

recommendations setting target values for fat consumption were formulated amidst industry lobbying in Europe and the USA (Jensen, 1994; Mills, 1992; Nestle, 2007). In Finland, the National Nutrition Council endorsed the reduction of total fat consumption and the replacement of animal fats with vegetable fats as early as the late 1950s. These principles were later included in the guidelines, such as the proposal for a Finnish Food and Nutrition Policy in 1978 and, since 1987, in national nutrition recommendations (Kokko & Räsänen, 1997.) Monitoring data collected from the 1970s onwards has shown a parallel trend in consumer preferences, as butter was replaced by vegetable oil products (Jallinoja, Kahma, Helakorpi, Niva, & Jauho, 2015) and serum total cholesterol and systolic blood pressure and coronary heart disease mortality declined (Jousilahti et al., 2016).

Thus, at the start of the period under study in this article there existed an emerging consensus among public health officials and the establishment of internal medicine over the health risks of fat intake. However, despite this relative agreement, dietary fats and cardiovascular diseases have remained in the public eye and under debate in Finland and elsewhere. Health and illness are newsworthy issues, and novel findings regarding the link between fat/cholesterol and cardiovascular problems are often reported, especially if they go against the prevailing consensus (Goldberg & Hellwig, 1997; Lupton, 1994; Walsh, 2014). For example, in recent years, advocates of low-carbohydrate diets have gained media publicity by highlighting so-called fast-burning carbohydrates as the main dietary culprits and favouring animal fats as the healthy option (Knight, 2012; Gunnarsson & Elam, 2012; Jauho, 2014).

We chose to analyse the debates on dietary fats in a single publication, *Helsingin Sanomat* (hereafter HS), the largest and oldest subscription newspaper in Finland and published in the nation's capital. Although a majority of the subscribers live in the metropolitan area or in southern Finland, the newspaper is widely read throughout the country. In 2007, 62% of Finns reported that they read HS at least now and then (Purhonen & Research team, 2014). Even with decreasing circulation, from a peak of 483,000 in 1992 to 313,000 in 2013 (personal communication from HS, 13 August 2015), HS is still the leading independent newspaper in Finland and wields substantial influence in raising issues for public discussion; hence, the paper has influence beyond its regular subscribers and readers (Wiio, 2006).

The study period 1978–2013 was chosen because it allows reflection on the changes in fat consumption, analysed in another subproject of the research consortium, “Fat in food, fat in bodies – Diversification of ideals and practices in healthy eating”, with a yearly population survey conducted since 1978 (Jallinoja et al., 2015). Moreover, as explained above, in the late 1970s, the debate within the scientific community over the risks of consuming fats was for the most part settling down and becoming concrete through national nutrition recommendations and health-promoting interventions (Kokko & Räsänen, 1997). The present study covers the period of the emerging scientific consensus on dietary fat intake and explores the controversies that later challenged this consensus. Previous studies on public debates about dietary fats have focused on comparatively short time periods in Australia (Lupton, 1994) and Finland (Huovila, 2014; Syrjäläinen, Ryyänänen, Heinonen, Jauho & Jallinoja, 2016). The present study covers the years 1978 through 2013, and hence, allows us to analyse changes in the debates over time.

1.1. Risks, consumers, experts and the media

Several authors have analysed the anxiety-ridden nature of human food consumption (e.g. Bildtgård, 2008; Fischler, 1992; Sassatelli & Scott, 2001). Others have pointed out that, especially

in recent decades, there has been heightened concern about health issues, leading to consumers' repeated attempts to regulate their lifestyles (Crawford, 2006). In late modern societies, the notion of risk has become central, and the importance of traditional ways of eating and the shared sustenance of local communities has diminished (Bildtgård, 2008; Giddens, 1991), replaced by constant choices made available to concerned consumers (Giddens, 1991; see also; Blue, 2010). Torbjörn Bildtgård (2008) distinguishes between modern societies, where trust is placed in organizations and their representatives and research organizations, and late modern societies, in which consumers are faced with increasing amounts of scientific information and new value bases (such as economic and environmental concerns), leading to the need to weigh different values and forms of knowledge vis-à-vis one another.

Regarding the media, the modern situation generates a plethora of new subjects in which ambivalence and anxieties about food risks prevail, including such matters as excessive intake of nutrients (Lupton, 1994) and applications of biotechnology in food production (Sassatelli & Scott, 2001). Claude Fischler (2002) suggests that these tensions continue to build as consumers are faced both with the benefits of modern products and the worrying contents of those same products (see also Beck, 1994). Taking part in the debates on these risks, the mass media has become an important arena for creating credibility for science and influencing public opinion and political decision-makers (Väliverronen, 2001).

The modern situation of reflexively choosing a subject (Bildtgård, 2008; Giddens, 1991) and the demonopolization of expertise (Beck, 1994) is reflected in journalism practices. Firstly, the role of lay people, i.e. people without established professional expertise in the area, has become more significant in science publicity. Harry Collins (2014) refers to the concepts of “lay expert” and “experienced experts”, meaning the various roles played by lay people in science and technology debates. An analysis of Dutch non-fiction medical television programmes between 1960 and 2000 shows a phenomenon called “layification”, which is visible in the decreasing amount of speaking time allotted to experts, while the time allotted to lay people has increased (Verhoeven, 2008).

Secondly, professional groups, other than scientific experts, have gained increasing visibility in health- and food-related debates. For example, in publicity about obesity in Finland several types of actors are apparent: scientists, members of the lay public, sports personalities, politicians and a new category, field experts, who include nutrition therapists, sports instructors and personal fitness trainers (Setälä & Väliverronen, 2014). Recently, chefs and other culinary personalities have also positioned themselves as experts, and not only on aesthetic matters, but also as public intellectuals commenting on public health (Johnston & Baumann, 2015).

Within this nexus of various actors, interests and media publicity, the study examines the debates on dietary fats and their changes in a major Finnish newspaper by identifying the main issues and those who took part. By exploring these questions, we analyse the continuities and discontinuities in the arguments, provide answers to the questions of why and how the risk of dietary fats has remained a debated issue for several decades and how different groups of actors have responded to and taken part in the changing debates. Of special interest to us is how expertise has been depicted and debated throughout the decades and how established sources of expertise have reacted to new topics that challenge their position and its justifications.

2. Material and methods

The data were drawn from the archives of Sanoma Ltd, the

publisher of Helsingin Sanomat between 1 January 1978 and 31 December 2013. The articles were searched for using the keywords (nutrit* or disease or health or cholesterol) and (fat or carbohydrate); in Finnish (*ravin** or *ravitsemu** or *sairau** or *tervey** or *kolesterol**) and (*rasy** or *hiilihydraat**). To ensure the coverage of as many relevant texts as possible, we included carbohydrate in the search formula, as in recent years debates about dietary fats have often been linked to debates about carbohydrates.

We focussed on the association of CVDs and dairy and vegetable oil products, because in Finland, CVDs have been a major cause of mortality since the Second World War and their association with milk fats and vegetable oils represent a core subject in the area (Kokko & Räsänen, 1997). Articles on such topics as celiac disease, cancers, fatty meats, and recipes were excluded. The search ultimately yielded 683 articles.

We analysed only the texts that formed threads, i.e., content commenting on texts that had been published in previous issues of HS. Threads are a fruitful object of analysis, since they explicitly refer to other writers and opinions. In threads, various stances are persuasively expressed as the debaters attempt to convince readers of the rightfulness of their cause. Moreover, with identifying threads we could narrow the very large text data. We located the threads by reading the articles chronologically and taking note of such comments as “Letters to the editor have previously [e.g., on 1 June] paid attention to health effects”. All texts with these kinds of comments as well as the texts to which they referred were included in the study.

We found a total of 52 threads, adding up to 250 texts, 74% of which were letters to the editor (LTE) (Table 1). More than two-thirds of the debates were started by a text other than an LTE, but a majority of the texts that followed were LTEs. The course of the debates varied throughout the research period. In some threads, all texts focussed on the healthiness of fats. Other debates began with a different subject, such as baby food recommendations (1991), school lunches (1991, 2005) or EU subsidies for whole milk in school canteens (1994), but eventually the thread developed to comment on dietary fats. For example, in 1991 the debate started with a general concern over the quality of ingredients of school lunches (6 May 1991). Later, an expert with a PhD in public health joined the debate, expressing a concern that school lunches contain too much saturated fat, compromising the cholesterol levels among Finnish children (16 May 1991).

The editorial staff is a gatekeeper for publishing, and not all LTEs are published. Before emails and at a time when HS was in broadsheet format (tabloid from January 2013 onwards), the percentage of LTEs published was higher than it is today. Now there is less space, yet more LTEs are being written. Between 2010 and 2014 about 60 LTEs were received by HS each day, of which 10 to 15 were published. The editorial team endeavours to publish an equal proportion of LTEs on both sides of a dispute, such as the dietary fat debate (HS, personal communication, 20 May 2015.)

For the analysis, we re-read the texts several times and coded 1) the occupation of the writer of the LTE or the interviewee(s) in the news article (main categories: PhD/specialist in internal medicine/public health/nutrition/food chemistry, physician, public health NGO representative, dairy industry representative, chef/barista, lay person), 2) the LTE writer's/interviewee's stance towards the claim that saturated fats cause CVDs (does cause, does not cause, does not take a stance), 3) the justifications for the stance (scientific evidence, personal experience, taste of food, does not provide justification) and 4) how the LTE writer/interviewee commented on previous debaters' arguments as regards the association of dietary fat intake and CVDs (not categorized). The coding was done in three cycles by the first and the third author, by filling in a large table (Microsoft Word), with a line for each text and a column for each of

the above-mentioned characteristics. The table was used to analyse the text data further. The analysis was done by the first author and critically commented and further developed by the other authors. To determine the expertise of the discussants, we used the information reported in the HS texts, together with *Who's Who in Finland* [Kuka on kukin] (1994, 1998, 2007, 2015), and *Physicians in Finland* [Suomen lääkärit] (1987, 2012) (Appendix 1).

3. Results

At the beginning of the research period, texts debating the association of dietary fats and CVDs were infrequent (see the black columns in Fig. 1). The situation changed in June 1988. Since then, even with some quiet years in the 1990s, the health consequences of dietary fats have remained a recurring topic for almost four decades.

We identified four themes in the texts around which there were repeated, often overlapping and intertwined conflicts: the truth about the health risks of dietary fats; expertise in the question of the risks of fat consumption; the evidence of the risks of fat consumption; and the framing of the fat question. As regards the themes of evidence and framing, new approaches emerged in the early 2000s (Fig. 2). These arguments valued personal experiences over scientific research and taste of food over health concerns.

Below, we will analyse these discords, debaters and the arguments used as well as the changes over almost four decades. A description of those who wrote at least two LTEs (marked in the text with the symbol ‘#’ after their name), including information about their background where this is available, is provided in Appendix 1.

3.1. The health risks of dietary fats

The connection between dietary fats, especially saturated fats, and CVDs was debated throughout the research period. On one hand there were those who claimed that a high intake of saturated fats increases the level of blood cholesterol and hence is associated with CVD morbidity and mortality. Often there were calls for public interventions and consumer lifestyle changes to enhance heart health. This was the dominating position, and thus warrants to be called *the lipid consensus*. On the other hand there were those who challenged the lipid consensus, including suggestions for decreasing the consumption of animal fats among the population. These aspects of the two sides are exemplified in the following extracts from the 1980s.

“Several studies have shown that an increased level of cholesterol in the blood is perhaps the most important modifiable factor that predicts an individual's vulnerability to heart disease” (Puska# et al., LTE, 10 March 1984)

“... it has been claimed that Finns eat a lot of fat and a lot of animal fats. We have tried to correct this false perception France, which is in fifth place [in WHO statistics of 21 countries] as regards butter consumption, but last in heart disease statistics ... demonstrates that there is no coherent association between butter consumption and heart disease mortality.” (Salminen#, LTE, 9 July 1988)

Although the debate on this theme continued in a similar fashion throughout the study period, two periods merit special mention. The first occurred in the summer of 1988 when a full-page paid announcement sponsored by The Milk Producers in Finland and the country's largest dairy company, Valio, appeared in HS and several other major newspapers (23 June 1988), leading to the longest thread in our data (37 texts). The core message of the

Table 1
 Texts in threads related to the association of dietary fats and CVDs, by decade and text type (1978–2013).

	Number of texts	LTEs % (n)	Editorials % (n)	News articles % (n)	Other (e.g. feature articles, columns) % (n)
1980s	64	68% (44)	5% (3)	16% (10)	11% (7)
1990s	67	75% (50)	6% (4)	18% (12)	1% (1)
2000s	81	83% (67)	1% (1)	12% (10)	4% (3)
2010–13	38	63% (24)	3% (1)	26% (10)	8% (3)
Total	250	74% (186)	4% (9)	16% (41)	6% (14)

announcement, presented in text and graphs, was that there is no meaningful association between the consumption of animal fat and heart disease mortality, and furthermore, while in many countries the intake of fat had increased, mortality from heart disease had decreased.

In the dispute that followed, Valio defended its position. On the opposing side, experts in internal medicine and public health criticised Valio’s arguments, pointing to strong research evidence and accusing Valio’s ‘paid announcement’ as being “a conscious deceit” (a specialist in cardiology Kalevi Pyörälä, News article, 12 July 1988). HS was critical of Valio’s arguments; one editorial described Valio as, “... trying to turn black into white ... force-feed Finns butter and milk ... scientific results are proved wrong and the basis of the nation’s official health policy is undermined” (anonymous editorial, 28 June 1988). Although ultimately Valio was left to stand alone against the experts in internal medicine and public health and the HS position was critical of the dairy company, the debates about dietary fats continued.

The second period of intensified debate began in the early 2000s. This period peaked in 2010 with an investigative journalism programme MOT broadcast on Finnish national television that contested the validity of the lipid theory. As earlier, critics of the lipid consensus claimed that saturated fats are not the major cause of CVDs. A novel claim was that instead of decreasing their fat consumption, consumers should reduce consumption of carbohydrates. Another major change in the early 2000s was that now lay people’s personal experiences with various diets played a central role in the debates. Moreover, the debates were tied up with questions of food taste and culinary culture – themes that will be

analysed later in this paper.

3.2. Expertise in the question of risks of fat consumption

The debates of the 1980s were for the most part between representatives of the dairy company Valio and a number of scientific experts who had PhDs or who held professorships in internal medicine or public health, whom we call *advocates of the lipid consensus*. In the early 1990s, when Valio stopped making comments on the risks of consuming animal fats, the debating camps changed. Whilst the advocates of the lipid consensus camp remained much the same, *the opponents of the lipid consensus* now included former research director of Valio, Kari Salminen#, with a PhD in food chemistry; representatives from other fields of life sciences (e.g. animal breeding, orthopaedics); and lay people. Salminen was the most active writer among the opponents. He retired from Valio in 1998 but by the early 1990s he had already stopped signing the LTEs as a representative of Valio, instead identifying himself as “research manager, professor” (29 January 1993), “a chemist, interested in his eating” (29 August 1994) or later simply by his name.

Throughout the research period, the question of who had the authority to speak out on the risks of fat consumption was disputed. The advocates of the lipid consensus vested authority in those with expertise in public health, nutrition or internal medicine. For the most part, the advocates were themselves experts with PhD degrees or professorships in these disciplines and classified medical or other professionals without these qualifications as not holding adequate expertise. For example, Pekka Puska#, from the National

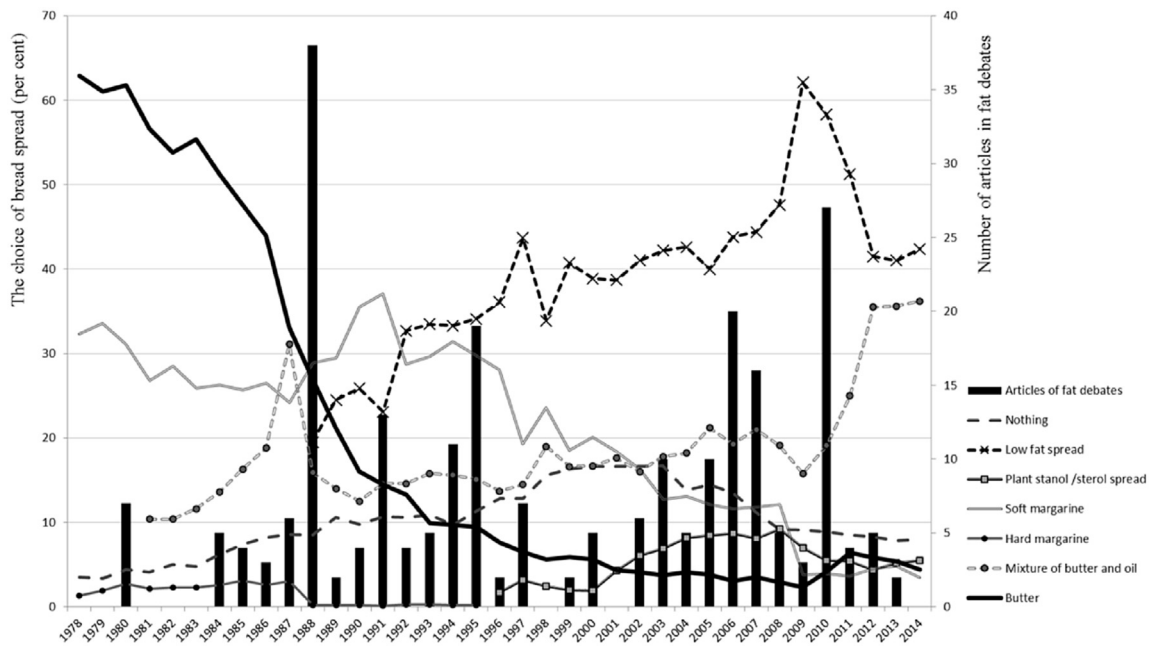


Fig. 1. Choice of bread spread by research year (in percentages) (Jallinoja et al., 2015), and texts in fat debate threads from Helsingin Sanomat, 1978–2013/2014.

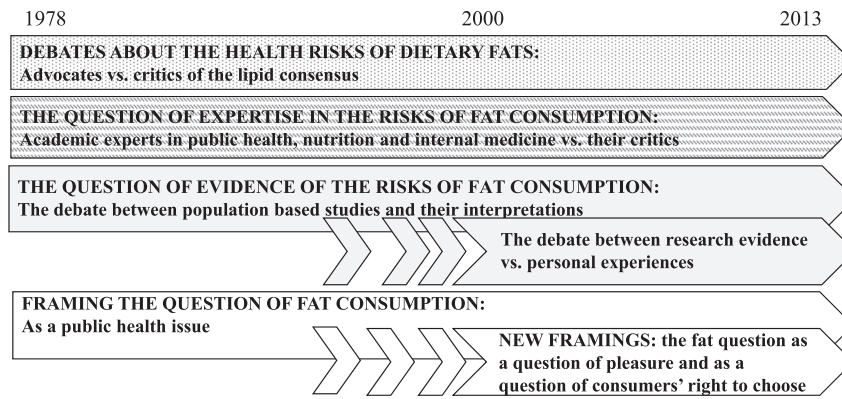


Fig. 2. Evolution of fat debates and their themes in Helsingin Sanomat newspaper.

Public Health Institute, along with his colleagues questioned the expertise of the writer of an LTE a few days earlier, Matti Viukari “*docent in psychiatry and a physician specialised in geriatrics [in the] debate over nutrition and chronic disease.*” (Puska#, LTE, 10 March 1984). Scientific publications on the subject were presented as evidence of expertise: for example, experts who did not have scientific publications related to dietary fats were juxtaposed with a prominent Finnish researcher, Jaakko Tuomilehto, with over 900 publications in the area of nutrition, dietary fats and carbohydrates (Fogelholm#, LTE, 17 December 2008).

Those critical of the lipid consensus questioned the expertise of those advocating it, for example, by labelling the findings by one of the pioneers in lipid research, Ancel Keyes, as a statistics fraud (Maijala#, LTE, 9 December 1994). The advocates of the lipid consensus were accused of unscientific methods, of “*first decid[ing] who is guilty, then collecting and searching for material that seems to support the guilt [of animal fats]*” (Haka#, LTE, 2 July 1980), of providing “*a cliché that is not supported by current research*” (physician, orthopaedist Antti Heikkilä, LTE, 21 August 2006) and of “*declaring with almost religious zeal that healthy food contains only a little fat*” (emeritus professor in animal breeding UB Lindström, LTE, 19 June 2003).

Moreover, a line was drawn with regard to questionable motives arising from economic interests. In particular, in the 1980s and early 1990s the advocates of the lipid consensus accused the dairy company Valio of vested interests, as exemplified below:

“*When one-sided information is unscrupulously presented, citizens will become confused and will be hesitant to accept the message of the health experts. The debate over the etiology of a disease is not a matter of opinion; it takes place in scientific publications, in meetings and boards of experts.... It would be desirable if Valio would not use millions [of Finnish marks] in advertising that distorts the facts and is harmful to citizens' health.*” (Puska#, LTE, 23 July 1988)

The economic motives of the advocates of the lipid consensus were also questioned; the National Public Health Institute of Finland, for example, was accused of being the “*lapdog of pharmaceutical and other industries*” by a lay person (Raimo Tölli, LTE, 10 February 2007).

Overall, both sides tried to establish their authority and depict the competing side as incompetent, unable to understand the risks of fat consumption. The advocates of the lipid consensus were protecting their own position as sole authorities in questions of healthy eating, while their critics were trying to break this dominance. However, the critics did not present themselves as prominent academic researchers, but more as mediators and interpreters

of proper scientific knowledge in the area. However, whereas most of the above-cited writers called for proper science, free of extra-scientific motives, new modes of expression emerged in the early 2000s, stressing the importance of personal experience.

3.3. The evidence of the risks of fat consumption

References to research evidence from epidemiological and intervention studies and clinical trials were a core part of the texts by both advocates and the critics of the lipid consensus throughout the period under scrutiny.

The critics often accused the advocates of the lipid consensus of being ignorant of or covering up research results on the benefits of animal fats. For example, the deputy chief executive of Valio pointed to studies among the Maasai and the Israelis that showed that, in many populations, high consumption of saturated fats does not lead to a high level of cholesterol (Haka#, LTE, 2 July 1980). The previously mentioned ‘paid announcement’ by Valio in 1988 justified its arguments with statistics, and thereby created an image of a scientific approach. Later, even lay people criticizing the lipid consensus referred to research, mentioning, for instance, “*Harvard professors*” who had suggested lowering consumption of carbohydrates and increasing consumption of proteins and fats, and “*lots of knowledge from well-designed research, free of agendas of interest groups and the attitudes of researchers*” (MSci, Heljä Suuronen-Gelb, LTE, 5 July 2003).

Until the early 2000s, the question of adequate evidence was mainly about reporting research results supporting one’s cause and opposing the cause of the other side. In the 2000s, the critics of the lipid consensus – especially lay people, and professionals in the catering business – increasingly presented personal experiences and observations; one of many examples was the lay person who reported the beneficial effects for her health of “*eating butter and tasty meat casseroles without worrying*” (free-lance journalist and graphic designer, Heli Santavuori, LTE, 24 June 2003). It is noteworthy that occasionally personal experiences were reported side by side with references to scientific research in a single LTE. For example, a physicist and “*an amateur in nutrition science*” reported that she had gotten rid of an allergy, lost weight and achieved good cholesterol values after she started following a low-carbohydrate diet (Johansson#, LTE, 15 June 2003). Later, she justified her diet with “*new nutrition research that questions the whole doctrine of a low-fat diet*” and mentioned several sources, including studies published in *Science*, *JAMA*, *NEJM*, *Nutrition* and *The Lancet*.

In the face of the new situation, which gave voice to personal experiences in the early 2000s, the advocates of the lipid consensus kept stressing the reliance solely on research. For example, Mikael Fogelholm# justified Finnish nutrition recommendations “*[not with*

his] own ideas, but more the current scientific views”, and “several controlled trials”, and stressed that “[i]ndividual experiences are not suitable as guiding principles” (Fogelholm#, LTE, 4 July 2003). It is noteworthy that the frequent critic of the lipid consensus, Kari Salminen#, did not adopt personal experiences in his argumentation, but for the most part continued to base his arguments on research questioning the association between saturated fats and CVDs (e.g. Salminen#, LTE, 7 June 2006).

3.4. Framing the question of fat consumption

The advocates of the lipid consensus typically kept public health at the heart of their message and were detached from other kinds of frames, namely food and eating as culture and enjoyment, and consumers' right to choose. These alternative frames, however, were brought up repeatedly as part of the criticism of the lipid consensus, and were increasingly apparent over the time period under study. Yet, even when faced with alternative frames, the advocates of lipid consensus kept to their arguments based on scientific evidence and stressing health promotion targets. At most, the alternative frames were commented on as follows: “*The use of butter may well be justified by taste, if one wants, but the effect of saturated fats on arteries is undeniable*” (Strandberg#, LTE, 28 August 2006).

The first reference to taste occurred in the late 1980s, by a lay writer (Svante Hautamäki, LTE, 1 June 1987), who recalled his pleasurable experiences with whole milk. At this point, however, references to taste were sporadic. In the early 2000s, references to taste became more frequent and began to form the main agenda of some of the debates. The most vocal proponents of pleasure were lay people, professionals in catering services and creative professionals. Here, the taste of food was often tied to the question of confusion and anxiety created by those warning of the dangers of consuming animal fats.

A prime example of framing the fat question as a question of taste, culinary culture and consumers' right to choose was a dispute initiated by two researchers at the National Public Health Institute in Finland, who expressed their concern over the new café culture (Absetz & Laatikainen, LTE, 3 March 2002). The writers noted that “*in [Finland] a café culture that does not support the health pursuit of the clients has emerged*”, and consequently, many people were drinking espresso-based coffees made with whole milk. The following day the representative of the Finnish coffee roastery Paulig was quoted in an HS news article as saying that the roastery suggested using whole milk because then “*coffee tastes and looks better*” and that clients should themselves consider what tastes best (Jussi Leimio, Customer Marketing Director of Paulig, News article, 9 March 2002). Here, the question of the danger of saturated fats was secondary to the question of the good taste of caffè latte, an issue that also comes up in the following LTEs written by a lay person:

“Please ... don't start to ruin the café culture that has finally started to emerge here too. While ordering caffè latte, I always require that the milk is [whole milk] ... Healthiness of foods is, of course, important, but so too are taste and appearance.” (Jukka Aalto, LTE, 10 March 2002)

The above debate and extract suggest that the arguments for good taste were often related to the claim that public health authorities cause anxiety and unnecessary fear among consumers. The taste argument was also apparent in the concern that the health promoting professionals with their butter-free asceticism had dictated Finnish food culture too long. Below a known chef ponders Finnish hospitality during Finland's Presidency of the

Council of the European Union in 2006:

“I encourage hosts to provide their guests with Finnish butter, food and pastries, baked with butter and hide spreads and light products at least for a half year, so that the Finnish cuisine is not disgraced.” (chef Eero Mäkelä, LTE, 13 June 2006)

Finally, the colourful and even emotional language used by many writers suggests that in these years a great deal was at stake, and many people felt that they were a part of a new movement against the authoritarian guidelines of the public health establishment and defending consumers' right to choose. This concern of the decades-long dominance of the discourse on health promotion, is exemplified in the following quotation:

“It is surprising that, for a generation, we butter eaters have been manoeuvred, dominated, humiliated and despised, and we have not started to fight for our rights. Our simple right is to put butter on our bread. This right has been taken from us by ... health terrorist methods.” (journalist Eero Silvasti, LTE, 7 June 2003)

4. Discussion

We found four debated themes regarding the consumption of milk fats and vegetable oils, and in large part in all these themes the same arguments were used over nearly four decades. The main arguments for beneficial or harmful effects of saturated fats have remained the same among advocates and critics of the lipid consensus. References to epidemiological and intervention studies and clinical trials, even to the same specific studies over the years, and framing of the fat question as a public health issue, have been ongoing, as has the definition of what constitutes genuine expertise. These themes have been intertwined in a dominating public health debate over fats.

Yet, we also found discontinuities. In the early 2000s, not only population-based research evidence, but personal experiences and observations too, were increasingly presented as evidence of the effects of dietary choices on human health and well-being. Moreover, the question of fat consumption was framed either as one of pleasure or of a consumers' right to choose rather than only being a public health question. Moreover, new professional groups such as chefs and creative professionals now joined the discussion. These new approaches to the fat question were often presented in the same debate threads alongside the dominating public health approach. What is interesting, however, is that these new approaches did not change the arguments of either the advocates or the critics who had been writing LTEs since the 1980s. Nevertheless, the complexity of fat debates increased.

Discontinuities are also demonstrated by comparing the major dispute of 1988 with those of the 2000s. The 1988 dispute, initiated by an announcement by the Finnish dairy company Valio, may be interpreted as an unsuccessful attempt to enhance the deteriorating image of butter and reverse the trend in declining consumption of dairy products (Fig. 1) (Jallinoja et al., 2015). At this point the advocates of the lipid consensus held the upper hand. Afterwards, Valio started increasingly to develop and market low-fat products (Perko, 2005, 380, 402).

Compared to the previous debates, from the early 2000s onwards the critical front was stronger in its health claims, which were now accompanied by several interrelated phenomena promoting the consumption of tasty animal fats and emphasising the importance of individual health testimonials. The new situation was reflected a few years later in consumption trends, as the preference for butter products increased and that for low-fat

spreads decreased (Fig. 1).

Several developments taken together have provided fuel for the debates on dietary fat consumption and have made them intense and enduring. Here, we may point out older conflicts: Firstly, the importance of dairy products in Finnish agriculture and food culture before and after the Second World War led to a reluctance to accept messages promoting the dangers of animal fats (Kokko & Räsänen, 1997). This history probably still feeds into the debates.

Secondly, the early years of cholesterol, cardiovascular events and dietary fat research together with new scientific publications contradicting the lipid consensus offered opportunities to suggest that the foundations of the consensus are shaky. Karin Garrey (1997) has pointed out that policy conclusions were drawn before definitive proof of the association between diet and CVDs was published, while the cholesterol–heart disease association proved to be an issue where final and conclusive scientific truth has been difficult to achieve, even within the academic community.

Thirdly, the debates, especially since the 2000s, drew from the conflict between health and pleasure that has long characterised western cultures (Crawford, 2006; Gronow, 1997). Moreover, there are indicators of pleasure gaining importance as a justification of food choices: For example, in the foodie culture, the idea that everyone should have access to good and delicious food has been promoted (Johnston & Baumann, 2015, 39). Moreover, low-carbohydrate/high-fat (LCHF) diets have emphasized not only healthiness, but taste and naturalness, as criteria of edible foods (Knight, 2012; Jallinoja, Niva, Helakorpi, & Kahma, 2014).

Finally, the changing relations of experts and lay people and increasing individualization contributed to the debates. According to Harry Collins (2014), since the 1960s scientific experts and their knowledge have become less and less valued. In reflexive modernization old institutions are no longer successful in convincing the public of their “unambiguous instrumental rationality”, thereby leading to unresolved conflicts (Beck, 1994). Likewise, in the Australian cholesterol debate of the 1990s, there was an increasing propensity to challenge medical and public health institutions (Lupton, 1994). Here too LCHF diets exemplify the situation, as they publicly challenged the established cadre of specialists in nutrition and public health, and highlighted the importance of lay knowledge (Jauho, 2014; Huovila, 2014).

Although the results of the present study show that writers without academic qualifications increasingly took part in fat debates (cf. Setälä & Väliveronen, 2014; Verhoeven, 2008), the academic establishment with its epidemiological argumentation still holds its position, and has not been replaced by lay people or lay epidemiology. Interestingly, in Finland trust in the scientific community, in universities and the current state of medicine has remained high and is higher than trust in the media (*The Finnish Science Barometer*, 2013). Hence, the criticism presented in the texts of the current study has not yet been reflected in the general trust in science institutions among Finns (see also Jauho, 2014) and arguments based on science and individual experience coexist (see also Huovila & Saikkonen, 2015).

The study results must also be discussed in the context of journalistic practices. The editorial decisions reflect several interests and aims in journalism and public discussions, e.g. a tendency in writing about food issues to affect the readership by propagating food anxieties (Milne, Wenzer, Brembek, & Brodin, 2011; Tester, 2001), to favour lay perspectives (Verhoeven, 2008) and human interest (Tester, 2001) or to create a false balance, i.e. presenting all views in equal proportion, even when one of the views represents a minority perspective (Collins, 2014). Despite attempts by HS to publish different viewpoints in the same proportion as that reflected in the letters sent (HS, personal communication, 20 May 2015), we should bear in mind that the texts are

not only expressions of the LTE writers' interests, but also those of HS. Moreover, had we chosen to include other texts than those that are a part of threads or other media in the analysis, additional contested issues or subjects of agreement might have been found. It is probable that, currently, many lay writers in particular prefer to debate health issues in internet discussion forums (Jauho, 2014).

5. Conclusions

To conclude, at the core of the fat debates lies not only the question of healthiness of fats, but also the question over who has the authority to speak about dietary fats – or eating habits in general – and on what basis. In Finland, since the 1950s and especially since the 1970s through initiatives like the North Karelia project, the dangers of animal fats for heart health have been cemented in the Finnish consciousness. The related health promotion has been presented in the media as a national success story, especially after mortality due to CVDs has declined significantly since the 1970s (Jousilahti et al., 2016). Several advocates of the lipid consensus have based their professional careers in institutions like the North Karelia project and the National Public Health Institute, and been active in building and strengthening the lipid consensus they are protecting in the pages of HS. For example, Pekka Puska is well known in Finnish media and even an embodiment of heart health promotion since the North Karelia project in the 1970s.

Our results suggest that the advocates of lipid consensus and those critics who had started commenting in the 1980s maintained their argumentative positions – even when faced with the fragmented media and food culture of the 2000s and the new ways of framing the fat question brought by the new generation of critics. Several commentators on both sides kept relying on the public health framing and research-based argumentation that had held a dominant position in heart health publicity in Finland since the 1950s. Moreover, among the advocates of the lipid consensus, perhaps the previous success partly explains the reluctance to modify their argumentation and engage with the new approaches highlighting personal experiences, pleasure and consumers' right to choose that emerged from the early 2000s onwards.

Currently, it seems that the media publicity around food and health is fragmented. In the future, the demonopolization of expertise and personification of nutrition is expected to increase (Topol, 2015). This situation is leading to increasing juxtaposing between those justifying their arguments solely on population-based research and framing fats as a public health issue, and those using experience-based rationalizations and invoking pleasure. It remains to be seen if it is possible to maintain the emphasis on public health argumentation, and recognize alternative frames, too, and to reconcile the population level data and individual experiences.

Ethics approval

The data on the study consists solely of texts published in a newspaper, i.e. public sources. Hence, the data was not obtained by e.g. interviewing people. Ethics approval was not required at the University of Helsinki for this kind of study.

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Appendix 1. Writers of letters to the editor (LTEs) in *Helsingin Sanomat* with more than one text as the first author, in at least two threads.[§]

Writers/Number of texts (years)	Selected description of the positions and degrees at the time of the LTEs
Kari Salminen 15 LTEs, 1 interview (3 LTEs and 1 interview as a representative of Valio), (1988–2010) Pekka Puska 8 LTEs, 4 interviews (1984–2007)	PhD and docentship in food chemistry; research manager in the dairy company Valio 1985–1998; retired, 1998. DMedSc, docentship in public health; principal investigator and director of the North Karelia Project; departmental director at the National Public Health Institute of Finland, 1978–2001; director for NCD prevention and health promotion at WHO Headquarters, 2001–03; director general of the National Public Health Institute/National Institute for Health and Welfare, Finland 2003–2013.
Rauno Heikinheimo 6 LTEs, 1 editorial (1980–1988) Ilkka Haka 5 LTEs (1980–1990) Timo Strandberg 5 LTEs (1993–2009)	DMedSc, docentship in internal medicine; medical director at the Tampere City Hospital. Deputy chief executive of Valio 1977–1985; CEO of Valio 1985–1992; MSc (economics). DMedSc, specialist in internal medicine and geriatrics; various positions at the University of Helsinki and the Helsinki University Central Hospital (2000–2005), as well as in Oulu and Oulu University Hospital (2005–2011).
Kalle Majjala 5 LTEs (1992–2001) Pertti Mustajoki 3 LTEs (2003–2010)	Professor emeritus, animal breeding; PhD in science (Agriculture and Forestry). DMedSc, docentship in internal medicine; chief physician at Internal Medicine Unit, Peijas Hospital, 1994–2006.
Mikael Fogelholm 4 LTEs, 1 column and 1 as an interviewee (2003–2012)	PhD and docentship in nutrition; director of the UKK Institute (research and expert organization for promotion of physical activity in Tampere), 2001–2007; director of the Health Research Unit of the Academy of Finland, 2007–2011; professor of nutrition at the University of Helsinki, 2011–.
Matti Uusitupa 3 LTEs (1991–2010)	DMedSc, specialist in internal medicine; several positions at Kuopio University Hospital and the University of Kuopio in clinical nutrition 1987–2001; rector of the University of Kuopio, 2001–2009.
Antti Aro 2 LTEs (1994–1995)	DMedSc, docentship in clinical nutrition, specialist in internal medicine and endocrinology; research professor at the National Public Health Institute of Finland, 1991–2003.
Erkki Vartiainen 2 LTEs (1991–2005)	DMedSc, docentship in public health; departmental director at the National Public Health Institute of Finland, 1993–2008.
Lotta Hällström# 2 LTEs (2005–2007) Sven-Olof Jakobsson # 2 LTEs (2007–2008) Leena-Sisko Johansson # 2 LTEs (2003–2004) A.W Yrjänä 2 LTEs (2010–2011) Raija Kara 2 LTEs (1991–2010)	Nurse, MSocSc. Not available Physicist, PhD. Musician and columnist. Executive director of Information on Margarine, 1985–1997; secretary general of the National Nutrition Council of Finland, 2004–2014.

[§] All texts had been published in *Helsingin Sanomat* newspaper and hence, were public documents. Therefore, there was no need to get a permission from the LTE writers to report their names.

[#] These lay writers later published books on diet or health: Hällström (2009) on eating disorders, Jakobsson (2007, 2009, 2015) on critical perspectives on medication, and Johansson (2010) on the paleo diet.

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