Meat, myself, and I: The role of multiple identities in meat consumption

Louise Randers, John Thøgersen *

MAPP Centre, Department of Management, Aarhus University, Fuglesangs Alle 4, 8240 Aarhus V, Denmark

ABSTRACT
Excessive consumption of meat challenges global food security and environmental sustainability. In the mounting literature on identity as a motivator of behaviour, meat consumption has been associated with a handful of identities. Identity theory suggests that people hold multiple identities on different levels of abstraction, but how identities at different levels of abstraction interact and possibly co-determine intentions and behaviour remains largely unanswered. Inspired by research on attitudes and goal hierarchies, this study investigates a hierarchical model of meat-related identities and their relation to intentions to consume red meat. By means of a survey of Danish consumers (N = 1001), we identified identities related to the consumption of red meat (e.g., flexitarian identity), using confirmatory factor analysis and structural equation modelling. We also controlled for the most important additional antecedents identified in prior research. Evidence was found that more abstract identities (e.g., national identity, environmental identity) mostly influence intentions to eat meat indirectly, mediated through more behaviour-specific identities (e.g., flexitarian identity). However, some higher-order identities also appear to have a direct impact on intentions to eat meat after controlling for more behaviour-specific identities, which suggests a less hierarchical structure manifesting itself, possibly due to the behaviour being instrumental at reaching different, functionally unrelated goals that are related to different identities. Policy recommendations towards reducing meat consumption are proposed.

1. Introduction
Meat production requires considerable agricultural resources, such as water and land for crops used as animal feed (Mekonnen & Hoekstra, 2012; Newbold et al., 2015), and also contributes substantially to global climate change due to potent greenhouse gas (GHG) emissions, especially from the production of beef and lamb (Springmann et al., 2018; Vermeulen, Campbell, & Ingram, 2012). Animal welfare is also a concern, especially in connection with large-scale industrial meat production (Clonan, Wilson, Swift, Leibovici, & Holdsworth, 2015). Moreover, there is evidence that excessive consumption of red meat, especially processed, increases the risk of developing colorectal cancer and cardiovascular diseases (Godfray et al., 2018), with the caveat that health risks connected with the intake of red meat are still not firmly established (Johnston et al., 2019). Nevertheless, there is broad consensus that action to curb global meat consumption is urgently needed (Springmann et al., 2018; Willett et al., 2019). Many consumers enjoy the taste and texture of meat and it is a central part of diet and dishes, particularly in Western cultures (Schosler, De Boer, & Boersema, 2012). Many consumers also value meat for its perceived health and nutrition benefits, as a source of proteins, vitamins, and minerals (McAfee et al., 2010).

With most of the variation in pro-environmental intentions and behaviour still unaccounted for (Carrington, Neville, & Whitwell, 2010) by popular social cognitive models (Bamberg, 2004), the search for additional, important antecedents has led to an increased focus on identity (Fishbein & Ajzen, 2011; Rise, Sheeran, & Hekkelberg, 2010). Especially, research has found a significant impact of pro-environmental self-identity (e.g., Sparks & Shepherd, 1992; Whitmarsh & O’Neill, 2010) and more specific environmental identities, such as recycler or organic food identity (e.g., Hansen, Sørensen, & Eriksen, 2018; Nigbur, Lyons, & Uzzell, 2010; van der Werff, Steg, & Keizer, 2013b). People do not have only one, but multiple identities (Forehand, Reed, & Saint Clair, 2021), connected in a cognitive network (Reed, Forehand, Puntoni, & Warlop, 2012; Saint Clair & Forehand, 2020) or schema (e.g. Linville, 1987; Roccas & Brewer, 2002). Despite a solid theoretical foundation and empirical evidence supporting that people

* Corresponding author.
E-mail addresses: lora@mgnt.au.dk (L. Randers), jbt@mgnt.au.dk (J. Thøgersen).

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hold multiple identities (Forehand et al., 2021; Marsh & Shavelson, 1985; Saint Clair & Forehand, 2020), only few empirical studies have included more than one (and in rare cases a few) identity(ies) in models of pro-environmental behaviour (e.g., Carfora, Caso, & Conner, 2017; Gatersleben, Murtagh, Cherry, & Watkins, 2019). Further, the ordering of multiple identities with regard to their influence on behaviour has, to the best of our knowledge, only been studied to a limited extent, for example within symbolic interactionism research on identity theory (Burke, 2003). It seems likely that the ordering of identities follows a similar hierarchical logic as attitudes and goals (Bagozzi, Bergami, & Leone, 2003; Fishbein & Ajzen, 1977), with some adjustments for the specific characteristics of identity (Forehand et al., 2021; Reed et al., 2012). Empirical studies focusing on only a single identity are mute about the interrelated and interacting influence of and possible conflicts between multiple identities and might therefore lead to biased estimates of the impact of specific identities on behaviour (Carrington, Neville, & Canniford, 2015; Saint Clair & Forehand, 2020). For example, general, self-central identities that are important to a behavioural domain may lead to the formation of a strong behaviour-specific identity, which then mediates the impact of the more general identity on behaviour, similar to how attitudes at different levels of specificity form an influence hierarchy (Fishbein & Ajzen, 1977). Or the impact of a specific identity might depend on the strength of another identity, which is also relevant for the same behavioural domain, but in a conflicting way, leading to a goal conflict (Kruglanski, Shah, Fishbach, & Friedman, 2018). To obtain a comprehensive understanding and unbiased estimate of the impact of identity on behaviour, it is therefore necessary to control for multiple identities in a comprehensive model (Forehand et al., 2021).

Eating meat is a mundane everyday behaviour, but it is personally important to many people (McAfee et al., 2010; Schössler et al., 2012), among other things because it is strongly linked to key aspects of their identity (Clark & Bogdan, 2019; Eker, Reese, & Obersteiner, 2019; Graça, Calheiros, & Oliveira, 2015; Stoll-Kleemann & Schmidt, 2017). The conflict between meat-eating being identity relevant to many consumers and the current moral questioning of meat consumption in many circles makes it an interesting case for studying the impact of identity on (pro-environmental) consumption.

On this background, it is the aim of this paper to extend our understanding of the impact of multiple identities on pro-environmental consumer behaviour, using meat consumption as the case and include identities that have been extensively studied (e.g., environmental self-identity, gender identity, healthy eater identity) as well as identities that have drawn little attention in this context (e.g., flexitarian identity, gender identity, healthy eater identity) as well as identities that have been extensively studied (e.g., environmental self-identity, gender identity, healthy eater identity) as well as identities that have drawn little attention in this context (e.g., flexitarian identity, gender identity, healthy eater identity).

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2. Theoretical framework

2.1. Conceptualizing identity

Research on identity and its relation to consumer choices and behaviour has proliferated in recent years (Fielding, McDonald, & Louis, 2008; Gabriel & Lang, 2006; Gatersleben et al., 2019; Van der Werff, Steg, & Keizer, 2014). From a social cognitive perspective, Reed et al. (2012) define self-identity as a category label to which an individual self-associates and that guides cognition and behaviour. Similarly, from a symbolic interactionist perspective, identities are defined as meanings attributed to oneself (the identity standard) (Burke & Stets, 2009; Stets & Burke, 2000). Self-labelling is the result of self-reflection where people categorize themselves according to personal features (e.g., personality, appearance, behaviour), roles (e.g., sister, mother), or group memberships (e.g., nationality, fan club) (Bisogni, Connors, Devine, & Sobal, 2002; Burke & Stets, 2005; Tajfel, 1981). Some identities reflect a personal self-image whereas others are more social, which is mirrored in the different self-labels (Leonardelli, Pickett, & Brewer, 2010). Both the social cognitive and the symbolic interactionist position assume that people are aware of and reflect on their own identities, which justifies the use of self-report methods when studying identity (Monrad, 2013). Hence, in line with both self-labelling identity theory and the symbolic interactionism approach, we use self-descriptors to measure identity in the present study (Monrad, 2013; Reed et al., 2012).

2.2. Multiple identities and their organization

Corresponding with the increasing evidence of a multifaceted self-concept (Forehand et al., 2021; Oyserman, Elmore, & Smith, 2012), it is well documented that individuals possess a variety of identities at different levels of abstraction and self-centrality (Reed et al., 2012; Reitze & Mutran, 1994; Stryker & Burke, 2000). Two principles seem to determine which of many possible identities a person employs to guide behaviour in a situation. First, identities that are relevant to a behavioural domain may differ in self-centrality (Verplanken & Holland, 2002) or in the extent to which the identity is integrated into the person’s self-concept (Kettle, 2019). The more self-central an identity is, the more chronically accessible it is from memory and therefore likely to be activated in various situations, where it can guide perceptions and behaviour. Second, an identity can be activated and made salient by cues in a situation (e.g., reminders of social groups that one identifies with) and less self-central identities may then be activated (Reed et al., 2012).

Identity activation has been demonstrated in priming studies where manipulation of an identity led to corresponding preferences or behaviour (Forehand & Deshpande, 2001; Reed et al., 2012; Zhang & Khare, 2009). Thus, a salient identity is not necessarily self-central and vice versa. In sum, multiple identities are managed simultaneously, both automatically and consciously (Reed et al., 2012), which makes it pertinent that all identities that are significantly related to a behaviour are accounted for in models of behavioural motivation.

The interplay of multiple identities has not been explored much with regard to environmentally relevant behaviour, where research primarily has focused on the effects of environmental or green self-identity (e.g., Clayton, 2003; Sparks & Shepherd, 1992; van der Werff et al., 2013b; Whitmarsh & O’Neill, 2010). This stream of research has generally found that pro-environmental intentions increase with environmental identity across a range of domains. However, when focusing on a single identity in isolation, the impact of identity on intentions (and behaviour) may be underestimated or at least not completely understood (Gatersleben et al., 2019; Thogersen, 2018; Udall, de Groot, de Jong, & Shankar, 2020). In addition to pro-environmental identity, research has found moral, frugal, thrifty and wasteful identities to be relevant for pro-environmental behaviour (Evans, 2011; Gatersleben et al., 2019; Thogersen, 2018), which has contributed to understanding the influence of non-environmental motives for pro-environmental behaviour (cf., e.g., Steg, Perlovich et al. van der Werff, & Lurvink, 2014). Studies investigating multiple identities in the context of meat consumption are scarce (e.g. Carfora et al., 2017; Lacroix & Gifford, 2019). Hence, this research may have missed the influence of central identities. Research on the impact of identity on meat consumption is reviewed below.

Recently, theory on the dynamics of multiple identities has received increasing attention in social psychology and marketing (Forehand et al., 2021; Kettle, 2019; Saint Clair & Forehand, 2020). An emerging area of research is identity abstraction, that is, research on the level of abstraction at which identities are constructed (Forehand et al., 2021). For example, a person might identify with a category as abstract as humanity or as specific as a Turkish-German female school teacher. Certain broad identities may subsume more specific identities and all of these identities may be represented in a cognitive network in which a range of different processes are likely to happen (e.g., identity association and
2.3. Identities related to meat consumption and meat reduction

Omnivores are individuals consuming products of both animal and plant origin (Allen, Wilson, Ng, & Dunne, 2000). A category like “omnivore” could in principle function as a self-label, but in practice research has failed to identify people having an omnivore identity. It appears that, because most people, especially in Western cultures, have been raised with eating meat, few question the norm of meat consumption (Joy, 2009; Rosenfeld & Burrow, 2017), making meat consumption too “normal” to be an indicator of a distinct identity. Studies that measured “meat-eater identity” or “omnivore identity” (e.g., Allen et al., 2000; Blake, Bell, Freedman, Colabianchi, & Liese, 2013; Carfora et al., 2017; Ma, Blake, Barnes, Bell, & Liese, 2018) seem to have captured frequency of meat consumption rather than an identity as defined above. Counter-identities in opposition to vegetarianism and veganism, referred to as “not-me” identities by symbolic interactionists (McCall, 2003), probably exist, though. A small handful of identities have been (mostly negatively) linked to the consumption of meat, notably being a vegetarian or a vegan. Vegans avoid meat from mammals, poultry and fish in their diet (Ruby, 2012), whereas vegans do not consume food of animal origin at all (Allen et al., 2000).

Probably in response to the increasing linking of meat consumption to both individual and societal problems (e.g., Willett et al., 2019), “light versions” of vegetarianism have multiplied in recent years. A label that is increasingly used to characterize these is “flexitarian,” which is used for people who consciously reduce their consumption of meat and do not eat it every day (Dagevos & Reinders, 2018). Such a compromise diet has been suggested as a more realistic and therefore more effective vision than vegetarianism for convincing meat-eaters to eat less meat (Spencer, Cienfuegos, & Guinard, 2018). Just like vegetarians and vegans, flexitarian motives for reducing meat consumption include health, environmental concern and animal welfare (Chuck, Fernandes, & Hyers, 2016; Mullee et al., 2017; Rosenfeld & Burrow, 2017; Ruby, 2012). Flexitarians continue to eat some meat for several reasons, including habit, upbringing, taste and because somebody else prepares the food (Mullee et al., 2017). A flexitarian identity therefore expresses an awareness about the negative consequences of (excessive) meat consumption while balancing this with other goals and concerns. Research on flexitarianism suggests that some “meat reducers” may have adopted this as an actual (behaviour-specific) identity (Rosenfeld, Rothgerber, & Tomiyama, 2020). A flexitarian identity is therefore expected to be negatively related to eating meat.

There are also more abstract or higher-order identities that may
motivate the consumption or rejection of meat, including gender, religious and national identity (see Fig. 1). Notably, it is often proposed that masculinity is linked to meat consumption (Kildal & Syse, 2017; Rothgerber, 2013; Rozin, Hormes, Faith, & Wansink, 2012; Schölsler, de Boer, Boersema, & Aiking, 2015; Thomas, 2016). Men in general hold significantly more favourable attitudes towards red meat than women (Graça et al., 2015; Kubberød, Ueland, Rodbotten, Westad, & Risvik, 2002) and men also appear to more strongly associate meat and healthiness with women (Love & Sulikowski, 2018). Meat, especially red meat, is perceived as high in energy and proteins and to symbolize power and strength. This may partly explain why men eat bigger quantities of meat, particularly red meat (Hayley, Zinkiewicz, & Hardiman, 2015; Moser & Kleinheikselkotten, 2018). The daily average consumption of red meat by European men/women has been estimated to 51/33 g (Rohrman et al., 2015). Hence, the gender difference in red meat consumption is bigger than in recommended daily calories intake (approximately 2800/2000 calories a day, depending on age and activity level, cf. U.S. Department of Health and Human Services and U.S. Department of Agriculture (2015)). Together, these studies suggest that a masculine gender identity a higher-order identity, may motivate and therefore be positively related to the consumption of red meat.

There is also evidence that national identity can be linked to meat consumption (Lockie, 2001; Nguyen & Platow, 2021; Schölsler et al., 2015). For example, a lot of traditional Danish dishes contain pork meat (The Ministry of Environment and Food of Denmark, 2014) and therefore the consumption of (certain) dishes with pork might be considered part of the national identity, as suggested by qualitative research (Randers, Grønshøj, & Thøgersen, 2021).

The fact that many religions ban certain types of meat (e.g., Judaism, Islam, Hinduism) or advocate restraint (Buddhism) (Beardsworth & Bryman, 2004; Nath, 2010) suggests that religious identity might also be linked to meat consumption. However, such effects are difficult to capture in single-country studies in countries where the large majority of religious people share the same religion.

Several studies have found a significant impact of environmental self-identity on pro-environmental behaviour (Clayton, 2003; Fielding et al., 2008; Gatersleben, Murtagh, & Abrahamse, 2014; van der Werff, Steg, & Keizer, 2013a; Whitmarsh & O’Neill, 2010), including meat reduction (Van der Werff et al., 2014). As red meat is often pointed out as the most GHG-intense food category (Springmann et al., 2018), it is expected that environmental self-identity is negatively related to eating red meat.

The healthy eater identity has also been considered in relation to eating meat, but here results are mixed (Abrahamse, Gatersleben, & Uzziel, 2009; Carfora et al., 2017; Sparks & Guthrie, 1998). Vegans often consider meat to be unhealthy (Fox & Ward, 2008), while others, for example soldiers in the Norwegian army (Kildal & Syse, 2017), regard meat as essential to stay healthy. The Danish official dietary guidelines caution against eating too much red and processed meat. Although conflicting, these health beliefs and recommendations make it likely that a healthy eater identity is negatively related to eating red meat.

As argued above, we find it likely that behaviour-specific identities are more proximal and the more general identities more distal antecedent of a specific behaviour expressing the identity. This suggests a hierarchical ordering of identities that are relevant for a specific behaviour, such as meat consumption, as illustrated by Fig. 1. Note that the ordering of identities in terms of levels of abstraction, including the categorization into higher-order, mid-level and behaviour-specific, is not research-based, but heuristic and meant for illustration only. By including several, relevant identities in the same study, which few have done (Abrahamse et al., 2009; Carfora et al., 2017; Lacroix & Gifford, 2019; Sparks & Guthrie, 1998; Sparks, Shepherd, Wieringa, & Zimmernanns, 1995), it is possible to account for both direct and indirect effects of the different identities on behaviour, while also controlling for other relevant variables.

2.4. Behavioural antecedents of meat consumption

In order to obtain a valid estimate of the relationship between identity and meat consumption, it is necessary to control for other variables that also have a substantial effect on the behaviour (Biddle et al., 1985), especially variables that share overlapping variance with identity. Else estimates of relationships between identities and behaviour are bound to be biased (i.e., omitted variable bias).

According to social cognitive theory, the intention to perform the behaviour is the immediate antecedent of voluntary behaviour (Fishbein & Ajzen, 2011). The behavioural intention is assumed to capture and mediate all motivational impacts on behaviour, including the attitude towards the behaviour, social pressure and perceived behavioural control, and can be traced further back to more distal antecedents, including basic values (Ajzen, 1991; Stern, 2000). Social cognitive models including these variables have been fairly successful at accounting for behavioural variation (Fishbein & Ajzen, 2011), including variation in pro-environmental behaviour (Bamberg & Möser, 2007). Especially, the Theory of Planned Behaviour (TPB, Ajzen, 1991) has been employed to study voluntary behaviour in a range of contexts, including food choice (e.g., Arvola et al., 2008; Bonne, Vermeir, & Verbeke, 2008; Sparks & Guthrie, 1998; Zhou, Thøgersen, Ruan, & Huang, 2013). For example, prior research based on the TPB has found a strong and positive relationship between intentions to eat meat and actual consumption behaviour (Berndsen & Van der Pligt, 2004; Saba & Di Natale, 1998).

Previous studies have identified a range of attitudes related to meat (Mullee et al., 2017; Rosenfeld, 2018; Ruby, 2012; Stoll-Kleemann & Schmidt, 2017). The personal attitude towards the behaviour – for example, if the person would like to have red meat for dinner or not – is generally considered a key antecedent of intention and behaviour (Ajzen, 1991). In the TPB, the attitude towards a behaviour is assumed to depend on salient beliefs about the behaviour’s consequences. For example, many believe that eating meat leads to health benefits, such as managing weight and getting enough B12 vitamins and proteins (Bonne et al., 2008; Kildal & Syse, 2017; Lea & Worsley, 2001; Richardson, Shepherd, & Elliman, 1993). However, the health benefits of eating meat have been increasingly questioned in recent years, which has influenced attitudes towards eating meat (de Boer, Schølsler, & Aiking, 2017; Ruby, 2012). Past research also found a strong impact on attitudes towards eating meat of beliefs about taste and enjoyment (Graça et al., 2015; Stoll-Kleemann & Schmidt, 2017).

A second antecedent of behavioural intentions is subjective norms, which have been found to be of considerable importance in research on healthy eating (Äström & Rise, 2001; Pedersen, Grønshøj, & Thøgersen, 2015; Rageliene & Grønshøj, 2020) and pro-environmental behaviour (Goldstein, Cialdini, & Griskevicius, 2008; Klöckner, 2013; Thøgersen, 2014). Subjective norms represent the perceptions of social expectations and pressure and are often separated into two different types: descriptive and injunctive norms (Cialdini, Reno, & Kallgren, 1990; Thøgersen, 2008). The first refers to perceptions of what other people do and the second to perceptions of what others expect from the individual (Cialdini et al., 1990). Research has found a strong positive effect of supportive social norms on meat consumption (Vatan et al., 2022) as well as a negative effect of making norms of rejecting meat salient (Amiot, El Hajj Boutros, Sukhanova, & Karelis, 2018), but in the latter case primarily in consumers who already consider adopting a low-meat diet (Wyker & Davison, 2010). Others found no effects of social norms (Carfora et al., 2017; Zaveloski et al., 2015; Povey, Welsh, & Clarke, 2020) or even an effect of descriptive, but not of injunctive norms (Zur & Klöckner, 2014).

A third antecedent of behavioural intentions, perceived behavioural control (PBC), captures whether the performance of a specific behaviour is perceived to be within one’s control, that is, easy or difficult to do (Povey, Conner, Sparks, James, & Shepherd, 2000). In connection with intentions to eat less meat, PBC captures whether consumers find it difficult or easy to locate, purchase and cook plant-based food, among other things (Stoll-Kleemann & Schmidt, 2017). Prior research has
found a positive relationship between PBC and intentions to eat less meat (Graça et al., 2015; Povey et al., 2001; Wyker & Davison, 2010). It appears that availability of plant-based options and cooking capabilities are crucial to reduce meat consumption (Dibb & Fitzpatrick, 2014). Hence, PBC is likely to have a significant impact on meat consumption.

Fig. 1 illustrates the proposed relations between the different identities, the behavioural antecedents suggested by the TPB, intentions and behaviour. In the following, we report an empirical study of the relationships between intentions to eat meat and meat-related identities at different levels of the hypothesized identity hierarchy, while also controlling for behavioural antecedents suggested by the TPB and demographic background characteristics. Note again that the main purpose of including TPB variables is to reduce the risk of omitted variables bias. Therefore, we have not formulated any a priori hypotheses about relationships between the TPB variables and identities. Hence, our analyses on these relationships are purely exploratory.

3. Method

3.1. Study context

Denmark is an appropriate location to study identities and meat consumption, for several reasons. First, meat is still a part of the meal in almost 80% of dinners in Denmark (Madkulturen, 2021), which means that the vast majority of Danes are omnivores. Second, almost half of Danes associate red meat with environmental problems (YouGov, 2019). Compared to other countries, such as Norway and Australia, the level of problem awareness in relation to meat consumption appears to be relatively high in Denmark (Austgulen, Skuland, Schjøll, & Alfnes, 2018; Marinova & Bogueva, 2019). Hence, eating red meat is increasingly controversial in Denmark, which might facilitate the spread of identities related to meat reduction. Third, in Denmark, agriculture accounts for approximately 20% of national GHG emissions, mainly from livestock production (primarily pork and beef) (Nielsen et al., 2019). Hence, there is a considerable reduction potential regarding meat consumption (and production) in Denmark.

3.2. Participants

An online survey was carried out in July 2020 among a sample drawn from an ISO-certified market research company’s (Userneeds) standing panel to be representative of the adult Danish population in terms of gender, age and region. Because the focus is on meat consumption, people who did not eat meat at all were screened out. Moreover, 24 participants were excluded as potential “mischievous respondents” because they spent less than 3 min completing the questionnaire (the average response time was 9 min) and 14 participants were excluded due to “straightlining” – providing the same answer to 15 or more identity items, which were central to the study. The size of the final sample after screening and cleaning (N = 1001) Userneeds pay members of their standing panel a small compensation for participating in a survey. Ethical approval was obtained from the authors’ university before distributing the questionnaire. Before the main data collection, the questionnaire was pretested with a convenience sample (N = 132), resulting in minor changes in some questions.

In order to counter the risk of social desirability bias, before consenting to participate, participants were informed about the estimated completion time and that their personal information would not be revealed (MacKenzie & Podsakoff, 2012). Table 1 reports the socio-demographic profile of the sample. Slightly more females (56.3%) than males participated in the survey and a relatively high percentage had a higher education (60.7%). Else, the demographic profile of the survey reflects the profile of the adult Danish population fairly well (Danmarks Statistik, 2020). In order to correct for possible biases due to the composition of the sample, we control for these demographic characteristics in the statistical analyses.

3.3. Questionnaire and measures

After the screening questions came questions about meat consumption the previous week, followed by identity questions, which were presented in random order across respondents to reduce instrument effects. Then followed control variables extracted from extant research on meat consumption (Lacroix & Gifford, 2019; Sparks, Conner, James, Shepherd, & Povey, 2001) and after that questions about intentions to eat meat for a main meal the next seven days. The final section contained questions about demographic variables. The data can be downloaded from the following web address: https://osf.io/kvd9b/. Novel instruments were purified using exploratory factor analysis. For the final constructs, construct reliability and discriminant validity were checked by means of confirmatory factor analysis.

The questionnaire contained nine identity measures (see Table 2 for translated items, mean values and factor loadings). Statements expressing self-labels or (societal or theoretically based) meanings (e.g., self-defining actions) of identities were rated on a 7-point scale (1 = Does not match me at all; 7 = Matches me really well), plus a “Not applicable” option coded as missing value. Only one identity was measured differently (see below). A translated 3-item instrument, which has shown acceptable reliability in previous studies (Ilke et al., 2013; Carfora et al., 2017), was used to measure healthy eater identity. Likewise, a validated three items instrument was used to measure environmental self-identity (van der Werff et al., 2013a). The measures of gastronomic identity and gourmet identity were too highly correlated to be considered different constructs. After purification, the items from gourmet identity were left out and only the first three items from gastronomic identity were kept. Hence, the final construct is a measure of gastronomic identity, which apparently cannot be distinguished from a gourmet identity. Also, a 2-item measure of vegetarian/vegan identity and a 3-item measure of flexitarian identity were developed specifically for this study, the latter with a theoretical basis in the literature on flexitarianism (Dagevos & Reinders, 2018). Since we had screened out consumers who never eat meat, the vegetarian/vegan identity construct was included to measure its counter identity (vegetarian non-identity). For this construct a portrait-paradigm approach was employed, asking how much a description of a person (he, she or they depending on the gender category of the respondent) resembled the respondent, rated on a

| Table 1 |
|------------------------|-------|
| Socio-demographic characteristics of the sample, distribution in percentages. |
|                          | Pct.  |
| Women                   | 56.3% |
| Men                     | 43.7% |
| Age                     |       |
| 18-25                   | 11%   |
| 26-35                   | 19.2% |
| 36-45                   | 17.7% |
| 46-55                   | 17.2% |
| 56-65                   | 19%   |
| 66-76                   | 15.9% |
| Education               |       |
| Primary and secondary school | 5.3% |
| High school             | 12%   |
| Vocational education    | 21.4% |
| Higher education        | 60.7% |
| Location                |       |
| Capital                 | 25.4% |
| >200.000 inhabitants    | 10.4% |
| 20.000-200.000 inhabitants | 29.4% |
| <20.000 inhabitants     | 34.3% |
| Annual household income |       |
| <299,999 DKK            | 21.9% |
| 300,000–499,999 DKK     | 23.2% |
| 500,000–799,999 DKK     | 22.7% |
| >800,000 DKK            | 15.9% |
| NA                      | 16.2% |
Table 2
Identity items, factor loadings and means.

| Identity                  | Items                                                                 | Mean | Factor loadings |
|--------------------------|----------------------------------------------------------------------|------|-----------------|
| Healthy eater identity   | 1. I am someone who eats healthily.                                     | 4.7  | .86             |
|                          | 2. I am someone who eats in a nutritious manner.                        | 4.8  | .71             |
|                          | 3. I am someone who is careful about what I eat.                        | 4.3  | .77             |
| Gender identity          | 1. My gender is an important part of who I am.                          | 5.0  | .87             |
|                          | 2. My gender is not important in terms of what kind of person I am.    | 4.3  | .31             |
|                          | 3. My gender is a central aspect of my self-image.                      | 4.9  | .88             |
| Environmental self-identity | 1. Acting environmentally-friendly is an important part of who I am. | 4.5  | .94             |
|                          | 2. I am the type of person who always acts environmentally-friendly   | 4.2  | .79             |
|                          | 3. I see myself as an environmentally-friendly person.                 | 4.6  | .87             |
| Gastronome identity      | 1. I would describe myself as a food lover.                             | 5.2  | .68             |
|                          | 2. Family and friends would describe me as someone who is really into food. | 4.1  | .82             |
|                          | 3. To cook from scratch is an important part of who I am.              | 4.7  | .90             |
| Flexitarian identity     | 1. I am a flexitarian and sometimes eat meat, but I try to minimize my meat consumption. | 3.0  | .80             |
|                          | 2. I am a person with flexible eating habits and consciously change between dishes with meat and vegetarian dishes. | 3.9  | .70             |
|                          | 3. To reduce my meat consumption is an important part of who I am.     | 3.2  | .84             |
| National identity        | 1. I am proud to be Danish.                                             | 5.6  | .77             |
|                          | 2. To be Danish is an important part of who I am.                      | 5.3  | .83             |
|                          | 3. Danish traditions mean a lot to who I am.                           | 4.8  | .83             |
| Religious identity       | 1. My religion is an important part of my self-image.                  | 2.7  | .94             |
|                          | 2. My religion is an important part of my identity.                   | 2.9  | .96             |
|                          | 3. My religion is not important in terms of what kind of person I am. | 5.0  | .48             |
| Vegetarian identity      | 1. It is an important part of her/him/them that she/he/they avoid(s) meat. | 1.6  | .76             |
|                          | 2. She/he/they describe(s) herself/himself/themselves as vegetarian. | 1.4  | .91             |

Note: a On a 7-point Likert scale (1 = Does not match at all; 7 = Matches me really well).

6-point scale (1 = Does not resemble me at all; 6 = Resembles me a lot).

A 3-item measure of the centrality of gender identity was adapted from Luhtanen and Crocker (1992). A 3-item measure of Danish national identity was created for this study, inspired by literature on national identity and the related concept of ethnic identity (Ariely, 2012; Laroche, Kim, & Tomiuk, 1998). Similarly, a 3-item measure of religious identity was developed for this study.

To measure intentions to eat red meat, participants were asked: “How often do you expect to eat the following categories of meat for a main meal the next seven days?”. The two items, “beef or lamb” and “pork”, were rated on a scale ranging from 0 to 7 days. Further, respondents were asked about past meat consumption, using the following question: “Think about your main meals for the last seven days. A main meal can be breakfast, lunch, dinner, brunch or an afternoon snack depending on your eating habits. Please indicate how often you have eaten the following categories of meat within the last seven days.” The scale was similar to the measure of intentions (cf., Stamer et al., 2019). Participants were asked about past meat consumption before being asked about intentions.

Five 7-point semantic differential scales adapted from Carfora et al. (2017) were used to measure respondents’ attitudes towards eating less meat in the next week with the following pairs of adjectives: “Harmful-beneficial”, “negative-positive”, “unpleasant-pleasant”, “boring-fun” and “bad-good”.

All perceived norms (besides one item) were measured on the same scale as most identity measures. Injunctive norms were measured with three items adapted from Carfora et al. (2017) (“Family and friends think that I should eat less meat”, “Family and friends prefer that I eat less meat,” and “Family and friends believe that I should eat less meat”). Two items adapted from Klöckner (2017) measured descriptive norms (“Family and friends try to eat less meat themselves” and “Family and friends do not eat or only eat little meat themselves”). A third item measuring descriptive norms was phrased as a question: “How many people do you know who limit their meat consumption?” (Zur & Klöckner, 2014) that they had to answer on a 5-point scale (1 = “Nobody at all”, 2 = “Very few”, 3 = “Some”, 4 = “Many” and 5 = “Almost all I know”).

Perceived behavioural control was measured by two items adapted from (Povey et al., 2001) (“To what extent do you see yourself as capable of eating less meat during the next week?” and “How easy or hard do you think that it would be to eat less meat during the next week?”) using a 7-point scale (“Not very capable-very capable”; “Hard-easy”).

In Table 3, correlations between the latent variables, derived from the CFA, are displayed together with measures of construct reliability (CR) and average variance extracted (AVE). Model fit is acceptable, judging from the fit indices. The CFI and TLI are 0.95 or above and RMSEA is below 0.06. The chi-square is significant, which is expected given the sample size (Baggozi & Yi, 2012).

Values of CR and AVE are good to excellent considering the cut-offs of 0.70 (CR) and 0.50 (AVE) (Malhotra, Birks, & Wills, 2012) and therefore convergent validity is satisfactory. Variables expected to be highly correlated indeed are. Hence, criterion as well as nomological validity are acceptable. High correlations between variables could give rise to concerns regarding discriminant validity. Correlations are high between some of the constructs in the TPB and flexitarian identity and vegetarian identity, which makes sense as people holding these identities most likely hold consistent attitudes and norms as an ingrained part of their identity. However, the square root of the AVE is in all cases bigger than correlations between the construct and other constructs, therefore convergent validity is satisfactory. Variables expected to be highly correlated indeed are. Hence, criterion as well as nomological validity are acceptable. High correlations between variables could give rise to concerns regarding discriminant validity. Correlations are high between some of the constructs in the TPB and flexitarian identity and vegetarian identity, which makes sense as people holding these identities most likely hold consistent attitudes and norms as an ingrained part of their identity. However, the square root of the AVE is in all cases bigger than correlations between the construct and other constructs, therefore convergent validity is satisfactory. Variables expected to be highly correlated indeed are. Hence, criterion as well as nomological validity are acceptable. High correlations between variables could give rise to concerns regarding discriminant validity. Correlations are high between some of the constructs in the TPB and flexitarian identity and vegetarian identity, which makes sense as people holding these identities most likely hold consistent attitudes and norms as an ingrained part of their identity. However, the square root of the AVE is in all cases bigger than correlations between the construct and other constructs, therefore convergent validity is satisfactory. Variables expected to be highly correlated indeed are. Hence, criterion as well as nomological validity are acceptable. High correlations between variables could give rise to concerns regarding discriminant validity.
consumption. Next, structural equation modelling (SEM) is used to investigate the impact of identities on intentions to eat red meat when also controlling for demographic variables known for affecting meat consumption and the most commonly studied social psychological antecedents, that is, the antecedents included in the TPB, and accounting for the different paths through which identities might influence intentions. Three SEM models are estimated: (1) a TPB model, (2) a model with only identity variables predicting intentions, and (3) a joint model where all antecedents of the two first models are combined. The joint model is modified, adding mediation paths that are suggested by the former analyses.

### 4.1. Bivariate correlations

Table 4 shows bivariate correlations between identities and two behavioural indicators: the intention to eat red meat the next week and the frequency of eating red meat the past week. The fit of the CFA model is excellent (Bagozzi & Yi, 2012). First, note that intentions and past behaviour are strongly correlated ($r = 0.75$, $p < .001$), suggesting that intentions are a fairly good predictor of actual (self-reported) red meat consumption. The pattern of correlations with identities is identical for intentions and past behaviour, with significant correlations with intentions always being slightly stronger. The latter is consistent with the assumption that the intention mediates behavioural impacts of identity (cf. Fig. 1), like other motivational constructs (Ajzen, 1991). Thus, when studying the behavioural impact of identity on red meat consumption, its impact on intentions to eat meat should be the primary concern. As expected, the most behaviour-specific identity (i.e., being a flexitarian) has the strongest (negative) correlation with intentions and behaviour regarding meat eating. Despite the screening out of vegans and vegetarians, correlations with vegetarian identity are also relatively strong, consistent with the assumption that red meat consumption is bolstered by an anti-vegetarian identity. In addition, two mid-level identities (healthy eater identity and environmental self-identity) are significantly and negatively related to red meat consumption intentions and behaviour. Finally, national identity is significantly (and positively) correlated with red meat consumption intentions and behaviour, as the only higher-level identity. Hence, it seems that one of the behavioural manifestations of a national identity as a Dane is eating dishes containing red meat (like traditional pan-fried pork meat balls, and negatively related to red meat consumption intentions and behaviour). The higher-order gender and religious identities and the mid-level gastronome identity do not appear to be related to red meat consumption, at least not in this context. Hence, for the sake of parsimony, they are left out of the following analyses.

| Identity | Gender identity | Religious identity | National identity | Healthy eater identity | Environmental self-identity | Flexitarian identity | Vegetarian identity | Behaviour |
|----------|----------------|-------------------|------------------|----------------------|---------------------------|-------------------|-------------------|----------|
| AVE      | .756           | .853              | .823             | .845                 | .793                      | .853              | .821              | .833     |
| CR       | .543           | .659              | .61              | .648                 | .563                      | .699              | .699              | .633     |
| AVE      | .543           | .659              | .61              | .648                 | .563                      | .699              | .699              | .633     |
| CR       | .543           | .659              | .61              | .648                 | .563                      | .699              | .699              | .633     |
| AVE      | .543           | .659              | .61              | .648                 | .563                      | .699              | .699              | .633     |
| CR       | .543           | .659              | .61              | .648                 | .563                      | .699              | .699              | .633     |
| AVE      | .543           | .659              | .61              | .648                 | .563                      | .699              | .699              | .633     |
| CR       | .543           | .659              | .61              | .648                 | .563                      | .699              | .699              | .633     |

Table 4 shows bivariate correlations between identities and two behavioural indicators: eating red meat the past week and intentions to eat red meat the following week.

| Identity | Intention Corr. | Behaviour Corr. |
|----------|----------------|-----------------|
| Gender identity | -.00 | .05 |
| Religious identity | .24 | .28 |
| National identity | -.01 | -.14 |
| Gastronome identity | .15 | -.14 |
| Environmental self-identity | -.23 | -.21 |
| Healthy eater identity | .22 | .22 |
| Vegetarian identity | -.45 | -.38 |
| Flexitarian identity | .75 | .02 |

Model fit: Chi-square = 529.465, 215 df, CFI = 0.97, TLI = 0.96, RMSEA = 0.038 (LO 90 = 0.034, HI 90 = 0.042).
4.2. Structural equation modelling

First, the TPB and the hierarchical identity model were fitted to the data, independently, to estimate the ability of TPB variables – attitude, norms and PBC – and identities alone to account for variations in intentions to eat red meat when not controlling for other variables than demographics (Table 5). Model fit indices indicate an acceptable fit of both, the CFI and TLI being at or above 0.95 and RMSEA well below 0.06 (Bagozzi & Yi, 2012).

The two models reported in Table 5 account for practically the same share of the variation in intentions to eat red meat ($R^2 = 0.27/28$). The second model includes the identities that were found to be significantly correlated with intentions to eat red meat (Table 4). It reveals that all of the included identities, except as a vegetarian, still have a significant impact on intentions to eat red meat when other identities are controlled. By far the strongest predictor of intentions to eat red meat is flexitarian identity. Informed by the hierarchical model in Fig. 1 and the estimated bivariate correlations in Table 5, indirect effects of more abstract identities via the two behaviour-specific identities – being a vegetarian and being a flexitarian – were also included. It appears that both of these identities are positively related to the broader environmental and health identities and negatively related to national identity (i.e., being a Dane). Especially, flexitarian identity mediates some of the effects of environmental self-identity, healthy eater identity and national identity on the intention, which is consistent with Hypothesis H2.

Note also that the direct effect of environmental self-identity on intentions to eat red meat changed sign when controlling for the other identities (compare with Table 4), but that the total (direct plus indirect) effect is still negative, although attenuated. This suggests that the negative effect of an environmental self-identity on intentions to eat red meat is completely mediated through a flexitarian identity. The counterintuitive positive effect of environmental self-identity on intentions to eat red meat can be a statistical artifact stemming from the fact that the bivariate correlation between environmental and flexitarian identity ($r = 0.47$) is much stronger than the bivariate correlation between environmental self-identity and intention ($r = −0.15$) (Bagozzi & Yi, 2012). Hence, it will not be discussed further.

Unexpectedly, the higher-order national and healthy eater identities also have direct effects on intentions to eat red meat after controlling for the behaviour-specific identities, but as expected a large share of their effects is indirect (national identity: total effect: $t = 0.21$, indirect effect $r = 0.08$; healthy identity: total effect $= −0.18$, indirect effect $= −0.08$), through the more behaviour-specific flexitarian identity. Hence, the hypothesis about hierarchically mediated effects of higher-order identities on intentions (H12) is only partially supported.

According to the first model, all four TPB constructs have a significant impact on intentions to eat red meat. Consistent with the fact that these predictors were measured with regard to reducing meat consumption, their signs are negative, except for injunctive norms, or perceived social pressure to reduce meat consumption, which has a surprising positive sign. That perceived social pressure from family and friends to decrease one’s meat consumption should increase the person’s intentions to eat red meat seems counterintuitive. It might be that the positive effect of injunctive norms, after controlling for descriptive

Table 5

| SEM predicting intentions to eat red meat using either TPB variables or identities, structural model only. $N = 1001$. |
|-------------|---------|-------|---|-------|---|
| | Dependent variable | Independent variables | B | S.E. | $\beta$ | t | p | $R^2$ |
| 1. TPB: Attitudes. Norms. Perceived Control | | | | | | | Total standardized effect on intention to eat red meat |
| Intention | ← Attitude | -0.29 | .09 | -0.20 | -3.097 | .002 | .27 | -20 |
| | ← Descriptive norm | -0.34 | .10 | -0.21 | -3.331 | <.001 | -21 |
| | ← Injunctive Norm | 0.32 | .10 | 0.17 | 3.243 | .001 | 17 |
| | ← PBC | -0.18 | .09 | -0.13 | -2.028 | .043 | -13 |
| | ← City residence | -0.45 | .14 | -0.09 | -3.237 | .001 | -9 |
| | ← Higher education | 0.02 | .14 | 0.00 | 0.126 | .900 | 00 |
| | ← Gender | 0.62 | .14 | 0.13 | 4.346 | <.001 | 13 |
| | ← Income | 0.09 | .03 | .11 | 3.449 | <.001 | .11 |
| | ← Age | 0.00 | .00 | 0.03 | 1.013 | .311 | -.03 |
| 2. Identities alone | | | | | | | |
| Intention | ← Flexitarian id$^1$ | -0.55 | .07 | -0.40 | -7.877 | <.001 | .28 | -.40 |
| | ← National id | 0.24 | .06 | .13 | 3.840 | <.001 | .21 |
| | ← Health id | -0.19 | .07 | -0.10 | -2.519 | .012 | -18 |
| | ← Environmental id | 0.15 | .06 | .09 | 2.398 | .016 | -5 |
| | ← Vegetarian id | 0.08 | .08 | .04 | 0.938 | .348 | 04 |
| | ← City residence | -0.47 | .14 | -0.10 | -3.365 | <.001 | -10 |
| | ← Higher education | 0.10 | .15 | .02 | 0.689 | .491 | .00 |
| | ← Gender | 0.73 | .14 | .16 | 5.281 | <.001 | .21 |
| | ← Income | 0.07 | .03 | 0.09 | 2.765 | .006 | 12 |
| | ← Age | -0.01 | .01 | -0.07 | -2.088 | .037 | .00 |
| Flexitarian id | ← Environmental id | 0.44 | .04 | .38 | 9.988 | <.001 | .39 | .38 |
| | ← National id | 0.33 | .05 | .23 | 5.992 | <.001 | .23 |
| | ← Health id | -0.26 | .05 | -0.20 | -5.578 | <.001 | .20 |
| | ← City residence | 0.03 | .11 | .01 | 0.308 | .758 | .01 |
| | ← Higher education | 0.15 | .11 | .04 | 1.401 | .161 | .04 |
| | ← Gender | -0.44 | .10 | -0.13 | -4.263 | <.001 | -13 |
| | ← Income | -0.05 | .02 | -0.09 | -2.691 | .007 | -9 |
| | ← Age | -0.02 | .00 | -0.19 | -5.883 | <.001 | -19 |
| Vegetarian id | ← Environmental id | 0.12 | .03 | .16 | 4.170 | <.001 | .13 | .16 |
| | ← Health id | 0.16 | .04 | .18 | 4.330 | <.001 | .18 |
| | ← National id | -0.08 | .03 | -0.10 | -2.612 | .009 | -10 |
| | ← City residence | 0.06 | .07 | .03 | 0.790 | .429 | .03 |
| | ← Higher education | -0.07 | .08 | -0.03 | -0.899 | .369 | .03 |
| | ← Gender | 0.00 | .07 | .00 | 0.024 | .981 | .00 |
| | ← Income | -0.02 | .01 | -0.06 | -1.519 | .129 | .06 |
| | ← Age | -0.01 | .00 | -0.18 | -5.277 | <.001 | -18 |

Model 1: Chi square = 469.571; df = 112; CFI = 0.96; TLI = 0.94; RMSEA = 0.057 (LO 90 = 0.051; HI 90 = 0.062). Model 2: Chi square = 287.354; df = 119; CFI = 0.98; TLI = 0.96; RMSEA = 0.038 (LO 90 = 0.032; HI 90 = 0.043). * “id” is short for “identity”.

https://en.fvm.dk/focus-on/the-danish-official-dietary-guidelines/.
norms, reflects psychological reactance against social pressure to eat less red meat (Kavvouris, Chrysochou, & Thogersen, 2020). However, the bivariate correlation between injunctive norms and intentions to eat red meat is much weaker (actually not significant, $r = 0.01, p = 0.687$) than the correlation between the two norm constructs ($r = 0.64$), which means that the negative effect of injunctive norms on intentions to eat red meat, after controlling for descriptive norms, could also be a statistical artifact (Bagozzi & Yi, 2012).

In both models, gender, income and rural-urban residence account for additional variance in intentions to eat red meat after controlling for attitudinal variables, and, in the identity model, age as well. With equal attitudes, norms and identity, intention to eat red meat is higher for men and people living in more rural areas than for women and people living in more urban areas and it increases with income and decreases with increasing age. Flexitarian identity is also related to gender, income and age and vegetarian identity to age, after controlling for higher-order identities. Neither intentions nor identities are related to education increasing age. Flexitarian identity is also related to gender, income and people living in more rural areas than for women and people living in more urban areas and it increases with income and decreases with increasing age. Flexitarian identity is also related to gender, income and age and vegetarian identity to age, after controlling for higher-order identities. Neither intentions nor identities are related to education increasing age. Flexitarian identity is also related to gender, income and people living in more rural areas than for women and people living in more urban areas and it increases with income and decreases with increasing age. Flexitarian identity is also related to gender, income and age and vegetarian identity to age, after controlling for higher-order identities. Neither intentions nor identities are related to education increasing age. Flexitarian identity is also related to gender, income and people living in more rural areas than for women and people living in more urban areas and it increases with income and decreases with increasing age. Flexitarian identity is also related to gender, income and age and vegetarian identity to age, after controlling for higher-order identities. Neither intentions nor identities are related to education increasing age. Flexitarian identity is also related to gender, income and people living in more rural areas than for women and people living in more urban areas and it increases with income and decreases with increasing age.

Next, we combine the two models (Table 6). When doing so, most effects of the TPB variables on intentions to eat red meat disappear (all except injunctive norms) while the significant identities remain significant (and most of them practically unchanged). This suggests that some of the included identities mediate the effects of three out of four TPB variables on intentions to eat red meat. The two behaviour-specific identities (vegetarian and flexitarian) correspond the most to the specific of the TPB variables, making them the most likely mediators, and Table 3 confirms that the correlations between TPB variables and these two identities are considerably stronger than the correlations with other identities. Hence, we added paths from the TPB variables to the two behaviour-specific identities in the combined model. Adding these paths improved the model fit considerably (Chi-square difference = 359.553, 8 df, $p < 0.001$). Together, identities and TPB variables account for 27% of the variance in intentions to eat red meat and when demographics are included the explained variance increases to 30% (Table 6).

Consistent with expectations, the behaviour-specific flexitarian identity has a stronger effect than the more general identities on intentions to eat red meat ($\beta = -0.24$), also when controlling for the TPB variables. Note in this connection the very strong effects on flexitarian identity of, especially, the attitude and descriptive norm. This is the likely reason why these two variables are non-significant when controlling for identities. After controlling for the TPB variables, the effects of higher-order identities on flexitarian identity are either non-significant (national identity) or attenuated (healthy eater identity and environmental identity). Hence, it appears that the effects of higher-order on behaviour-specific identities are at least partly mediated through attitudes towards and norms regarding the same behaviours. This further suggests that the transformation of higher-order identities (to attitudes and norms) involves personal and social reflections rather than purely automatic mental processes.

See Fig. 2 for an overview of the key SEM results.

Summing up, the hypothesis of a hierarchical order of identities and their effects, based on the principle of abstraction, is confirmed overall with regard to the case of intentions toward red meat consumption, but with a caveat. The caveat is the remaining direct effects of national identity and healthy eater identity on the behavioural intention, in addition to the expected indirect effects. Further, it appears that the effects of identities on intentions are much more intertwined with behaviour-specific attitudes and norms than hitherto assumed, attitudes and norms partly affecting intentions through a behaviour-specific (flexitarian) identity.

### Table 6

| Dependent variable | Independent variables | B     | S.E.   | $\beta$ | t     | p   | Total standardized effect on intention to eat red meat |
|-------------------|----------------------|-------|--------|--------|-------|-----|------------------------------------------------------|
| Intention         | Flexitarian id$^1$   | -0.25 | .12    | -0.24  | -3.01 | .003| 0.30 - 0.24                                           |
|                   | National id          | 0.19  | .07    | 0.10   | 2.94  | .003| 0.11                                                |
|                   | Health id            | -0.17 | .07    | -0.09  | -2.24 | .025| -0.12                                               |
|                   | Environmental id     | 0.13  | .06    | 0.08   | 2.25  | .024| 0.05                                                |
|                   | Attitude             | -0.11 | .11    | -0.08  | -1.06 | .288| -0.18                                               |
|                   | Descriptive norm     | -0.14 | .12    | -0.08  | -1.14 | .254| -0.18                                               |
|                   | Injunctive Norm      | 0.23  | .10    | 0.13   | 2.40  | .016| 0.13                                                |
|                   | PBC                  | -0.14 | .09    | -0.10  | -1.61 | .107| -0.12                                               |
|                   | Gender               | 0.56  | .14    | 0.12   | 3.95  | <.001| 0.13                                                |
|                   | Income               | 0.08  | .02    | 0.10   | 3.29  | <.001| 0.12                                                |
|                   | Age                  | -0.01 | .01    | -0.05  | -1.78 | .074| -0.03                                               |
| Flexitarian id$^1$| Health id            | 0.21  | .04    | 0.15   | 4.98  | <.001| 0.77 - 0.15                                          |
|                   | Environmental id     | 0.14  | .03    | 0.13   | 4.24  | <.001| 0.13                                                |
|                   | National id          | -0.03 | .04    | -0.02  | -0.83 | .406| -0.02                                               |
|                   | Attitude             | 0.42  | .06    | 0.41   | 7.52  | <.001| 0.41                                                |
|                   | Descriptive norm     | 0.44  | .06    | 0.38   | 6.87  | <.001| 0.38                                                |
|                   | Injunctive Norm      | -0.03 | .06    | -0.02  | -0.53 | .595| -0.02                                               |
|                   | PBC                  | 0.07  | .05    | 0.07   | 1.35  | .177| 0.07                                                |
|                   | City residence       | -0.11 | .08    | -0.03  | -1.34 | .179| -0.03                                               |
|                   | Gender               | -0.13 | .08    | -0.04  | -1.50 | .133| -0.04                                               |
|                   | Income               | -0.04 | .01    | -0.07  | -2.71 | .007| -0.07                                               |
|                   | Age                  | -0.01 | .00    | -0.09  | -3.57 | <.001| -0.09                                               |
| Vegetarian id$^1$ | Health id            | 0.13  | .03    | 0.16   | 3.93  | <.001| 0.32 - 0.16                                          |
|                   | Environmental id     | 0.00  | .03    | 0.01   | 0.14  | .886| 0.01                                                |
|                   | National id          | 0.00  | .03    | 0.00   | -0.04 | .968| 0.00                                                |
|                   | Attitude             | 0.16  | .05    | 0.26   | 3.63  | <.001| 0.26                                                |
|                   | Descriptive norm     | 0.07  | .05    | 0.10   | 1.44  | .149| 0.10                                                |
|                   | Injunctive Norm      | 0.21  | .05    | 0.26   | 4.59  | <.001| 0.26                                                |
|                   | PBC                  | 0.00  | .04    | 0.00   | -0.00 | .994| 0.00                                                |
|                   | City residence       | -0.02 | .07    | -0.01  | -0.28 | .778| -0.01                                               |
|                   | Gender               | 0.05  | .07    | 0.02   | 0.69  | .487| 0.02                                                |
|                   | Income               | -0.02 | .01    | -0.01  | -1.99 | .047| -0.07                                               |
|                   | Age                  | -0.01 | .00    | -0.13  | -3.96 | <.001| -0.13                                               |

Chi square = 1111.383; df = 376; CFI = 0.96; TLI = 0.94; RMSEA = 0.044 (LO 90 = 0.041; HI 90 = 0.047). $^1$ id” is short for “identity.”
The present study examined both identities that have been studied extensively in connection to meat consumption before and some that others (especially flexitarian identity), also after controlling for the antecedents included in the most popular social cognitive model of behaviour (i.e., TPB) and relevant demographics. This supports the proposition that identity is multi-faceted and should be studied that way, even though it can be a cumbersome task (Forehand et al., 2021). The present study examined both identities that have been studied extensively in connection to meat consumption before and some that have rarely been studied. Several of the studied identities are significantly related to the intention to eat red meat while others are not and can, hence, be excluded from the model (i.e., religious, gender and national identity have rarely been studied in relation to meat consumption, potentially increasing the effectiveness of interventions. Flexitarianism is also a mediator of effects of other, higher-order identities that are cognitively more distal from the specific behaviour, such as healthy eater identity and environmental self-identity. Targeting flexitarianism in interventions or campaigns may therefore mean addressing more than one motivation towards reducing meat consumption, potentially increasing the effectiveness of interventions. In addition, the relationship between both injunctive and descriptive norms and flexitarian identity indicates that a self-perception as a meat reducer is related to one’s social surroundings exhibiting and/or endorsing a meat reducing behaviour, as also suggested by other research (Cheah, Shimul, Liang, & Phau, 2020; Stoll-Kleemann & Schmidt, 2017). These insights should also be taken into account when designing identity-campaigns.
As previously mentioned, several Western European countries have a meal structure involving meat as the predominant part of the plate (Schosler et al., 2012). Therefore, it seems likely that the findings regarding the relationship between national identity and meat consumption can be replicated in other countries. If that is the case, future research on antecedents of meat consumption should remember to control for national identity as a possible pro-meat identity.

An important practical implication is that policy makers and marketers should be careful to not threaten those with a self-central national identity, which could result in psychological reactance and thereby produce a “boomerang” effect (Brehm, 1966). Instead, interventions might focus on framing or priming an intrinsic national identity that aligns with sustainable, yet national, diets (e.g., dishes with traditional Danish vegetables) as suggested by Sheldon, Nichols, and Kasser (2011). These authors primed American participants with an extrinsic or intrinsic American identity, finding that those primed with intrinsic values of an American identity recommended lower ecological footprints in a hypothetical policy-making scenario. Priming patriotism, and not nationalism, could be another avenue of applying this research, as research suggests that nationalism is negatively linked to environmental protection (Aydin, Bagci, & Kolesoglu, 2022). Patriotism, characterised by pride and love of one’s country, may however foster protection of the local or national nature that one is connected to and may be reflected in one’s consumption habits (Aydin et al., 2022).

Finally, results regarding healthy eater identity and environmental identity also provided new insights. Prior research on the effect of identity on pro-environmental behaviour, including meat reduction, primarily focused on environmental self-identity. The present research demonstrates that environmental self-identity has a strong, positive effect on flexitarian and vegetarian identity and, when controlling for these more proximate identities, the counter-intuitive direct effect on behavioural intentions seems to be a statistical artifact. Same with healthy eater identity, with the caveat that the remaining direct effect on intentions has the expected negative sign. This illustrates that a self-perception of being an environmentally conscious and/or health-conscious person can translate into more behaviour-specific identities, such as a flexitarian identity, which is at least one of the possible paths for it to be transformed into the intention to eat less red meat.

Hence, this study contributes to research on pro-environmental and healthy behaviour by extending the understanding of the role of identity beyond environmental self-identity and identifying important more proximal and therefore mediating identities (e.g., van der Werff et al., 2013b; Whitmarsh & O’Neill, 2010). Exploring the effects of other identities offers novel insights into motivations for acting (un)sustainably, beyond the development of a sense of morality for this kind of behaviour (Gatersleben et al., 2019; Thøgersen, 2018).

Another point worth noting is the additional explained variance in red meat intentions that the included identities accounts for, on top of the variables proposed by the most popular social-cognitive model, the TPB. That most of the TPB variables are insignificant after controlling for identity is surprising given previous research on intentions to consume or reduce meat (Carfora et al., 2017; Sparks & Guthrie, 1998). An important reason may be that we included behaviour-specific identities in this study whereas earlier research on meat consumption based on the TPB only controlled for broader, higher-order identities (Carfora et al., 2017; Sparks & Guthrie, 1998), if at all (e.g., Zur & Klöckner, 2014).

It has previously been discussed whether identity is just a mediator of relationships in the TPB framework or it should be considered an additional predictor of intentions (Fishbein & Ajzen, 2011). A meta-analysis examining 24 TPB-models in which identity was added found that “identity captured 6% additional variance in intentions above and beyond that afforded by attitude, subjective norm, and PBC” (Rise et al., 2010, p. 1098). More recent studies of food choice echo this conclusion (Brouwer & Mosack, 2015; Carfora, Bertolotti, & Catellani, 2019). This is in line with the present study’s findings, especially the direct effects of identities on intentions after accounting for measures of behaviour-specific attitudes, norms, and PBC. It seems that more behaviour-specific identities, as included here, can account for additional variance in behavioural intentions, thus satisfying the criterion that supplementary variables in the TPB framework should contribute with a statistically reliable increase.

But what theoretical content does identity capture in our model that the other variables do not? Scholars have suggested that identity encapsulates more nuanced aspects of normative conduct than the two types of norms (Armitage & Conner, 1999; Fishbein & Ajzen, 2011). Identifying with a group that either eats or reduces meat and performing corresponding behaviour to serve self-verification needs is likely to be a more powerful predictor of behaviour than merely complying with a group norm (Thøgersen, 2006). Further, the apparent close relationship between attitudes and identity is consistent with prior findings that self-perception often match with an identity-correspondent attitude (Reed et al., 2012). However, attitudes are instrumental and evaluative whereas the primary motivation of identity is self-verification - a distinct form of motivation that is not shared with the other TPB predictors (Biddle et al., 1985; Rise et al., 2010). Hence, the TPB variables are definitely not superfluous, but identity is also not just an “unhelpful artifice” (Sparks & Guthrie, 1998).

5.2. The identity hierarchy

All three hypotheses, H1, H2 and H3, assume an identity hierarchy, organized by the principle of abstraction, as proposed elsewhere (Forehand et al., 2021), and an assumption about a relatively strict hierarchy of effects on intentions based on theoretical insights from research on goals and attitudes (Bagozzi et al., 2003; Fishbein & Ajzen, 1977) - a question that, to our knowledge, has not previously been studied in identity research.

Our findings are mostly in line with our expectations about a hierarchical ordering of the effects of identities on intentions. Especially, one of the two behaviour-specific identities, flexitarian identity, has a stronger direct effect on intentions to eat red meat the coming week than any of the other included variables. Vegetarian identity is not more strongly correlated with intentions to eat red meat than more abstract identities, but this is most likely due to the fact that people who do not eat meat (i.e., vegetarians and vegans) were screened away. Furthermore, flexitarian identity mediates most effects on intentions to eat red meat of the more abstract environmental self-identity, healthy eater identity, and national identity. As predicted by H1, flexitarian identity, which corresponds to the target and action (meat consumption) elements of the intention measure (Fishbein & Ajzen, 1977), is strongly correlated with intentions.

The behavioural effects of environmental self-identity and healthy eater identity, located at the mid-level of the hierarchy, are mostly mediated through flexitarian identity. This is in line with goal theory, suggesting that overarching goals (e.g., health and environmental sustainability) control more instrumental goals (e.g., reducing red meat) (Bagozzi et al., 2003). The mediated effect of these identities on intentions is also in accordance with Fishbein and Ajzen’s (1977) correspondence principle, suggesting that higher difference in level of abstraction leads to lower effect on intentions. In addition, these findings reveal that multiple motives are expressed in a flexitarian identity, which then functions as a proximal determinant of intentions. They are more, flexitarian identity mediates most effects on intentions to eat red meat (i.e., vegetarians and vegans) were screened away. Further, more, flexitarian identity mediates most effects on intentions to eat red meat of the more abstract environmental self-identity, healthy eater identity, and national identity. As predicted by H1, flexitarian identity, which corresponds to the target and action (meat consumption) elements of the intention measure (Fishbein & Ajzen, 1977), is strongly correlated with intentions.

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For example, the direct, unmediated effect of Danish national identity on red meat intentions show that all identities of relevance to a behaviour are not necessarily organized in a strict identity hierarchy. A possible reason is that the behaviour serves unrelated goals that makes it expressive of unrelated identities. For example, when a consumer reduces meat consumption in order to protect the environment, this behaviour expresses both a flexitarian and an environmental identity. If they value meat dishes that belong to the traditional Danish cuisine, this is probably unrelated to environmental considerations, but eating them may be perceived as an expression of national identity. Hence, because (refraining from) meat eating can be motivated by different goals, which reflect different and unrelated identities, not all identities that can motivate a behaviour are necessarily (hierarchically or otherwise) related.

If this is the reason, it seems likely that the relevance of the behaviour to the identity also matters. A direct effect of a higher-order identity on intention seems more likely if the behaviour in question is highly relevant to the identity. Identities can be unconsciously associated with certain stimuli, which facilitates positive evaluations of the stimuli, but the process can also manifest itself in more conscious reasoning (Reed et al., 2012). When an identity is salient, it will influence cognitive processing of identity relevant stimuli and corresponding behaviour. For example, if a product communicates symbolic relevance for a reference group to which the person belongs, its mere presence may activate the corresponding social identity (Escalas & Bettman, 2003; Reed et al., 2012). From a social identity perspective, positively self-categorizing as member of an in-group (e.g., being a Dane) creates stereotypical and normative perceptions (Tajfel, 1981), which make direct and robust effects on behavioural intentions (e.g., intentions to eat red meat) more likely. For example, perceiving red meat consumption as part of one’s national identity has its roots in culture, traditions, and other factors. Past research shows that associations that are shared among many members of a group are relatively resilient against influence attempts (Bolton & Reed, 2004), which makes it harder to change an outdated association between national identity and red meat consumption.

Another possible reason for a direct effect on behavioural intentions of a more abstract identity is self-centrality, as more self-central identities are more chronically accessible (Kettle, 2019). If, for example, national identity is highly self-central to many participants, this would make it more likely that their cognitions and behaviour are aligned with their national identity. This is similar to research finding that whether an attitude affects behaviour depends the level of motivation, together with the opportunity and ability to act in an attitude-consistent way (Fazio & Towles-Schwen, 1999).

In sum, this paper presents evidence that identities are to a large extent organized by level of abstraction and that their effects on intentions and behaviour are also hierarchically organized. However, it also found that not all identities that are relevant to a behavioural domain are necessary part of the same hierarchy of identities. The hierarchical organization of identities and their relationship to behavioural patterns should therefore be investigated more thoroughly. For example, the importance of self-centrality should also be examined more closely when the domain relevance of each identity has been established.

5.3. Limitations

This study has the usual limitations of cross-sectional survey studies using single source, self-reported data. Access to, for example, scanner data or other more objective behaviour data would have strengthened the validity of the behavioural measures (Saba & Di Natale, 1998), but we did not have that. Instead, we formulated very specific behaviour (and intention) questions that were easy to answer and left little room for subjective interpretation. We countered other shortcomings of self-reported survey research by procedures, such as randomization of questions and detection of mischievous respondents.

Furthermore, the sample is geographically limited and with slightly more highly educated participants. However, the Danish food culture is similar to other countries in Northern Europe, and we controlled for demographical variables to correct for sampling biases.

With survey methods, it is generally not possible to capture the performative and situational aspects of identity. To reduce this limitation, the choice of identities to include in the present study was informed by a qualitative study (which was reported in Randers, Grønhøj, & Thugersen, 202).

A cross-sectional study only gives a snapshot of the structure of dynamic relationships and is mute about the direction of influence between variables. Hence, in the present study, directions of effects are assumptions based on theory and prior research only. Consistent with these assumptions, questions about intentions were asked after questions about their assumed antecedents, and with a clear reference to the future (i.e., the next seven days). Still, the estimated relationships are relatively weak indicators of causality (Bagozzi & Yi, 2012). Future research should use longitudinal data to address the dynamic nature of identities. When measuring multiple identities, there is a risk of priming respondents, leading to carryover effects from one measure to others (Kettle, 2019). This was countered by randomizing the order of the items across participants, which at least secured that all constructs were “equally primed”.

6. Conclusion and implications

Despite its limitations, this paper makes important contributions to identity research, which have important implications for theory and practice. It examines multiple identities related to meat consumption in a comprehensive model, while controlling for additional antecedents of red meat intentions and consumption, identified in prior research. The theoretical framework combines insights from social cognitive identity theory and research as well as attitude and goal theory. The hypotheses, (1) that multiple identities are relevant for a behaviour, such as red meat consumption, and (2) that their behavioural effects manifest themselves in a hierarchically organized way, were largely supported. Multiple identities were indeed found to be significantly related to behavioural intentions, specifically intentions to eat red meat in the following week, and the behavioural effects of the majority of identities followed the proposed hierarchical logic. However, one general identity (national identity) did not appear to fit into the same identity hierarchy as the other included identities. Despite its relatively high level of abstraction, it has a significant direct effect on behavioural intentions and non mediated effects through more behaviour-specific identities. Still, the study supports the notion of identity hierarchies with regard to the impacts of identity on behaviour. It also confirms that individuals form domain-specific identities for personally important behaviour categories and that such domain-specific identities can be highly predictive of behaviour. However, it also gives rise to new research questions about the boundaries of hierarchically organized identities, that is, when and why some general or abstract identities affect behavioural intentions directly, even when relevant domain-specific identities are controlled. Answering these questions are left to future research. On a practical note, the study finds a relatively high awareness of the problematic consequences of red meat consumption among Danish consumers and also identifies relevant identities with implications for red meat consumption and intentions, which can serve as points of departure for novel approaches and strategies for promoting red meat reduction to different consumers.

The presented study shows the importance of studying multiple identities simultaneously as it more accurately reflects the multifaceted self-concept and thereby adds explanatory power to a behavioural model. Notably, by including multiple identities we were able to account for a substantially higher share of the variance in intentions than prior single-identity studies. Hence, future research is strongly encouraged to consider identity as plural. Studying relevant multiple identities,
identified through open, explorative qualitative research, is an important first step towards designing interventions to prime or reframe identities (e.g., Champness, Wilson, & Macdonald, 2015). For example, before attempting to activate a flexitarian identity in communication campaigns, it might be tested whether priming this identity also activates other identities, or which aspect of the flexitarian identity marketers should focus on (e.g., healthy eater identity). Future research should also be mindful of dynamic aspects when priming identities (Saint Clair & Forehand, 2020). The identification of a significant impact of national identity on intentions toward red meat could inform campaigns aiming to “reframe Danishes” by emphasizing aspects of national identity that are compatible with a sustainable diet – potentially with inspiration from Sheldon et al. (2011). This is not an easy task and experimental testing and cross-cultural studies are advised before initiating campaigns.

Author contributions

Louise Randers: Conceptualization, Methodology, Formal analysis, Writing- Original draft preparation. John Thøgersen: Conceptualization, Methodology, Formal analysis, Writing- Reviewing and Editing, Supervision.

Ethical approval

The project has been approved in accordance with Aarhus University’s guidelines for the University’s Research Ethics Committee (IRB) and the considerations listed in the guidelines. Journal nr.: 2019-0020133.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data are available on osf. A link to the data is provided in the manuscript.

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