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Towards de-dairyfication of the diet?—Consumers downshifting milk, yet justifying their dairy pleasures

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Currently, the consumption of liquid milk in Western European countries and the US is declining. At the same time, the consumption of other dairy products, including cheese and sour-milk products, is increasing. Dairy production, along with meat production, is one of the main food sources of greenhouse gases, which cause climate change. Thus, the transition toward more sustainable diets requires a reduction in the consumption of both meat and dairy products. Consumers who do not use milk (e.g., vegans) have received more scholarly attention compared to those who are reducing milk consumption. Our study focuses on Finnish consumers who have reduced the use of cow's milk but have not abandoned dairy entirely. Through qualitative data, we analyze how consumers on the one hand narrate their detachment from using milk and on the other hand justify their ongoing use of dairy products. The results show that consumers began their dietary change by first reducing meat eating, followed by milk. For the consumers, cheese eating was a source of enjoyment that was difficult to resist and to replace with plant-based alternatives, even though they were aware of the animal suffering caused by milk production. Consumers recognized the interdependence between meat and milk production and consumption, yet, at the level of everyday practices, giving up milk proved to be more challenging than giving up meat. We argue that the declining use of fluid milk contributes to the de-dairyfication of eating habits, but obstacles remain in reducing the consumption of other dairy products.

KEYWORDS

consumer, dairy, sustainability, milk, de-dairyfication, animal ethics, low-milk flexitarians, milk consumption

Introduction

Over the last 20 years, the consumption of fluid milk has declined in Western European countries, and non-dairy alternatives have become more accepted (McCarthy et al., 2017; Zingone et al., 2017; Allen et al., 2018; Morelli and Vitale, 2020). A similar development can be seen in the United States, where in 2018 alone fluid milk sales dropped by 8%, while the sales of plant-based alternatives increased by 9% (Clay and Yurco, 2020). Similarly, in Finland the per capita consumption of liquid milk products has declined by 13% during the last 5 years (Natural Resources Institute Finland, 2021). Although the consumption of fluid milk has been declining in Western countries, the same has not occurred for other milk-based products. For example, in the United States total dairy consumption continues to increase, driven by growth in the sales of cheese, butter, and yogurt (Wolf et al., 2020). Italian and Finnish studies and statistics also indicate that cheese eating is increasing, although milk drinking is declining (Zingone et al., 2017; Mäkelä and Rautavirta, 2018; Natural Resources Institute Finland, 2022).

Dairy production is a source of greenhouse gases (GHGs), which contribute to climate change (e.g., Rotz et al., 2010; Rotz, 2018), and in countries with a strong milk-producing sector, beef, and dairy production are closely connected. There is a wide scientific consensus that due to the urgent need to mitigate climate change and other environmental problems, a transition toward more sustainable eating is needed and that diets must change toward fewer animal-source foods (ASF) (e.g., Willett et al., 2019; Dagevos, 2021; Lonkila and Kaljonen, 2021). Since meat and meat products are the main sources of ASF, it has been suggested that a "de-meatification of the diet" (Morris, 2018; Weis and Ellis, 2022) is crucial in the transition toward healthier and more ethical and sustainable diets. Mylan et al. (2019) noted that scholarly attention on sustainable diets has been directed at meat and "de-meatification," while less attention has been given to plant-based alternatives to cow's milk. At the same time, Clay and Yurco (2020) argued that milk and dairy products are increasingly contested foods that provide a window into inter-linked social and environmental crises.

Consumer research on more sustainable eating has largely focused on meat and alternative plant-based products, focusing on the health, environmental, and/or animal ethical concerns relating to meat (e.g., Lundén et al., 2020; Dagevos, 2021; Lonkila and Kaljonen, 2021; Malek and Umberger, 2021). However, dairy consumption has also recently been problematized due to the ecological burden that it causes (e.g., Kolbe, 2018; Haas et al., 2019; Schiano et al., 2020; Jiang et al., 2021). Studies have shown that consumers who restrict and avoid milk consumption do so mainly in response to health-related concerns (e.g., fat, cholesterol; see Chollet et al., 2014; Zingone et al., 2017; Allen et al., 2018; Morelli and Vitale, 2020). Environmental and animal ethical concerns, such as animal suffering from human activities or mistreatment of animals in dairy production, are also reasons to avoid consuming milk and to replace cow's milk with plant-based products (e.g., McCarthy et al., 2017; Haas et al., 2019; Schiano et al., 2020; Beck and Ladwig, 2021).

Recent consumer research on sustainable eating practices has analyzed consumers' views on cow's milk and its alternatives (e.g., soya, almond, rice, and oat drinks; see Palacios et al., 2009; Fuentes and Fuentes, 2017; Kempen et al., 2017). Many studies have also investigated the food-related practices of consumers who avoid milk, particularly vegetarians and vegans (e.g., Twine, 2018; Jallinoja et al., 2019). Thus, reducing milk is largely viewed as a part of vegetarian and vegan lifestyles, where plant-based milk substitutes are used to avoid milk (e.g., McCarthy et al., 2017; Schiano et al., 2020; Cardello et al., 2022). Even so, consumers who are reducing but not abandoning milk consumption have received less scholarly attention compared to those who avoid it entirely (e.g., Salmivaara et al., 2022).

The use of milk—and particularly reducing its consumption—has not been politicized in Finland in the same way as the consumption of meat (e.g., Vinnari, 2008; Vinnari and Tapio, 2009; Pohjolainen et al., 2016). Scholars have increasingly focused on the use of meat substitutes (e.g., Jallinoja et al., 2016; Vainio et al., 2016; Niva and Vainio, 2021), while the use and perceptions of milk and milk alternatives has received less scholarly interest. Thus, empirical studies on Finnish consumers' views about milk and dairy products are scarce in comparison with research in other dairy-intensive countries, such as Italy, Canada, Switzerland, and the UK (e.g., Chollet et al., 2014; Allen et al., 2018; Mylan et al., 2019; Morelli and Vitale, 2020).

By studying a dairy-intensive culture, in our case Finnish food culture, we aim to understand how people perceive detachment from "milk culture" as a form of sustainable eating. Using qualitative data, we examine how consumers narrate the process of reducing but not totally giving up milk and milk-based products and how they justify their use of dairy products despite the urgent need to mitigate climate change and other environmental problems caused by ASF. Our study draws on cultural consumer research (Solomon et al., 2006; Moisander et al., 2020), in which the aim is to make sense of human behavior historically and locally—in this case in Finnish dairy-oriented food culture. We aim to understand signifying practices and meaning-making in daily life (Solomon et al., 2006, p. 499). To do so, we ask the following questions: Which aspects other than health (e.g., lactose, allergy) are meaningful to Finnish consumers in their choice to reduce milk consumption? How do they justify their reduced yet ongoing milk consumption? Thus, we contribute to the discussion on transforming eating habits toward a more sustainable path by focusing on less ASF usage (e.g., Dagevos, 2021; Lonkila and Kaljonen, 2021; Weis and Ellis, 2022), especially dairy-based food products (e.g., Kolbe, 2018; Haas et al., 2019; Schiano et al., 2020; Jiang et al., 2021).

The article is structured as follows: First, we review the research on reducing dairy consumption, and then we position our study in the Finnish research context. Next, we introduce our data and methodological starting points. Finally, we present our results, discussion, and conclusions.

Consumers avoiding milk in their diet—Towards sustainability

In Western countries, dairy products have been considered an important part of a balanced diet since the early twentieth century (e.g., Wiley, 2014), when milk was viewed as "a perfect food" (Block, 1999). This is particularly true in countries in which milk has had an important cultural position, such as the Nordic countries, alpine countries, the UK, and the USA (e.g., Wiley, 2014; Zingone et al., 2017; Mäkelä and Rautavirta, 2018; Wolf et al., 2020). However, milk is no longer viewed as a perfect food by everyone. Consumers have questioned milk products as part of a balanced diet for various reasons, which we outline below.

First, potential health risks have been associated with milk consumption. Chollet et al. (2014) reported that Swiss consumers reduced their milk consumption for nutritional and health reasons, such as reducing fat, cholesterol, and lactose in their diet. Similarly, a study in Italy showed that educated young people did not consume milk due to health concerns related to lactose or milk protein (Morelli and Vitale, 2020). Allen et al. (2018) found that Canadians who do not believe that avoiding milk has negative health impacts are more likely to avoid using milk and/or yogurt.

Second, as with foods in general, the taste of milk is an important aspect for consumers. Lanfranchi et al. (2017) found that the unpleasant taste is one argument for avoiding fluid milk. Cardello et al.'s (2022) showed that although full-fat dairy milk was the most popular dairy product in New Zealand, plant-based alternatives have gained interest. According to McCarthy et al. (2017), taste (liking the flavor) was important for consumers who used both cow's milk and non-dairy alternatives. Further, Jiang et al. (2021) found that in New Zealand, positive animal welfare information improved consumers'

sensory appreciation of milk products, including the mouthfeel, taste, and aftertaste.

Third, ecological and animal welfare arguments are increasingly highlighted as reasons to avoid milk. For instance, Schiano et al. (2020) reported that consumers who purchased both plant-based dairy alternatives and dairy products placed a higher importance on sustainability than those who purchased only dairy products. Based on these results, it seems that the use of plant-based milk was associated with sustainability concerns among consumers, including those who did not completely avoid dairy products. For consumers, sustainability meant minimal carbon footprint/greenhouse gas emissions, few/no preservatives, animal happiness and welfare, and simple/minimal ingredients (Schiano et al., 2020).

Similarly, Haas et al. (2019) found that the drivers of the choice to use plant-based milk were environmental protection and animal welfare. Among non-dairy consumers, the suffering of animals was the main reason for not using dairy products. Meanwhile, consumers who used cow's milk did not view animal welfare or sustainability as important, and they viewed cow's milk as an ideal product and part of a balanced diet (see also Block, 1999; Haas et al., 2019). For them, the image of cow's milk was better than that of plant milk. According to McCarthy et al. (2017), consumers who only drink non-dairy plant-based alternatives do so because they desire to consume less animal products. They also believe that animals are mistreated in dairy production and believe that non-dairy products have lower environmental impacts than cow's milk. Kolbe (2018) argued that while meat can be produced with minimal suffering to animals, the consumption of milk is always associated with considerable suffering during the dairy cow's lifespan and the lives of their offspring.

Interestingly Alae-Carew et al. (2022) found a link between meat consumption and non-dairy consumption among British consumers: "low-meat consumers" used more plant-based alternative foods and other plant foods (e.g., beans, pulses, nuts, seeds), but at the same time they also reported higher consumption of milk and other dairy products than "high-meat consumers." In other words, consumers who reduce meat eating do not necessarily reduce their consumption of dairy products, indicating that the meanings and practices related to meat and dairy are quite ambiguous. However, Malek and Umberger's (2021) study indicated that consumers who were "heavy meat reducers" also consumed fewer dairy products (e.g., milk, cheese, and yogurt). Such a pattern of eating in which meat eating is reduced and is partly replaced with plant-based alternatives has been termed "flexitarianism." A "low-meat flexitarian diet" means that people are not fully vegetarian/vegan, and they occasionally eat meat without avoiding it completely (e.g., Dagevos, 2021).

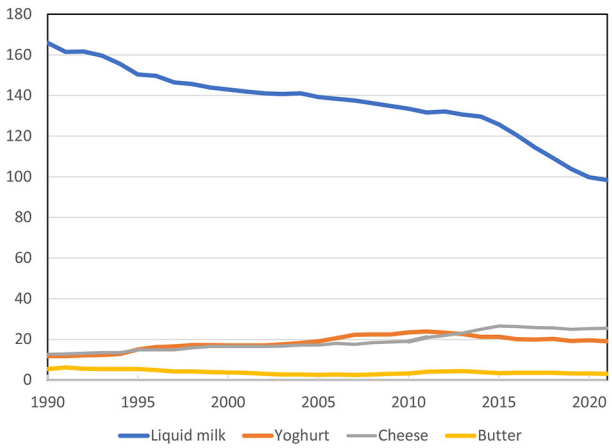

FIGURE 1
Consumption of liquid milk, yogurt, cheese, and butter in Finland 1990–2021, kg/per capita. Source: Natural Resources Institute Finland (2022), Balance sheet for food commodities (2021 preliminary data). Fluid milk is the sum of whole milk, low-fat milk, and skim milk consumption.

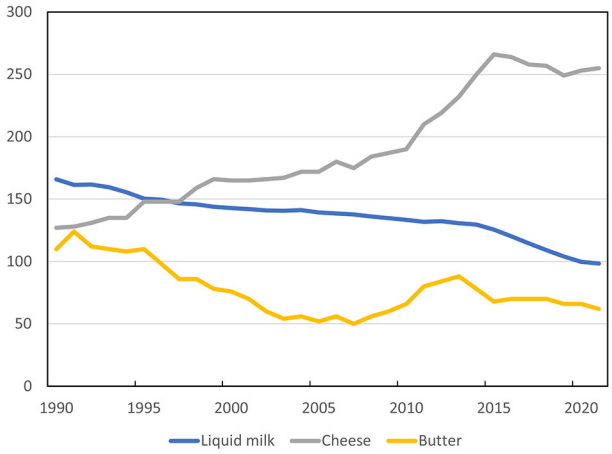

FIGURE 2
Estimated consumption of milk products as liquid milk in Finland 1990–2021, kg/per capita. Source: Natural Resources Institute Finland (2022), Balance sheet for food commodities (2021 preliminary data). Fluid milk is a sum of whole milk, low-fat milk, and skim milk consumption. The estimated amount of liquid milk used for 1 kg of cheese is about 10 kg of liquid milk. The estimated amount of liquid milk used for 1 kg of butter is about 20 kg of liquid milk. Sources: for cheese, Dairy Food Safety (2022) and for butter, Oldenburger Professional (2022).

Finnish consumers reducing liquid milk drinking

In Finland, milk has been an important part of the diet since the shift to animal husbandry in the late nineteenth century. From the high consumption levels in the 1950s, milk drinking has declined by more than two-thirds, and fluid milk consumption is currently declining (Mäkelä and Rautavirta, 2018; Figure 1). However, large volumes of milk are still used in the production of other non-liquid milk products. On average, 10 kg of milk is needed to produce 1 kg of cheese, and 20 kg is needed to produce 1 kg of butter (Figure 2). From an ecological perspective, this is obviously problematic.

As argued above, the use and perceptions of milk and milk alternatives have gained modest scholarly interest in Finland. Mikkola and Risku-Norja (2008) studied Finnish catering experts' beliefs about consumer expectations regarding milk in their restaurants. The experts emphasized oat or soy milk as a sustainable dietary choice, and they valued conventionally produced milk more than organic milk. According to the report of the Ministry of Agriculture Forestry (2008), Finnish consumers expect purity, freshness, ethics, and healthiness from dairy products. In terms of

ethics, the report refers to the environmental impacts of production, animal welfare, and fair income distribution.

More recently, Hakokõngäs and Sakki (2019) focused on how Finnish dairy advertising (videos, 2010–2016) has been persuading consumers to use milk products, showing that the main concern in the advertisements is the livelihood of farmers. Furthermore, Lundén et al. (2020) studied the nutritional and environmental attitudes of Finnish consumers toward animal and plant-based raw materials that are used in everyday cooking and found that consumers favor plant-based ingredients over animal ones. Finnish consumers view plant-based ingredients as credible, ecological, natural, healthy, and nutrient-rich. However, their results indicated that the preferred raw materials of animal origin were whey and milk protein, reflecting the historically strong role of dairy in Finnish food culture (Mäkelä and Rautavirta, 2018).

Lehikoinen and Salonen (2019) argued that the key to a sustainable transformation of mainstream diets in Finland lies in the co-benefits of combining hedonistic (e.g., health, weight loss) and altruistic (e.g., ecological benefits) factors in the everyday diet. Further, Jallinoja et al. (2016) suggested that the transition toward more sustainable food consumption among Finnish consumers requires a substitution of animal protein with plant-based protein sources (see also Lonkila and Kaljonen, 2021). Thus, Finnish consumers who are reducing their milk consumption and replacing cow's milk with plant-based alternatives are promoting this sustainability transition (i.e., less animal protein, less greenhouse emissions), and we conceptualize these consumers as "low-milk flexitarians" or "downshifters of cow's milk" (cf. Dagevos, 2021).

Materials and methods

In order to study the ways in which "downshifters of cow's milk" consumption reason and justify their dietary change, we collected qualitative data through semi-structured interviews with and narratives written by consumers who represent the particular group that we were interested in. As Galletta (2013) noted, a semi-structured interview provides a repertoire of possibilities and addresses specific topics related to the phenomenon of study while leaving space for the participants to offer new meanings to the study focus. A semi-structured interview allows the participants to express their thoughts and ideas freely, in the length and at pace they wish. Textual materials, such as written stories, provide research data in which events and experiences are recounted in a narrative (Elliott, 2005).

To collect data about "downshifters of cow's milk," we approached Finnish consumers who had reduced their milk consumption but had not stopped using it altogether. We recruited the interviewees using the snowball method (Geddes et al., 2018), in which the researchers and/or study participants use and activate their social networks (Noy, 2008) for the purposes of the study. Collecting the data was a social and participant-driven process. The participants forwarded the request and general research information to other potential participants who shared similar milk consumption patterns and who were willing to participate in the research. These new participants were subsequently contacted by Author 4 (Noy, 2008).

Consumers who had reduced their consumption of fluid milk or other milk products (i.e., who were no longer using milk as much as before) were quite difficult to reach initially because, for the potential interviewees we approached, it was difficult to draw the line between using, avoiding, reducing, and not using cow's milk. Further, it was challenging to define the differences between these categories. It is illustrative that they did not identify themselves as "downshifters" of cow's milk, perhaps because there is no culturally shared identity position with regard to milk and dairy consumption practices comparable to being a "flexitarian" (referring to meat consumption practices).

To begin the data collection, Author 4 used her personal networks and asked her friends, relatives, and student colleagues to participate in the study. The close acquaintance described above was a key factor to identify initial participants. Author 4 had the opportunity to conduct interviews in the Helsinki Metropolitan area and the City of Joensuu in Eastern Finland, and the interviewees were recruited from these two cities. Data collection progressed through key contacts who fit the research criteria: they had reduced milk use but had not totally given up dairy products).

In total, 14 informants were recruited for the interviews (Consumers 1–14 in Table 1). The themes discussed with the interviewees focused on (1) diet, (2) their consumption and use of milk, experiences with reducing the use of (fluid) milk and milk-based products, the nutritional properties of milk and milk products, and (3) experiences with the replacement of milk and milk products with plant-based alternatives (see the interview guide in Appendix 1). Pictures of cow's milk and oat-, soy-, and rice-based drinks were used as the stimulus material (see, e.g., Törrönen, 2002). Compared to simply posing questions, the stimulus material gave the interviewees an opportunity to discuss the topic in a broader way first (e.g., with pictures of different milk types), followed by a focus on a specific type of drink (e.g., with pictures of cow's milk and oat-based drink). The face-to face interviews lasted between 33 min and 1 h and 15 min, and they were recorded and transcribed verbatim.

After the first iteration of thematic analysis of the interview data, we found that although consumers had reduced their use of fluid milk, they had not reduced their consumption of other milk products, such as cheese. They also considered animal welfare issues, such as the suffering of cows and calves caused by the intensive milk production. In order to get more in-depth information about the reasonings related to these considerations, we collected some new data. In this phase, Author 1 approached two consumers in her social network (in the Helsinki Metropolitan area) who had reduced their consumption of milk (Consumers 15 and 16, Table 1) and asked them to write a narrative based on these questions: "The writing task: What do you think about the fact that you do not drink liquid milk any more or that you do not use milk-based products in cooking, but you still eat cheese? Have you thought about it before? What do you think about animal welfare in relation to the use of milk?" These narrative accounts (1–2 pages) allowed the consumers to provide written thoughts (i.e., more time to think compared to interviews) rather than answering questions orally during the discussion. As Murray (2018) noted, narrative inquiry (including interviews) is based on the assumption that humans are storytelling creatures who make sense of their world through stories. The results based on the new data set supported the results of the first round of analysis and enabled us to deepen our understanding of giving up milk as part of one's diet.

We used thematic analysis as a method for identifying, analyzing, and interpreting the patterns of meanings ("themes") within the data (Clarke and Braun, 2017). Our analysis was inductive (data driven), which is useful when exploring a new subject area (Clarke and Braun,

TABLE 1 Background information of the participants: age, gender, place of residence, and educational background.

The number of the participant	Age	Gender	Location	Educational background
Consumer 1	43	Woman	Helsinki metropolitan area	Master degree
Consumer 2	24	Woman	Helsinki metropolitan area	University student
Consumer 3	24	Woman	Helsinki metropolitan area	University student
Consumer 4	28	Woman	Helsinki metropolitan area	University of Applied Sciences degree
Consumer 5	39	Woman	Helsinki metropolitan area	Master degree
Consumer 6	29	Woman	Helsinki metropolitan area	Master degree/University of Applied Sciences degree
Consumer 7	30	Man	Helsinki metropolitan area	University of Applied Sciences degree
Consumer 8	24	Woman	Helsinki metropolitan area	University student
Consumer 9	24	Woman	Eastern Finland (the city of Joensuu)	University student
Consumer 10	25	Man	Eastern Finland (the city of Joensuu)	University of Applied Sciences student
Consumer 11	26	Woman	Eastern Finland (the city of Joensuu)	Vocational upper secondary qualification
Consumer 12	33	Woman	Eastern Finland (the city of Joensuu)	Vocational upper secondary qualification
Consumer 13	37	Man	Helsinki metropolitan area	University student
Consumer 14	45	Man	Helsinki metropolitan area	Did no want to share information
Consumer 15	39	Woman	Helsinki metropolitan area	Master degree
Consumer 16	47	Woman	Helsinki metropolitan area	Master degree

2017), as in our study. Our approach was based on an interpretive methodology (Moisander et al., 2020), focusing on the meanings that people give (the sense-making, signifying practices) to their everyday action.

The analysis of the two data sets was conducted as follows. First, we scrutinized the themes, which enlightened the phenomenon and the process of "giving up milk," and we paid attention to the ways in which the interviewees (1–14) and narrators (15–16) made sense of the need to reduce the use of milk and justified reducing but not abandoning milk consumption. In the second phase, we focused the analysis on the themes through which consumers experienced contradictions and even guilt when using milk, such as cheese eating and/or the suffering of farm animals. In the third phase, we deepened the interpretation by using the narrative material, which shed light on consumers' ways of thinking concerning giving up not only milk but also cheese (de-dairyfication). Based on our analysis, milk reduction is negotiated and reconciled with animal ethical reasoning, ecological concerns, and detachment from meat. As we show below, the consumers' argumentation when they related their difficulties in reducing milk and milk products in their diet was connected to "dairy enjoyment" (e.g., cheese and milk chocolate) as well as to intensive dairy production.

The fact that we and the participants used our social networks to collect data meant that the interviewees and authors of the narratives were well-educated (Table 1), and they were also young adults, urban, and mostly women. All the participants participated on a voluntary basis, and they were informed about the aim of study and given the possibility to withdraw their consent at any time during the study. In the text, we refer to our consumer interviewees and narrators as consumers.

Next, we present the results of our analysis. First, we look at animal ethical issues, which lead to questioning the use of milk in the diet, and then we analyze how consumers reduce both meat and milk eating due to ecological concerns. Subsequently, we analyze how consumers justify their cheese eating, and finally we introduce the novel concept of de-dairyfication, which reflects a further "step" toward sustainable food consumption, next to de-meatification of the diet (e.g., Weis and Ellis, 2022).

Results

Questioning intensive milk production—Suffering animals

The interviewees vividly discussed animal welfare and their feelings of guilt when consuming milk and meat. They expressed an emotional commitment to ethical food production and connected this aspect to their own food consumption habits. Regarding animal welfare, the consumers expressed their concern about the limited living space of production animals. They further discussed the link between intensive milk production and the deterioration of animal welfare. Consumer 5 indicated that she favors organic production because she trusts that animal welfare is better in organic farming compared to intensive production.

> I feel myself concerned about the cows' welfare. They are captives [in the cowshed], and that's why I prefer organic milk. I mean maybe they have more space to move around, they are free to move and maybe they feel better. This intensive production, I don't know how it is with dairy cows and if intensive production is the right term, but I wonder about the welfare of the animals. (Consumer 5, female, 39 years old, interview)

The citation above reflects consumers' justification that ethical food choices make them feel better, and they want to support farms that care about animal welfare. They alleviate their feelings of guilt

by favoring organic products. Consumer 5 supports organic milk products instead of products from intensive farming as part of her almost-dairy-free diet. In addition to criticizing the size of the living space of farmed animals, the participants question the use of cows in food production and consider intensive and constantly increasing milk production as harmful for cows. Regular calving is a prerequisite for increasing milk production, which raises ethical concerns among consumers. Consumer 12 believes that in intensive and constant milk production cows have no possibility for a species-typical life: "*Basically, the cows are abused, they are milked dry, and finally slaughtered*" (Consumer 12, female, 33 years old, interview).

Kolbe (2018) argued that the production of milk causes considerable suffering during the dairy cow's lifespan and the lives of their offspring and that these problems are worse than in meat production. In the following, Consumer 3 questions the use of milk for human consumption based on the notion that cow's milk should be consumed by calves. She also highlights "the dark side of milk production," that is, that a milking cow is separated from her calf within a few days, which causes suffering for both. She reflects on the situation as a mother of a small child and is concerned about the emotional impacts of separation, when the cow is not allowed to take care of her calf and the calf cannot feel the closeness of the mother cow.

> It must be healthy nourishment for the calf when sucked directly from the teat.… I thought it is wrong [to drink milk] even before, and especially when I got a baby, I was full of motherhood hormones and watched those vegan propaganda videos. And I thought: "Oh my god, that [mother cow] could be me!" I was thinking that I could be a cow in my next life, and I was horrified by the idea that my baby would be taken away from me. It's just not right. It [taking the few days old calf away] must be an emotional shock for the mother cow or both. They must have a similar kind of mother cow-calf relationship that we humans have. (Consumer 3, female, 24 years old, interview)

Consumer 3 also questions the suitability of cow's milk for human consumption. She compares the cow–calf relationship to a human one and thus humanizes animal behavior. She also "feminizes" the cow–calf relationship, which is not far from the idea that meat eating is "masculine." Indeed, according to Adams (1990), milk and eggs represent "feminized protein" since they are products taken from mother animals. Furthermore, Consumer 3 emphasizes the importance of species-specific behaviors of farmed animals. Autio et al. (2018; see also Kupsala, 2019) found that Finnish consumers value good living conditions for farmed animals, particularly the possibility for them to engage in species-specific behaviors. According to Autio et al. (2018), consumers also believe that animals have value and dignity, and farmed animals should live both a "natural" and a "good" life.

Detaching from beef and milk—Following a low-milk flexitarian diet

The interviews showed a link between reducing the consumption of milk and meat: when consumers started to reduce milk and milk products in their diet, they were already in the process of reducing their consumption of red meat. Consequently, the number and volume of ASF in their diets had been gradually decreasing for some time. This finding is in line with Malek and Umberger's (2021) study showing that consumers who are reducing meat eating consume fewer dairy products as well. As Consumer 6 (interview) says, "*Because of all the emissions [greenhouse gases], products of animal origin should be reduced... how much it consumes our planet. That is the reason why [milk and meat consumption] needs to be reduced.*" In the following, Consumer 13 describes this gradual change and highlights the connection between red meat and dairy products in the effort to switch from a mixed diet to a vegetarian diet. Specifically, he describes how cutting red meat consumption was a trigger, which gradually led to a broader change in his diet.

> It has happened kind of gradually, I think it took maybe 5 years. A couple of years ago I woke up to the idea that I could move toward vegetarian diet and leave out meat [from my diet]. So gradually I stopped buying milk and reduced other dairy products as well. For a long time I did eat fish, then I left it out for a while, and now I eat fish again. For a couple of years it was this going back and forth, but now I have mostly left out animal-based foodstuffs. (Consumer 13, male, 37 years old, interview)

Interestingly, the reduction of dairy products seems to begin with avoiding fluid milk. The consumers mentioned taste as one factor that estranged them from cow's milk. They felt that the aftertaste of milk was unpleasant; nor did they like the "watery" and "repulsive" taste of skim milk. For them, there was no going back to drinking milk once they given it up. McCarthy et al. (2017) noted that the good taste and flavor of cow's milk and non-dairy alternatives are important to consumers. Jiang et al. (2021) showed that positive animal welfare information improves consumers' sensory appreciation (i.e., liking the flavor) of milk products. However, our participants indicated that getting used to the different sensory tastes of plant-based alternatives compared to cow's milk could be challenging.

> In the beginning I felt a "pain of change" when drinking oat milk and soy milk, like "what the heck is this [taste]." After I got used to those, I didn't even miss "normal" milk, as regards taste. (Consumer 10, male, 25 years old, interview)

The consumers reported that they still occasionally used milk with coffee or that they alternated between milk and plant-based milk products. Some of them still felt that "normal" milk brought a "fuller taste" to coffee, and they continued to use milk occasionally. When describing their experiences of detaching from meat and being alienated by the taste of milk, the participants also pointed out the negative health impacts of dairy (and meat). In the following, Consumer 1 discusses the World Health Organization's announcement that the consumption of red meat may increase the risk of cancer and wonders about the connection between the health effects of beef and milk :

> I have been thinking about the fact that 1.5 years ago the World Health Organization announced that beef and red met in general cause cancer, and people should not eat red meat. I have been also thinking whether I want to let my children drink milk, which comes from an animal, which is a source of red meat, which

> causes cancer. So I don't let them drink [milk] that much, and I've been thinking about replacing it [with plant-based products]. (Consumer 1, female, 43 years old, interview)

In this excerpt, Consumer 1 notes that beef and milk both originate from cows, ponders the safety of milk as part of the diet, and considers switching to plant-based products in order to avoid possible health threats to her children. Here we can see a "spillover" effect of health concerns related to beef extending to milk. Although all the interviewees were downshifters of dairy products, the social, and physical environment may function as an obstacle to maintaining their chosen "new" diet. Fluid milk was perceived as a forced solution outside the home environment, as it is often the default option in cafés and in friends' homes. Accepting the second-best option (i.e., milk) does not require special requests or explanations. Similar findings regarding the social challenges of switching to vegetarian and particularly vegan diets have been reported (e.g., Twine, 2014; Niva et al., 2019; Salmivaara et al., 2022). The following extract shows how the practice of reducing milk appears to be permissive, situational, and context dependent:

> Later I have become a true vegetarian, and now I would say it aloud and only eat meat when offered. It is kind of a same thing with oat milk; I would not mind a small amount of [cow's milk in coffee]. If I am visiting my mate, I don't want to make a fuss about myself and say "hey, don't you have oat milk!" In a café, you don't have to think about the sentiments of the entrepreneur or the service person, but when I'm visiting someone's home, I do not want to spoil the moment. (Consumer 13, male, 37 years old, interview)

The consumers we interviewed mostly follow a low-dairy diet, which means they are not vegans and thus partially allow the use of cow's milk. In this sense, they are flexitarians and do not strictly follow a certain diet, such as refusing to drink milk or to use it in cooking.

Justifying cheesy pleasures: Feeling good and bad

Based on the data, giving up cheese is the hardest part of the downshifting of milk, and cheese eating needs to be negotiated and reconciled with animal ethical and ecological concerns. However, it is not only cheese that our participants find hard to give up: curd, milk-based spreads, and milk chocolate seem to remain in their diets even after the begin to reduce their milk consumption. Despite recognizing the environmental burden of dairy products, the consumers vividly described their difficulties resisting the pleasure derived from cheese, yogurt, and other dairy-based products. In the following, Consumers 3 and 9 explain that they permit themselves to enjoy dairy cheese:

> I never buy cheese, but if my husband brings it [cheese] home, I may steal some when I feel myself tempted. (Consumer 3, female, 24 years old, interview)
>
> I avoid everything animal based. Sometimes I can't resist cheese, that's my weakness… During the first 9 months [after turning to vegan diet], I avoided everything [animal based]. But then I started to feel that maybe I should be merciful to myself so that I can allow myself to have it [cheese] when I feel like it. When I am not at home, I always choose the vegetarian option, I never eat meat. But if it's difficult to arrange a vegan option, I'm flexible. I don't want to be the one who causes a lot of trouble to everyone. (Consumer 9, female, 24 years old, interview)

As Consumer 9 describes above, the low-milk flexitarian lifestyle means that even though she tries to avoid dairy products, she allows herself brief relapses, sometimes out of politeness. This is in line with Jallinoja et al.'s (2016) finding that Finnish health-oriented people maintained "negotiated pleasures," such as the use of butter in cooking. Similarly, Consumer 3 below situates her veganism/vegetarianism on a flexitarian timeline, where "collapses" are justified for social reasons. She describes how difficult it is to maintain a vegan diet, while it is easy to follow a low-milk flexitarian diet:

> I was fully vegan for the first 6 months, but occasionally I fall into having an egg, and sometimes I eat cheese; otherwise I'm a vegetarian. I haven't had meat or fish or dairy products at all, unless when visiting my friends. There I draw a line, and I eat what they offer. I'm not that straight-laced. (Consumer 3, female, 24 years old, interview)

Here, the justification for not systematically following a dairy-free vegan/vegetarian diet is that it is socially challenging. However, the justification for choosing dairy products also relates to taste and enjoyment. In the following, Consumer 16 admits that even though she recognizes the environmental burden of eating cheese, she justifies it for herself:

> My relationship with cheese is unfortunately close and warm, unlike my relationship to plant-based "cheese" … I love to eat a variety of cheeses; Italian and French cheese are the best … I allow an exception to myself to deviate from my diet as regards cheese. I am aware that the environmental burden is comparable to the environmental impact of meat eating. However, this does not influence my decisions to consume cheese. (Consumer 16, female, 47 years old, narrative)

According to the consumers, they try to replace dairy products with vegan substitutes, but the taste of cheese cannot be replaced. For them, the taste of "real" cheese is salty, rich, and hard to resist. For instance, Consumer 13 (interview) notes that he is not ready to give up cheese completely because, especially in pizza, the vegan substitute for cheese is not as tasty. Cheeses are a delicacy with a variety of flavors to enjoy:

> Many dairy products, like cream, are easily replaced by plant-based alternatives. Cheese is much harder to be replaced since a true cheese lover appreciates all the nuances of different cheese types. (Consumer 15, female, 39 years old, narrative)

In addition to the pleasure derived from taste, the consumption of cheese is justified by doing "good deeds" (trade-offs): "*I know it [cheese] is from an animal, but when you do otherwise good deeds, you can have cheese with a clear conscience*" (Consumer 8, female, 24 years, interview). Consumer 8 states that she avoids products of animal origin and makes other animal friendly choices as well. Similarly, Consumer 13 notes that

the pleasure from animal-based products is associated with guilt: "*I feel bad when I eat cheese.*" (Consumer 13, male, 37 years, interview). When giving in to cheesy pleasures, consumers detach themselves from the suffering of cows related to intensive milk (and meat) production, the ecological consequences of producing cheese (see Figure 2), and their dietary principles.

Future of sustainable eating habits—De-dairyfication

Although the consumers are struggling between their choice of dairy-based pleasures and reducing ASF, low-milk flexitarians situate cheese in a separate category from meat and milk (also Alae-Carew et al., 2022). Distancing cheese from meat and milk relieves consumers from the unpleasant feelings associated with the use of dairy and liberates them from their dietary principles. It seems that transforming cheese eating patterns to a more sustainable path is challenging, even if the ecological burden of milk is acknowledged. As argued above, due to its taste, cheese is an "exceptional" and "permitted" dairy product. At the same time, the taste of liquid milk is regarded as unpleasant. Below, Consumer 15 states that her family has given up meat eating first due to animal ethical reasons and second due to ecological arguments, and she has been considering a reduction in her consumption of cheese as well:

> Currently, my family occasionally eats game and some meat when offered by others. My child and spouse are following the same diet as I am. At first, animal welfare issues were the main driver for us in not eating meat, and later ecological reasons have also become important. During the past 5 years or so, I have been also thinking of reducing dairy products out of ecological reasons, since making cheese requires unbelievable amounts of milk. As a solution, I have been thinking about reducing cheese consumption rather than replacing cheese by vegan substitutes. (Consumer 15, female, 39 years old, narrative)

The narrative of Consumer 15 exemplifies the process of what we term "de-dairyfication." The process begins with reducing or ceasing the use of meat, then milk consumption is decreased or "abandoned." However, our participants are struggling to give up all dairy products. Consumer 15 is reaching an "upper step" in the de-dairyfication of her and her family's diet and is wondering if they should also reduce their cheese eating. However, due to doubts about the taste of the substitutes, she does not view the substitutes as a solution and instead is modifying her cheesy pleasure by lowering her level of cheese consumption. Since cheese substitutes are not perceived to taste good, the pleasure related to cheese is replaced with other pleasures.

Lehikoinen and Salonen (2019) argued that Finns should have the ability to combine hedonistic (e.g., health, weight loss) and ecological benefits in their everyday diets. Our results suggest that for consumers, "hedonistic" pleasures call for tasty foods when aiming for more sustainable eating (i.e., tasty plant-based protein substitutes) and that health as a benefit is not enough.

Discussion

Consumers in Western societies are questioning the cultural position of milk and other dairy products for many reasons, including health risks (e.g., Lanfranchi et al., 2017), climate change and other environmental problems caused by intensive farming and extensive consumption of milk products (e.g., Clay and Yurco, 2020), as well as animal welfare and animal ethical issues (e.g., McCarthy et al., 2017). As argued, Finnish consumers' views on milk and dairy products, especially from a sustainability perspective, have received modest scholarly interest compared to other dairy-intensive countries, such as Italy, Switzerland, and the UK. Drawing on cultural consumer research (e.g., Solomon et al., 2006; Moisander et al., 2020), our study shows that the suffering of animals, the significant reduction of beef eating, and the questioning of intensive milk production are meaningful issues for Finnish consumers. They interpret the production and consumption of milk as a sustainability challenge at a societal level, which is not limited to their personal health, ethics, and ecological perspectives (e.g., Lanfranchi et al., 2017; Allen et al., 2018).

Previous studies have not problematized and conceptualized the two parallel but opposite trends of decreasing liquid milk consumption and increasing use of dairy products (e.g., cheese, butter, and yogurt; see Figures 1, 2). Our study shows that although the consumers have reduced using milk and some other milk products in their diet, they are not willing to reduce cheese eating to the same extent. The pleasure derived from a tasty creamy cheese is a "permitted vice," even when following a predominantly plant-based diet. For them, cheese is a delicacy that is difficult to resist and which they are not willing to give up. They justify their cheese eating as negotiated pleasure (Jallinoja et al., 2010), meaning that a tasty creamy cheese is acceptable as an exception to their dietary commitments. They allow this "guilty pleasure" for themselves despite the ethical and environmental implications of milk production. Our consumers discussed how eating cheese causes contradictory feelings, especially when thinking about the suffering of farmed animals. It seems that consumers struggle between focusing on their own pleasure on one hand and animal suffering on the other hand when eating cheese.

An interesting finding is that consumers who have reduced their use of milk and dairy products but not totally given up using them recognize that beef and milk both come from the same source, the cow. Although consumer research on sustainable eating has mainly focused on meat and milk consumption as separate fields, our results show that in everyday life consumers who problematize the use of milk see the link between these two fields. Our milk-reducing consumers (motivated by ecological and animal welfare arguments) occasionally eat milk-based products and meat. Utilizing the concept of a low-meat flexitarian diet by Dagevos (2021), we suggest that consumers who are using less milk products than before and replace animal-based milk products with plant-based alternatives can be characterized as "low-milk flexitarians."

Our results suggest that low-milk flexitarians begin their dietary changes by first reducing meat and then reducing dairy consumption (see McCarthy et al., 2017; Malek and Umberger, 2021; Alae-Carew et al., 2022). Thus, low-meat and low-milk flexitarian diets are interlinked and seem to progress hand in hand such that the former inspires the latter. Unlike the cultural categories of "meat

reducers" or vegans, "low-milk flexitarian" is not a recognized and culturally shared identity, which could explains why researchers have focused more on "clear" and easily identifiable consumer groups and practices, such as vegans and veganism. However, there are signs that various forms of flexitarianism are becoming more popular (e.g., Dagevos, 2021), and people are not necessarily following strictly defined and coherent diets. Thus, it is increasingly important to study not only groups with clear diet-based identity positions but also groups with less clearcut positions, such as milk and meat reducers, and the ways in which they justify, reason, and problematize their own and others' practices.

Limitations

There are some limitations to our study that should be considered when interpreting the results. The snow-balling method provided us with the opportunity to recruit consumers who were in the target group of the study (i.e., people who were downshifting their use of dairy products). The data were based on 14 interviews and two written narratives by relatively young, well-educated, urban consumers, most of whom were women. It is possible that this data collection method did not allow us to uncover all potential aspects that consumers may experience when limiting their use of milk and milk products, and people with different social backgrounds may have revealed an even wider set of meanings related to milk. It is also evident that the practical and symbolic meanings of milk vary culturally and geographically. Finland is a country with a strong dairy sector and high levels of milk and milk products consumption. Indeed, dairy products have had and still have an important position in the Finnish food culture. In countries with lower levels of milk drinking and milk product usage, the meanings related milk may differ from those we have detected in this study.

Conclusion

Transforming eating toward a more sustainable path requires a dietary change toward less ASF, including less dairy-based consumption. De-meatification of the diet has been suggested as a path toward healthier and more ethical and sustainable eating, and scholars have addressed meat and de-meatification rather than "de-dairyfication." However, as our study and other emerging research show, there are now signs that milk reduction in the form of "low-milk flexitarianism" may be slowly gaining ground. Together with meat reduction, this development may contribute to more sustainable eating practices in Western countries. Downshifting of dairy goes hand in hand with de-meatification, although it seems to proceed at a slower pace. Based on our results, consumers in the process of de-dairyfication have already accepted abandoning beef, have reduced their consumption of cow's milk, and are questioning and negotiating their dairy pleasures—and consumption. However, "downshifters of cows' milk" balance between gustatory pleasures and altruistic goals related to ethics and the environment and need to negotiate between the guilt caused by consuming dairy products and settling for less pleasurable tastes.

The scholarly and public discussion on sustainable diets has so far concentrated on the most ecologically problematic food group: meat, particularly beef. The transformation toward sustainable eating is occurring slowly, and it is evident that more critical attention needs to be focused not only on meat consumption but also on other ASF, such as milk and milk products.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

KP conducted the interviews. MA collected the additional data. MA, SS, JA, KP, and MN were responsible for all sections, they performed the analysis, and wrote the manuscript. All the authors contributed to the conception and design of the study, read, and approved the submitted version.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Appendix 1

Theme 1. Diet.

About the diet:

1. How and why has your diet changed in recent years?
2. What kind of a diet do you follow?

Factors that have an influence on your diet.

1. Which factors shape and influence your diet?
2. Do you have something else on your mind on this topic?

Theme 2. Milk.

Consumption and use of milk.

1. How much milk do you drink?
2. How much milk do you use in cooking?

Reducing milk consumption.

1. Why did you start reducing your milk consumption?
2.Which reasons contributed to the reduction in milk consumption?

What kind of thoughts arise from the following words: pasteurized milk, homogenized milk, raw milk, organic milk.

How do you view the nutritional properties of milk?

What effects has reducing the use of milk had on you?

How do you replace milk?

Stimulus material 1 (picture: lactose-free low-fat milk drink).

Stimulus material 2 (picture: cow's milk is milked from the udder into a glass).

Theme 3. Plant-based drinks.

1. What kind of plant-based drinks are you aware of?
2. What kind of images and thoughts do plant-based drinks evoke in you?
3. How do you view the nutritional properties of plant-based drinks?
4. Why do you use plant-based drinks?

Stimulus material 3 (picture: domestic oat drink).

Stimulus material 4 (picture: foreign soy drink).

Stimulus material 5 (picture: foreign rice drink).

Finishing

1. What else do you want to say about the topic?
2. Do you know someone who has reduced or stopped milk consumption for some reason?