body and I've gotten help from the medical side and from the so-called alternative treatment side. I am not a fundamentalist in this respect." (woman, 38y.)

Trying to discover the correct and individualized diet also enabled the respondents to view themselves as experts of their wellbeing. Not being a *fundamentalist* may also be a requirement in listening to one's body. It can be seen as a pejorative term used to describe people who uncritically follow various diet gurus. By proclaiming that they are not a *fundamentalist*, the respondent is able to use the term to position themselves as an independent thinker. One way to interpret and receive bodily messages was by *listening*. Other more concrete ways included laboratory tests and other measurements as well as the absence of symptoms such as headaches, bloating or lack of energy. In some cases, listening to the body could also mean that the respondents were following certain diets sporadically:

> "I avoid fast carbs and sugar. I felt unwell last autumn knowing that it was down to what I was eating. I made a full turn with my diet. Got rid of sugar and carbs, replaced them with more vegetables and returned to the keto diet as I know that it works for me. Now I also fast intermittently for months just because I've learned to listen to my body and when it needs food. I don't just eat when you're supposed to eat." (woman, 49y.)

Based on the stories, it can be argued that the body is seen to have its own inherent authority. The respondents used various combinations of intuitively listening to their bodies, laboratory tests and other measurement (e.g., weight) to assess their health status and evaluate whether their dietary choices were right for them.

Discussion

In this study, we have explored the stories of carbohydrate-conscious eaters. In a study on lay health practices, Will and Weiner 2013) described the use of functional foods, vitamins, and supplements in terms of "do-it-yourself heart health." This idea resonated strongly with our results, as the participants appeared to be using food as a form of self-care and illness prevention. Additionally, LCDs are often promoted for weight-loss and

provide a way for people to pursue their desired weight. In some cases, food choices were even portrayed as an alternative to taking medicine by those seeking a *medication free life*, which was portrayed as a more natural way of living.

Overall, the respondents' stories took the form of conversion stories (Jauho 2016) or recovery narratives (Raipola 2020), which appears to be a standard form utilized by the followers and promoters of the diets. In a study of low-carbohydrate high-fat diet proponents' online discussions, Jauho (2016) has described these types of stories as formulaic and jubilant in tone, never mentioning failures of the diet. In the stories we analyzed, failures were also attributed to the individual, not LCDs. This leads us to one of the strong underlying negotiations that run throughout all the themes – negotiations over who is responsible.

Many of the stories highlighted personal responsibility and the respondents indicated that they wanted to actively *take control* and be responsible for their own health. Gressier (2018) has suggested that adhering to a diet can be a source of empowerment and control and for the respondents becoming a carbohydrate-conscious eater also presented a way to regain agency and a sense of control. The respondents presented themselves as reflexive eaters (Hjelmar 2011) and responsible citizen-consumers, who work hard to avoid "bad" foods, maintain their health, and even reduce healthcare costs by taking less medication and preventing potential future illnesses. Thus, avoiding carbohydrates can be a sign of virtue and restrain (Throsby 2018).

Placing this much emphasis on individuals and their capability to heal themselves can also be problematic. It reflects the internalization of neoliberal health ideology that puts pressure on individuals to stay healthy (Cederstöm and Spicer 2015). It overlooks major underlying factors such as socio-economic position, which individual stories about self-healing often mask over. It also removes all responsibility from the promoters of LCDs, who get their income from books, training courses and diet products.

Although the respondents emphasized the need to take control over their bodies and health, they did not advocate that all health issues should be a matter of personal responsibility. Some of the respondents felt that they had been forced into a situation where they had to take charge (e.g., if they felt that their health condition was not appropriately managed). They also called for political action, for example in the form of a sugar tax, expected the state to guide people's eating habits into the "right" direction and wanted the public healthcare system to recognize the validity of their diet in treating illnesses. This reflects sentiments found in other studies conducted in Nordic welfare states, where people feel that they have an obligation to act responsibly regarding health whilst also expecting the state to provide the right conditions and promote healthy choices (Kolderup Hervik and Thurston 2016).

In the stories, the respondents were also describing who they regard as credible information sources and from where they seek dietary advice. Reliable sources included LCD groups, networks or training courses run by LCD experts – i.e., food communities where people share similar beliefs about health (Bildtgård 2008). These could provide a sense of belonging, advice regarding healthy eating, clear explanations for causes of ill health and solutions for health problems. There was also strength in numbers. As more people joined these communities and shared their personal recovery stories, trust in the diets healing potential could strengthen, making them more appealing and credible. LCD communities also tend to challenge the nutritional orthodoxies and put forward their

own alternative nutrient-level advice (Scrinis 2013). Within the LCD communities "field-experts" (Setälä and Väliverronen 2014) such as personal trainers or people who had been able to cure themselves could be considered trustworthy sources of knowledge. The sense of being part of an "alternative" food community can also fuel interest in LCDs and potentially create "us" and "them" divisions.

Criticism was directed specifically at national dietary guidelines, but also more generally toward established institutions and traditional forms of expertise, such as medical professionals, the public healthcare system and research institutions. However, the respondents should not merely be regarded as anti-science or dismissive of all research. For example, laboratory tests were considered reliable and test results were often provided as evidence of the diet's health benefits. The respondents suggested that "real" scientific research was being conducted but it was not used as the basis for current guidelines.

Some of the argumentation used by the respondents bares similarities to populist political rhetoric, which contains anti-elite sentiments (Gressier 2018). In this context, the "elites" are the representatives of the official diet doctrine, who are intentionally suppressing "true" knowledge of the beneficial effects of LCDs and hence, misleading the public for personal gain (Jauho 2016; Jallioja 2022). LCD proponents appear to use similar argumentation in different countries to promote their own claims and discredit other experts. This includes suggestions that the mainstream media is silencing "real" expertise and the current dietary advice is outdated and influenced by the food industry (Gunnarsson and Elam 2012).

The arguments also reflect wider ongoing debates regarding who is considered a credible expert and what criteria expertise can be based upon. In late-modern societies the authority of science and expert systems is being challenged (Bildtgård 2008; Davies 2019) and these contestations are often particularly prominent in issues relating to health and wellbeing. Interestingly, the promoters of LCDs (diet experts, personal trainers etc.) were not described as potentially corrupted commercial actors, even though they financially benefit from selling food products, books, and training courses.

It is also important to mention that although the respondents expressed reservations toward national guidelines and their stories about LCDs followed rather similar patterns, they did not form a singular entity. Indeed, LCDs could also appeal to individuals who did not feel that they were *fundamentalist* in relation to eating. Finding the right and personalized way to eat was often a story of experimentation and adjustment. The respondents were adhering to LCDs in different combinations and with varied intensity. They were also not blindly following LCD promoters but relied strongly on their own "gut feeling" (Halkier 2020) when assessing eating advice.

We acknowledge that the respondents who chose to answer the survey are probably interested in health issues or may hold strong personal views regarding diets, which they wanted to share. However, their stories provide an insight into the perspectives of people who have chosen to adhere to diets that are often in conflict with national guidance. Our results indicate that people can adhere to "alternative" diets in situations where they feel they are not getting sufficient help or support elsewhere. Low-carbohydrate conscious eaters are attempting to

maintain or enhance their health and may feel disappointment if their efforts are misunderstood or even mocked by for example health professionals. Thus, understanding their motivations can help health professionals and health promoters to communicate more effectively with people who follow or are interested in LCDs. It would also be beneficial to study the stories, advice and information communicated within alternative food communities and explore the ethical aspects and responsibilities that are related to of being a diet promoter.

Conclusions

Diets play a central role in people's everyday efforts to maintain and improve their health. Those suffering from chronic illnesses and lingering symptoms or people who feel let down by healthcare services or dietary guidelines can decide to look for information and support elsewhere. Adhering to a diet that challenges nutritional orthodoxies can also be appealing as followers may feel that through food choices, they are taking charge of their health and no longer supporting the pharmaceutical and unhealthy food industries. The challenge of LCDs is often directed at established authorities and conventional forms of expertise. Indeed, the carbohydrate conscious eaters reject the modern Western diet, which they feel is behind the health problems. They question the authority of traditional expertise and place value on lived experiences. Nevertheless, this did not mean that people would blindly follow any form of alternative dietary expertise or reject all scientific knowledge. Hence, advice and guidance were ultimately used in various combinations to help find an individually suitable way to eat.

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