

Consumer knowledge and perceptions on milk fat in Denmark, United States and United Kingdom

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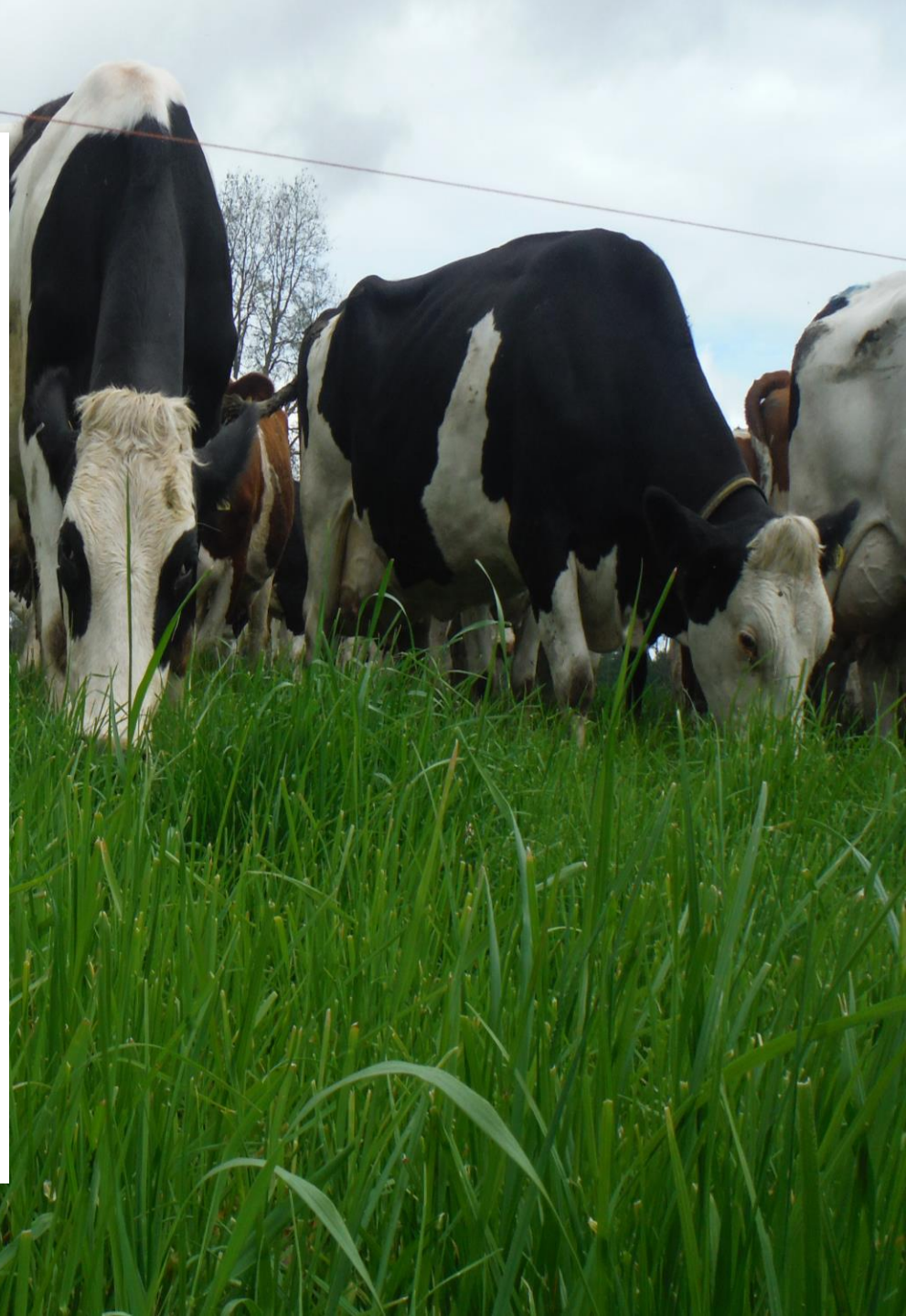
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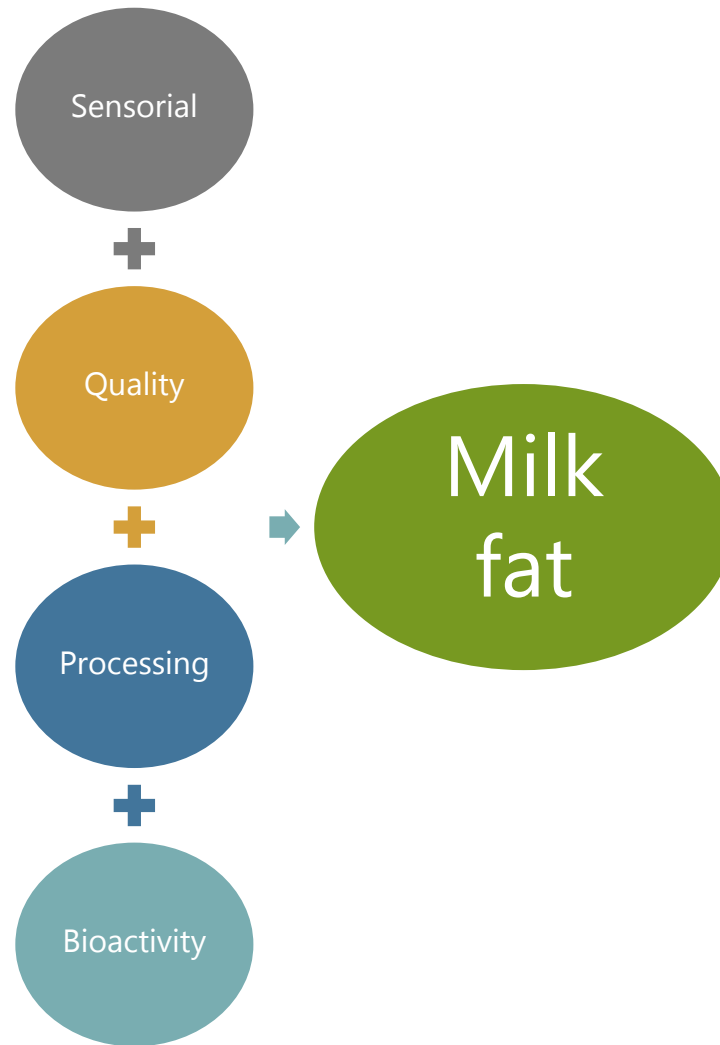
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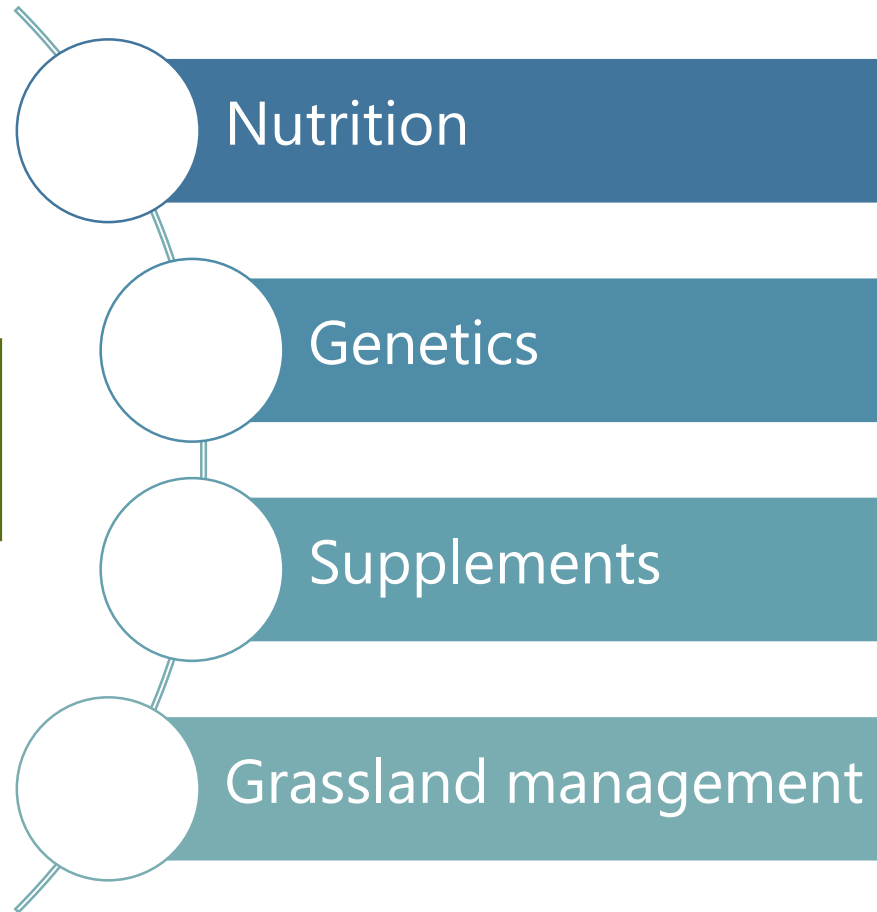


Introduction: importance of milk fat

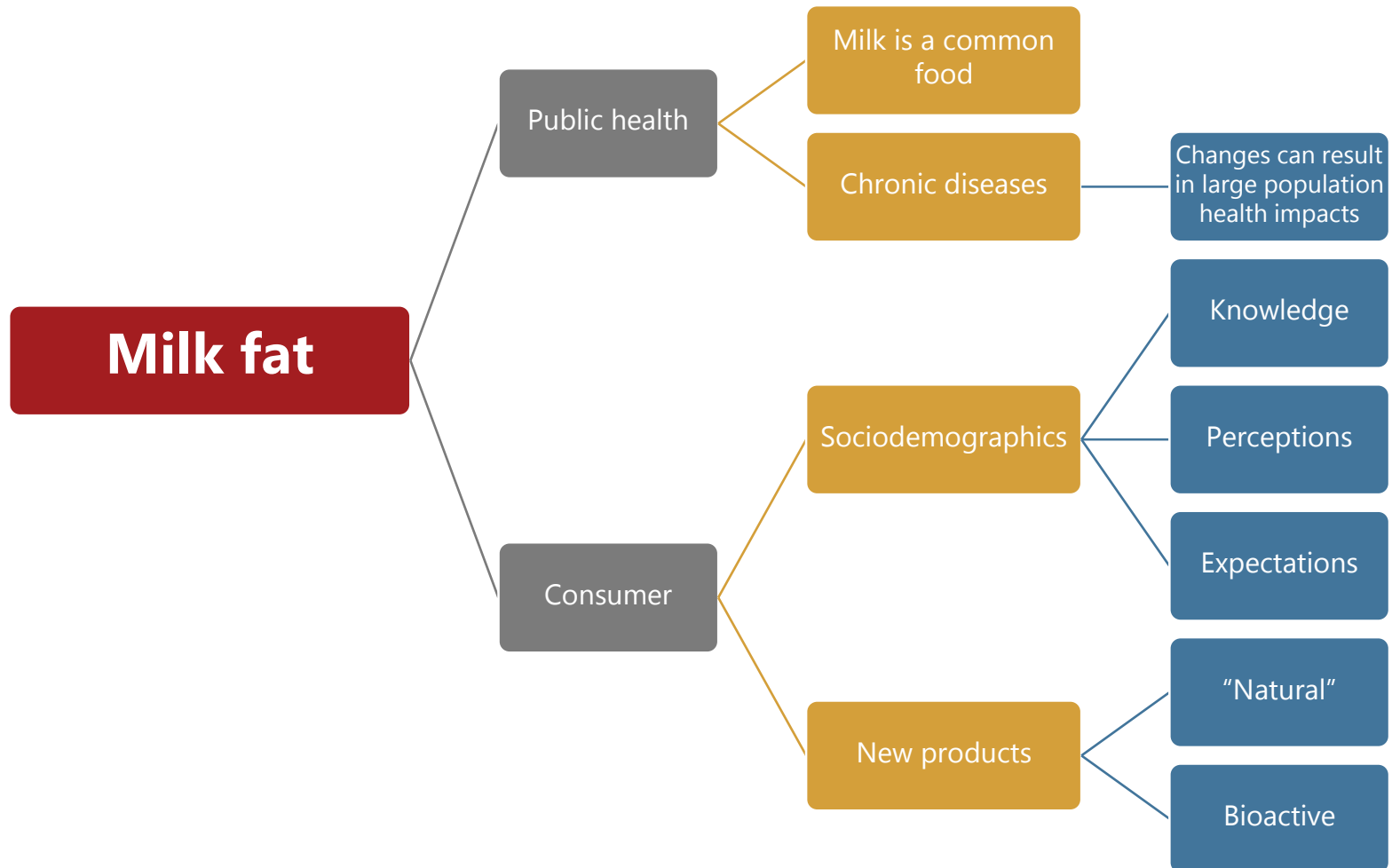


Introduction: animal production

Modulation
of milk fat



Introduction: social studies



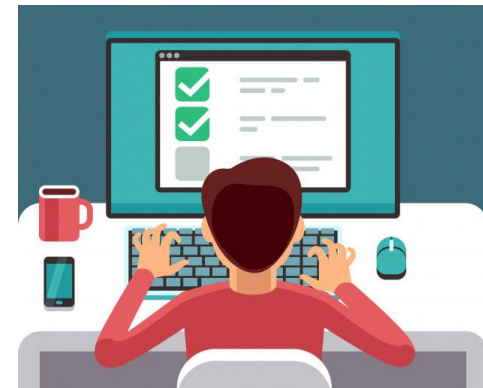
Objective

- To determine the influence of consumer sociodemographic and country of origin [Denmark (DK), United States (US) and United Kingdom (UK)] on their knowledge and perceptions on milk fat



Methods

- Survey
 - 21 questions available in Danish and English:
 - sociodemographic information
 - milk consumption
 - knowledge about milk nutrients and fatty acids
 - perception about milk fat
 - source of information regarding milk fat
 - Distributed in DK, UK and US:
 - Organizations (e.g. universities)
 - Social media outlets (e.g. Facebook and Twitter)
 - Data were collected via SurveyXact



Methods

- Statistical analysis was conducted in R version 3.5.0
- Pearson's Chi-square test and Fisher's exact test were used to examine differences between sociodemographic characteristics in:
 - milk consumption
 - knowledge about nutrients in milk
 - perception towards milk fat
- A post-hoc test with pairwise comparisons was performed for significant differences among countries
- P-value <0.05 was set as statistical significance

Results

	Total (n = 694)	DK (n = 264)	UK (n = 203)	US (n = 227)
	n (%)	n (%)	n (%)	n (%)
<i>Age (years)</i>				
18-29	223 (32)	85 (32)	68 (33)	70 (31)
30-39	222 (32)	91 (34)	66 (33)	65 (29)
40-49	114 (16)	40 (15)	36 (18)	38 (17)
50-59	83 (12)	33 (13)	16 (8)	34 (15)
60+	52 (7)	15 (6)	17 (8)	17 (7)
<i>Sex</i>				
Male	185 (27)	54 (20)	73 (36)	58 (26)
Female	509 (73)	210 (80)	130 (64)	169 (74)
<i>Education (highest level achieved)¹</i>				
Primary	9 (1)	3 (1)	0 (0)	6 (3)
Secondary	94 (14)	39 (15)	30 (15)	25 (11)
Superior	591 (85)	222 (84)	173 (85)	196 (86)
<i>Employment status</i>				
Employed	485 (70)	170 (64)	149 (73)	166 (73)
Unemployed	43 (6)	32 (12)	6 (3)	5 (2)
Retired	19 (3)	6 (2)	5 (2)	8 (4)
Student	147 (21)	56 (21)	43 (21)	48 (21)
Grown up in countryside	296 (43)	90 (34)	105 (52)	101 (44)
Milk consumption	618 (89)	238 (90)	182 (90)	198 (87)
Consumption of plant-based drinks ²	220 (32)	75 (28)	70 (34)	75 (33)



¹ Education: Primary: primary education, Secondary: secondary or vocational education, Superior: Bachelor, Master or PhD.

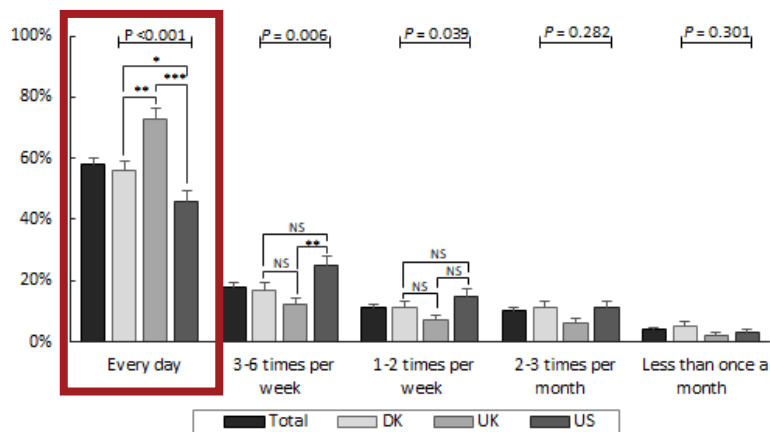
² Based on soybean, oat or almond.

Results

A) Frequency and B) type of milk consumption in Denmark (n = 238), United Kingdom (n = 182) and United States (n = 198)

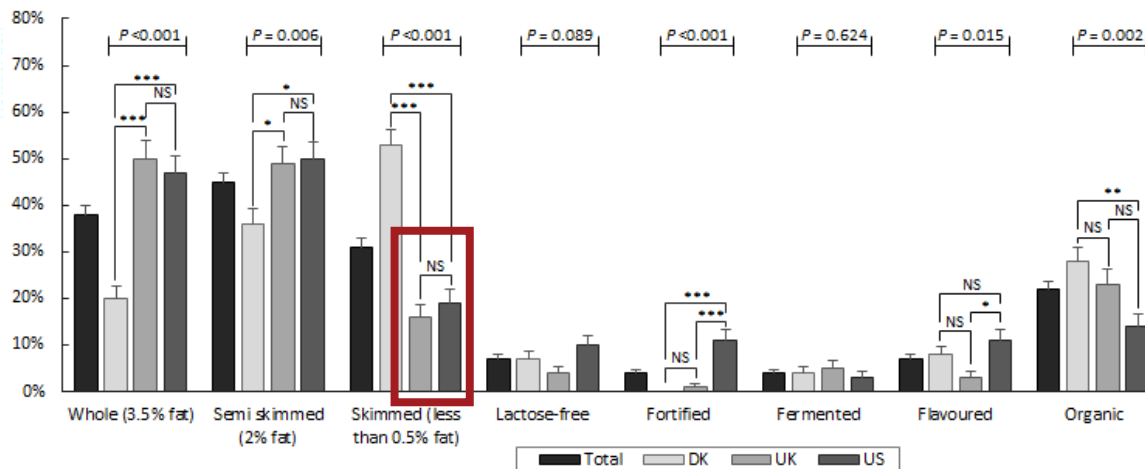
B) A multiple response question for which a maximum of three responses per participant was set

A: Milk consumption frequency



Daily consumption of milk in all countries

B: Types of milk



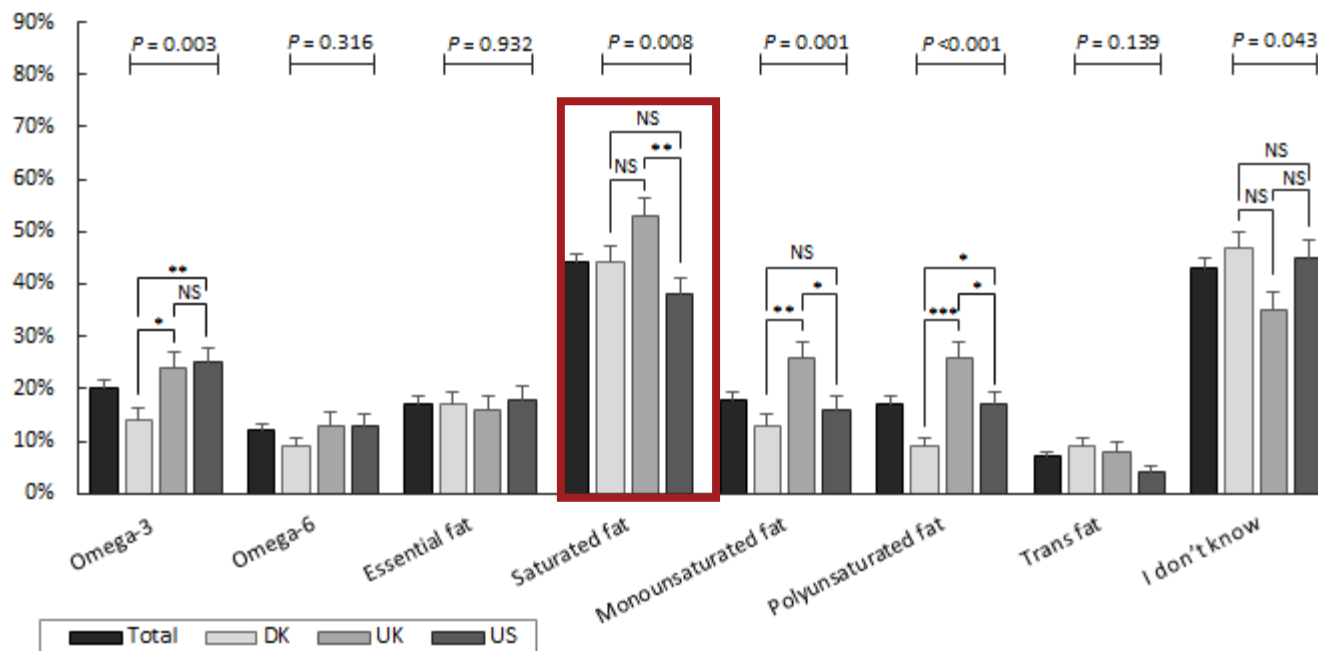
UK and US consume less skimmed milk than DK

Results

Reported awareness of types of fat in milk by participants from Denmark (n = 264), United Kingdom (n = 203) and United States (n = 227)

A multiple response question for which a maximum of three responses per participant was set

*** = <0.001, ** = <0.01, * = <0.05, NS = Not significant

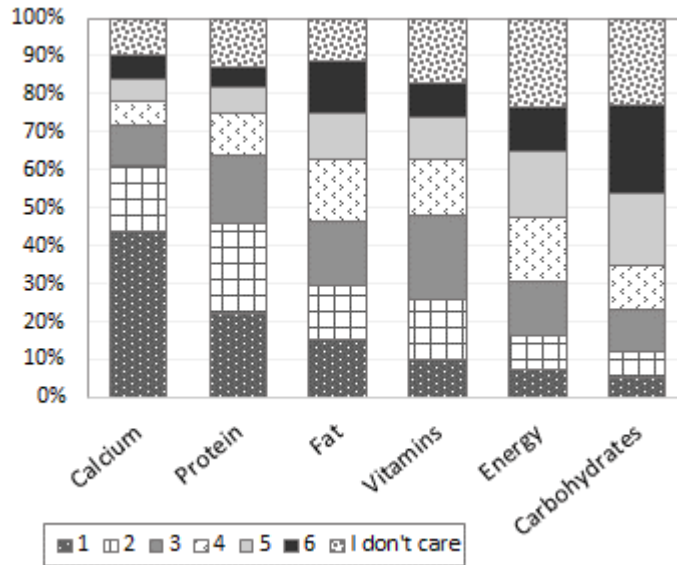


Saturated fat was a well-known type of milk fat among 48% of the respondents



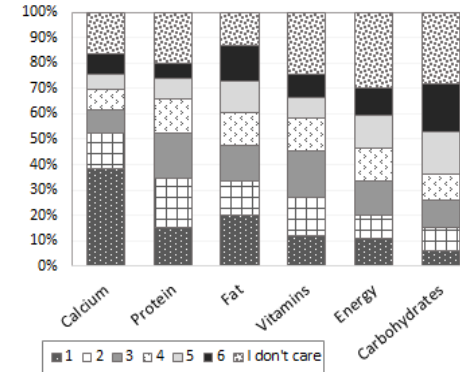
Results

Total respondents

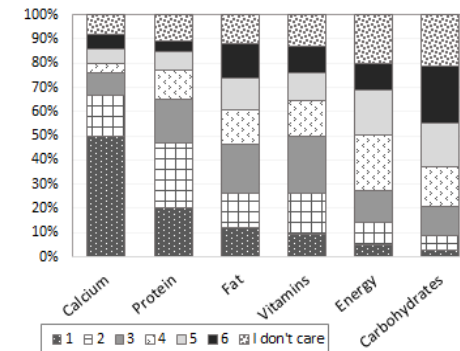


Response options ranged from 1 (most important) to 6 (least important) and I do not care

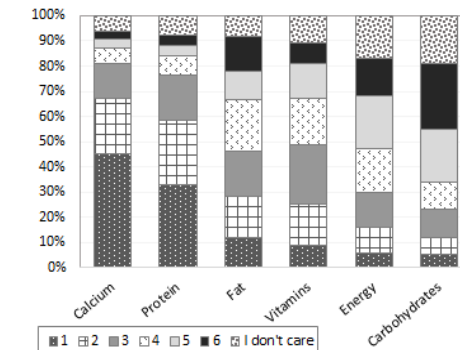
DK



UK



US



Calcium is perceived as the most important nutrient in milk

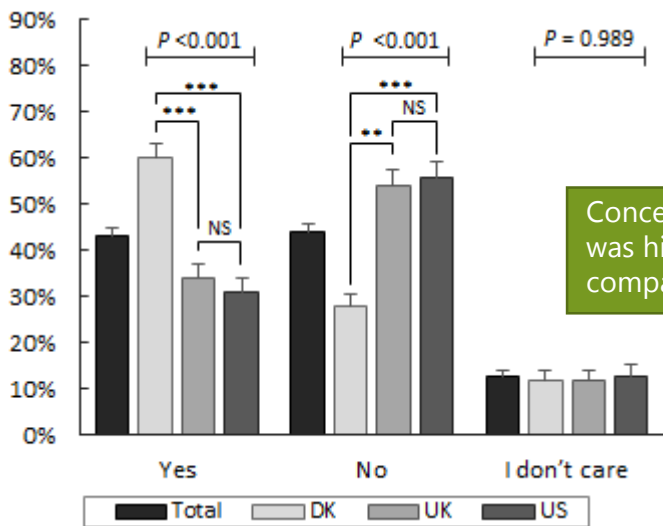


Results

Less participants from DK considered milk fat as healthy

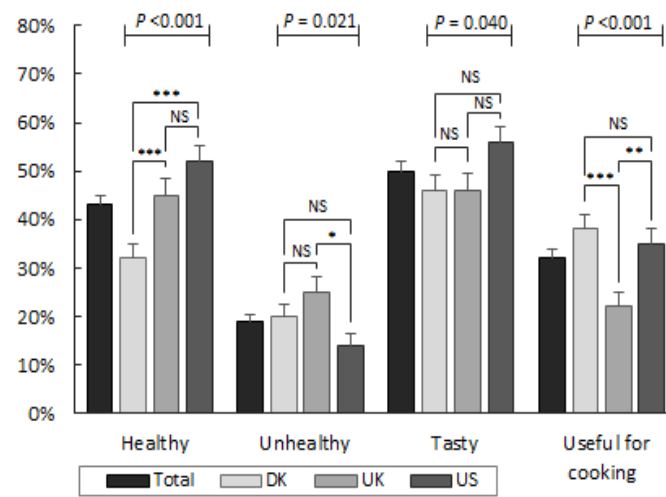
In all countries, more than 50% considered milk fat as tasty

Concern about milk fat

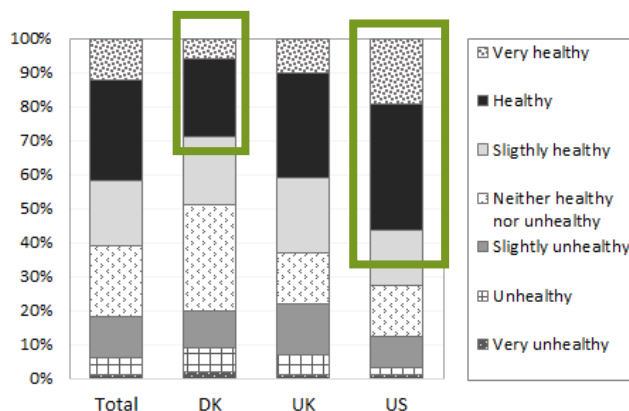


Concern about milk fat was higher in DK compared to UK and US

Perception of concepts towards milk fat



Extent to which participants perceive milk fat as healthy or unhealthy

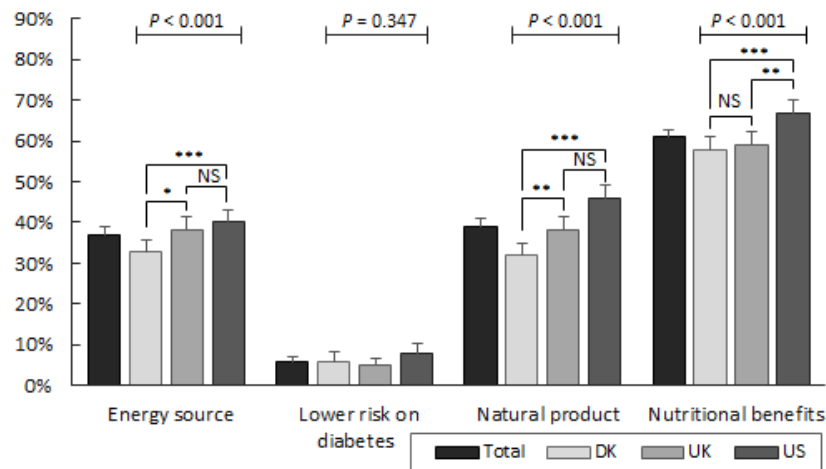


More than 50% of US respondents perceived milk fat as healthy and very healthy while this was only about a third for DK

Results

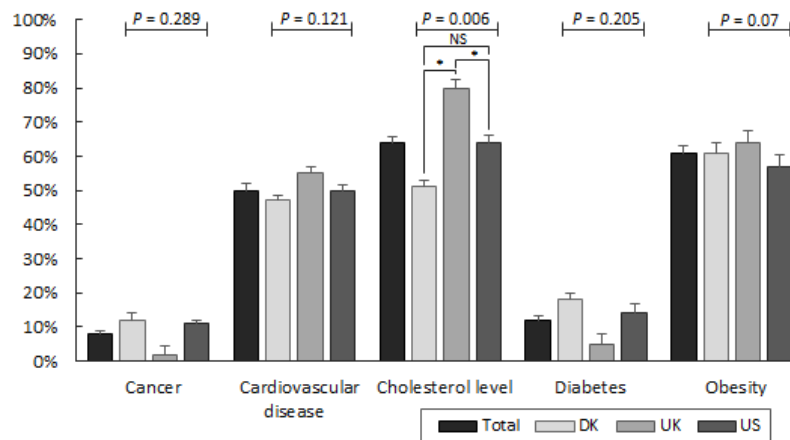
Perceiving milk fat healthy

'Nutritional benefits' was the most reported reason for perceiving milk fat as healthy by US respondents

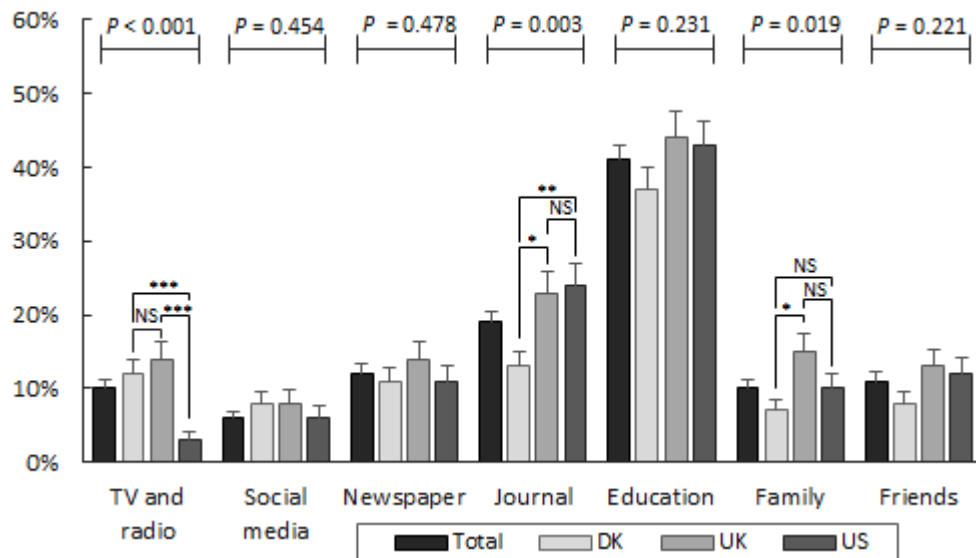


Perceiving milk fat unhealthy

UK respondents perceived milk fat as unhealthy because of 'cholesterol level' compared to DK and US



Results



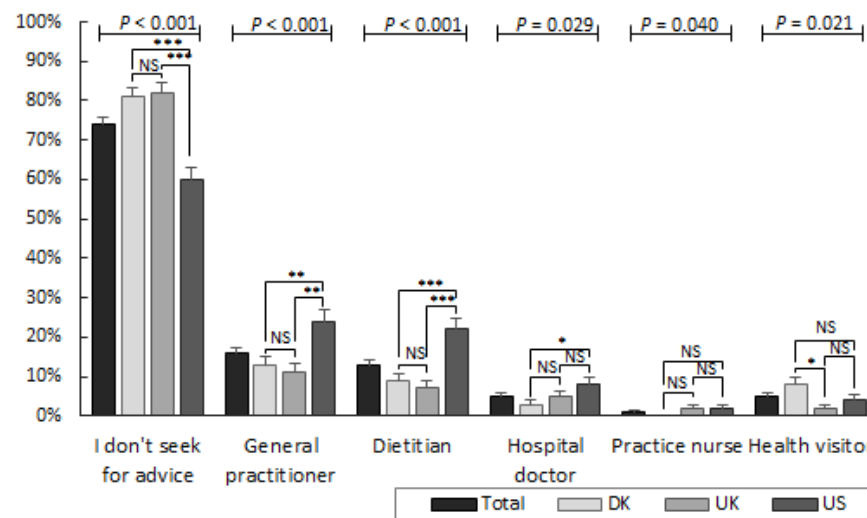
Source of information about milk fat

Consumers got their information on milk fat from schools

Seeking for healthy eating advice

The majority of respondents are not seeking for healthy eating advices

This proportion was higher in DK and UK compared to US



Remarks

UK and US consumed less skimmed milk than DK

Saturated fat was a well-known type of milk fat among 48% of the respondents

64% of DK respondents were concerned about milk fat, while UK and US were less concerned

Respondents from UK and US were more likely to perceive milk's fat as a healthy nutrient than those in DK

Results suggest that consumers in DK are different in their milk consumption patterns and perception towards milk fat, while consumers in UK and US share common characteristics

These data could be useful for future consumer-sensitive dairy beverage innovation and communication strategies

Thank you!

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Sociodemographic information

- | | |
|--|--|
| 1. What is your age? | Free choice answer |
| 2. What is your sex? | Male/ Female |
| 3. What is the highest level of education that you have completed? | Primary education/ Secondary education or vocational education / Bachelor, Master of PhD |
| 4. What is your employment status? | Employed/ Unemployed/ Retired/ Student |
| 5. In which country do you live? | Denmark/ United Kingdom/ United States of America |

6. Did you grow up in the countryside?

Yes/ No

Consumption

7. Do you consume milk?

Yes/ No

8. What is the reason you do not consume milk?

Lactose intolerance/ Allergy/ Health concern/ Ethical treatment of animals/ Sustainability concern/ Concern about added hormones or antibiotics/ Dislike

9. How often do you consume milk?

Every day/ 3-6 times per week/ 1-2 times per week/ 2-3 times per month/ less than once a month/ never

10. What type of milk do you consume more often?

Whole (about 3.5% fat)/ Semi skimmed (about 2% fat)/ Skimmed (less than 0.5% fat)/ Lactose-free/ Fortified (e.g. with added vitamins, minerals)/ Fermented (e.g. with probiotics)/ Flavoured (e.g. chocolate, vanilla)/ Organic

11. Do you consume plant-based milk (e.g. based on soybean, oat, almond)?

Yes/ No

Knowledge

12. How would you prioritize the following nutrients when you relate them to milk? Please rank from 1 (most important) to 6 (least important) or I don't care

Energy/ Protein/ Carbohydrates (incl. lactose)/ Fat/ Calcium/ Vitamins

13. Which of the following types of milk fat do you know?

Omega-3/ Omega-6/ Essential fat/ Saturated fat/ Monounsaturated fat/ Polyunsaturated fat/ Trans fat/ I don't know

Perception

14. Are you concerned about the fat content in milk?

Yes/ No/ I don't care

15. In your opinion, which of the following concepts do you relate to the fat content in milk?

Healthy/ Unhealthy/ Tasty/ Useful for cooking/ Other

16. To which extent do you think that the fat of milk is healthy?

Very healthy/ healthy/ slightly healthy/ Neither healthy nor unhealthy/ Slightly unhealthy/ Unhealthy/ Very unhealthy

17. Why do you think that milk fat is healthy?

Nutritional benefits/ Energy source/ Lower risk of diabetes/ Natural product/ Other

18. Why do you think that milk fat is unhealthy?

Cholesterol level/ Obesity/ Diabetes/ Cancer/ Cardiovascular disease/ Other

Source of information and willingness to pay

19. From which source did you get the information about milk fat?

TV and radio/ Social media/ Newspaper and magazines/ Journals and books/ Education (e.g. school or University)/ Family/ Friends and colleagues/ Other

20. From which of the following health professionals do you get advice on healthy eating?

I do not seek for advice/ General practitioners/ Dietitian/ Hospital doctor/ Practice nurse/ Health visitor (e.g. nurse)

21. Are you willing to pay more for milk with a healthier fat content?

Yes/ No/ I don't care

Survey questions and choices for participants