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Resenting hunters but appreciating the prey? - Identifying moose meat consumer segments

Anne Matilainen^a, Harri Luomala^b, Merja Lähdesmäki^a, Leena Viitaharju^a, and Sami Kurki^a

^aRuralia Institute, University of Helsinki, Seinajoki, Finland; ^bSchool of Marketing and Communication, University of Vaasa, Vaasa, Finland

ABSTRACT

As traditional meat production has become stigmatized for several reasons, consumer interest in game as an ethical and ecological meat alternative has increased. However, game meat is typically harvested through hunting, toward which consumers may have very divided attitudes. Concurrently, game meat is still valued as food. This interesting mismatch raises questions as to what types of game meat consumer segments exist and whether the value of ecological food can surpass the negative attitudes toward hunting. This pilot study focused on consumer segments interested in European moose meat in Finland and analyzed how attitudes toward hunting reflect opinions on moose meat. The data were based on a survey ($n = 199$) conducted in 2018. The results indicated three potential consumer segments (established, skeptical, and ambivalent) for moose meat and show that respondent attitudes toward hunters constitute a large part of the attitudes toward hunting in general.

KEYWORDS

Attitudes; consumer segment; hunters; hunting; moose

Introduction

The demand for ecologically responsible and ethical food is on the rise (e.g., Cembalo et al., 2016), even being listed among the top consumer trends at the global level (Arenas-Jal et al., 2020). This rise in demand is likely due to an increased stigmatization of industrial meat production (Spannring & Grušovnik, 2019), due to concern for the living conditions of production animals, the ethics of meat consumption, and the impacts of meat production on climate change (Bonnet et al., 2020; Eshel et al., 2014; Frey & Pirscher, 2018). Furthermore, the nutritional value of red meat has come into question due to its high saturated fatty acid (SFA) concentrations (de Boer et al., 2017) and health risks associated to it (Rohrmann & Linseisen, 2016). These trends have already resulted in a decline in meat consumption in Western countries (Dudinskaya et al., 2021).

Due to these developments, the appreciation of wild game has increased as an ecological and ethical meat alternative. Living wild in nature is considered a precondition for a meaningful life for animals (Marescotti et al., 2019) and game meat is considered to have a small carbon footprint (Tomasevic et al., 2018; Wiklund & Malmfors, 2014). In terms of their environmental impacts hunting or even cropping of large cervid species have been compared with organic meat production (Hartmann & Siegrist, 2020). In addition, several studies have demonstrated the benefits of game meat's low fat, high protein, and high

CONTACT Anne Matilainen  anne.matilainen@helsinki.fi  Ruralia Institute, University of Helsinki, Seinajoki, Finland

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beneficial fatty acid concentrations (e.g., Strazdina et al., 2013; Valencak et al., 2015). Despite nutritionists recommending that people significantly reduce their meat consumption, consumers have, so far, not been influenced enough to change their meat-eating patterns, especially in Eastern European countries (Niewiadomska et al., 2020). Encouraging people to try other types of meat, characterized by different, more beneficial nutrient compositions for human health, may be an option for improving diets (ibid.).

From an environmental viewpoint, many areas also have an ecological “surplus” of game meat. Controlling overgrown game populations (especially cervid species and wild boar) is a necessity in many countries to avoid damages to fields and forests along with traffic accidents (Barrios-Garcia & Ballari, 2012; Sandström et al., 2013). Thus, to some extent, hunted game meat is a side product of wildlife management aiming to control damages.

Although consumers value game meat, consumer attitudes toward hunting are more diverse and often negative (Gamborg & Jensen, 2016; Ljung et al., 2012; Marescotti et al., 2019). In fact, attitudes toward hunting are becomingly increasingly negative in many European countries, especially among young consumer groups that are also known to value ecological and ethical food choices (Gamborg & Jensen, 2016). Thus, it seems that the consumers hold a somewhat paradoxical view, in that they desire game meat (Gamborg & Jensen, 2016; Goguen et al., 2018; Ljung et al., 2015; Marescotti et al., 2019) but they do not support the hunting as a means of providing it or have negative attitudes toward hunting in general (Marescotti et al., 2019).

Expanding the game meat supply to urban non-hunters has been proposed as one way to maintain and increase support for hunting and wildlife management (Blascovich & Metcalf, 2019; Ljung et al., 2012). Its role in increasing acceptance toward hunting are even greater than those of social relationships and of having friends or family members that hunt (Ljung et al., 2012). Furthermore, this impact appears to be similar in both rural and urban contexts, even though consumer access to game meat is typically greater in rural areas (ibid.).

This interesting mismatch between the general attitudes toward hunting and interest in game meat raises questions as to what potential game meat consumer segments exist and whether the value of ecological food in these segments surpasses the consumers’ potentially negative attitudes toward hunting, or vice versa. So far, only very few studies have focused on consumer demand, consumer segmentation, or consumer behavior related to game meat (e.g., Demartini et al., 2018;

Marescotti et al., 2019; Marescotti et al., 2020), and practically no such studies have been conducted in the Northern European context. Instead, previous research has traditionally analyzed the nutritional content and quality of game meat (Lecocq, 1997; Neethling et al., 2016) or the attitudes related to game meat and hunting more generally (Gamborg & Jensen, 2016; Gamborg et al., 2018; Krokowska-Paluszak et al., 2020; Ljung et al., 2012), thus taking a very product-oriented approach to game meat consumption. Studies have shown the connection between hunting and consumption/perceptions of game meat from the hunters’ perspective, who have access to the meat resource and are familiar with it (e.g. Goguen et al., 2018 Krokowska-Paluszak et al., 2020). However, more research is needed on potential game meat markets, supply chains, and consumers to enable truly estimating the potential of game meat as an ecological food choice.

This pilot study provides a first attempt to analyze what consumer segments, based on their attitudes toward hunting, are interested in moose (*Alces alces* L.) meat in Finland and

how these attitudes reflect their opinions on moose meat. In addition, how the consumer segments' attitudes toward hunting are reflected in their values was analyzed. Even though the study was implemented in one national context and with a limited amount of data, the results provide interesting new indications of potential commercial moose meat consumer segments along with information on the attributes that consumers link to moose meat. The results also contribute to knowledge of consumer attitudes toward hunting and how these attitudes affect consumer interest in game meat. Thus, the results provide an interesting starting point for wider research on the topic.

Background

When studying game meat as a potential ecological food alternative, the complexity of its background and harvesting method must be understood. In practice, game meat can be either farmed or based on wild populations. Game meat husbandry is relatively close to domestic meat production, and thus lacks some of the ecological and ethical attributes connected to wild game, especially for consumers who value ecological food choices (Hoffman & Wiklund, 2006; Kamuti, 2020). Truly wild game, on the other hand, is typically harvested through hunting.

Hunting is a highly culturally embedded activity, and utilizing game includes several, often traditional social norms and practices that vary between countries and hunting cultures (Watts et al., 2017). For instance, hunting rights in Northern Europe are connected to landownership, and game is considered "*res nullius*" while alive, as it moves freely on several landowners' properties. The carcass and meat, on the other hand, are considered to belong to the hunters, who may or may not be the landowners and may or may not compensate the landowners for their hunting rights. All this causes ambiguity around the property rights related to game, which is also visible as a lack of or weaknesses in hunted game meat markets and supply channels, identified in various parts of Europe (Ljung et al., 2015; Marescotti et al., 2018; Matilainen & Lähdesmäki, 2021).

In Finland, which is the context of this study, hunting rights are tied to landownership. As 86% of Finland's land area is covered by forests (approximately 60% of which is privately owned by individual people and families (Luke, 2020)), game, especially the large cervid species, mainly graze on family forest owners' lands. Thus, forest owners bear the costs of grazing as losses in young stands or as reduced wood growth and quality. Meat from hunting belongs to the hunters, and they decide what to do with it. This has not previously been an issue, as landowners in rural Finland were often also hunters and/or at least personally knew hunters. However, as hunters are no longer as tightly connected to rural societies as previously (Toivonen, 2009), critical voices have risen concerning current meat sharing practices and speculations regarding who actually has the right to benefit from the value of game and game meat, especially concerning larger game animals such as the European moose.

Despite being a popular recreational activity (von Essen & Tickle, 2020), hunting is also a cost-efficient way to manage oversize game populations. Nevertheless, it has faced problems in terms of social acceptance (Geisser & Reyer, 2004). The public acceptance of hunting has decreased in recent decades (Byrd et al., 2017), despite significant differences existing between countries, rural and urban contexts, and even between the game species and hunting methods in question. For example, attitudes toward hunting non-native

species (Liordos et al., 2017) or game species that cause damage to agriculture or forestry (Garrido et al., 2017) are more positive than those toward other game species or attitudes toward hunting for purely recreational reasons in general (Byrd et al., 2017). Similarly, hunting to manage game populations is more positively perceived than commercial trophy hunting (Fischer et al., 2013). The species that often cause the most damages (typically large cervids and wild boar) are also the most significant ones in terms of meat provisioning. For example, moose cause substantial forest damages in Finland (Matala, 2019), but it is also the most significant game animal concerning meat provisioning. To control the population, 58000–65 000 moose are shot annually, leaving the winter population at 60,000–80 000 animals. The annual moose bag equals 8.1–8.5 million kg of meat (Finnish Wildlife Agency (Suomen riistakeskus), 2020), which averages as 81–85 kg of moose meat per hunter during the season (Luke, 2020). The market value of hunted moose meat in 2010 was estimated at approximately EUR 85–90 million (Kankainen & Saarni, 2014). The need for cervid population control is even greater in many other countries, for example, in several Central European nations, and these population trends are likely to continue in the future (e.g., Burbaitė & Csanyi, 2009). Thus, an ecological surplus seems to exist for commercializing game meat. The European context also has no legal obstacles to this (Matilainen & Lähdesmäki, 2021; Tomasevic et al., 2018).

Who then are the consumers interested in game meat? Only recent studies have focused more on the role of game as a meat alternative for consumers or analyzed consumer perceptions of it. Also, some wild/hunted game meat consumer segmentations have been formed in the European context. In their study of the Italian context, Marescotti et al. (2019) found three consumer segments for hunted game meat and called them “pro-animal consumers,” “disoriented consumers,” and “hunted wild game meat eaters.” “Pro-animal consumers” valued animal welfare and wildlife highly. They showed very negative attitudes toward hunted wild game meat, hunting in general, and game meat safety, thus being the least interesting segment in terms of future marketing strategies for game meat. “Disoriented consumers” showed concern for animal welfare, wildlife, and animal rights. They had relatively weak attitudes toward hunting in general but showed positive attitudes toward hunted game meat and its safety. Moreover, most disoriented consumers were interested in using game meat but showed a low degree of knowledge concerning it. Thus, this consumer group was considered the most potential for game meat markets. The last segment, i.e. “hunted wild game meat eaters,” held strong positive attitudes toward the consumption of hunted game meat products and their safety. They also viewed hunting positively and were not so concerned about animal welfare issues or wildlife in general. These results reveal that consumer groups may exist whose interest in game meat is not directly dependent on their attitudes toward hunting. Marescotti et al. (2020) further analyzed how consumer attitudes toward animal welfare affect their food choice behaviors in terms of game meat and found four consumer groups: “cured meat eaters;” “anti-hunting;” “hunted game meat lovers;” and “price conscious.” Marescotti et al. (2020) concluded that even though price plays an important role in meat choices, it is not the defining element, and animal welfare issues instead seem to define the interest in hunted game meat.

Demartini et al. (2018), on the other hand, simply divided consumers into two categories based on their preference for game meat: positively and negatively disposed consumers. Their study compared the impact of consumer attitudes toward game meat and attitudes

toward hunting with their willingness to pay for hunted wild game meat. They found that a positive attitude toward wild game meat had a three times larger impact on willingness to pay than favoring hunting did (Demartini et al., 2018). The only studies the authors are aware of in the Northern European context (Gamborg & Jensen, 2016; Ljung et al., 2012, 2015) that analyze consumer attitudes toward game meat and hunting are in line with the findings by Demartini et al. (2018). Interest in game meat was also high among non-hunters and those who did not have very positive attitudes toward hunting in general.

Thus, based on the findings of previous research, we summarize that despite evidence of a connection between attitudes toward hunting and interest in game meat, this connection is not necessarily straightforward. There are indications that attitudes toward hunting do not necessarily reflect consumer opinions of game meat. Neither does there seem to be a direct link between attitudes toward hunting and concern for animal welfare. In addition, familiarity with hunting and knowledge of game meat appear to impact the interest felt toward game meat. This study aims to combine these elements when analyzing the potential moose meat consumer segments.

Material and Methods

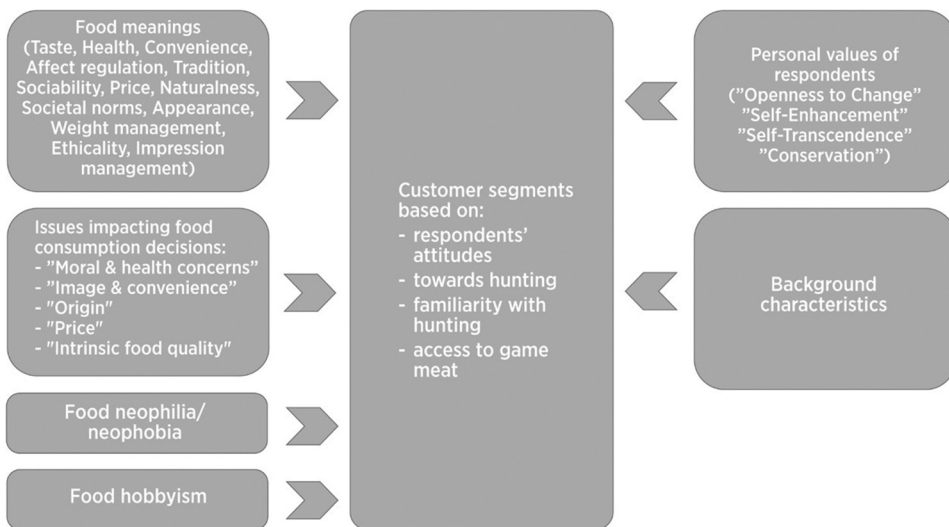
Data collection was conducted as an e-survey by a national consultant company in May 2018 by using their consumer panel of 15,000 Finnish households. Consumer panels and panel surveys have been recognized as a reliable method to conduct consumer studies (Fox et al., 1993; Pollard, 2002). The sample was randomly formed from respondents aged 18 years and over, and respondents were divided into three age groups (18–34 years, 35–54 years, and over 54 years). These age groups were balanced in the data (stratified sample, see e.g. Metsämuuronen, 2005). Due to the research economics, our target value for the survey was 200 respondents. The sampling was iterative and included new participants in the survey cycles until the target number of responses was received. Sixty percent of the respondents were women and 40% were men. The data consisted of 199 responses.

The questionnaire contained closed-ended questions and used a seven-point Likert scale-type. As the aim was to understand whether and how the attitudes toward hunting and familiarity with it impact the preferences of potential moose meat consumer segments and what these segments value in their food choices, the questions were related to food neophobia/neophilia, food meanings, attitudes toward hunting, familiarity with hunting, access to moose meat, respondent values, issues affecting food purchase intentions, and food hobbyism. The constructs were mainly built using existing, validated scales from previous food consumer and hunting research, further clarified in Table 1. In addition, respondents were asked several questions on background characteristics such as age group, location of residence, and gender. Some questions on nature connectedness were also included. Figure 1 presents the schematic representation of the investigated variables.

Before data collection, the e-questionnaire was tested on a smaller sample group ($n = 21$) in March 2018. Our aim was to test the functionality of the e-questionnaire. The test group also provided feedback, which was used to modify the questionnaire into its final format. The data were analyzed using statistical analysis methods and version 25 of the SPSS program. The analysis began by checking the internal reliability of the measurement scales. In other words, we examined how well the items in a test that are proposed to measure the same construct actually measure it. For this, Cronbach's alphas were checked for the

Table 1. Reference of scales used in e-questionnaire.

Measured construct	Used scale, references	Aim of the measurement construct
Food meaning constructs. Each of the chosen 13 food meaning constructs were measured using two items.	Scale built based on work by Renner et al. (2012) and Januszewska et al. (2011).	By introducing multiple motives for human eating behavior, the scale increases understanding of why respondents eat what they eat.
Purchase intentions	Weatherell et al. (2003)	The scale increases understanding of the issues affecting respondents' food purchase intentions.
Food neophobia/neophilia	Ritchey et al. (2003)	The scale increases understanding of respondents' willingness to try new foods.
Attitudes toward hunting	Heberlein and Ericsson (2005); Ljung et al. (2012); Gamborg and Jensen (2016)	By introducing both general and specific aspects of hunting, the scale increases understanding of how respondents perceive hunting.
Respondent's personal values	Myry (2009); Schwartz et al. (1999, 2012).	By introducing meta-value measurements formed by Schwarz, the scale increases general understanding of respondents' values.
Familiarity of hunting	Heberlein and Ericsson (2005); Ljung et al. (2012)	The scale increases understanding of how close connections the respondents have to hunting through whether the respondents themselves and/or their family members and friends hunt.
Food hobbyism	Inspired by Hartel (2006); Lofgren (2013), and Lane and Fisher (2015).	The scale increases understanding of the intensity of respondents' engagement in cooking and in following food-related discussion.

**Figure 1.** Schematic representation of investigated variables.

constructs that included more than two measurement items (Schwarz scale, food neophobia/neophilia, issues impacting food purchasing intentions, and the “access to meat” variable) and Spearman – Brown coefficient was used for two-item scales (food meaning constructs) (Eisinga et al., 2013). A threshold of 0.6 was considered a satisfactory scale (Brunso et al., 2004). All constructs measured with Cronbach’s alpha proved to be valid

(coefficients varying between 0.60 and 0.83). For food meaning constructs, all but four constructs (price, tradition, societal norms, and impression management) proved to be valid, and the coefficients varied between 0.71 and 0.86 (Table 3). The item indicating better respondent comprehension was selected as a single measurement item for the food meaning constructs with a construct reliability of less than 0.6. Sum variables were created for all other constructs.

As our main aim was to identify the consumer segments in terms of their attitudes toward hunting, familiarity with hunting and current access to meat, cluster analysis was conducted in two steps. Firstly, Two-Step Cluster analysis and Hierarchical Clustering (e.g., Metsämuuronen, 2005) were used to determine the optimal number of clusters. The variables were standardized for the cluster analyses, as this enabled comparing variables measured at different scales (Ranta et al., 2011). After this, a k-means cluster analysis was applied. The clusters were compared using the Kruskal – Wallis, t-/Mann – Whitney tests, and the χ^2 test to see whether the clusters differed from each other in terms of food meanings, issues impacting food purchasing intentions, the personal values of respondents, and background variables. In addition, correlation and linear regression analyses (stepwise) were conducted for certain variables (Metsämuuronen, 2005).

Results

Descriptive Statistics

According to the results, 68.3% of respondents ($n = 199$) reported being interested in moose meat as food and 50.3% claimed they would be interested in using more moose meat if they had access to it. Only 33.7% of respondents reported currently having access to moose meat. Only the 136 respondents that expressed an interest in moose meat were included in the further analyses, as they were considered relevant data for analyzing potential consumer segments. These 136 respondents can be characterized according to the background variables presented in Table 2. Table 3 presents the descriptives of the measured scales.

Linear stepwise regression analysis was used to determine whether any specific food meaning constructs explained the consumers' interest in moose meat. Naturalness and price (measured using one item) were the only food meaning constructs included in the final model in the stepwise analysis. However, the explanatory power of the model was not very strong ($R^2 = 0.12$, Durbin – Watson 1.76). Respondent values or issues that affected food purchasing intentions, food neophilia/neophobia, or food hobbyism had no explanatory power in the model at all and were excluded in the stepwise process from the model.

The Clusters

Cluster analysis revealed three clusters named as “established,” “skeptical,” and “ambivalent” moose meat consumer segments. In the first cluster, (established moose meat consumer ($n = 66$)) respondents had a very positive approach to hunting. They were also familiar with hunting, meaning that either they themselves were hunters or they knew a hunter in their close social circles. They also liked the type of people hunters are typically perceived to be and considered hunting a central part of the rural lifestyle and acceptable for

Table 2. Background variables of respondents interested in moose meat ($n = 136$).

Background characteristics	% of respondents
Gender	
female	64%
male	36%
Age group	
under 34 years	27.9%
35–44 years	19.1%
45–54 years	17.6%
55–64 years	25.0%
over 64 years	10.3%
Size of household (persons)	
1	31.6%
2	36%
3–5	29.4%
more than 5	2.9%
Location of residence	
(1 = remote rural area → 7 = center area of large city)	2.9%
1	
2	4.4%
3	7.4%
4	7.4%
5	25.7%
6	33.8%
7	18.4%

Table 3. The descriptives of the used measurement scales ($n = 136$). ^{*)} Measured with a single item. ^{**)} the meta-value dimensions are based on the categorization presented in Schwartz (2012).

Issues impacting food purchase intentions	Cronbach's alpha	Mean	Std. Deviation
Moral & health concerns	0.82	4.85	1.083
Image & convenience	0.60	4.30	0.945
Origin	0.69	5.00	1.212
Price	0.80	5.21	1.182
Intrinsic food quality	0.70	5.92	0.798
Food meaning constructs	Spearman – Brown	Mean	Std. Deviation
Taste	0.82	5.40	1.188
Health	0.77	5.18	1.197
Convenience	0.83	3.36	1.355
Affect regulation	0.75	4.10	1.285
Tradition ^{*)}	0.59	5.28	1.464
Sociability	0.71	5.23	1.150
Price ^{*)}	0.55	2.68	1.366
Naturalness	0.75	5.46	1.214
Societal norms ^{*)}	–0.39	4.97	1.311
Appearance	0.86	4.58	1.378
Weight management	0.83	3.97	1.399
Ethicality	0.82	4.85	1.331
Impression management ^{*)}	0.47	4.24	1.579
Schwarz-value measurement ^{**)}	Cronbach's alpha	Mean	Std. Deviation
Openness to change	0.70	4.94	0.978
Self-enhancement	0.82	3.12	1.102
Self-transcendence	0.74	5.50	0.865
Conservation	0.66	4.70	0.959
Others	Cronbach's alpha	Mean	Std. Deviation
Food neophilia/neophobia	0.80	5.19	1.093
Food hobbyism	0.81	3.78	1.290

recreational reasons or “for fun.” This group was the only one to state that they felt they had fairly good access to moose meat.

The second cluster ($n = 25$) was the most negative about hunting in general. They had the least positive attitudes toward hunting, and they also did not agree as strongly as the other clusters with the statement “hunting is acceptable as long as it does not endanger the existence of animal species.” They also did not see hunting as a central element of the rural lifestyle and did not like the type of people they perceived hunters to be. Approximately half of this group knew someone who hunted, even though they did not hunt themselves. This group did not have as much access to moose meat as they would have liked to have.

The third cluster ($n = 45$), i.e., ambivalent moose meat consumers, had a more positive approach to hunting in general than the second cluster, almost as positive as that of the first cluster. The difference was that they did not like the type of people they perceived hunters to be and did not accept hunting for purely recreational reasons. They did not hunt themselves and did not have many hunters in their close social circles. This group also had no access to moose meat. Table 4 presents the differences between the clusters in more detail.

The clusters differed statistically (Kruskal – Wallis, $p = .001$) in terms of their interest in moose meat, the established moose meat consumer cluster being more interested than those in the skeptical or ambivalent clusters. Pairwise comparisons revealed statistical differences between all the groups. However, it must be noted that interest in moose meat was high in all the clusters (Table 4). When analyzing how the clusters differed from each other in terms of food meanings, issues that affect food purchasing intentions, the personal values of respondents, and background variables, the largest differences were found in food meanings. In fact, the clusters did not statistically differ from each other at all in terms of respondents’ personal values or issues that impacted food purchasing intentions, food

Table 4. Responses of different clusters to questions measuring attitudes toward hunting, familiarity with hunting, and interest in moose meat.

	Established, mean	Skeptical, mean	Ambivalent, mean	Average, all
Familiarity with hunting (1 not familiar → 4 hunts regularly themselves or someone in their close social circle hunts regularly)	2.23 (hunts themselves: 1.41, someone else in close social circle hunts 3.06)	1.6 (hunts themselves: 1.0, someone else in close social circle hunts: 2.2)	1.33 (hunts themselves: 1.0, someone else in close social circle hunts: 1.67)	1.82 (hunts themselves: 1.20, someone else in close social circle hunts: 2.44)
Attitudes toward hunting				
In general, I have a positive attitude toward hunting (1 totally disagree 7, totally agree)	6.35	3.16	4.89	5.28
Hunting for purely recreational reasons is wrong	3.53	5.0	5.78	4.54
I see little wrong with hunting animals for their meat as long as the animal species is not endangered	6.64	3.92	6.42	6.07
I do not like the type of people hunters typically are	1.42	2.84	3.67	2.43
Hunting is an important rural tradition	6.20	3.68	5.47	5.49
I have enough access to moose meat	4.38	2.8	2.51	3.47
I am not interested in moose meat as a food raw material	1.32	1.84	1.76	1.56

neophilia/neophobia, or food hobbyism. However, we found statistical differences in food meanings related to moose meat in practically every food meaning construct (Figure 2).

The pairwise comparisons revealed that the greatest differences were between the skeptical and established moose meat consumer segments. The ambivalent consumer groups' perceptions of moose meat were relatively similar to those of the established moose meat consumer group. The clusters did not differ from each other in terms of respondent background characteristics such as age (χ^2 , $p = .464$), location of residence (Kruskal – Wallis, $p = .093$), size of household (Kruskal – Wallis, $p = .729$), or gender (χ^2 , $p = .467$). Instead, we found differences in their responses to questions regarding nature connectedness (χ^2 , $p = 0,003$). Established moose meat consumers most strongly felt that “they have right to use natural resources any way they want,” while the skeptical moose meat consumer segment disagreed the most with this sentence. The pairwise comparisons revealed differences mainly between the skeptical and established moose meat consumer clusters.

The results also revealed a slightly negative correlation (Pearson correlation -0.282 , $p = .01$) between the statement “*I do not typically like the type of people hunters are*” and the “access to meat” variable. Thus, we may speculate whether a lack of access to meat may, to some extent, also explain the negative attitudes toward hunting and hunters in general. However, when this was tested using linear stepwise regression analysis, the statements “*Hunting for purely recreational reasons is wrong*” (beta = 0.113) and a positive attitude toward hunting in general (beta = -0.420) best explained liking/disliking the type of people hunters are typically perceived to be ($R^2 = 0,266$; Durbin – Watson 1.861).

Having hunters in a respondent's close social circles seemed to best explain access to meat ($R^2 = 0.126$, Durbin-Watson 1.859), even though the explanatory power of the model was rather weak. However, this also verifies on its part, the assumption that moose meat is

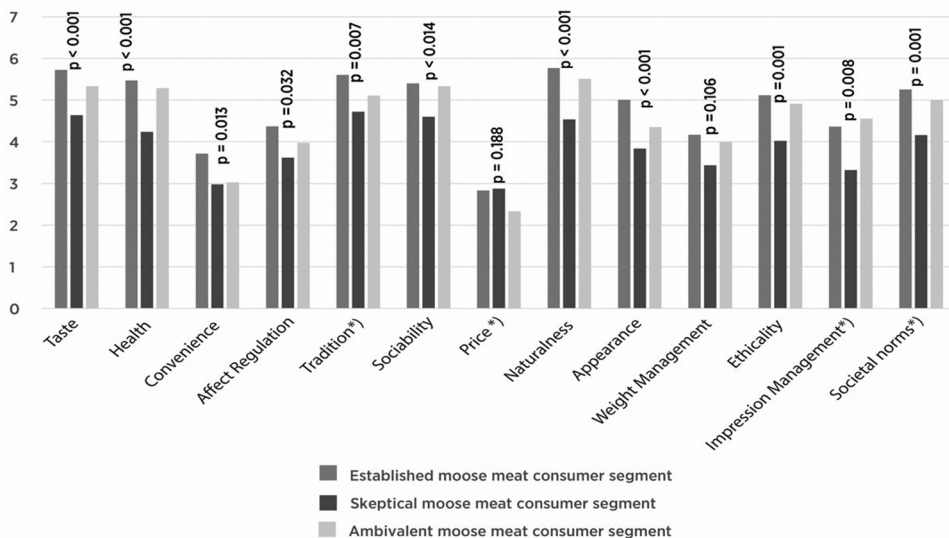


Figure 2. Perceptions of food meanings related to moose meat in different clusters. *) construct measured by using a single item.

currently used by hunters or their close social circle. The “hunts themselves” variable not being highlighted here may be due to only one-third of all hunters typically participating in moose hunting in Finland (Finnish Wildlife Agency (Suomen riistakeskus), 2020), and the number of hunters in the data was already initially low (6.6%). Location of residence had no explanatory power for access to meat in the model.

Discussion

The results show a general interest in moose meat among the respondents and reveal that respondents felt they did not have enough opportunities to use moose meat or have enough access to it. Respondents with no hunters in their close social circles seemed particularly interested in better access. Only naturalness as a food meaning predicted, for a small part, respondent interest toward moose meat. This may indicate that many food meanings connected to moose meat vary among the respondents in general.

The findings of this pilot study also indicate that different consumer segments appear to be interested in moose meat and that only one (established moose meat consumers) seemed to have some access to meat through their social connections. Thus, commercializing moose meat could utilize at least two consumer groups, i.e. the skeptical and ambivalent moose meat consumer segments. Attitudes toward hunting and hunters and the perceived value of moose meat were the other dimensions that varied between the consumer segments (Table 5).

The consumer segments found in this study held slightly different food meaning perceptions toward moose meat. The more positive a respondent’s attitude toward hunting in general, the more they valued moose meat as food. However, we note that the consumer group with the least positive attitudes toward hunting was still very much interested in moose meat as food, wished to have better access to it, and gave it positive food meanings. This is in line with results in Demartini et al. (2018), which showed that a positive perception of wild game meat predicted that a person was three times more likely to choose wild game food products than if they just held generally favorable attitudes toward hunting. Therefore, even though a respondent’s attitudes toward hunting clearly impacts their attitudes toward game meat, this connection does not seem to be a linear one. In their study examining the impact of animal ethics on consumer behavior related to game meat, Hölker et al. (2019) found that only two extreme animal ethics positions -- original anthropocentrism (humans being allowed to do whatever they want with animals, with no restrictions) and abolitionism (the use of animals for human purposes being completely prohibited) -- had an actual impact on consumer behavior, i.e. on game meat consumption. Thus, we can speculate that, at least for some consumer segments found in this study, the interest in meat “surpasses” the less positive attitudes felt toward hunting and that perhaps

Table 5. Summary of the differences between moose meat consumer segments.

Access to moose meat and attitudes toward hunters	Perceived value of moose meat and attitudes toward hunting in general	
	Inferior	Superior
Limited access and negative attitudes	Skeptical moose meat consumers (Cluster 2)	Ambivalent moose meat consumers (Cluster 3)
Reasonable access and positive attitudes		Established moose meat consumers (Cluster 1)

only very polarized attitudes impact the interest in game meat. This phenomenon has been called the “meat paradox” in previous research focused more on industrial meat production (Kunst & Hohle, 2016; Loughnan et al., 2010). Many consumers enjoy eating meat but dislike causing pain to animals. To reduce this cognitive dissonance, consumers have been found to simply dissociate meat from animals. They may ignore or suppress the fact that the meat they eat originates from once-living creatures (van Rijswijk et al., 2008). Analyzing the meat paradox further in the context of game could open new, interesting research avenues for studying hunted game and attitudes toward hunting.

The largest differences between the attitudes toward hunting in the consumer segments in this study were found in whether hunting for purely recreational reasons was acceptable and whether the respondents mentioned liking the type of people that they perceived hunters to typically be. However, when interpreting these results, we must consider that public attitudes toward hunting are fairly positive in Finland, and the proportion of hunters in the population is relatively high (~6%) (von Essen & Tickle, 2020). Thus, the cultural context has no doubt affected respondent attitudes toward hunting and may also partly explain the lack of connection between the respondents’ personal values and attitudes toward hunting. Moreover, the respondents of this study were ultimately relatively similar in their values, as the standard deviations show. One interesting finding occurred in the ambivalent consumer segment: respondent attitudes toward hunting were fairly positive, but they did not like the type of people hunters often are and not having access to game meat. We may speculate whether this dislike, maybe even unconsciously, is due to the hunters having a dominant position in meat distribution (Matilainen & Lähdesmäki, 2021), as we found a correlation between this statement and a respondent’s access to meat, even though meat access was not included in the final regression model. In a similar way, previous research shows the strongest opposition toward hunting in general being found in stakeholder groups whose recreational activities are endangered due to hunting (e.g. Casola et al., 2021). Sociologist-evolutionist TenHouten (2017) asserts that contempt ensues in a situation where an individual perceives that resources have been unfairly distributed. In this respect, our results provide on their part, more evidence to the suggestion that wider meat distribution may also increase consumers’ positive attitudes toward hunters and hunting (Ljung et al., 2015).

Previous literature also shows that a negative attitude toward hunting may largely be due to consumers having concerns about hunter conduct toward legislation and the environment. This negative reputation of hunters has also impacted consumer perceptions of game meat (Demartini et al., 2018). Thus, it can be speculated, to what extent this bad reputation in the eyes of the public is actually related to hunting as an activity or to the dislike felt for hunters and their perceived behavior or privileges. On the other hand, there is constant ongoing debate of “good” and “bad” hunting ethics, also within hunting communities (von Essen, 2018). Comparing how and why these match or disagree with public perceptions of good hunting ethics would be an interesting future research avenue. Gamborg et al. (2018) have already shown that there are differences in the motives the hunters themselves state for hunting and the motives public perceive hunters to have and that they impact the public attitudes toward hunting (Gamborg et al., 2018). The same approach could be expanded to studying hunting ethics. Nevertheless, the results of this study indicate that disliking hunting is

a more complex issue than simply being opposed to killing wild animals. However, more research is needed to further verify this assumption.

The clusters found in this study did not differ from each other in terms of any variables other than food meaning construct and nature connectedness-related issues, which may imply that nature connectedness affects a consumer segments' interest in game meat instead of the values related to food purchase or food consumption affecting it. Similarly, a consumer segments' attitudes toward hunting do not seem to influence what food meaning characteristics they connect to moose meat, only their "strength." When the top three food meanings connected to moose meat are listed, their order appears to vary between groups despite the same constructs being present in each group's lists (Table 6). The results also show that the food meanings primarily connected to moose meat are not very strongly connected to status elements, social norms, or even ethicality, which is in slight conflict with the presumptions of this study. However, status, for example, is currently regarded as a fundamental human motive that often involves triggering automatic and non-conscious mental processes and socio-behavioral responses (Anderson et al., 2015), and thus its influences are difficult to capture in studies based on the cognitive approach. This may partly explain our result.

The results are nevertheless in line with those of other European studies that mentioned taste, tradition, and nutritional properties as the main positive attributes connected to game meat (Demartini et al., 2018; Tomasevic et al., 2018) and which link game consumption to social occasions (Tomasevic et al., 2018). Price, taste, and overall quality (Tomasevic et al., 2018); difficulties cooking/preparing game meat; and game meat quality compared with its price (Demartini et al., 2018; Niewiadomska et al., 2020) are food characteristics of game meat that most worry consumers. The results of our study are very much in line with these results (Table 6).

The food meanings found in this pilot study nevertheless provide information on how moose meat may be promoted to different consumer segments. Sociability seems to be more important to the ambivalent moose meat consumer group than to the other two groups, who prioritize taste, naturalness, and tradition to some extent.

One can also speculate, why were there no differences between the valued aspects of our consumer segments when purchasing food. As the scale used in this study measured general consumption motivations, it may have missed the more specific valuations assigned to niche foods such as game meat. This speaks for using more specific measures tied to game/moose meat meanings.

Table 6. Three most common and three least common food meanings attributed to moose meat by different consumer groups.

Most common food meanings attributed to moose meat		
Established	Skeptical	Ambivalent
1.Naturalness	1.Tradition	1.Naturalness
2.Taste	2.Taste	2. Sociability
3.Tradition	3.Sociability	2.Taste
Least common food meanings attributed to moose meat		
Established	Skeptical	Ambivalent
1. Price	1.Convenience	1.Convenience
2. Convenience	2.Price	2. Price
3. Impression management	3.Impression management	3. Affect regulation

Conclusions

As a conclusion, we can summarize that a clear market demand exists for moose meat among the respondents in our study, and different consumer segments seem interested in it. Attitudes toward hunting in general seem to impact the perceptions of meat, which is not surprising as such, but all the consumer groups we found appeared to connect very similar “most favorable” and “least favorable” food characteristics to moose meat. However, how highly moose meat was valued clearly differed between the consumer groups. Valuing was based on issues, such as naturalness, taste, and social aspects, rather than on the perceived ethicality of moose meat. Currently, less than 2% of moose meat in Finland ends up in commercial markets (Kankainen et al., 2014). Most of it is used by either the hunters themselves or in their close social circles. These meat distribution practices are based on deeply rooted rural traditions and practices related to moose hunting. The Finnish hunting culture has been mentioned as the greatest obstacle to commercializing moose meat because selling hunted meat is considered unusual within this culture and is only seen as acceptable for covering the costs of hunting and hunting clubs, even though no legal impediments exist (Matilainen & Lähdesmäki, 2021). Thus, hunters currently decide who has access to moose meat and who does not. The situation is further complexed by the fact that hunters also control the moose population and thus limiting the damages caused by them. To build commercial markets for moose meat, current practices and benefit division need to be changed. Some proposals for potential new practices are currently under development, initiated by the Ministry of Agriculture and Forestry (Finnish Wildlife Agency Suomen riistakeskus, 2020).

According to the results, attitudes toward hunting seem to depend not only on attitudes toward killing wild animals but also on attitudes toward hunters and hunting as a recreational activity rather than as a game management method. This implies that hunting attitudes are potentially a more complex phenomenon than previously recognized. To better understand the nuances in the negative attitudes toward hunting and thus to consider ways in which to improve its acceptability, more research is warranted.

Finally, we must mention the limitations of this study. Firstly, the data of the study are based on people registered on the food panel of the organization implementing the survey, and the sample was limited to 200 respondents due to the research economics. Therefore, the sample cannot be considered representative of the food panel nor of Finnish consumers in general, and it must be highlighted that the aim of our study is not to create generalizations of the consumers in Finland interested in moose meat but rather to provide a first analysis of potential consumer groups interested in moose meat. Consumer panels and panel surveys have been recognized as a reliable method to conduct consumer studies for this kind of study approach (Fox et al., 1993; Pollard, 2002). To generalize our results to a wider population, more research is warranted, and our results may provide a valuable basis for this. The country context also sets some limitations that should be kept in mind when interpreting the results. In Finland, hunting is fairly positively perceived by the public, which is probably also reflected in the results. In a country with less support for hunting, the results may have been more polarized.

Finally, it should also be kept in mind that the study was implemented using a survey method, and thus the respondents went through cognitive processes while answering it

(Luomala et al., 2020). To study the affective motives and values related to hunting and game meat more in depth, future research may benefit from more experimental research methodology, for which this study provides an excellent starting point.

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