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Exploring the influence of family on adolescents' seafood consumption choices

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Abstract

Seafood in the adolescent diet has many benefits, yet a number of adolescents do not consume the recommended levels. Despite this the consumption of seafood by younger consumers has received scant attention in the extant literature. Previous studies on adolescents' food-related behaviour tend to focus on general choice mechanisms or perceptions of food and mainly relate to fruit and vegetable intake. The present study seeks to address this gap through investigating the impact of family upon the consumption of seafood by younger consumers through exploring adolescents' attitudes and behaviour in regard to eating seafood. Utilizing an exploratory qualitative methodology, seven focus groups of adolescents aged 13–19 years were conducted at two schools in South West England. Discussions covered a range of issues related to adolescent seafood consumption. The use of thematic content analysis found that the family, and parents in particular, exert high levels of influence over adolescents' consumption of seafood both at home and when dining out. The parent who does the shopping and cooking has the greatest role. Sibling preferences and dietary choices also influence whether seafood is served in the home. Of value to researchers and management are the insights gleaned into the influences on adolescents' attitudes towards and behaviour in regard to eating seafood. In particular, encouraging seafood consumption will rely upon interventions aimed at both parents and children and need to take into account adolescents' diet and lifestyle preferences, while also acknowledging the influence of peers and the school food environment.

KEYWORDS

adolescents, attitudes, behaviour, family influence, seafood consumption

1 | INTRODUCTION

In recent times, the importance of the social environment on children's and adolescents' food choices and eating patterns has been recognized (e.g., Adamo & Brett, 2014; Larsen et al., 2015). Past research highlights that a variety of family factors influence the eating behaviours and attitudes of children and adolescents (Larsen et al., 2015; Nicklas et al., 2001). Children and particularly adolescents are also influenced by what their peers eat (Patrick & Nicklas, 2005). As such, eating behaviour can be viewed as a function of the social environment (Story, Neumark-Sztainer, & French, 2002). Early childhood represents a critical time in the development of health behaviours

(Adamo & Brett, 2014), and given eating behaviours initiated in childhood are likely to continue into adulthood (De Backer, 2013; Branen & Fletcher, 1999), it is important to instil healthy and nutritious consumption habits from a young age. While it may be "easier" to do this in younger children when parental influence is greater, it is important to recognize the determinants of food choice for adolescents as they become more autonomous, move away from parental influence, and increasingly make decisions around their own nutrition (Lipsky et al., 2015; Story et al., 2002).

Research into healthy food choices often focuses on fruit and vegetables (e.g., Carfora, Caso, & Conner, 2016; de Jong, Visscher, HiraSing, Seidell, & Renders, 2014; Di Noia & Byrd-Bredbenner, 2013; Stok, Ridder, Vet, & Wit, 2013), but intake of healthy lean protein such as seafood is also important to the diet. The consumption of fish, and oily fish in particular, has been found to be useful for both skin and weight management, two issues that are of particular concern to adolescents, for whom skin problems and being overweight may lead to low self-esteem and reduced mental well-being (McLeish, 2013). Inclusion of seafood in the adolescent diet is beneficial, given it is high in Vitamin D which is essential for good skin and its lower fat content which may help reduce obesity, a growing problem, especially among young people (Allman-Farinelli, Chey, Bauman, Gill, & James, 2008; Hebden, Chey, & Allman-Farinelli, 2012; Lobstein & Dibb, 2005). Fish also has other benefits for the adolescent diet, since it is reported to enhance cognitive performance and academic achievement (Groot, Ouwehand, & Jolles, 2012; Kim et al., 2010). The promotion and management of healthy eating among young people can be seen as a significant objective in managing public health (Reisch & Gwozdz, 2011) and increasing seafood consumption should be included as part of this. To date limited research has focused on U.K. adolescent seafood consumption, and a better understanding of influences on adolescents and their food choices is needed to identify effective dietary interventions to encourage healthy eating behaviours.

The present study seeks to fill a gap in the existing literature by examining adolescents' attitudes towards and behaviour in relation to consuming seafood (defined as all fish and shellfish available for human consumption), and the role of the family in influencing these choices. This paper begins with a review of the extant literature related to seafood consumption and adolescent food choice. Next, the study's methodology is presented, before discussing the key findings from the data. Limitations and directions for future research are outlined.

2 | CONCEPTUAL BACKGROUND

2.1 | Benefits of seafood consumption

The health benefits of eating seafood are widely recognized (Tabbakh & Freeland-Graves, 2016). A diet rich in fish protein has much less saturated fat than meat and therefore reduces the risk of cardiovascular disease. In addition, the omega-3 unsaturated fatty acids typical of oily fish are positively beneficial for the cardiovascular system, and for neurological health and development (Bonafini, Antoniazzi, Maffeis, Minuz, & Fava, 2015; Christenson, O'Kane, Farmery, & McManus, 2017; Daviglus, Sheeshka, & Murkin, 2002; Kim et al., 2016). Fish is also a rich source of micronutrients including calcium, iodine, magnesium, selenium, copper and zinc (Calderon-Garcia et al., 2013; Sheeshka & Murkin, 2002). These health benefits have encouraged various national and international bodies to make recommendations for fish intake in order to promote healthy eating (NHS, 2018; US Food and Drug Administration, 2014). Perceptions of the actual quantity of fish necessary to promote health vary considerably across countries, dependent upon the availability of fish and its prominence in the national diet, with a review of 14 countries revealing 97 g (in Georgia) to 550 g (in Greece) per head per week (Thurstan & Roberts, 2014). In the United States, the recommendation is two "average meals" (6 oz; 170 g) per week, avoiding species high in mercury (US Food and Drug Administration, 2014). In the United Kingdom, the recommendation is for two 140 g portions of fish per week, of which one should be an oily fish (Food Standards Agency, 2010). However, a study of day-to-day food choices in the United Kingdom found that fish, even when welcomed in the diet, is seen, along with vegetables as involving complicated and time-consuming preparation, and tends to be replaced by convenience foods (Carrigan, Szmigin, & Leek, 2006).

Measuring seafood consumption accurately at the national, local or individual level is difficult given the self-reporting of consumption behaviour and fish often being consumed as a minor ingredient (e.g., anchovy on a pizza) rather than the main component of a meal. However, it is likely that many people fall short of their national recommended minimum, especially in Europe. The World Health Organization (2009) attributes 2.4% of the burden of noncommunicable disease in the European Region to a generally low intake of fruit and vegetables. However, their argument, that nutritional factors from these foods tend to reduce blood cholesterol and hence ischaemic heart disease is equally relevant to fish consumption (see Daviglus et al., 2002). Notwithstanding this, the health benefits of fish are much less widely discussed than those of fruit and vegetables, and consequently the health benefits of fish are less prominent in public awareness (Laguna-Camacho & Booth, 2015). Even for fruit and vegetables, where awareness of health benefits is higher, it is reported that more than 40% of consumers find it difficult to meet the minimum intake recommendation of five portions per day (Mintel, 2012. This is probably especially true of adolescents, who, even in Southern European countries, were reported as eating a less "Mediterranean" diet (defined as including high consumption of fruits, vegetables, legumes and cereals and a moderate consumption of fish) than in previous years (Grosso & Galvano, 2016).

2.2 | Seafood consumption and adolescents

Limited information is available about adolescents' fish consumption. In the United Kingdom, this would certainly be less than Government

recommendations (Groot et al., 2012) and probably less than the general population, since for example it is known that individuals aged 16–24 years are less likely than other age groups to meet the five-a-day recommendation for fruit and vegetables (Mintel, 2012). It has been shown that adolescents often eat snacks, especially in front of the TV, and given the availability of healthier snacks containing fruit or vegetables, and energy-dense snacks, they tend to prefer the latter (Pearson, Griffiths, Biddle, Johnston, & Haycraft, 2017). However, the picture is more complex and perhaps less bleak than this suggests, since access to food outlets, for example, to buy lunch while at school seems to have a (slight) positive effect on dietary quality (Clark et al., 2015).

Several studies have developed fish products and then evaluated them with adolescents (Altintzoglou, 2010; Altintzoglou et al., 2010; Altintzoglou, Sveinsdottir, Einarsdottir, Schelvis, & Luten, 2012) and it has been shown that this approach may increase young people's positive attitudes towards eating fish (Altintzoglou et al., 2015). Studies of the food-related behaviour and attitudes of adolescents have tended to focus on general aspects, such as the mechanism of choice (Nørnberg, Houlby, Skov, & Peréz-Cueto, 2016) or perception of food and eating behaviour. Most of the research studies discussed above dealt primarily with fruit and vegetables, rather than fish. Yet fish consumption is arguably more important for the health of adolescents than for other segments of the population. Adolescents, who are undergoing a major change in tastes and food preferences, also offer an opportunity to counter negative factors such as food neophobia and build beneficial food attitudes and habits in a way that will persist through adult life (Caine-Bish & Scheule, 2009). It is easier to build new behaviours than to change existing ones (Pearson et al., 2017) and targeting adolescents is likely to be more facile and more lasting than current government initiatives, which mostly aim to inform the public as a whole, without considering the different needs, attitudes and perceptions of particular age groups and consumer segments.

Adolescents' fish consumption is often limited by habit and unfamiliarity, due to low home consumption (Groot et al., 2012; Honkanen, Olsen, & Myrland, 2004), and by negative perceptions of the sensory qualities of fish, that is, the smell, the appearance, and the inconvenient bones (Olsen, 2004; Rortveit & Olsen, 2009). Perceived difficulties of preparing and cooking fish also make it a less attractive option (Verbeke & Vackier, 2005). Adolescents are prone to food neophobia, which can be a further barrier to fish consumption over and above unfamiliarity (Flight, Leppard, & Cox, 2003). Adolescents seem to acquire neophobia from parents and it is known to decrease with age in girls, but not in boys (Guzek, Głąbska, Lange, & Jezewska-Zychowicz, 2017). It may also reduce overall protein intake, perhaps by limiting the intake of less frequently encountered high-protein foods, such as seafood (Roßbach, Foterek, Schmidt, Hilbig, & Alexy, 2016). Food neophobia is negatively correlated with the frequency of consumption of fish and also of fruits and vegetables (Knaapila et al., 2011).

Adolescents frequently rely on snacks, eaten in front of the TV, and tend to prefer energy-dense snacks over healthier options containing fruit or vegetables (Pearson et al., 2017). However, conditions at home, particularly the mother's knowledge and attitudes about nutrition, may encourage adolescents' healthy eating in terms of fish, fruit and vegetables (Tabbakh & Freeland-Graves, 2016). With or without parental involvement, adolescents tend to disregard their long-term health in favour of other concerns, and this tends to affect their food choices (Neumark-Sztainer, Story, Perry, & Case y, 1999).

2.3 | Influences on adolescent seafood consumption

Research suggests that parental influences and the family environment are key determinants in food enculturation and the formation of early eating habits (Campbell & Hesketh, 2007; Van Cauwenberghe et al., 2010; Woodruff & Hanning, 2009). The family may influence food choices by modelling eating behaviours, by offering specific types of food, by forming attitudes towards specific foods and through social interactions during meals (Campbell & Hesketh, 2007; Hingle, O'Connor, Dave, & Baranowski, 2010; Kröller & Warschburger, 2008). Young people tend to adapt their decisions to the social norm to avoid social discrimination and preempt teasing, and their food choices in particular should be considered in such social contexts, since of necessity they must balance self-image with conformity and perceived social acceptability (Stead, McDermott, MacKintosh, & Adamson, 2011). Since social acceptability includes all or many of the significant people in a young person's social environment, it includes the whole peer group as well as friends and family (Bandura, 2002).

The home environment, and especially maternal nutrition knowledge is known to encourage healthy eating among adolescents, and this extends to both fruit/vegetables and fish (Tabbakh & Freeland-Graves, 2016). Positive parental attitudes are transferred and result in autonomous motivation towards eating fish, which is channelled into positive attitudes and behaviour (Dwyer et al., 2017). Parents may use different strategies: coaxing, coaching and coercing to persuade adolescents in matters of food choice (Bassett, Chapman, & Beagan, 2008). Boys are reported to prefer protein-rich foods such as meat, fish and poultry, while girls tend to prefer fruit and vegetables (Caine-Bish & Scheule, 2009). As children mature their food preferences change (Nicklaus, Boggio, Chabanet, & Issanchou, 2004) and there is a tendency to move towards more high-energy and convenience foods, especially snacks, to traditional meals (Casini, Contini, Marone, & Romano, 2013; Sjöberg, Hallberg, Höglund, & Hulthén, 2003).

Parents tend to regard fish more positively than adolescents (Olsen, Heide, Dopico, & Toften, 2008), and this may be partly due to them having a better understanding of the principles of healthy eating and being more concerned with their own long-term health (Laguna-Camacho & Booth, 2015). According to Olsen (2004), fish consumption is driven more by perceptions of moral obligation and health than by taste and preferences, although this is disputed by Verbeke and Vackier (2005). Other factors that inhibit fish consumption include

unfamiliarity, due mostly to a low consumption frequency in the home environment (Groot et al., 2012; Honkanen et al., 2004). The attitudes of friends (Prell, Berg, & Jonsson, 2002) and family (Dwyer et al., 2017) are known to influence food choices; for instance, fish may be considered not "cool" by contemporaries, while parents may find it too expensive for the family food budget (Ruxton, 2011).

Adolescents may be more concerned with health than younger children, but still tend to consume less fruit and more soft drink (Warwick, McIlveen, & Strugnell, 1999), perhaps because of their relative independence from parents and the increasing importance of peers in their social environment (McGinnis, Appleton Gootman, & Kraak, 2006). Those who seek to make their dietary habits healthier may experience conflict between health-conscious and indulgent behaviours (Bech-Larsen, Jensen, & Pedersen, 2010). Thus, although adolescents apparently have a reasonable awareness of healthy eating, it is not known whether they choose less healthy foods as a result of poor nutritional knowledge, optimism bias or false evaluations of their impact on health or on other factors, such as the influence of family or peers. Parents are known to have a significant influence on their children's eating habits and may play an important role in preventing the emergence of unhealthy eating (Li & Wang, 2008; Pahkala et al., 2010). Adults tend to pass on what they themselves learned in childhood to their own children, and they may influence their families' eating habits both directly and indirectly, for example, through the types and amounts of food they make available, through mealtime routines, and using food as a reward or punishment (Whear & Axford, 2009).

Healthy eating is dependent upon both knowledge and skills, since it is impossible to produce palatable food that meets dietary recommendations without food preparation skills (Condrasky, Corr, & Cason, 2007). Inadequate food preparation skills compromise dietary quality, especially combined with shortage of time, since these factors render families more likely to consume fast food, ready-prepared meals, and processed snack foods that tend to be relatively energy rich and nutrient poor (Boutelle, Fulkerson, Neumark-Sztainer, Story, & French, 2007). In this connection, the nutritional health of young people is significantly associated with the frequency of eating shared family meals (Hammons & Fiese, 2011). Dining together as a family not only tends to improve the nutritional quality of meals, but also socializes young people into healthier eating habits (Fritz, 2006). A review of intervention programmes related to the eating habits of young people revealed that interventions were more successful when parents were involved, as opposed to interventions that involved only the young people (Hingle et al., 2010; Kelishadi & Azizi-Soleiman, 2014).

Several studies of seafood consumption in adolescents have sought directly to influence behaviour, for instance by developing new fish products, making fish available in schools, or by modifying the presentation of fish products in catering outlets (e.g., Altintzoglou et al., 2010; Altintzoglou et al., 2015; Altintzoglou et al., 2012). Researchers have also sought to relate healthy eating including fish consumption to demographic characteristics (Rahman et al., 2015) and specifically to socio-economic status (Fismen et al., 2016). The effect of the physical environment, specifically the type and availability of food outlets, has also been considered in relation to fish consumption (Clark et al., 2015). Wills, Backett-Milburn and colleagues have studied food consumption in the context of the family and peer group, among socially disadvantaged teenagers (Wills, Backett-Milburn, Gregory, & Lawton, 2008) and their parents (Backett-Milburn, Wills, Roberts, & Lawton, 2010). Amiraian and Sobal (2009) examined adolescents' attitudes to food in dating situations. While the role of social norms and moral obligations has been studied in respect to seafood (e.g., Olson, 2001; Tuu, Olsen, Thao, & Anh, 2008), limited research has focused on the impact of family or friends upon the consumption of seafood by younger consumers, and the present study seeks to address this gap in the existing literature by investigating the influences on adolescents' attitudes towards and behaviour in regard to eating seafood.

3 | METHOD AND PROCESS

Upon approval from a University Ethics Committee, seven focus groups of adolescents aged 13–19 years, (30 students in total) were conducted at two schools in South West England. The focus groups lasted from 1 to 1.5 hr and were conducted at the relevant schools with a teacher present. A separate research participant information sheet was provided for both parents and students, consent was sought from parents/guardians and assent gained from the students.

To gather "top of mind" associations devoid of group think, the focus groups commenced with projective research techniques including two sentence completion exercises ("When I think of fish/seafood, I …" and "Eating fish/seafood is …") and then asking students to draw a picture which explains what they think about eating fish/seafood. The students were then asked about their current seafood consumption, preferred species and formats, consumption occasions, attitudes towards seafood including drivers and barriers to consumption, who influences their eating, their childhood fish consumption, and what they considered would encourage U.K. teenagers to consume more seafood.

Focus groups were audio recorded and transcribed verbatim. Data was analysed through thematic content analysis using NIVO 11 to assist with data organization.

4 | FINDINGS

4.1 | Seafood consumption

Findings revealed that the majority of adolescents in this study like fish and typically in less healthy formats such as fish and chips (battered cod), breaded cod, sushi and calamari (squid). The students generally reported good levels of seafood consumption, with some students consuming seafood a few times per week, however, a few reported very low levels of consumption, about 1–2 times per month (See Table 1).

TABLE 1 Self-reported seafood consumption frequency

Age	Male	Female
19 years	R1: 5 times per week	
17 years		R2: 1–2 times per month
		R3: 4–5 times per week
16 years	R4: 1 time per fortnight	R5: every now and then
		R6: mostly at restaurants
		R7: 1 time per month
		R8: rarely
		R9: 1–2 times per week
15 years	R10: 1 time per week	R15: Fish battered yes, seafood no
	R11: 3–4 times per week	R16: 1–2 times per week
	R12: 1 times per week	R17: 1–2 times per week
	R13: 2 times per week	
	R14: 1 time per week	
14 years	R18: 1–2 times per month	R22: no, but I do eat tuna
	R19: 3–4 times per month	R23: 1 times per week
	R20: 2–4 times per week	
	R21: 2–3 times per week	
13 years	R24: 1 time per fortnight	R27: 1–2 times per week
	R25: not too often	R28: 1 time per month
	R26: 1–2 times per week	R29: sometimes for dinner and maybe lunch
		R30: 1 time per week

Abbreviation: R, respondent.

4.2 | Family influences on seafood consumption

Students were asked who and what influenced their seafood consumption. Parents were by far the most mentioned influence on what adolescents ate and how they thought about food. This was seen partly as simple provision: "I eat what my Mum will cook" and "Mum's choice, she's got all the power." The link between what parents eat and what a child is exposed to was evident:

> *I think … parents … really influence what their child eats. To be honest, if my parents didn't eat seafood, I doubt if I would have tried it.*

Nevertheless, some adolescents may eat fish in spite of their parents' preferences:

> *My parents are not exactly the biggest fish fans … We don't have it, so I don't think I have ever actually tried seafood before … I eat tuna in a sandwich or on its own … three of four times a week.*

Moreover, parental influence may be actively resisted:

> *My mother and father cared, but eventually they just don't care, well they do care, but not as much, they are not going to get OCD [obsessive compulsive disorder] if I don't eat fish.*

An older adolescent resisted her mother's influence in a similar, if more subtle, way:

> *If I was having dinner … and my Mum was having her dinner and that [was] fish, I'd think, why don't I have it because it's really nice and I know it's so much healthier compared to what I have. But then I'd never say "Oh Mum do you reckon I could have that fish?" because … I don't know, it's just not my favourite.*

When questioned about the extent to which they could choose what to eat at home, many of the adolescents stated there was the possibility of influencing meal choices, "If I like certain stuff then my mum will cook it," and "I think if I liked fish more, we would eat more fish as a family."

> *My Mum kind of gives me a choice, she just looks at what's in the fridge and she says do you want this or do you want that?*

> *A lot of the time it is only my Dad and I, so he tends to just ask me what I want. He has quite a wide range of things he likes, so he doesn't really mind*

However, such choice could also be a matter of balancing family members' likes and dislikes in particular those of other siblings, "My brother prefers meat, so sometimes we have meat," and:

> *My little brother, he does not like seafood, so we don't eat it as often as we used to, when we do have seafood, we cook him a piece of chicken or something like that.*

The balance might also swing the other way:

> *My sister, a few years ago, became a pescatarian, so now all of our meals are either fish or Quorn …*

Choice also extends to dining out at restaurants and when selecting menu items, although this might be limited to special occasions:

> *My mum will ask us what we feel like and we will make a decision [of which restaurant] from there,*

> *Normally my parents just choose … somewhere, but I do sometimes get to choose … on my birthday and whenever I'm celebrating something.*

Adolescents' seafood consumption is determined by parental preference, and this may be more critical when adverse reactions to seafood are present:

> *My Mum hates seafood, but my Dad loves it and he will try to get me to eat more things,*
>
> *My mum doesn't like the smell being in the house.*

The students were asked about their role in shopping for food and their influence over whether seafood was purchased. Again, some level of choice was evident:

> *My Mum would say … "Oh I'm going shopping today. Do you want anything?" Or she'd say … "Do you want anything for dinner later on in the week?" And maybe I'd say like "Get some potatoes or some pies" or something. But I would never say "Can you get me some fish?"*

However, for many the opportunity to influence the choice of food during a shopping trip was a lost opportunity:

> *The only time I really go is if Mum is doing something else that she needs me there for … like if we are going to the sports shop and I need to get some trainers or something, then she'll do the shopping whilst we're out just to get it done … but I don't really pay much attention as … my Mum usually picks what I eat and I just eat whatever.*

Parents' shopping patterns and budgets could restrict the adolescents' diet: "My parents [get the] shopping, I would like to have more, I like seafood," and "My Mum would ask me what I want for dinner. I point them out [seafood], but my Mum does whatever is on the shopping list." Adolescents noted the practicalities such as cost; "It is so expensive; my parents get what they want to buy" and this could limit adolescents' seafood consumption: "I can't just choose—I would choose to eat a lot more [seafood] if I could."

The frequent statement "My Mum does most of the cooking" hides issues of which the adolescents were unaware, that is, food items such as fish that require extensive preparation, or are disliked by the person who cooks: "My mum hates seafood," are less likely to feature in meals. On the other hand, parental influence involves role modelling and coaxing:

> *My Mum likes quite a lot of fish and [she] would always say "Try this … try this … do you want to try some of this fish pie?" or whatever it is. And that makes me think "Oh I really like that."*

Some of the respondents stated their eating habits had been set during childhood: "I used to eat fish when I was young; it became a habit of eating fish." [Student born in Hong Kong] and "when I was little … I did not like it … it put me off … smell and how it tasted." Other students reported changing consumption frequency since childhood, with some students eating more seafood as they acquired a taste for it and realized the health benefits, while others eat less seafood due to dislike and as parental influence waned. A number of the younger adolescents (13–14 years) commented that they ate more seafood now than when they were younger and one said that eating it made them feel "grown up and posh". Conversely, a few also felt they had grown out of the habit of eating fish as they grew older:

> *More when I was younger—we went to the fish and chip shop every Monday, but now I don't do that. I don't know why.*

Some reported a gradual change in their tastes, building on childhood experience:

> *I think I've always eaten seafood, prawns especially … but then sushi, mussels have come more recently. Like when I said about the seafood box [Mother buys], that has lots of shellfish in it … like mussels and I hadn't actually tried them before …*

However, many felt their tastes had changed markedly since childhood, becoming more or less oriented to seafood:

> *I hated all seafood. I just hated it … just mostly the taste … and then I started trying some Sushi and it just all went from there, I started trying a lot more. It was what was put with it … doesn't really mask the taste but makes it better I think."*
>
> *"I ate way more when I was little, because my Dad would just give it to me and he would say "just try this it is really nice"*

This awareness of what fish actually is was associated with being concerned with what the fish looked like on the fishmonger's slab: "I eat a lot less than when I was younger … I know more about food, where it comes from, how they kill it, how they get it," and "If you go past the fish counter and they've all got the heads on." Low seafood consumption could also be a matter of negative expectations around sensory qualities: "I have not tried prawns, crab etc. I don't think my mum would get them, and the texture … I think they would be slimy."

National cultures that were more familiar with fish tended to encourage its consumption among all members of the family, including the adolescents, as in the following two excerpts:

> *"Mum cooks fish for the family who come from France … they like fish there," and:*
>
> *"my parents … come from different nationalities with different cuisines. My mum is from Brazil and eats a lot of seafood … I have it 3-4 times a week."*

Sometimes culture was internalized, rather than being ascribed to the parents: "Where I am from [Bermuda], we get a lot of fresh fish because I am from an island. I like fried fish." The British national culture should not be forgotten in this context: "most people do it [eat seafood] because it is traditionally British … everyone virtually goes to fish and chips."

4.3 | The influence of the social environment

While parents appear to be the primary influencer of adolescent seafood consumption, friends also had an influence on what the adolescents ate: "if like I have five friends and they all pick whatever, then I am more likely to have that," and "sometimes, if there is a meal, you will hear someone go "'Err, I'm not having that' then you'd have the pasta." This tended to contrast with family meals out: "If I am out with family, we probably go to restaurants more, but with mates it's fast food," and sometimes this meant not eating the preferred, healthier food:

> *If my friends go somewhere I go with them, it depends where it is really. A lot of my friends like McDonalds and stuff like that. I don't really like it so they kind of influence me on that.*

Fast food options such as Pizza, McDonalds and Subway were all mentioned in the context of friends, and comments such as "I eat more unhealthy if I am with my friends," implies bravado or a group reaction against perceived parental pressure. The group feeling was also woven together with sharing and eating cheaply:

> *When I go out with my friends to town we normally go to Maccies [McDonalds] and we get the chicken nuggets. And the price also affects it as well … you don't want to waste all your money on food—we normally get the 20 chicken nuggets and split it.*

However, friends could also be an influence for more adventurous eating: "I go with my friend every Friday, we go to Wagamama and we do order a lot and we do love it" and this might include seafood:

> *Yeah when we're out eating somewhere I tend to try something that one of my friends has and I like it … so … I tried like lobster … because … my friends were eating it.*

Sometimes, the influence of friends was subtler:

> *My friend's a vegetarian … so she does eat like tuna and stuff. And if she has like … a tuna sandwich, then I eat a tuna sandwich as well or I try some of hers … so maybe she's a little bit of an influence there.*

What was eaten at home: "When I am at home, my family is … into healthy foods, so we tend to eat a lot of fish," was felt to be in stark contrast with school: "At school, you eat what you are given." This was reinforced by embarrassment or obedience to institutional norms:

> *Obviously you're in a school environment with teachers that aren't your Mum, so you can't really get away with saying "Oh I don't want it",*

In this way, school meals could change adolescents' attitudes and eating behaviour:

> *It's quite strange, because I used to be like so fussy, and … not want to try anything … I think maybe it's just growing older and like being in school and maybe having to eat certain things in school. Because in my old school I used to have … like school lunches and stuff, so I'd have to eat that.*

School was perceived to be a source of healthy eating, but for some adolescents it seemed the only place where fish was eaten: "We only get fish in school, so basically I don't have the choice about eating fish," and "I eat a lot more fish when I am staying in the UK because of school." Schools in the United Kingdom serve fish on Fridays, but mostly in a less healthy format such as fish and chips:

> *If the others are having fish and chips I … would have like chicken nuggets or pie or whatever … Maybe it's the batter … Much as I like that stuff, I'd prefer to have like crayfish or like prawns or lobster or stuff like that because … it's more healthy … It's not covered in grease.*

Thus, school meals were an encouragement to eat more fish for some, and a source of fish for others who otherwise never had it, but were generally not regarded as promoting healthy eating.

The key influences in relation to both family and the social environment on adolescent seafood consumption choices are summarized in Table 2.

5 | DISCUSSION

The findings indicate that family exerts high levels of influence over seafood consumption of adolescents at home and when dining out. In particular, the parent who does the shopping and cooking has the greatest role. In support of Patrick and Nicklas (2005), food preferences of the parent(s) were seen to play a critical role in the extent to which adolescents are exposed to certain food types—for example, where a parent actively disliked seafood, or the unpleasant associations they had with it (e.g., smell), the less likely it was to be eaten in the household environment. Given parents create the food environment for their offspring, having access to, and being exposed to, different foods and formats of food is key to developing their tastes and avoiding food neophobia (Kremers, Bruga, de Vriesa, & Engels, 2003).

TABLE 2 Summary of key influences on adolescent seafood consumption choices

Family influences over adolescent seafood consumption	
Parental influence	• Parents are the primary influence on adolescent food consumption • Parental influence involves role modelling and coaxing • Eating habits are set during childhood • Seafood consumption is determined by parental preference, with this being more critical when adverse parental reactions to seafood are present • Some adolescents consume seafood regardless of parental preference • Parental influence may be actively resisted • Family budget restricts choice and seafood is perceived to be expensive
Sibling influences	• Choice can be a matter of balancing family members' preferences, likes and dislikes, in particular those of other siblings
Adolescents own influence	• Many influence meal choices including choice of restaurants, in particular for special occasions • Some level of choice during food shopping
Cultural influences	• National cultures more familiar with fish tended to encourage its consumption among all members of the family, including adolescents • Non-English cultures (France, Brazil, Bermuda, Hong Kong, etc.) more likely to consume fish
Influence of the social environment over adolescent seafood consumption	
Influence of friends	• Friends have an influence when eating out (typically less healthy options such as fast food) • Bravado or a group reaction against perceived parental pressure to eat healthily • Group feeling also woven together with sharing and eating cheaply • Friends could be an influence for more adventurous eating
Influence of school	• School perceived to be a source of healthy eating • At school, 'you eat what you are given'—compliance with institutional norms • School meals could change adolescents' attitudes and eating behaviour • For some, school was the only place where fish was eaten
Reasons for changing seafood consumption since childhood	• *Eating more*: acquired a taste for it; realised the health benefits • *Eating less*: dislike (of sensory qualities), reduced parental influence, grown out of the habit of eating fish, greater awareness of and concern for what happens to fish during catch and processing

Sibling preferences and dietary choices also influence whether seafood is served in the home. Adolescents were included in decision making processes around food-related items in the household and were often able to influence what was purchased and served at meal times, which is in accordance with previous research (Alm, Olsen, & Honkanen, 2015). Enabling children to have some choice and control of what they eat may make them like the food they choose (Altintzoglou et al., 2015), and guiding them to a choice between several healthy options may be beneficial in improving adolescents' diets (Alm et al., 2015).

Students in this study generally appeared to find their tastes changing as they mature, as found by Nicklaus et al., (2004). While past research states eating habits formed in the early years of childhood are likely to continue into adulthood (De Backer, 2013; Branen & Fletcher, 1999), this was not always the case for respondents in this study. As the influence of parents and family changes and lessens, students stated their eating behaviour and food trajectories altered (Lipsky et al., 2015). A number found they ate less seafood than when they were younger, but interestingly others found their consumption increased, and given the correct environment would experiment with new food types. Their association of seafood being something "posh and grown-up" to eat may be incorporated in future strategies along with the taste and health benefits.

In respect to seafood, the school may play a role in determining whether seafood is consumed, as many schools in the United Kingdom offer fish and chips on Fridays. Past research indicates that the nutrition climate within the school setting can have a positive influence on adolescents' healthy eating behaviours (Cvjetan, Utter, Robinson, & Denny, 2014) particularly in relation to fruit and vegetable consumption, and findings from this study indicate this could stretch to include seafood consumption as well. Furthermore Terry-McElrath, O'Malley, and Johnston (2014) found availability and accessibility to a salad bar within the school environment enhanced middle school green vegetable consumption. This research suggests that the school-based nutrition provision is working to offer a varied diet, and the availability of proteins such as fish is evident. However, the inclusion of fish in the diet, if in less healthy formats (e.g., battered cod), should be addressed. Moreover, knowledge that their children are eating fish at school may let parents "off the hook" in terms of serving healthier forms of fish at home. Schools could involve adolescents in the planning and design of their food formats in order to empower them, in so doing recognizing the school food environment can influence individual students' dietary behaviour.

While families influence determines seafood consumption at home, as past research indicated (McGinnis et al., 2006; Prell et al., 2002), peers seem to have a good deal of influence over food choices at school and when eating out of home. Previous studies highlight that peers can be unsupportive of healthy eating (e.g., Fitzgerald, Heary, Kelly, Nixon, & Shevlin, 2013) and while this study did not find peers being "unsupportive" per se, it did find on the whole they influenced the intake of less healthy food options. However, there were exceptions where peers encouraged more adventurous eating, or that of a particular diet, and hence these findings suggest that if adolescents' immediate social circle, for example, close friends and peers, are involved in dietary choices and interventions, then this may help overcome competing "unhealthy" influences.

6 | LIMITATIONS AND FUTURE RESEARCH

The research presented here is exploratory in nature and focuses on a small sample of adolescents residing in a southern coastal urbanization of the United Kingdom. Therefore, findings are not generalizable in the wider national or international context, so should be treated with caution. This limitation does however provide an opportunity for further research by replicating the study in other settings, for example, other U.K. cities or regions; different countries, and with a larger number of respondents to ascertain whether similar attitudes and behaviours towards seafood consumption are held by adolescents in these places.

The data used are recent, but cross-sectional in nature, and future research could look to implement a longitudinal study, allowing for greater understanding of how adolescent attitudes and behaviour may be influenced and alter over time, and hence produce richer insights. The inclusion of other demographic and psychographic characteristics may be beneficial to help further explain behaviour and attitudes towards seafood, for example, household composition, activities, interests.

7 | CONCLUSIONS

These findings evidence key influences on adolescents' seafood consumption. Given very little research has been undertaken in this area, this study contributes to understanding the adolescent population further and their attitudes and behaviour towards this food source.

The major influence over adolescents' seafood consumption was found to be family, with parents being the primary influence. Siblings and the adolescent themselves were found to influence both food consumption and shopping occasions through their preferences, likes and dislikes, however this did not necessarily indicate an increase in the selection of seafood. These findings in the context of seafood consumption supports the existing literature around the role of family in food enculturation (Campbell & Hesketh, 2007; Hingle et al., 2010; Kröller & Warschburger, 2008). Given the prominent level of parental influence over food choice, increasing seafood consumption among adolescents will rely upon the seafood industry and relevant government and health organizations communicating effectively with parents about the benefits of seafood in the adolescents' diet. However, given that adolescents have greater control over their food consumption as they emerge from childhood and mature through adolescence, strategies and interventions for influencing their dietary habits must reflect this changing balance of control and food trajectories (Fox & Ward, 2008; Lipsky et al., 2015).

The social environment in terms of friends and school also plays a part in influencing what adolescents eat. The influence of peers when eating out or at school should be considered (Stead et al., 2011). In line with recommendations from Altintzoglou's et al. (2012) study of young adults and seafood, this study emphasizes that understanding adolescents' food choices and what influences their food choices is critical for developing products and promotional strategies that reflect those choices and influences. School meals were found to have the ability to change adolescents' attitudes and eating behaviour as adolescents would eat what they were presented with through complying with institutional norms. Increased availability of a "healthier" (e.g., not fried and battered) range of seafood school menu items available throughout the week could encourage adolescents to consider this as a meal option. Furthermore, communication through advertising and education via schools to parents and pupils around the benefits of such food from "trusted" institutions such as the National Health Service may help increase seafood consumption among U.K. adolescents and their families.

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