

Exploring the role of adolescents in healthier, more sustainable family meals: A decision study on meat consumption[☆]

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ABSTRACT

Objective: Can children's preferences make family meals healthier and more sustainable? Extending cultural evolution theory, we explored the children's role in a possible bottom-up transmission of meat preferences to their parents in the context of family meals.

Methods: Fifty-seven parent-child dyads from Germany (age: $M_{\text{children}} = 15.9$ years, $M_{\text{parents}} = 50.5$ years; 67% daughters, 93% mothers; 14% of children and 0% of parents followed a vegetarian/vegan diet; 82% of children were still in school; 42% of parents had a bachelor's degree or higher) decided on a family meal through discussion, which was videotaped. Before and after discussing, dyad members separately stated their preferred meat proportion for the family meal.

Results: In contrast to our hypotheses, on average children neither preferred less meat nor had a stronger influence on meat proportions in family meals than their parents. Daughters—despite a considerably lower preference for meat—did not reduce meat at family meals more than sons. Rather than demographic characteristics (i.e., age, gender), it was specific behaviors of children or dyads that predicted stronger influence on and eventually lower proportion of meat at family meals. These specific behaviors were following a vegetarian/vegan diet, general conflicts about meat-related aspects of family meals, and—in tendency—mentioning sustainability arguments in discussions. **Conclusions:** Children can be part of the change toward healthier and more sustainable family foodways—which could improve the family's health—if they themselves eat accordingly and actively advocate for it.

1. Introduction

Families are an essential context and predictor of protective health behaviors in general (e.g., Fosco et al., 2023) and a central environment for eating behaviors in particular (e.g., Dallacker et al., 2018, 2019, 2023; Knobl et al., 2022). The literature on health behaviors in family contexts usually assumes that parents influence their children. Children as active agents have often been overlooked in models and theories conceptualizing families as health-promoting settings (Michaelson et al., 2021 for a review, but see e.g., Moore et al., 2017, for a framework

which acknowledges children as active participants). This neglect of focus on children seems to reflect a more general theoretical gap in the literature on how children—or more broadly, the filial generation—shape society. Cultural evolution theory—a theory on how preferences or behaviors change over time within groups or societies—distinguishes between vertical (parents to children), horizontal (peers to peers), and oblique (nonparental members of the parental generation to the filial generation; Cavalli-Sforza et al., 1982) transmission of information rarely considers that a transmission of information, preferences, or behavior from children to their parents might

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occur.

Yet, the lifetimes of different generations often overlap by several decades, and psychological theories predict—and empirical research shows—lifelong learning until late in adulthood (e.g., [Lindenberger & Lövdén, 2019](#)). Therefore, cultural transmission from the filial to the parental generation seems plausible. A recent example is the “Fridays for Future” movement, started by the younger generation in 2018 to combat climate change, prompting parents to form “Parents for Future” in 2019 to show support (<https://parentsforfuture.de/en/>). Similarly, children influence family dynamics, as families—typically consisting of two generations—serve as daily contexts for cultural transmission through social learning and intergroup processes. One central area of cultural transmission in the family is eating (e.g., [Fischler, 2011](#); [Germov & Williams, 2008](#)). Although eating is an important topic in health psychology, its social context and the transmission of culture (i.e., preferences, behaviors) in eating have received comparably little attention (but see [Chen & Antonelli, 2020](#) for a conceptual framework; [Higgs & Ruddock, 2020](#), pp. 277–291, for the importance of social norms; [Rozin, 1996](#), for the importance of the socio-cultural context for eating).

Research on family meals generally suggests that parents have an important role as nutritional gate keeper and in providing their children’s nutrition environment. For instance, parental modeling has been identified as a key predictor of children’s healthy nutrition during family meals ([Dallacker et al., 2019](#)). Also, parents claim to be more strongly involved in family meal planning, grocery shopping, and meal preparation than their children ([Knobl & Mata, 2024](#)). Yet, adolescence is a period that is also marked by increasing autonomy in eating decisions ([Ziegler et al., 2021](#)). Adolescents actively contribute to family meals by introducing new products, often influenced by external sources such as school or peers ([Williams et al., 2019](#)), and by encouraging the family to incorporate meat substitutes into meals ([Pater et al., 2022](#)).

The goal of the current study was to explore when children influence family meals, using the example of meat consumption. Germany seems a particularly interesting context for such a study, as the filial and parental generations tend to have notably distinct preferences: In a representative survey in Germany ([Heinrich-Böll-Stiftung, 2021](#)), more than 20% of adolescents between 14 and 19 years reported not eating meat; this is about 3 times as high as in older age groups ([Bundesministerium für Ernährung und Landwirtschaft, 2023](#)). This age difference is relevant to family meals, as children—based on their different preferences—may influence their parents, promoting healthier, more sustainable diets through bottom-up transmission. Opportunities are numerous: Of children between 12 and 17 years of age in Germany, 80% have dinner with their family daily or almost daily ([Frank, Brettschneider, Lage Babosa, & Mensink, 2019](#)). Probably not all children influence their parents’ preferences for meat at family meals equally (if at all). Based on previous research, we expected to find the following moderators:

Gender. Population-based studies show that girls and young women are more likely to prioritize environmental protection and refrain from eating meat compared to boys and young men ([Jürkenbeck et al., 2021](#); [Modlinska et al., 2020](#)). While research on family meals is scarce, studies on shared meals suggest women and men adjust their diets when living together (women eat more meat; men more vegetables; [Hartmann et al., 2014](#)). Exploratory analyses indicate women may anticipate more tension when adopting a plant-based diet ([Gregson & Piazza, 2023](#)), and interviews show women face more hostility from male family members than men do for vegetarianism ([Merriman, 2010](#)). However, among teenagers, young men report less support for vegetarian diets and are perceived as less masculine compared to teenage women ([Modlinska et al., 2020](#)), suggesting plant-based diets may be more acceptable for daughters in family settings.

Dietary style. Refraining from eating meat is likely to more strongly predict smaller proportions of meat at the family table because finding a meal that all family members can eat together often entails agreeing on the smallest common denominator, which is likely food the family member with the most dietary restrictions will eat (cf., [Veen et al.,](#)

[2023](#)).

Concerns about the environment/sustainability. Some studies suggest that adolescents and young adults are more concerned about certain environmental issues and sustainability than their parents ([Belz et al., 2022](#); [Johnson & Schwadel, 2018](#)) and often cite political reasons for abstaining from animal products, increasing their willingness to argue for less meat at family meals ([Jürkenbeck et al., 2021](#); [Knobl & Mata, 2024](#); [Slotnick et al., 2023](#)). Other research finds the opposite, that is, parents demonstrate even greater environmental concern and motivation for pro-environmental behaviors than their children ([Casaló & Escario, 2016](#); [Grønhøj & Thøgersen, 2017](#)). Notably, parent-child motivation levels are interrelated ([Grønhøj & Thøgersen, 2017](#)). Similarities in sustainable consumption between parents and children tend to increase with close relationships ([Gong et al., 2022](#)) and effective communication but decrease when children exhibit stronger peer conformity ([Essiz & Mandrik, 2022](#)). These findings suggest that the presence of sustainability-related attitudes and motivations within the parent-child dyad may contribute to more sustainable dietary choices.

Conflicts about food/meals. Different attitudes toward environmental protection and meat consumption can lead to conflicts at family meals when either parents or children advocate for reducing meat; such challenging and reshaping of social norms for shared meals has been especially found in close relationships ([Salmivaara et al., 2022](#)). Such conflicts may precede shifts toward meat reduction in family foodways ([O’Neill et al., 2019](#)). While theoretical models often overlook children’s active role ([Michaelson et al., 2021](#)), interviews show that reduced meat consumption within a family often stems from a desire for family cohesion and respecting children’s preferences, driving transitions toward healthier, more sustainable foodways ([Hesselberg et al., 2024](#)). Family systems theory ([Baptist & Hamon, 2022](#)) and social transition frameworks ([Judge et al., 2024](#)) suggest that such conflicts can signal progress toward new norms, like meat-reduced diets.

1.1. Research questions (RQs) and hypotheses

RQ1: Who Influences Meat Proportions at Family Meals Most?

Considering adolescents’ increasing eating-related independence from their parents and their greater inclination towards meat-free diets, we propose *Hypothesis 1 (H1)*: Children (a) will prefer lower proportions of meat at family meals and (b) will have a stronger influence than their parents on the joint meal decision with respect to meat.

Given girls’ higher frequency and stronger preference for meat-free diets as well as higher perceived support for vegetarian diets, we propose *H2* on gender: (a) Dyads with daughters will agree on smaller proportions of meat than dyads with sons, and (b) daughters will more strongly influence family meals toward a smaller proportion of meat than sons.

RQ2: What Behaviors Influence the Joint Decision?

When children refrain from eating meat, family meals often settle on the lowest common denominator. Therefore, we suggest *H3* on diet style: (a) Dyads with children with a stricter diet style regarding meat (i. e., vegetarian or vegan) will agree on a smaller proportion of meat, and (b) children with a stricter diet style will influence the proportion of meat in the family meal more strongly than those with a less strict diet style.

Those with greater sustainability concerns are more likely to advocate for less meat at family meals, so we propose *H4*: Dyads who mention sustainability-related motives will agree on a smaller proportion of meat in their family meal than dyads who do not discuss sustainability.

Given differing meat preferences between children and parents and potential friction from new behaviors, we hypothesize that conflict may signal a shift toward meat-reduced diets (*H5*): Dyads who report conflicts about meat-related nutrition will agree on a smaller proportion of meat in their family meal.

RQ3 (Exploratory): How Do Predecision Preferences for Meat and Making a Joint Decision Influence Postdecision Preferences for Meat?

Previous research has not explored how individual preferences before a joint decision and the joint household decision itself can shape (future) individual preferences. Given the limited research, we explore this aspect rather than proposing hypotheses.

2. Materials and methods

2.1. Participants

Participants were 57 parent–child dyads (Table 1 for details). About two-thirds of children identified as girls. Most parents were female, with only four fathers participating. Parents had more years of education than the average adult in Germany (i.e., 22.1% of 40- to 49-year-olds in Germany have a bachelor’s degree or higher, 18.1% among 50- to 59-year-olds; Destatis, 2021). Exclusion criteria for participation were: child younger than 12 years, child does not live with their parents, the family reports “never” having family meals, parent or child has conditions or severely restrictive food preferences that would exclude three or more of the six food categories examined (e.g., celiac disease; intolerance for fructose or lactose, several allergies; very restrictive diet styles), not giving informed consent to participate in the study, or more than 50% missing data. Children needed to be 12 or older to complete questionnaires independently.

2.2. Procedure

The study was conducted via a video call. Parents first answered a screening questionnaire to determine eligibility (see exclusion criteria above). Parent–child dyads who fulfilled all inclusion criteria were invited to a video call in which they participated via separate mobile devices. They were advised to spatially separate such that all verbal and nonverbal communication occurred via the video call. First, parent and child separately stated their individual meal preferences in an online

Table 1
Sample characteristics.

Variable	Child (n = 57)	Parent (n = 57)
Age (M, SD, range, in years)	15.93 (2.91)	50.46 (5.22)
	12–25 years	40–62 years
Gender (female)	67%	93%
Diet style		
Omnivore	86%	100%
Vegetarian	12%	
Vegan	2%	
Education		
None	0%	2%
Secondary	2%	26%
Higher level/university entrance diploma	12%	25%
University/College	4%	42%
Other	0%	5%
Currently in school ^a	82%	0%
Family meal frequency/week		
(Nearly) every day	79%	79%
3–5 times/week	14%	14%
1–2 times/week	4%	7%
Less than 1 or 2 times/week	4%	0%
Number of six food categories restricted ^b		
0 food categories	74%	93%
1 food category	23%	7%
2 food categories	4%	0%

Note. Percentages that do not add up to 100% within a category are due to rounding. There was no upper limit to the age of the children, as long as they still lived in the same household as their parents. Race was not assessed as this is a question that is usually not asked in Germany, for historical reasons. It is reasonable to assume that most participants would identify as Caucasian.

^a Only children were asked this question.

^b Parents and children indicated for which of the following six food categories (carbohydrates, plant-based proteins, meat, milk products, fruits and vegetables, other) they have restrictions/do not eat because of allergies or preferences.

questionnaire; both times they were explicitly instructed to imagine that they alone were to decide what will be eaten at the next family meal. Next, they were invited to discuss what they wanted to eat for their next family meal and had a maximum of 10 min to reach a joint decision. After the joint decision, they separately rated their satisfaction with the joint decision and stated their individual preferences for the next family meal (see Fig. 1). The video call was taped and continuously monitored by an experimenter who was also on the call (with camera off and muted during joint discussion). Dyads received a €30 voucher as compensation for study participation. This study was approved by the local ethics board (ID: EK 39/2022) (see Fig. 2).

2.3. Measures

2.3.1. Demographics

Parents and children both reported their age, gender, and level of education (Table 1).

2.3.2. Conflicts about food or joint meals

On a 5-point Likert scale from “never” to “more than 4 times per week,” parents and children separately indicated how often they have conflicts concerning food or joint meals. They were also asked to describe the topic of these conflicts (open-answer format). These open answers were coded by two independent raters as to whether the conflict described was about meat or a vegetarian diet (see coding manual C1 in the Supplemental Materials). After the joint decision, parents and children were also asked in an open-question format whether they had had any conflicts during the discussion. These answers were also rated by two independent raters as “general conflict occurred”, “meat-related conflict occurred”, or “no conflict occurred” (see coding manual C1 in the Supplemental Materials). Yet, given that only one parent and two children reported a meat-related conflict during the discussion, we did not include this measure in the analysis.

2.3.3. Proportions of food groups preferred in meals

Participants individually described the family meal they preferred before and after the joint discussion as well as the joint meal. First, they gave their dish a name (e.g., “lasagna”) and then further specified it according to the desired proportion of six food categories (in 5% steps adding up to 100%): “Carbohydrates (e.g., pasta, potatoes, etc.)”, “plant-based proteins (e.g., lentils, peas, soy, etc.)”, “vegetables and fruits (e.g., salad, fried or steamed vegetables, fruit salad, fresh fruit, etc.)”, “dairy products (e.g., cheese, yogurt, butter, etc.)”, “meat and fish (e.g., salmon, chicken, schnitzel, minced meat, sausages, etc.)”, and “other.” This way, it was possible to distinguish between, for example, a vegan, a vegetarian, and a meat-based lasagna. The first five categories were based on the planetary health diet from the EAT–Lancet Commission on Healthy Diets From Sustainable Food Systems (Willett et al., 2019). Around 20% of parents and 30% of children also included “other” food groups in their preferred meals—these food groups were extremely heterogeneous (e.g., eggs, sweets, oil) and account for only a small proportion of the total of food categories in the meal (3%–4% for parents and 5%–8% for children). As the survey software does not automatically add all categories up to 100%, it was possible to enter more than 100% in total. Therefore, all percentages were normed to 100% before running the analyses. Next, to further differentiate participants’ food preferences and as a consistency check, participants were asked which of the following animal products would be part of their family meal: meat, fish, dairy, eggs, or honey.

2.3.4. Satisfaction with the decision

At the end of the joint decision task, parent and child separately rated on a 5-point-Likert Scale (from “do not agree” to “agree”), whether they were satisfied with their joint decision.

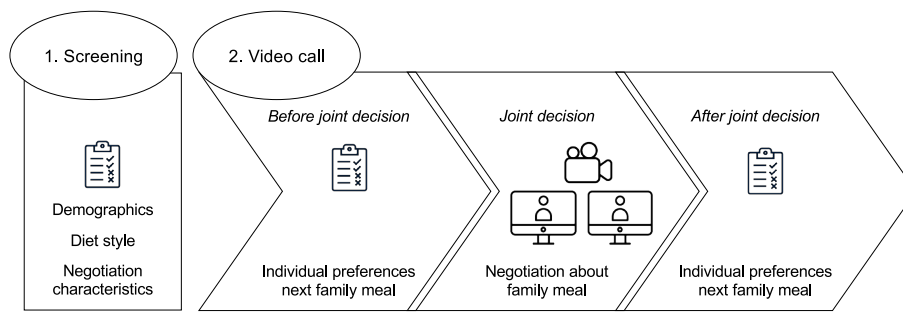


Fig. 1. Study procedure.
 Note. Clipboard icon made by Kiranshastry; camera icon made by Slidicon; screen icon made by BizzBox; all from www.flaticon.com.

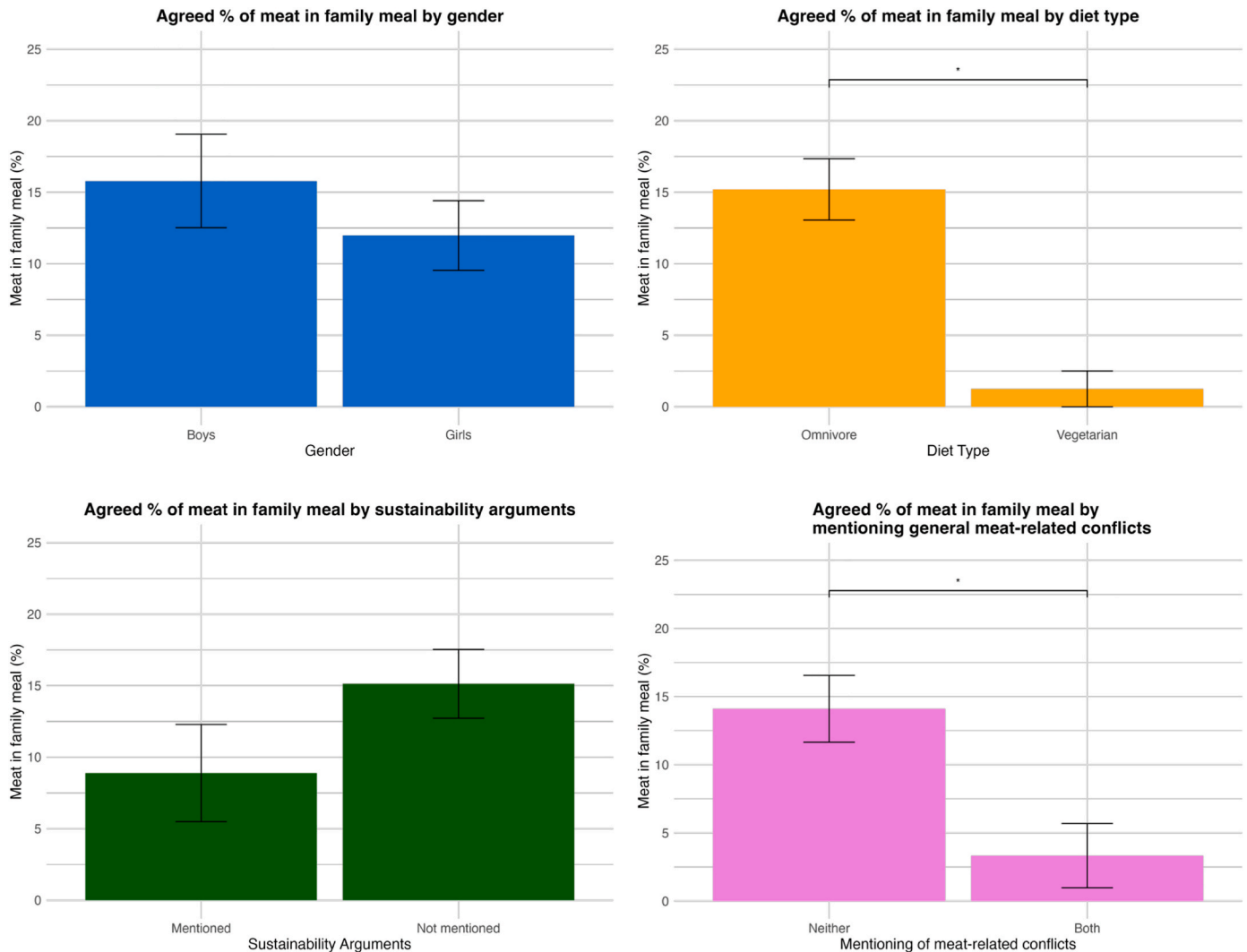


Fig. 2. Results for Percentage of Meat in Joint Meal by Different Dyad Characteristics and Behaviors.
 Note. Meat in family meal (%) on the y-axis refers to the proportion of meat agreed on during the joint discussion. For the graph on diet type: diet type refers to the diet type of the child; for the graph on meat-related conflicts: neither = neither parent or child mentioned a meat-related conflict, both = parent and child mentioned a meat-related conflict.

2.3.5. Diet style

Participants described their individual diet style using the proportions of the same six food categories used to describe their preferred meals (in 5% steps adding up to 100%; see above). Again, participants also stated which of the five animal products (meat, fish, dairy, eggs, or honey) are part of their diet. Participants were classified as omnivores if they indicated eating meat, independent of whether they did not like

fish, dairy products, eggs, or honey. Participants who stated they did not eat meat or fish were classified as “vegetarian;” participants who did not eat meat, fish, dairy, eggs, and honey were classified as “vegan.”

2.3.6. Sustainability-related arguments in joint meal discussion

Sustainability-related motives were operationalized as arguments about reducing meat in the discussed family meal. To do so, the

discussions were transcribed, and each statement was evaluated by two independent raters regarding the occurrence of such arguments (yes/no) and the direction (more meat/less meat). Examples of arguments about reducing meat include “Can we make this dish with [plant-based] chicken substitute [instead of chicken suggested by the other person]?” and “Do we want to cook something vegan? You liked this last time, too.” The interrater reliability is in the acceptable range at 0.61 for occurrence and direction. All disagreements were discussed together with a third person after coding until an agreement was reached (see coding manual C2 in the Supplemental Materials).

2.4. Statistical analyses

Differences between groups before the discussion (e.g., in preferences for the proportion of meat for a family meal) were calculated using *t* tests. RQ1 on who influences family meal decisions regarding meat was examined using the absolute difference between individual and joint preference for meat proportion. For RQ2, person characteristics and behaviors that influence food decisions were examined using *t* tests. To exploratively examine how postdecision preference is influenced (RQ3), we used regression models. All calculations were run with R version 4.3.2 and RStudio version 2023.12.0.369, using the packages *tidyverse* (v2.0.0; Wickham et al., 2019), *readxl* (v1.4.3; Wickham & Bryan, 2023), *rstatix* (v0.7.2; Kassambara, 2023), *psych* (v2.3.9; Revelle, 2023), *DT* (v0.32; Xie et al., 2024), and *gsummary* (Sjoberg et al., 2021). All data relevant to the current analyses and all analysis scripts are available in open-science repositories, except for the videos, which are not available because of data protection issues. The transcripts of the videos [in German] are available at OSF (https://osf.io/nategm?view_only=5fc4b733fdab4e66b1f038c2986f3eb2).

3. Results

RQ1: Who Influences Meat Proportions at Family Meals Most?

3.1. Age group (children vs. parents)

Parents and children did not differ with respect to the proportion of meat they preferred in the family meal before the joint discussion: Children wanted on average 15.6% ($SD = 15.7\%$) meat in their family meal, parents 14.1% ($SD = 12.7\%$), $t(56) = 0.738$, $p = .768$. Thus, H1a—children prefer lower proportions of meat at family meals—is not supported. To test H1b, children will have a stronger influence than their parents on the joint meal decision with respect to meat, we calculated their mean difference: We found that the difference between parents' predecision preferences for the proportion of meat and the joint decision was equal to their children's difference between predecision preferences and joint decision, $t(56) = -0.262$, $p = .397$ (mean difference = -0.005). Therefore, H1b is not supported.

3.2. Gender

We compared gender differences in children but not their parents because only four of the 57 parents identified as fathers and therefore, were too small a group to analyze. Before the joint discussion, supporting H2a, girls preferred less meat in the family meal than boys ($M_{\text{girls}} = 12.0\%$, $SD = 12.5\%$; $M_{\text{boys}} = 22.7\%$, $SD = 19.3\%$), $t(25.7) = 2.208$, $p = .036$, but mothers of daughters and mothers of sons showed comparable preferences for the proportion of meat ($M_{\text{mothers of daughters}} = 11.9\%$, $SD = 9.7\%$; $M_{\text{mothers of sons}} = 14.3\%$, $SD = 15.4\%$), $t(26.3) = 0.621$, $p = .540$). Although descriptively dyads with daughters agreed on a smaller proportion of meat in their joint meal than those with sons ($M = 12.0\%$, $SD = 15.1\%$ vs. $M = 15.8\%$, $SD = 14.3\%$), this difference is not statistically significant, $t(37.9) = 0.935$, $p = .178$. We further tested H2b, that daughters will have a stronger influence on including a smaller proportion of meat in the family meal than sons, by first calculating the

difference between mothers' predecision preference and the joint decision regarding the proportion of meat. A larger distance value means that the decision moves farther away from the mother's individual preference (negative values = more meat than mother's preference, positive values = less meat than mother's preference). We then compared this distance between daughters and sons using a *t*-test. Daughters did not significantly influence the family meal toward including a smaller proportion of meat more than sons, but note that, descriptively, daughters reduced meat and sons increased it ($M_{\text{distance-daughters}} = 2.1\%$, $SD = 15.0\%$; $M = -1.5\%$, $SD = 14.2\%$), $t(38.0) = -0.876$, $p = .193$.

RQ2: What Behaviors Influence the Joint Decision?

3.3. Dietary style

To test H3a, that dyads with children with a stricter diet style will agree on a smaller proportion of meat in the joint meal, we compared meat proportions after the joint discussion between dyads in which children's diet style was classified as “vegan” or “vegetarian” (because only one child was classified as vegan, we collapsed vegan and vegetarian into one category, denoted “veg”) and dyads with children whose diet style was classified as “omnivore.” H3a was supported ($M_{\text{veg}} = 1.3\%$, $SD = 4.0\%$; $M_{\text{omnivore}} = 15.2\%$, $SD = 15.0\%$), $t(48.1) = 5.625$, $p < .001$. H3b, that children with a stricter diet style will influence the proportion of meat in the family meal more strongly than children with a less strict diet, was analyzed parallel to H2. That is, we tested whether the absolute difference between the parent's predecision preference for the proportion of meat and the proportion of meat in the family meal was larger for dyads with children with a stricter diet style. H3b was supported: Children had more influence on the joint meal decision than their parents if their eating was classified as “vegan/vegetarian” compared to “omnivore” ($M_{\text{omnivore}} = -0.006$, $SD = 0.15$; $M_{\text{veg}} = 0.100$, $SD = 0.10$), $t(12.3) = -2.523$, $p = .013$.

3.4. Sustainability motives

Sustainability motives were operationalized as meat-related arguments. Of all 57 dyads, 18 discussed arguments for reducing meat, with 36 sustainability-related arguments in total (range: 1–4 per dyad). Children and parents each mentioned 18 arguments. Because of the small number of dyads who had meat-related arguments, we split the dyads into two groups: those who did not mention meat reduction at all versus those who did. H4 stated that dyads who discuss sustainability motives will agree on a smaller proportion of meat than dyads who do not. We found that the proportion of meat in the joint meal was descriptively smaller in dyads who mentioned reducing meat in their discussion ($M = 8.9\%$, $SD = 14.4$) than in those who did not, although this result was only statistically significant on a $p < .1$ -level ($M = 15.1\%$, $SD = 14.9\%$), $t(34.4) = -1.499$, $p = .072$.

3.5. Conflicts about food and meals

Of all dyads, 30% of parents and 29% of children reported conflicts related to eating meat/vegetarian meals. Interestingly, the agreement rate between parents and children on whether they had meat-related conflicts at home was surprisingly low: Meat-related conflict was reported in 18 of the 57 dyads: In nine of those dyads, both parent and child reported meat-related conflict. Given these small participant numbers, these findings should be interpreted with caution: Of the nine dyads in which both dyad members reported meat-related conflicts at home, only two decided to include meat in their joint meal ($M = 3.3\%$, $SD = 7.1\%$); of the nine dyads in which either parent or child reported meat-related conflicts, seven agreed on meat in the joint meal ($M = 19.4\%$, $SD = 14.5\%$) and decided on comparably high proportions of meat, whereas in those 39 dyads in which no one mentioned meat-related conflicts, 22 included meat in their joint meal ($M = 14.1\%$,

SD = 15.3%) and in lower proportions. To test H5—dyads reporting conflicts will agree on smaller proportions of meat—we compared dyads in which both members reported conflicts regarding meat or vegetarian nutrition with dyads in which neither member reported such conflicts and found that dyads reporting conflict agreed on a smaller proportion of meat, $t(27.79) = 3.169, p = .004$, supporting our hypothesis.

RQ3: How Do Predecision Preferences for Meat and the Joint Decision Influence Postdecision Preferences for Meat?

To explore the relations between predecision preferences and joint decisions regarding meat and preferences after the decision (i.e., future preferences), we ran regressions with parents’ postdecision meat preference as outcome, and parents’ and children’s predecision preference and the joint decision as predictors (Model 1). Only parents’ predecision preference and the decision predicted parents’ postdecision preferences. To test whether children’s predecision preferences indirectly influenced parents’ postdecision preferences via the joint decision, we omitted the joint decision as a predictor (Model 2). Children’s predecision preferences still did not predict parents’ postdecision preferences, suggesting no observable influence on parents’ postdecision preference. A similar pattern was found for parents’ predecision preferences: they also did not predict children’s postdecision preferences (Table 2). Despite maintaining individual preferences, both parents and children were highly satisfied with the joint decision (children: $M = 4.84, SD = 0.59$; parents: $M = 4.75, SD = 0.63$).

4. Discussion

Using a psychological research approach, we tested whether and when children influence their parents regarding the proportion of meat planned for a joint family meal. In this study, about 14% of the children but none of the parents never ate meat. Parents and children had comparable individual preferences and equally influenced the proportion of meat in their joint meal. We examined gender, dietary style, arguments regarding meat consumption in the decision process, and general meat-related conflicts in family meals: Although boys preferred a higher proportion of meat than girls, girls did not have a stronger influence on reducing the proportion of meat in the family meal. Although mother–son dyads preferred an about 25% larger proportion of meat in joint meals than mother–daughter dyads, this difference was not statistically significant. Rather than individual characteristics such as age and gender, it was specific behaviors that reduced the amount of meat in family meal planning: Children with a stricter diet style regarding meat (i.e., vegetarian or vegan) more strongly influenced joint meal decisions toward smaller proportions of meat than omnivorous children. Dyads who mentioned sustainability arguments (i.e., related to meat reduction) in their discussions showed a tendency to prefer smaller

proportions of meat in their joint meal, but this was not statistically significant. About 30% of participants reported conflicts over meat or vegetarian diets in family meals, and these dyads preferred smaller meat proportions. Children’s and parents’ predecision preferences did not influence each other after the joint decision.

Contrary to H1a, children did not, on average, prefer less meat at family meals than their parents. In this study, 14% of children identified as vegetarian, compared to none of the parents. However, some young adults consumed more meat than their parents, balancing the group averages. This aligns with surveys (Heinrich-Böll-Stiftung, 2021; Knobl & Mata, 2024) showing higher vegetarianism rates among adolescents and young adults, not necessarily different average meat consumption from the parental generation. While children and parents differed at the extremes of meat consumption (some children avoiding meat entirely, others consuming more), children did not influence meat proportions at family meals more strongly than parents. This suggests that “generation” or “age” might be too broad to explain meat consumption proportions, supporting research on parents’ central role in shaping family meals (Knobl & Mata, 2024). These findings contrast with studies showing that children’s environmental knowledge (Kong & Jia, 2023), concerns (Singh et al., 2020), and literacy (Liu et al., 2022) change parents’ behavior. A key difference may be that prior studies focused on general attitudes and behaviors, whereas this study involved a specific decision. This is further reflected in the conflict findings: while most families reported general meal-related conflicts, often over meat, almost no conflicts arose during the specific decision task. This suggests that such conflicts occur across various situations over time but may not be visible in every instance. Additionally, observer presence during the study may have encouraged more desirable outcomes, such as avoiding conflict (McCarney et al., 2007).

Consistent with surveys showing girls and women prefer less meat than boys and men (e.g., Modlinska et al., 2020), we found daughters preferred about half the meat for family meals compared to sons. However, this difference was not reflected in joint family decisions, where meat amounts were similar regardless of the child’s gender, nor did daughters have a stronger influence on meat proportions, contrary to H2. Further research is needed on gender differences in incorporating vegetarian preferences into family meals. A review describing that vegetarianism should be more acceptable in teenage women (Modlinska et al., 2020) would have suggested a greater influence of daughters’ vegetarian preferences on reducing meat in family meals. Other studies suggest young women often face greater hostility, particularly from male relatives, for their dietary choices. As our study primarily involved mothers, this dynamic could not be fully examined.

Although demographic factors like age and gender were unrelated to meat-reduced family meals, specific behaviors were: Supporting H3,

Table 2
Regression analyses on whether predecision preferences for meat and the joint decision influence postdecision preferences for meat, separately for parents and children (exploratory analyses).

Predictor	Parents						Children					
	Model 1			Model 2			Model 1			Model 2		
	Estimate	95% CI	<i>p</i>	Estimate	95% CI	<i>p</i>	Estimate	95% CI	<i>p</i>	Estimate	95% CI	<i>p</i>
(Intercept)	.05	[0.00, 0.10]	.039	.06	[0.01, 0.11]	.014	−0.00	[−0.05, 0.04]	0.899	0.02	[−0.04, 0.07]	0.576
Pre-pref meat P	.38	[0.11, 0.66]	.007	.50	[0.21, 0.78]	.001	−0.17	[−0.44, 0.11]	0.229	−0.01	[−0.31, 0.29]	0.963
Pre-pref meat C	−0.12	[−0.35, 0.10]	0.282	−0.01	[−0.24, 0.22]	0.919	.62	[0.40, 0.85]	<.001	.78	[0.54, 1.02]	<.001
Decision meat proportion	.35	[0.11, 0.58]	.005	—	—	—	.49	[0.26, 0.73]	<.001	—	—	—
Observations	57						57					
<i>R</i> ² /adjusted <i>R</i> ²	0.330/0.292						0.619/0.597					

Note. Model 1 includes predecision preferences for meat of both parents and children, as well as the proportion of meat agreed upon in the joint decision; Model 2 only includes predecision preferences of parents and children. Statistically significant predictors are in bold. 95% CI = 95% Confidence interval; Pre-pref = predecision preference; P = parent; C = child.

dyads with children following stricter diets (vegan or vegetarian) agreed on smaller meat portions, and these children had a stronger influence on joint decisions. This notable effect—despite the small number of children with stricter diets—highlights their potential to shift family foodways toward healthier, more sustainable norms. Family systems theory suggests that changes in one part of the system influence the whole (Baptist & Hamon, 2022). This dynamic mirrors broader social change, where small shifts, driven by front-runners like moral innovators reducing meat consumption, can lead to tipping points that transform systems (Judge et al., 2024). However, vegetarians often self-silence to avoid stigma, slowing progress. Support from allies—like experimenters in studies or parents in families—can empower advocacy for meat-free diets (Bolderdijk & Cornelissen, 2022, for a lab experiment). On a larger scale, moral innovators can network with grassroots movements, fostering connections that evolve into societal shifts capable of reshaping norms and behaviors over time (Nardini et al., 2021).

Further, we found that the more often sustainability arguments were mentioned in the joint discussion, the lower the proportion of meat agreed on in the joint meal (in line with H4), although this result did not reach statistical significance. Interestingly, sustainability was less of a discussion topic than expected given the importance adolescents and their parents assign to sustainability in surveys: Only a third of the dyads mentioned it at all. This finding might again be explained by the current joint meal decision being one point in time in a history of family meals. When describing the nature of their usual conflicts about food at family meals, three in 10 participants stated they were related to eating meat.

In line with H5, we found that dyads in which both members reported more general meat-related conflicts agreed on smaller proportions of meat than dyads who did not report any conflicts. This finding needs to be interpreted with caution, because it relies on just a few cases: In only nine of the 57 dyads did both dyad members report having meat-related conflicts. It remains unclear why in several dyads only one dyad member reported a meat-related conflict. Such asymmetry in conflict perception may increase dietary tension and openness to change, as observed by Gregson and Piazza (2023) in cohabiting couples.

Our single-point measurement likely overlooks the cyclical nature of conflict. When one family member changes their diet, it can shift household food routines, intensifying or easing conflict (O'Neill et al., 2019). Conflict may rise if others resist but decrease if adjustments promote collaboration, as seen in a recent interview study on meat-reduced family foodways (Hesselberg et al., 2024). Over time, initial tensions may give way to acceptance as families adapt (Judge et al., 2024). Relationship quality also matters, as less harmonious families may experience greater challenges during joint meals (Low et al., 2019), particularly when reducing meat. These complex dynamics over time may explain variations in conflict reports across dyads.

Our exploratory analyses suggest that one dyad member's predecision preferences do not influence the other member's postdecision preferences, aligning with our other findings. Predecision preferences did not significantly alter the joint decision or the other member's preferences afterward. Since we studied naturally existing dyads, it is likely this was not their first joint food decision. Preference changes in family meals likely happen gradually over time, rather than in one short laboratory situation.

4.1. Strengths, limitations, and generalizability

4.1.1. Strengths

This study examined a joint family meal decision using a dyadic, process-oriented mixed-methods design. This design has a high ecological validity because participants were natural dyads (parent and child) discussing everyday food decisions—yet the setting was standardized and controlled, owing to the video-call setting with an experimenter. We used mixed methods: That is, we used quantitative methods to predict joint decisions based on previously measured individual preferences,

and qualitative methods to categorize arguments used in these discussions. The participants were an ideal target for studying potential bottom-up vertical cultural transmission, because numerous parent-child dyads have different preferences concerning meat consumption yet need to find solutions for their joint meals.

4.1.2. Limitations

The observed meal decision was a single snapshot of ongoing family meal negotiations in a controlled setting. While we could only examine one decision and its short-term effects (e.g., on postdecision preferences), it is notable that we did observe some consequences of ongoing family meal decisions. Yet, longitudinal studies capturing multiple family meal decisions in natural settings could reveal stronger effects, particularly regarding sustainability arguments and conflicts. Such designs would better capture the cyclical nature of these processes, where individual changes can trigger system-wide shifts through feedback loops, conflict, and exchange of arguments.

In this study, we classified children as vegetarian based on their diet descriptions rather than self-identified labels like “vegetarian.” We chose this approach because pilot testing showed unreliable self-categorization, with some “vegetarians” reporting meat consumption and confusion around terms like „flexitarian.“ While this approach improves analytical reliability, it is important to note that children we labeled as “vegetarian” may not endorse this social identity, which could reduce the visibility of their choices and related social or family conflicts (Nezlek & Forestell, 2020).

Especially the consequences of meat-related discussions in dyads with different preferences would be interesting to observe over a longer time frame. This was an exploratory study examining an innovative question using a new design; therefore, effect sizes were difficult to determine beforehand. Although the sample contained different age groups and diet styles, it was less heterogeneous regarding education, with 42% of parents having a college education, which is about twice as high as in the general population in Germany (Destatis, 2021). It can be assumed that most participants would identify as Caucasian. Importantly, the focus on within-dyad dynamics of the meat-related food decisions might mitigate some of the limitations of the sample composition.

4.1.3. Generalizability

The main effects—such as meat-free diets, sustainability arguments in discussions, and meat-related conflicts—likely generalize to families with adolescents or young adults in Germany and similar Western countries. However, our sample consisted mostly of mothers, who were often better educated than the general population, which may influence generalizability since meat attitudes vary by gender, education, and region (Modlinska et al., 2020; Mata et al., 2023). Most German teenagers regularly share family meals (Frank et al., 2019), and such habits persist across socioeconomic levels (Dallacker et al., 2019), suggesting broad applicability of the findings. Generalizability may also change over time as meat preferences evolve; for example, pro-environmental behaviors in adolescents may diminish with shifting societal priorities such as Covid-19 (Krettenauer et al., 2024), or parents may increasingly adopt norms supporting reduced meat consumption.

4.1.4. Implications

The findings show the potential of children as drivers of social innovation toward healthier and more sustainable nutrition. This has several implications for theories and research, of which we want to highlight the following: The findings support the assumptions of a long-term bottom-up vertical transmission of preferences and behaviors from children to adults, extending current assumptions of cultural evolution theory and suggesting that children (adolescents) might be a promising target group for healthy nutrition interventions that benefit the entire family system. The current study also underlines the potential of children as active agents in a family system (see also Hesselberg et al.,

2024), and more generally, the importance of (close) social others for behavior change, which is often ignored in current theoretical frameworks (Rhodes & Beauchamp, 2024).

That behaviors (i.e., diet style, sustainability discussions, and conflicts) rather than demographics are linked to smaller meat portions and stronger influence on family decisions is promising for intervention strategies. Families, a key social unit in Germany with 8.2 million households and 14.3 million children (Destatis, 2023), often share meals, with 80% eating family dinners (Frank et al., 2019). Integrating these findings into a social change framework (Judge et al., 2024) suggests strategies for early change: families can support children in discussing their meat-reduced diets and connecting with like-minded peers, reducing social costs and encouraging norm shifts. Practitioners can educate parents about adolescent preferences, and policymakers could promote meat-reduced diets by improving food label visibility and supporting early adopters. A key practical insight from this research is that mothers, often identifying as nutritional gatekeepers, were the primary parental participants, reflecting broader trends of greater maternal involvement in food provision (Rahill et al., 2020). Given fathers' generally higher preference for meat (e.g., Mata et al., 2023), targeting them in future initiatives is crucial. For instance, a low-threshold online intervention was found to increase fathers' motivation and self-efficacy to engage in cooking and trying new foods (Moura et al., 2023).

In Germany, daily beef consumption is three times and pork more than ten times the recommended levels of the planetary health diet (Bundesanstalt für Landwirtschaft und Ernährung, 2024). The average adult consumes meat 6–7 days a week (Mata et al., 2023). Shifting to meat-reduced diets could significantly benefit both human and environmental health, as diets high in meat, particularly processed meat, are more harmful than unsafe sex, alcohol, tobacco, and drugs combined (Global Panel on Agriculture and Food Systems for Nutrition, 2016). Such a shift could reduce greenhouse gas emissions by 54–87% and prevent 20% of premature deaths (Springmann et al., 2018). Dietary changes are one of the most effective ways to address the climate crisis (Willett et al., 2019), making it crucial to better understand how to drive this change.

4.2. Conclusion

This study explored the dynamics of healthier, more sustainable family meals using a daily decision task. Children's age and gender were not linked to meat consumption in family meals. Instead, behaviors like following a meat-free diet, discussing sustainability, or experiencing meat-related conflicts were associated with lower meat proportions at joint meals, partially supporting bottom-up transmission of preferences. Considering social contexts—and children or parent-child dyads specifically—can enhance our understanding of family foodways and might be one of the levers to promote healthier, more environmentally sustainable diets across generations.

CRedit authorship contribution statement

Jutta Mata: Writing – review & editing, Writing – original draft, Supervision, Methodology, Investigation, Funding acquisition, Conceptualization. **Vanessa Knobl:** Formal analysis, Writing – review & editing, Methodology, Data curation, Conceptualization. **Masanori Takezawa:** Writing – review & editing, Formal analysis, Conceptualization.

Public significance statement

Can children's preferences make family meals healthier and more sustainable by reducing meat? Current research largely ignores children's active role in family health. In child-parent dyads discussing their next family meal, we find that specific behaviors—not individual traits

(age, gender)—reduced meat: children eating a meat-free diet, dyads discussing sustainability and engaging in meat-related conflicts. This study underlines the social innovation potential of children for family foodways.

Ethical statement

We hereby all confirm that for the manuscript, “Exploring the role of adolescents in healthier, more sustainable family meals: A decision study on meat consumption”, by Jutta Mata, Vanessa Knobl, and Masanori Takezawa, all procedures were performed in compliance with the relevant laws and institutional guidelines. This study has been approved by the appropriate institutional committee, that is the local ethics board at the University of Mannheim, ID: EK 39/2022, on July 8, 2022.

The privacy rights of human subjects have been observed and informed consent was obtained by all participants.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work the authors used chatGPT to receive suggestions for rephrasing and shortening parts of the text. After using this tool, the authors reviewed and edited the content carefully and take full responsibility for the content of the publication.

Declaration of competing interest

We hereby all confirm that for the manuscript, “Exploring the role of adolescents in healthier, more sustainable family meals: A decision study on meat consumption”, by Jutta Mata, Vanessa Knobl, and Masanori Takezawa, we have nothing to declare.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.appet.2025.107916>.

Data availability

All data relevant to the current analyses and all analysis scripts are available OSF (https://osf.io/ntegm/?view_only=5fc4b733fdab4e66b1f038c2986f3eb2).

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