

Obeying the rules at home, playing the status game at school

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Abstract

Purpose – This study aims to compare the normative influence of parents at home and peers at school on healthy eating among children aged 6–15 years, focusing on fish consumption. It distinguishes between descriptive and injunctive norms and examines whether age moderates these influences.

Design/methodology/approach – A sample of Icelandic children ($n = 743$) aged 6–15 years completed a self-administered questionnaire, enhanced with a speech synthesizer and pictorial response options to support independent participation. The survey measured fish consumption frequency at home and in school, perceived parental and peer descriptive and injunctive norms and demographic variables including age.

Findings – The influence of descriptive and injunctive norms on fish consumption varied based on settings. At home, parental injunctive norms had a stronger effect than descriptive norms, suggesting that children are more motivated by perceived parental expectations than by modeled behavior. In school, the reverse was true, where peer descriptive norms were influential but peers' injunctive norms were not, indicating that school consumption is shaped by peers' behavior but not by perceived social approval. Including age as a moderator revealed a different picture: age did not moderate parental influence at home, but it significantly moderated peer influence at school, where younger children responded more to descriptive norms, while adolescents were more influenced by injunctive norms.

Originality/value – The study provides new insights into how normative influences vary by context and children's developmental stage. These insights have implications for designing age-sensitive and context-specific messages to promote healthy eating among children and adolescents.

Keywords Fish consumption, Children, Age, Social norms, Parents, Peers, Home, School

Paper type Research paper

Introduction

With growing emphasis on healthier dietary habits, fish consumption among children and adolescents has gained increased attention among scholars (e.g. Alm and Olsen, 2015; Højer and Frøst, 2022; Birch and Memery, 2020). Fish consumption is associated with multiple health benefits for children (see e.g. Lehner *et al.*, 2020; Mozaffarian and Rimm, 2006), which is particularly relevant given rising levels of childhood overweight and obesity and growing burden of diet-related chronic diseases (Shahnaz *et al.*, 2024). Improving children's dietary habits is, therefore, a public health priority.

Food choices are shaped by multiple interrelated factors (Khan and Pandey, 2023). To illustrate the range of potential healthy food choice influencers, Shah *et al.* (2025) identify individual, social, cultural, environmental and product-related; each consisting of several more specific determinants. In a similar vein, Parkes *et al.* (2025) highlight demographic, environmental, household, lifestyle, knowledge, skills, physical, product-related, psychological and social drivers for (un)healthy food choices. Thus, the importance of social influence in (un)healthy food consumption is well established. Yet, many gaps in understanding still persist, especially in relation to younger consumers' food choices (Severijns *et al.*, 2023), justifying the focus of the present study.

Received 10 July 2025
Revised 28 January 2026
Accepted 23 April 2026

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Children and adolescents typically consume food in social contexts (Pedersen *et al.*, 2015), where they learn and adopt eating practices through social interaction (Hemar-Nicolas *et al.*, 2013). At home, parents influence food consumption directly by buying and preparing the food (Birch and Memery, 2020; Holsten *et al.*, 2012) and indirectly by modeling behavior (Holsten *et al.*, 2012) and setting norms (Alm and Olsen, 2015). When family rules are not in place, such as during lunch at school, peers' norms have been found to be particularly strong (Birch and Memery, 2020). In these different contexts, at home and at school, food consumption among children and adolescent is affected by social influences (Cruwys *et al.*, 2015; McKeown and Nelson, 2018). Therefore, it is appropriate to focus on social norms when exploring their food consumption (Baker *et al.*, 2003).

Social norms represent a collective awareness of preferred, appropriate behavior within a group (Chung and Rimal, 2016) and guide behavior as implicit rules (Higgs, 2015). According to the focus theory of normative conduct, the influence of social norms varies across contexts (Cialdini *et al.*, 1990). Although social norms may operate both at home and at schools, their strength and influence may vary between these contexts. In the theory of planned behavior, normative influence is captured through subjective norms, which refers to the perceived social pressure to perform or avoid a behavior (Ajzen, 1991). Scholars have distinguished between descriptive norms, referring to perceptions of others' behavior, and injunctive norms, referring to perceptions of others' expectations (e.g. Cialdini *et al.*, 1991; Chung and Rimal, 2016; Hang *et al.*, 2020). Although some debate exists regarding this distinction (e.g. Lapinski and Rimal, 2005), Ajzen *et al.* (2019) indicated that both descriptive and injunctive norms should be viewed as components of subjective norms (Ajzen *et al.*, 2019).

The impact of these different norms has been found to vary based on context (Chung and Rimal, 2016), where they can exist simultaneously but can have either congruent or contradictory implications for behavior (Cialdini *et al.*, 1990). When studying food consumption among children and adolescents, it is, therefore, important to distinguish between the two types of norms and examine their influence in different contexts. Previous studies have also suggested that normative influence may vary by children's age (DeCosta *et al.*, 2017).

Based on this theoretical backdrop, the objective of this study is to compare the social influence of parents at home and peers at school on the healthy eating of children and adolescents, focusing on fish consumption, while distinguishing between descriptive and injunctive norms. Previous research has reported mixed results regarding the influence of social norms on children's healthy eating. Parental descriptive norms have been linked to children's healthy consumption in some studies (Alm and Olsen, 2015), but not others (Bevelander *et al.*, 2020). Similarly, parents' injunctive norms have been associated with both negative (Alm and Olsen, 2015) and positive effects (Bevelander *et al.*, 2020).

Comparable inconsistencies are found in the literature on peer influences. Peers' descriptive norms have been shown to positively affect children's healthy consumption in some studies (Hang *et al.*, 2020; Stok *et al.*, 2014), but not others (Bevelander *et al.*, 2020; Ragelienė and Grønhøj, 2020). Likewise, peers' injunctive norms have been associated with positive (Hang *et al.*, 2020; Ragelienė and Grønhøj, 2020), negative (Bevelander *et al.*, 2020) or no effect (Lally *et al.*, 2011; Stok *et al.*, 2014) across studies.

One potential explanation for these mixed findings is the narrow age range typically examined. Some evidence suggests that parental influence is stronger in early childhood, while peer influence becomes more salient during adolescence (Cheng and Chan, 2004). However, few studies have examined normative influence across a broad age (Cruwys *et al.*, 2015). Most have focused on specific developmental stages, some on young children (e.g. Alm and Olsen, 2015), others on preteens (e.g. Damay *et al.*, 2011; Ragelienė and Grønhøj, 2020), and some on adolescents (e.g. Baker *et al.*, 2003; Pedersen *et al.*, 2015).

This fragmentation of age groups may contribute to the inconsistent findings reported in the literature, as it limits the ability to assess whether and how normative influences from different social contexts vary across childhood and adolescence. Some precedents exist. [Ludvigsen and Scott \(2009\)](#) conducted a focus group study with 3–15 year olds that provides in-depth insights; however, as a qualitative study, it does not allow for statistical testing of normative influences by age or context. [Hang et al. \(2020\)](#), however, used an experimental design involving 7–16 year olds, but their study focused on the effects of normative messages on consumption, not on influences from social groups in the children's environment.

Taken together, the mixed and sometimes contradictory results regarding descriptive and injunctive norms may, therefore, reflect differences in the age groups studied and the social contexts examined. There remains a lack of studies that simultaneously consider different social contexts and a broad age spectrum when examining normative influences on healthy food consumption. Addressing this gap, the current study focuses on children aged 6–15 years and examines whether age moderates the influence of social norms on fish consumption, posing the following research question: How do context-specific social norms and age influence children's fish consumption?

Fish consumption is a particularly relevant case for examining normative influences on children's eating behavior. Fish meals are often resisted by children ([Birch and Lawley, 2012](#)), which may lead parents to be more assertive or to convey stronger injunctive cues regarding fish consumption. Moreover, home and school settings differ in several important respects, including the extent to which children can influence what meals are served ([Prell et al., 2002](#)), the presence of and potential influences from peers, and the nature of adult involvement in children's eating ([Alm and Olsen, 2015](#)). These characteristics make fish consumption particularly well suited for examining context-specific normative influences.

We seek to contribute to the literature on normative influence and children's healthy food consumption in three ways. First, by integrating descriptive and injunctive norms, developmental stage and social context within a single framework. Second, our study brings clarity to mixed results in prior studies on normative influences in children's healthy eating. Third, it advances understanding of normative influence on children's food consumption, informing strategies to promote healthier dietary habits.

Our article begins with the theoretical background, focusing on different types of social norms, their function in different contexts and their relation to children's developmental stages. Next, we outline the methodology and present the results. Finally, we examine the significance of our findings, offering both theoretical and managerial implications, addressing the study's limitations, and suggesting directions for future research.

Theoretical background and hypothesis development

Descriptive and injunctive norms are conceptually distinct and motivate behavior through different mechanisms ([Cialdini et al., 1990](#)). Descriptive norms provide information about typical behavior ([Cialdini and Goldstein, 2004](#)), serving as heuristic cues for appropriate action ([Stok et al., 2014](#)). Injunctive norms, in contrast, reflect perceived approval or disapproval ([Cialdini et al., 1990](#)) and motivate behavior through anticipated social rewards or punishments ([Cialdini et al., 1991](#)). They guide behavior through individuals' desire to affiliate, gain acceptance and belong to a group ([Cialdini and Goldstein, 2004](#); [Higgs, 2015](#)). Therefore, violating injunctive norms is typically associated with social repercussions, whereas non-compliance with descriptive norms tends to be free from such consequences ([Lapinski and Rimal, 2005](#)).

Previous studies have shown conflicting results regarding the influence of social norms on children's and adolescents' healthy eating behavior. While some studies show the influence of descriptive norms on younger children ([Hang et al., 2020](#); [Alm and Olsen, 2015](#)) and

adolescents (Lally *et al.*, 2011; Stok *et al.*, 2014), others indicate no such effect from descriptive norms (Bevelander *et al.*, 2020; Ragelienė and Grønhoj, 2020). Inconsistency is also found in studies regarding injunctive norms, with some suggesting either no effect on healthy consumption in certain circumstances (Hang *et al.*, 2020; Prell *et al.*, 2002) or even a negative effect (Alm and Olsen, 2015; Hang *et al.*, 2020; Stok *et al.*, 2014). As the impact of different norms varies based on context (Chung and Rimal, 2016), this study distinguishes between food contexts children and adolescents most frequently encounter, at school and at home. As illustrated in the conceptual framework in Figure 1, we propose that parents' norms influence children's fish consumption at home, peers' norms influence consumption at school and that children's age moderates these relationships in both contexts.

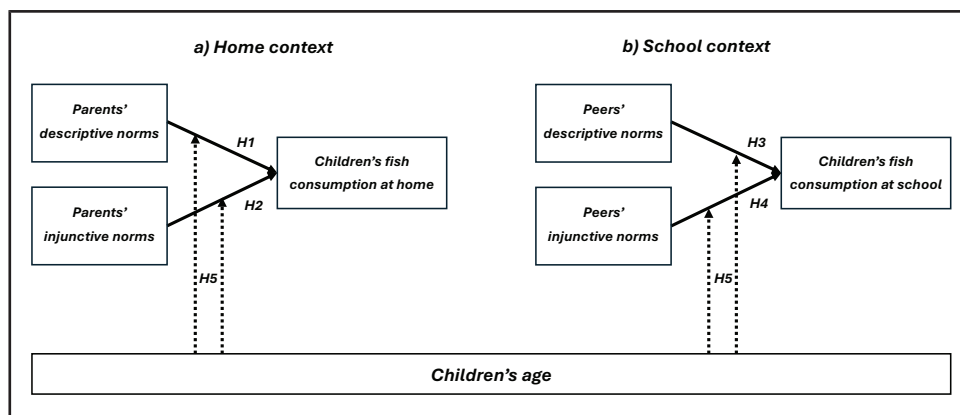
The home context – parent's social norms

Parents play a central role in shaping their children's food patterns (DeCosta *et al.*, 2017; Mahmood *et al.*, 2021) and communicate knowledge about consumption (Hemar-Nicolas *et al.*, 2013). According to Pedersen *et al.* (2015), what parents do (descriptive norms) is more important than what they say (injunctive norms). Several studies have shown parents' modeling behavior influences food consumption among children and adolescents (e.g. Holsten *et al.*, 2012; Tarabashkina *et al.*, 2017; Yee *et al.*, 2017). Adolescents in Gilmour *et al.* (2020) stated that they consume healthy food in their parents' presence and some felt obligated to eat healthy in the school canteen because they did not want to worry their parents or ruin the healthy habits established at home. Similar findings appear in Damay *et al.* (2011), where children's discussions indicate parental influence despite their absence. Conversely, others have found adolescents consume more unhealthy food when eating with peers compared with when eating with parents (McKeown and Nelson, 2018). Consequently, we propose the following hypothesis:

H1. Parents' descriptive norms have a positive influence on children's fish consumption.

Results from previous studies have not been coherent on whether or how parents' injunctive norms influence children's and adolescents' food consumption. Some found that parental pressure to eat healthy can negatively affect children's attitudes toward healthy food (Alm and Olsen, 2015) and their likelihood of consuming it (Pedersen *et al.*, 2015; Yee *et al.*, 2017). Pedersen *et al.* (2015) speculated that this negative correlation between injunctive norms and behavior may occur because such pressure arises only in situations where the child is not consuming enough healthy food. In such cases, the pressure can backfire and lead the child to do the opposite (Clee and Wicklund, 1980), indicating a condition of

Figure 1 Conceptual framework



reactance effect (Grabitz-Gniech, 1971). Given the potential for a negative correlation between injunctive norms and healthy food consumption, Mahmood *et al.* (2021) suggested that parents should encourage their children to eat healthy but avoid excessive pressure to prevent creating a negative social and emotional experience that could affect the child's acceptance of the food.

Despite some studies showing a negative effect of parents' injunctive norms on children's healthy consumption, others found the opposite. Bevelander *et al.* (2020) found that pressure from parents is likely to result in children eating more healthy and less unhealthy food. Similarly, findings from Tarabashkina *et al.* (2017) indicate that children are more likely to consume unhealthy food if they perceive it as socially acceptable to their parents. Comparable results indicating a positive relationship between parents' injunctive norms and children's food consumption have been found in other studies (e.g. Berg *et al.*, 2000; Moore *et al.*, 2009). Therefore, we propose that:

H2. Parents' injunctive norms have a positive influence on children's fish consumption.

The school context – peers' social norms

Both children (Ludvigsen and Scott, 2009; Roberts and Pettigrew, 2013) and adolescents (Chung and Rimal, 2016; Stead *et al.*, 2011) use food to integrate with peer groups and signal conformity with peer norms. Several studies have found that peers' modeling behavior, their descriptive norms, influences children's food consumption (DeCosta *et al.*, 2017; Hang *et al.*, 2020; Sharps and Robinson, 2017), where they prefer food appreciated by their peers (Bech-Larsen *et al.*, 2010; Roberts and Pettigrew, 2013). However, findings from Damay *et al.* (2011) and Hemar-Nicolas *et al.* (2015), who interviewed children aged 7–11 years, indicate that children choose food at school based on their individual preferences and are not significantly affected by peers' choices. Similarly, adolescents interviewed in Gilmour *et al.* (2020) seemed proud of their independence concerning food choices, aligning with findings that peers' descriptive norms do not encourage healthy eating among adolescents (Bevelander *et al.*, 2020; Hang *et al.*, 2020). However, this contradicts findings showing that adolescents experience social pressure to eat what their peers eat in school (Holsten *et al.*, 2012) and that their healthy eating is influenced by peers' descriptive norms (Lally *et al.*, 2011; Prell *et al.*, 2002; Stok *et al.*, 2014). We therefore propose the following:

H3. Peers' descriptive norms have a positive influence on children's fish consumption.

There are considerable contradictions in previous studies regarding the effect of peers' injunctive norms on children's and adolescents' healthy consumption. Some studies indicate that children and adolescents judge peers based on food choices (Stead *et al.*, 2011), and in some cases, are even bullied at school for what they eat (Ludvigsen and Scott, 2009). This suggests that it can be emotionally and socially risky for adolescents to be perceived by their peers as being interested in healthy eating (Stead *et al.*, 2011), supporting positive association between peers' injunctive norms and healthy eating as found by Ragelienė and Grønhøj (2020). However, other studies have found that peer pressure can backfire, leading to a negative effect on adolescents' healthy consumption (Bevelander *et al.*, 2020), consistent with reactance theory (Grabitz-Gniech, 1971). Moreover, interviews with adolescents suggest that peers do not pressure or judge them regarding their food choices (Gilmour *et al.*, 2020), aligning with studies that found no significant effect or injunctive peer norms on healthy consumption (Hang *et al.*, 2020; Stok *et al.*, 2014). Taken together, these findings indicate that peers' injunctive norms do not have a consistent influence on children's or adolescents' healthy consumption. We therefore propose the following hypothesis:

H4. Peers' injunctive norms do not significantly influence children's fish consumption.

Age as moderator

Parents' influence is thought to be strongest during early childhood, when parents act as role models, enforcers and providers (Mahmood *et al.*, 2021). During adolescence, sensitivity to peers' social influence becomes heightened (Baker *et al.*, 2003) and pressure increases to fit in and conform to their food norms (Chung and Rimal, 2016; Roberts and Pettigrew, 2013). In their study, Baker *et al.* (2003) found that peer norms had a stronger influence on adolescents' attitude toward healthy eating than parent's norms, even though both influenced. Similarly, findings from DeCosta *et al.* (2017) indicate that parents exert stronger influence on young children than older ones.

Based on the previous discussion, we expect both descriptive and injunctive norms of parents and peers to influence children's fish consumption. However, we expect parents' social norms influence to be stronger when children are younger compared with adolescence. Similarly, we expect peers' social norms influence to strengthen as children grow older. We therefore propose the following:

- H5. Age moderates the association between social norms and children's fish consumption with parental norms being more influential among younger than older children and peer norms being more influential among older than younger children.

Method

The objective of this study was to compare the social influence of parents at home and peers at school on children's and adolescents' fish consumption, distinguishing between descriptive and injunctive norms, and to examine whether age moderates these influences. Based on these objectives, a survey was designed to capture (a) how often children consume fish meals when offered, both at home and in school; (b) children's perceptions of parental and peer descriptive and injunctive norms; and (c) demographic information, including age.

To capture honest answers, it was deemed preferable for children to complete the survey independently rather than with parental assistance. However, administering surveys to children as young as six presents challenges due to potential reading difficulties and limited attention spans. To address this, custom software was developed with speech synthesizer options and pictorial responses, enabling independent participation (see Appendix). In addition, question wording was kept short and simple, and measurement scales designed using as few items as deemed feasible. As the study was conducted among Icelandic children, the survey was administered in Icelandic.

Children's fish consumption was measured with one item per context. Children responded on a five-point semantic differential scale (1=never or very seldom, 5=very often or always) to the following questions which were adapted from Prell *et al.* (2002): "When there are fish meals at your home, how seldom or often do you eat the fish?" and "When there are fish meals at your school, how seldom or often do you eat the fish?"

Items measuring descriptive and injunctive norms were adapted from prior research on normative influences on fish consumption (Olsen and Ruiz, 2008; Tuu *et al.*, 2008; Verbeke and Vackier, 2005). Descriptive norms were assessed with two items for each reference group: "My parents/peers at school eat fish regularly" and "I think my parents/peers at school like fish." The reliability of the descriptive norms scales was acceptable, measured with Cronbach's alpha, both in terms of parents' descriptive norms ($\alpha = 0.769$) and peers' descriptive norms ($\alpha = 0.716$). Injunctive norms were also measured with two items: "My parents/peers at school want me to eat fish regularly" and "My parents/peers at school encourage me to eat fish regularly." The reliability was acceptable, both for parents' injunctive norms ($\alpha = 0.800$) and peers' injunctive norms ($\alpha = 0.733$). All social norm items were rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree).

A pretest was conducted to evaluate comprehension and usability. Invitations were emailed to 22 parents of children aged 6–15 years who had agreed to participate in the pilot. The email included a link to the survey, which children were asked to complete independently, and a follow-up link to open-ended feedback questions for parents. These asked whether the instructions were clear, if their child encountered any difficulties, and whether the response options were understandable. Overall, the pretest indicated children understood questions and responses well, regardless of age. Given the involvement of children, ethical review was sought and obtained from the Science Ethics Committee at the University of Iceland (no. 19–014) before data collection.

Participants were recruited through the Gallup Panel in Iceland. Gallup maintains demographic profiles of all panel members, enabling identification of those with children aged 6–15 years. A stratified random sample of 3,000 parents was drawn, stratified by child's birth year, resulting in 300 per birth year. Gallup emailed invitations with information on the study purpose, estimated completion time, and information about the responsible researcher. It was emphasized that participation was voluntary and anonymous. Both parental and child consent were required; parents had to approve their child's participation, and children also had to confirm their willingness to participate. To encourage participation, a lottery incentive was offered where three randomly selected participants received 75,000 ISK each (approximately 520 EUR).

In total, 743 children participated. The sample was gender balanced (50.5% boys, 49.2% girls and 0.3% nonbinary), and age distribution was relatively even. For analysis, participants were grouped into three categories: 6–9 years (36.9%), 10–12 years (30.8%) and 13–15 years (32.4%).

Results

Most children claimed they consume fish always or most of the time when offered at home ($M=4.29$, $SD=1.02$, $n=719$), regardless of age ($p > 0.05$) and gender ($p > 0.05$). However, they consume fish considerably fewer times when offered at school [$M=3.65$, $SD=1.37$, $n=719$, $t(715)=14.0$, $p < 0.001$]. While there were no gender differences regarding consumption at school ($p > 0.05$), the youngest children, 6–9 years old, claimed they consume fish more often when offered at school ($M=3.69$, $SD=1.28$, $n=264$) than the middle group, 10–12 years old, ($M=3.54$, $SD=1.34$, $n=219$) and the oldest, 13–15 years old [$M=3.38$, $SD=1.44$, $n=232$; $F(2, 464)=12.4$, $p < 0.001$].

[Table 1](#) presents two multiple regression analyses, one for the home context and the other the school context. The dependent variables in both involve children's fish consumption in the relevant context. Each analysis contains four independent variables: descriptive norms and injunctive norms, along with the interaction of children's age with each of the social norm types.

The regression analysis shows that in the home context, children's fish consumption is positively influenced by parents' descriptive ($\beta=0.179$, $t=2.703$, $p=0.007$) and injunctive norms ($\beta=0.305$, $t=4.685$, $p < 0.001$), supporting *H1* and *H2*. As shown in [Table 1](#), parents' injunctive norms have a considerably stronger influence than parents' descriptive norms.

In terms of influence of peers, their descriptive ($\beta=0.331$, $t=4.114$, $p < 0.001$) norms positively affect children's fish consumption at school, supporting *H3*, and their injunctive norms do not have a significant effect ($\beta=0.160$, $t=1.751$, $p=0.080$), supporting *H4*. Thus, children's fish consumption at home is more influenced by parental encouragement than modeling behavior. Conversely, fish consumption at school is solely influenced by what peers do, not by perceived pressure or social approval.

Table 1 Influences on children's fish consumption in two contexts

Predictors	Home context: parents $R^2 = 0.139$, $F(6, 707) = 20.3$, $p < 0.001$			School context: peers $R^2 = 0.095$, $F(6, 698) = 13.3$, $p < 0.001$		
	Beta	t	Sig.	Beta	t	Sig.
Constant		11.133	<0.001		11.629	<0.001
Descriptive norms (DN)	0.179	2.703	0.007	0.331	4.114	<0.001
Injunctive norms (IN)	0.305	4.685	<0.001	0.160	1.751	0.080
<i>DN*age groups</i>						
DN*(middle-younger)	-0.005	-0.051	0.960	-0.222	-2.001	0.046
DN*(older-younger)	-0.121	-1.202	0.230	-0.412	-3.787	<0.001
<i>IN*age groups</i>						
IN*(middle-younger)	0.002	0.018	0.986	0.158	1.101	0.271
IN*(older-younger)	0.156	1.488	0.137	0.357	2.569	0.010

Note(s): Dependent variable: Children's fish consumption in relevant context

Results show the dominating social norm in each context is of similar magnitude, indicating similar influence strength on consumption. It can, therefore, be assumed that parents' injunctive norms influence fish consumption at home similarly as peers' descriptive norms do at school.

When normative influences are examined in relation to children's age, a different picture appears. In the home context, parents' descriptive and injunctive norms positively influence consumption regardless of age. In the school context, however, peers' descriptive and injunctive norms' effects are qualified by age. Fish consumption among the oldest group (13–15 years) is more negatively influenced by peers' descriptive norms than the youngest group (6–9 years), indicating younger children are more influenced by peers' fish consumption. However, the oldest group's fish consumption is more positively influenced by peers' injunctive norms than the youngest. This suggests adolescents are more influenced by peer opinions, making peer social pressure more likely to affect their fish consumption than younger children. Therefore, *H5* is partially supported, which stated that age moderates the association between social norms and children's and adolescents' fish consumption such that parents' influence weakens and peers' influence strengthens with age.

Discussion

The objective of this study was to compare the social influence of parents at home and peers at school on children's and adolescents' healthy eating, focusing on fish consumption. The analysis distinguishes between descriptive and injunctive norms and explores whether children's age moderates these influences. By comparing the two primary food consumption contexts, home and school, and considering age as a moderator, this study offers novel insights into how normative influences operate in different settings.

The findings indicate that social norms affect fish consumption in both contexts, but their influence varies by setting and norm type. At home, both descriptive and injunctive norms positively influenced fish consumption, whereas in the school context only peers' descriptive norms had a significant direct effect. The strength and relevance of these normative influences differed between contexts, supporting [Chung and Rimal \(2016\)](#) argument that context plays an important role in how social norms affect behavior. At home, parents' injunctive norms had a stronger impact than descriptive norms, suggesting children are more motivated by what they believe parents expect than by observing parental behavior. At school, only peers' descriptive norms exerted a significant influence

on fish consumption, implying that modeling behavior is more influential in school than perceived social approval.

These results partly align with previous research. [Bevelander et al. \(2020\)](#) also found parental injunctive norms positively influence children's healthy food consumption. However, they found no effect of parental descriptive norms, whereas ours did, although weaker than injunctive norms. Other studies have reported the opposite, with parental descriptive norms being more influential than injunctive norms ([Berg et al., 2000](#); [Pedersen et al., 2015](#)). Regarding peer influences, our findings are consistent with [Stok et al. \(2014\)](#), who found descriptive norms positively affect healthy eating, but reported no or even indication of negative effects from peers' injunctive norms. Other studies also found peer descriptive norms influential ([Hang et al., 2020](#); [Moore et al., 2009](#); [Prell et al., 2002](#)), though some reported no effect ([Bevelander et al., 2020](#); [Ragelienė and Grønhoj, 2020](#)).

Theoretical implications

The findings summed above spawn three theoretical implications. While this inconsistency between the studies warrants further study, it may suggest that the impact of social norms is food category dependent. Except for [Prell et al. \(2002\)](#), who focused on fish consumption and reported findings consistent with ours, most prior studies examined lighter foods such as snacks, fruits and vegetables rather than main meals. Support for this proposition can be found in [Bevelander et al. \(2020\)](#), who demonstrated varying effects across food categories. In itself, food type was identified as an influential driver and barrier of (un)healthy food choices in a recent meta review ([Parkes et al., 2025](#)). This speaks for its potential role also in the connection of social influences.

Second, the role of age adds another layer of complexity. At home, age did not moderate the influence of parents' norms, suggesting their influence remains stable across age groups. This challenges studies concluding parents have stronger influence on children when they are younger ([DeCosta et al., 2017](#); [Mahmood et al., 2021](#)). In contrast, age played a prominent role in school settings. Younger children were more influenced by peers' descriptive norms, while adolescents were more influenced by injunctive norms, consistent with [DeCosta et al. \(2017\)](#), [Chung and Rimal \(2016\)](#) and [Roberts and Pettigrew \(2013\)](#). This suggests peer modeling is more salient for younger children, whereas peer expectations become more important in adolescence. Theoretically, this implies that in the case of injunctive norms, the experience of peer identity can play a role, even to the extent that it mediates the effect (cf. [Zhang et al., 2022](#)). This idea warrants more theorizing.

The third theoretical implication concerns our measurement of dependent variable: fish consumption. Even though it directly taps into the frequency of eating fish, it falls short of capturing border and more subjective consequences of fish consumption such as food-related life satisfaction or even consumer well-being ([Du and Wang, 2025](#); [Liu and Grunert, 2020](#); [Puska and Luomala, 2016](#)). Thus, our results suggest that the conceptualization of food consumption outcomes should also comprehensively cover need fulfillment occurring through individual growth, cherishing social relationships and nurturance of cultural meanings.

Practical implications

This research provides valuable insights for both food marketers and policymakers promoting healthier eating among children, particularly regarding fish consumption. Marketing strategies based on social norms have proven to be effective in influencing socially significant behaviors ([Schultz et al., 2007](#)). Our findings highlight the importance of tailoring such campaigns by both consumption context and the age of the target group.

According to the focus theory of normative conduct (Cialdini *et al.*, 1990), social norms influence behavior only when made salient (Kallgren *et al.*, 2000). The theory further suggests that descriptive and injunctive norms draw on separate source of motivation and therefore influence behavior differently. Descriptive norms motivate by showing what is commonly done, implying that behavior is logical and efficient. Injunctive norms signal what is socially approved or disapproved, motivating behavior through expectations of social rewards or penalties (Cialdini *et al.*, 2006).

Given our findings that descriptive and injunctive norms function differently across contexts, campaign strategies should be context-specific. To promote fish consumption at home, activating injunctive norms may be particularly effective. Highlighting that fish consumption is widely approved by parents could tap into children's motivation to gain social approval (Cialdini *et al.*, 2006). When the desired behavior is already relatively common, as our results suggest for fish consumption at home, it may be particularly persuasive to activate both descriptive and injunctive norms simultaneously (Cialdini *et al.*, 2006). A message combining "most children eat fish at home" (descriptive norm) with "this behavior is widely approved by parents" (injunctive norm) could reinforce the behavior effectively by engaging two motivational sources.

Designing school-based campaigns poses more challenges, as normative influences vary with age and require message tailoring. For younger children, who respond more to peer behavior, campaigns should emphasize descriptive norms, such as "many children enjoy eating fish at school." However, for adolescents, activating descriptive norms should be avoided. First, our findings show that adolescents' fish consumption is more influenced by injunctive norms, than descriptive norms. Second, because adolescents are generally more reluctant to eat fish at school, highlighting descriptive norms may backfire. If a message suggests that many adolescents avoid eating fish at school, it could signal that such behavior is rational. This may normalize and even strengthen the behavior the campaign seeks to change (Cialdini *et al.*, 2006). Thus, campaigns targeting adolescents may be more effective when emphasizing injunctive norms, framing fish consumption as socially approved by peers. Such messaging appeals to adolescents' sensitivity to peer approval and can motivate change through the promise of social rewards.

Limitations and future research. This study has certain limitations that warrant consideration. First, we did not control for dietary orientations such as allergies or vegetarianism, which could influence both willingness and ability to consume fish, particularly in school settings. Future studies should account for these factors to minimize bias.

Second, our reliance on self-reported perceptions of social norms, especially those concerning parents, raises the possibility of social desirability bias. While we attempted to mitigate this by emphasizing anonymity and encouraging children to complete the survey independently, without parental assistance, such biases cannot be entirely ruled out.

Third, we assessed norms for parents and peers in general. However, normative influences likely differ between mothers and fathers or between close friends and acquaintances. Our choice to keep the survey concise and suitable for children limited more nuanced measures. Future studies could explore these within-group variations for a more detailed understanding of normative influences at home and school. To comprehend more fully the pathways through which social influences operate, the role of mediators such as attitudes toward the focal behavior (fish consumption), perceived behavioral control (ability/possibility to consume fish) and awareness of consequences (beneficial/harmful effects of fish consumption) should be examined (cf. Severijns *et al.*, 2023).

Finally, the study was conducted among Icelandic children aged 6–15 years. The extent to which our findings generalize to other cultural contexts remains an open question. Cultural variation may explain some of the inconsistencies in prior research. For example, recent studies show social norms can be culturally contingent in domains such as luxury

consumption (Balabanis *et al.*, 2024), counterfeit product purchase (Kononova *et al.*, 2024) and proenvironmental behavior (Culiberg and Elgaaied-Gambier, 2016). A cross-cultural comparison of normative influences on children's food consumption remains largely unexplored and could provide valuable insights.

As previously noted, inconsistencies in the results of previous studies may also stem from variation in the food categories examined. While most studies focus on snacks, fruits or light meals, the present study centers on fish, more commonly associated with main meals. It is also possible that social norms play different roles in promoting healthy choices versus discouraging unhealthy ones. Future research should investigate how normative influences vary across different food types and between healthy and unhealthy choices to better understand underlying mechanisms.

Conclusions

This study contributes to the literature by examining how social norms, both descriptive and injunctive, interact with context and age to influence children's fish consumption. We found that both types of norms positively affect behavior in both the home and school environments. However, the relative influence of each norm type varies by context. At home, injunctive norms from parents are more influential, whereas at school, descriptive norms from peers are more impactful.

In addition, we found that children's age moderates the influence of social norms in school settings but not at home. While parental influence remains stable across age groups, peer influence shifts. Younger children are more responsive to peers' actual behaviors (descriptive norms), whereas adolescents are more influenced by perceived peer expectations (injunctive norms).

These findings underscore the importance of considering both context and age when designing interventions aimed at promoting healthy eating habits among children and adolescents. Future research should continue to investigate the contextual and developmental nuances of normative influence, including cross-cultural perspectives and food category specificity.

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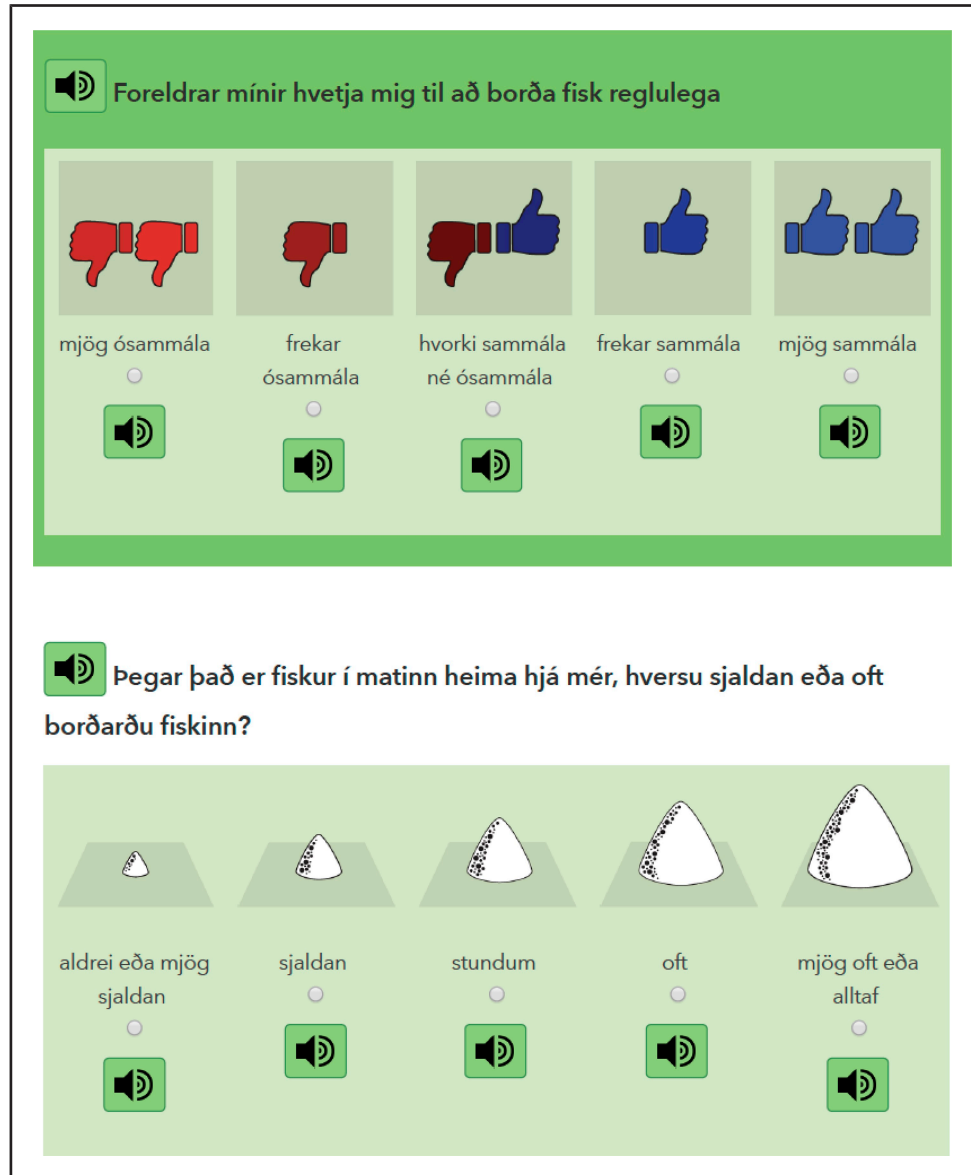
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Figure A1 Examples from the software showing speech synthesizer icon and pictorial responses



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