Factors influencing mothers' decisions on whether to provide seafood during early years' feeding: A qualitative study

Sharon A. Carstairs, Leone C.A. Craig, Debbi Marais, Kirsty Kiezebrink

PII: S0195-6663(16)30532-3
DOI: 10.1016/j.appet.2016.10.010
Reference: APPET 3183

To appear in: Appetite

Received Date: 19 April 2016
Revised Date: 6 October 2016
Accepted Date: 9 October 2016

Please cite this article as: Carstairs S.A., Craig L.C.A., Marais D. & Kiezebrink K., Factors influencing mothers' decisions on whether to provide seafood during early years' feeding: A qualitative study, Appetite (2016), doi: 10.1016/j.appet.2016.10.010.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.
FACTORS INFLUENCING MOTHERS’ DECISIONS ON WHETHER TO PROVIDE SEAFOOD DURING EARLY YEARS’ FEEDING: A QUALITATIVE STUDY

Sharon A. Carstairs\textsuperscript{a}, Leone CA. Craig\textsuperscript{b}, Debbi Marais\textsuperscript{c}, Kirsty Kiezebrink\textsuperscript{d}

\textsuperscript{a}Health Services Research Unit, School of Medicine and Dentistry, University of Aberdeen, Foresterhill Campus, Aberdeen AB25 2ZD, UK.
\textsuperscript{b}Rowett Institute of Nutrition and Health, University of Aberdeen, Aberdeen AB25 2ZD, UK.
\textsuperscript{c}Warwick Medical School, University of Warwick, Coventry, CV4 7AL.
\textsuperscript{d}Division of Applied Health Sciences Postgraduate Education Group, School of Medicine and Dentistry, University of Aberdeen, Foresterhill Campus, Aberdeen AB25 2ZD, UK.

Corresponding author: Sharon A Carstairs email address: sharon.carstairs@abdn.ac.uk
FACTORS INFLUENCING MOTHERS’ DECISIONS ON WHETHER TO PROVIDE SEAFOOD DURING EARLY YEARS’ FEEDING: A QUALITATIVE STUDY

Sharon A. Carstairs\textsuperscript{a}, Leone CA. Craig\textsuperscript{b}, Debbi Marais\textsuperscript{c}, Kirsty Kiezebrink\textsuperscript{d}

\textsuperscript{a}Health Services Research Unit, School of Medicine and Dentistry, University of Aberdeen, Foresterhill Campus, Aberdeen AB25 2ZD, UK.
\textsuperscript{b}Rowett Institute of Nutrition and Health, University of Aberdeen, Aberdeen AB25 2ZD, UK.
\textsuperscript{c}Warwick Medical School, University of Warwick, Coventry, CV4 7AL.
\textsuperscript{d}Division of Applied Health Sciences Postgraduate Education Group, School of Medicine and Dentistry, University of Aberdeen, Foresterhill Campus, Aberdeen AB25 2ZD, UK.

Corresponding author: Sharon A Carstairs email address: sharon.carstairs@abdn.ac.uk
Abstract

The first year of a child’s life is a key period of transition from an exclusive milk diet to solid foods to meet growing nutritional demands. An increased requirement for nutrients includes the introduction of protein-rich solid foods, such as seafood, which additionally provides valuable omega-3 fatty acids. However, consumption of seafood is low in the British child population. The aim of this study was to identify maternal perceptions of the factors that can influence the decision on whether to provide seafood during early years’ feeding using a multi-method qualitative study design. A total of 26 discussions posted by mothers on parenting websites; Mumknowsbest, Mumsnet and Netmums, accessed July 2013, together with discussions from six focus groups (February-July 2014) in the North East of Scotland were included for thematic qualitative analysis. Discussions on the inclusion of seafood during the early years were centred across four interrelating themes; - food-related attributes, mother-centred aspects, family-centred aspects, and external information sources. Concerns regarding safety and mothers’ limited knowledge and skills on seafood were apparent from discussions; however, the practicalities of providing a cost effective family meal were also issues raised by mothers. An understanding of the numerous and sometimes contradictory influences on mothers’ decisions to include seafood during early years’ period could be used to develop strategies to help increase regular seafood consumption. In particular, ensuring formal information and guidance clearly addresses the safety concerns of mothers and the development of practical education schemes to encourage and teach cooking skills should be considered.

Keywords: seafood, infant feeding, early years, mothers, concerns, online forums

Abstract word count: 250

Word count: 6181 (Including quotes)
Introduction

During the early years the nutritional needs of infants markedly increase to meet the physiological demands for growth and development (World Health Organization 2009). This key life period involves the transition from an exclusive milk diet to the introduction of solid, complementary foods which provides essential nutrients to meet growing demands (World Health Organization 2009). This complementary feeding phase, also known as weaning, is a period in a parent’s life when dietary views and behaviours may change and when parents receive a wide range of advice and information on feeding practices (Bloomingdale et al. 2010). Parents both actively seek and passively gain advice and information on infant feeding from a variety of sources, such as health professionals, family and friends, and varying forms of media (Pridham 1990, Carruth and Skinner 2001, Sylvester and Wade 2004, Horodynski et al. 2007, Hoddinott et al. 2010, Hoddinott et al. 2012). Evidence suggests that mothers often use multiple and concurrent sources of information over time (Carruth and Skinner 2001); however, infant feeding decisions may also be influenced by parents’ socioeconomic backgrounds, with mothers of differing socioeconomic status relying on advice from different sources (Carruth and Skinner 2001, Gildea and Sloan 2009, Heinig et al. 2009). Amongst these resources, the rise of the internet has provided an expansive source of information and guidance for parents. Commercial and parenting websites have become an appealing method for parents in finding direction and advice in regards to many different aspects of early years’ feeding, such as the timing of introducing solid foods (Horodynski et al. 2007, Hoddinott et al. 2010, Porter and Ispa 2013). Interactive discussions, where there is an opportunity to share experiences with other parents, are described as vital resources and provide a forum for parents to anonymously ask questions they may deem as embarrassing or trivial (Hoddinott et al. 2010).

due to the role of docosahexaenoic acid (DHA) in the development and function of the nervous system (Innis, Gilley and Werker 2001, McCann and Ames 2005, Innis 2007). However, current UK consumption rates fail to meet the once a week oil-rich fish recommendations (Public Health England and Food Standards Agency 2014, Scottish Government 2015a) and we see a lower seafood intake compared to other meat types, such as red meat and meat products, in young children aged 4 to 18 months (Department of Health 2011). Despite a vast expanse of literature discussing the influences on seafood consumption in adult consumers (Leek, Maddock and Foxall 2000, Myrland et al. 2000, Olsen 2003, Olsen 2004, Verbeke and Vackier 2005, Olsen et al. 2007, Vardeman and Aldoory 2008, Bloomingdale et al. 2010, Pieniak, Verbeke and Schoolderer 2010, Birch and Lawley 2014), there is a clear gap in evidence on the influencing factors on seafood consumption during the early years period within the UK. The aim of this study was to explore the factors that mothers perceive influence their decisions on whether to provide seafood during early years’ feeding. To investigate this aim a qualitative approach was employed.

Material and methods

Focus group discussions with mothers of young children from the North East (NE) of Scotland and parenting internet discussion forums were used to explore the factors influencing their decisions on whether to provide seafood during the early years. The exploratory nature of this study demanded a qualitative approach to identify a broad range of factors that mothers perceived to influence their decision-making, thus focus group discussions were employed (Hennink, Hutter and Bailey 2011). However, with evidence indicating mothers commonly use parenting websites for information and advice (Skea et al. 2008, Hoddinott et al. 2010), this study also included online discussions. The natural discussions allowed a clear view of seafood-related discussions by mothers without the presence of the researcher possibly influencing the discussions (Tiene 2000). A lack of detail regarding the characteristics and demographics of the mothers engaging with online discussions however meant this method could not solely be used. The multiple methods permitted a broad scope of factors to be identified and thus saturation of themes could additionally be validated.
Data collection

**Internet discussions on parenting websites**

The range of parenting websites and online social networking sites reviewed was identified from previous research which identified commonly used and cited websites by UK mothers (Skea et al. 2008, Hoddinott et al. 2010) and comprised; Netmums, Mumsnet, Facebook (Emma’s Diary), Ask a Mum, Mumknowsbest, and Mumszone. We deemed publicly open discussions as ethically sound to include in this study. Websites were thus reviewed for their inclusion of a publicly open discussion forum or chat room where users and readers can search for topical information or post questions without requiring a membership. One website, Facebook (Emma’s Diary), was excluded from the survey due to the membership required to access the discussions.

Discussion threads were identified from the full website using the search terms; “fish” OR “seafood” AND “weaning” OR “toddler” OR “feeding” OR “introduction of foods”. Thirteen discussion threads including fish/seafood within the thread title were identified from the search in July 2013 and 13 further threads on general foods to give during weaning, which included discussions of seafood inclusion, were included for analysis. A total of 26 discussion threads from Mumknowsbest, Mumsnet, and Netmums were extracted for data analysis (Mumsnet n=17, Netmums n=8, Mumknowsbest n=1). Discussions were copied and pasted into Microsoft Word documents, citing the source, date of search and terms searched, where they were later cleaned of names and slang terms. Further details on the dates of discussion threads and the number of responses within these threads are provided in Appendix 1.

**Focus group discussions**

Six focus group discussions (FGD) were held in pre-existing baby/toddler groups across the NE of Scotland (n = 29 participants) where parents meet to gain support and allow children to play and take part in activities (February-July 2014). Groups were identified through internet searches (www.google.co.uk) and through Netmums.com ‘Local to You’ (www.netmums.com/local-to-you) group searches. The target population was mothers of children aged six months to four years across various socio-demographic variables, including groups in areas of; the least and most deprivation (Scottish Index of Multiple Deprivation (Scottish Government 2012e)); urban and rural areas (Scottish Government 2012e); and fishing and non-fishing communities (Scottish Sea Fisheries Statistics (Scottish Government...
The recruited groups achieved a selection of the socio-demographic variables (Table 1); however, due to the lack of rural areas classified within the most deprived quintiles equal numbers for each variable was not achieved. Two fathers were present at two separate discussion groups; however, their data was excluded to provide a single gender perspective.

Table 1: Focus Group Demographics

<table>
<thead>
<tr>
<th>Focus group</th>
<th>SIMD quintile&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Urban/Rural classification</th>
<th>Fishing/Non-fishing community</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old Torry, Aberdeen</td>
<td>1</td>
<td>Large urban</td>
<td>Fishing</td>
<td>3</td>
</tr>
<tr>
<td>Charleston, Dundee</td>
<td>1</td>
<td>Large urban</td>
<td>Non-fishing</td>
<td>3</td>
</tr>
<tr>
<td>Mastrick, Aberdeen</td>
<td>2</td>
<td>Large urban</td>
<td>Fishing</td>
<td>7</td>
</tr>
<tr>
<td>Johnshaven, Aberdeenshire</td>
<td>3</td>
<td>Accessible rural</td>
<td>Fishing</td>
<td>6</td>
</tr>
<tr>
<td>Charleston, Angus</td>
<td>4</td>
<td>Accessible rural</td>
<td>Non-fishing</td>
<td>5</td>
</tr>
<tr>
<td>Broughty Ferry, Dundee</td>
<td>5</td>
<td>Large urban</td>
<td>Non-fishing</td>
<td>5</td>
</tr>
</tbody>
</table>

<sup>a</sup> Scottish Index of Multiple Deprivation (SIMD) quintile refers to the most deprived areas of Scotland (quintile 1) to the least deprived areas (quintile 5)

Potential focus group participants were provided with an information sheet via a visit arranged with the organisers of the parent and child groups. A follow-up visit or telephone call was conducted with the group organiser to determine if the members of the group wished to participate. Written consent was obtained from each participant prior to the start of the FGD.

A topic guide (Appendix 2) was developed and piloted to guide the discussion. This topic guide was developed from the literature with a focus on the research question - to explore the perceived influences to mothers’ decision-making regarding seafood provision or exclusion. A single researcher (SC) facilitated each of the discussion groups to ensure consistency, whilst a trained observer (KK/LC) noted group dynamics. Each FGD took place at the pre-existing baby/toddler group at the group’s normal scheduled time and location. Qualified childcare was provided by the research team to allow the parents to take part in the discussion whilst the child continued in the normal group session. FGD were audio-recorded with the permission of the participants for accuracy of transcription and analysis.
Data coding and analysis

The focus group audio recordings were transcribed verbatim for thematic analysis. After initial reading of the transcripts and the copied internet discussion threads, the lead researcher (SC) developed a manual colour coding system. This system identified patterns and emergent themes across both data sources. Further immersion and exploration of the data by the lead researcher confirmed themes and further sub-themes. A second researcher (KK) reviewed the themes identified to confirm appropriateness and number.

Ethical approval

The study received ethical approval from the University of Aberdeen College Ethics Review Board (Project no: CERB/2013/11/958).

Results

Four main themes were identified from the focus group and internet discussions; food-related attributes; mother-centred aspects; family-centred aspects; and external information sources (Table 2). A breakdown of the emergence of themes across the focus group discussions and internet forums is presented in Appendix 3.
Table 2: The influences on mothers’ decisions on whether to provide seafood during early years’ feeding.

<table>
<thead>
<tr>
<th>Main theme</th>
<th>Sub-theme</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food-related attributes</td>
<td>Safety</td>
<td>Age appropriateness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salt content†</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mercury content</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bones</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Food poisoning</td>
</tr>
<tr>
<td></td>
<td>Sensory attributes</td>
<td>Smell</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Appearance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Taste</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Texture</td>
</tr>
<tr>
<td></td>
<td>Cost/value for money</td>
<td>Quality</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wastage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quantity#</td>
</tr>
<tr>
<td></td>
<td>Convenience</td>
<td>Quick to make</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ease to make</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Availability</td>
</tr>
<tr>
<td>Mother-centred aspects</td>
<td>Own preferences</td>
<td>Previous experience</td>
</tr>
<tr>
<td></td>
<td>Own instincts</td>
<td>Likes/dislikes</td>
</tr>
<tr>
<td></td>
<td>Confidence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Knowledge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moral obligation</td>
<td>Health</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Food variety</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Environment</td>
</tr>
<tr>
<td></td>
<td>Social norm</td>
<td>Tradition*</td>
</tr>
<tr>
<td>Family-centred aspects</td>
<td>Infant response</td>
<td>Likes/dislikes</td>
</tr>
<tr>
<td></td>
<td>Family meal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family members’ preferences</td>
<td>Partner</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other children</td>
</tr>
<tr>
<td></td>
<td>Habit</td>
<td>Frequency of consumption</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Species consumed</td>
</tr>
<tr>
<td>External information Sources</td>
<td>Family advice</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Friends advice</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Media</td>
<td>Mixed messages</td>
</tr>
<tr>
<td></td>
<td>Health professionals advice</td>
<td></td>
</tr>
</tbody>
</table>

* denotes the factors raised by fishing community focus group discussions only † denotes the factors raised by internet discussion forums only # denotes the factors raised only by focus group discussions
Food-related attributes
Mothers used the internet forums to ask their peers what foods are age appropriate to give during weaning and the early years:

“Remind me! DS2 [dear son 2] is just being weaned at 4.5 months, pureed carrots and the like, but I recall there are some things he shouldn’t have but can’t quite remember!! Can he have eggs at all – is it just soft boiled eggs he can’t have; honey is a no-no; wheat is a no-no; fish? Help!” (Netmums, P1)

Safety
Mothers were concerned with the safety of foods and the safety of providing seafood into the diet of their infant was mentioned across both the internet discussion forums and FGDs. In particular, mothers looked towards their fellow peers for guidance and reassurance of their choices, with the age of introducing different seafood species often being discussed as well as the types (i.e. different preservation types of seafood, such as canned, frozen, fresh) to give:

“offered them some prawns from my plate at the weekend (slathered in mayo) which they went for – that’s ok at 14months now isn’t it? (Mumsnet, P1)

Mothers in the internet discussion forums mentioned the high salt content in tinned and smoked seafood as something to avoid giving their child, and across both focus groups and internet discussions the presence of contaminants/toxins, such as mercury, within seafood was a concern. In addition, the presence of bones which could cause choking, and the risk of food poisoning and allergic reactions was also discussed in regards to the safety and suitability of seafood:

“it’s the little thin bones that are the trouble – don’t mind him crunching up the spine bones in tinned fish, but yesterday I had a lovely piece of fresh mackerel I’d grilled but ended up not giving him any because every time I thought I’d found a chunk to give him it turned out to have lots of nasty long little bones in.” (Mumsnet, P2)

“Prawns were a bit dubious to start with. I didn’t know when to give them prawns, because I was like “what if it’s wrong you know, a prawn and he gets sickness or something through it, or can get an allergic reaction”. It was probably a year and a half before he had it” (Johnshaven FGD, P7)

The possibility of seafood being unsafe to give their child resulted in some mothers being fearful and sometimes resulted in the avoidance of providing it to their young child:
“I’ve a phobia about allergies because my cousin, her little one when she turned five, she had nuts and she took an allergy and I just think “well no”. I know shellfish and nuts are two things that you cannot tell until they take it, so I don’t give him it” (Mastrick FGD, P2).

Sensory attributes

The sensory attributes of seafood was mentioned across the discussions with the smell often being described as off putting and “fishy” whilst the appearance of raw and whole seafood was portrayed as a barrier for some to consumption and provision: “There’s one with skin that puts me right off!” (Mastrick FGD, P1). It was apparent that mothers often placed their own perceptions of these attributes onto what their child accepted and could have: “my son didn’t always have fish, he is a brilliant eater but I found fish to be quite a strong flavour for him.” (Mumsnet, P3)

However, the texture of seafood was considered for the infant and their response, and mothers often discussed that the light texture of seafood was a good protein-food to try first: “We started ours on fish as it was easier to gum” (Netmums, P2).

Cost/value for money

Seafood was often perceived as expensive by mothers; however, the availability of cheaper seafood options through different preservation methods, such as frozen and canned, was discussed between mothers as a less expensive option, enabling provision: “oh, yeah it’s [seafood] dearer but you get frozen stuff from [shop name] 2 for £5” (Charleston Dundee FGD, P1)

When discussing the cost of purchasing seafood, the quality of seafood was raised by mothers where they felt that seafood was a good quality food and could explain differences in cost compared to other meat types: “But, you know that’s the thing, if you go and look at value on things fish can be a little bit more pricey than some meat because of the value meats you can get.” (Johnshaven FGD, P3)

Furthermore, many mothers felt secure with the quality of seafood due to the transparency of seafood species, referring to how other meat types can be untrustworthy and mentioning recent media reports on the horsemeat scandal:
“You can’t mistake a prawn and you couldn’t mistake a bit of salmon for something else, you know? It’s very, you wouldn’t find horse meat in fish” (Old Torry FGD, P2).

Whilst discussing the cost and expense of seafood, mothers were often concerned with the effort spent trying to introduce seafood to their child and food wastage:

P6 - “I think you’re also scared to buy things, if they don’t like it then you’ve wasted money isn’t it, it’s just getting over that”

P5 – “It’s the time isn’t it, you know to feed them something and they don’t eat it! It’s hard” (Johnshaven FGD)

In addition, it was inferred by mothers in FGDs that seafood’s “lightness” resulted in a greater quantity required for a meal compared to red meat types. This added to mothers’ perception of poor value for money for providing seafood.

P3 - “It’s like to feed just me [pause] because it’s only two portions and they’re little. Normally if I have boil in the bag I just get the [supermarket name] own parsley sauce one and you can have two of them to yourself easily.”

P2 – “Yes, I think it [fish] shrinks a bit.” (Mastrick FGD)

Convenience

The convenience of providing seafood was often discussed by the mothers with some referring to the quickness of seafood and others referring to the use of canned seafood as an easy meal option:

“The good thing about fish is that it doesn’t take long to cook.” (Old Torry FGD, P2)

“What about tinned fish, super easy and no cooking required!” (Mumsnet, P4)

The availability of seafood was mentioned by mothers where a limited range of seafood-based infant meals was noticed:

“I don’t think there’s a huge amount of fishy jars. I know there’s like a tuna bake. I can’t think of anything else that there is fish wise.” (Old Torry FGD, P2)

“not many fishy ones. I just remember a tuna pasta one.” (Charleston Dundee FGD, P3)
Furthermore, mothers across internet discussion forums and FGDs discussed where they purchased their groceries and seafood if bought, with many making a single shop at the supermarket:

“we shop in the supermarket, we don’t have a fish van coming out to us at all and we don’t make a special trip to the fishmongers or the butchers or anything.” (Charleston Angus FGD, P1).

However, for those mothers residing in fishing communities the local fishmongers were mentioned by mothers for purchasing seafood: “you go along the road and get fresh [fish] from the market that day” (Johnshaven FGD, P6).

Mother-centred aspects

Own preferences

The mothers’ own history and relationship with seafood was evident in their decision-making process of including seafood: “I don’t have the motivation to give fish as I don’t eat it.” (Broughty Ferry FGD, P2).

Some mothers were content at their infant’s rejection of seafood, which may be explained by the mother’s own dislike of seafood and the desire to exclude it from their infant’s diet to mimic their own dietary lifestyle:

“Last night I gave her some fish, it was plaice and she didn’t seem to like it too much. Any new food she has had excluding fish and meat she has loved it. She does not seem very interested on fish and meat at the moment which makes me a bit happy” (Mumsnet, P6)

In contrast, some mothers discussed possible positive impacts of changing their own diet by providing seafood to their child:

“it is all a childish hang up about the boil in the bag fish my mother gave me. Hopefully [child] will like her fishy supper and help me get over my seafood issues” (Mumsnet, P7)

Own Instincts

Across the internet discussion forums mothers were seeking advice or confirmation that what they were doing was right. The advice replied to these mothers often suggested gaining information from a variety of sources and then encouraged mothers to decide for themselves following their own instincts. Reliance on the mother’s own instincts was also discussed
throughout the FGDs but mothers talked about using their own previous experience and what others may be doing in helping them to make their decision:

“I would be happier to give her a prawn now because, so we were told when she was a baby not until five, but then, through experience, what other people are doing [pause]. You don’t maybe need to be quite so [pause] well I don’t think you need to stick to it, you know.” (Johnshaven FGD, P6)

**Knowledge/confidence**

What was apparent from the internet forums and FGDs was that mothers’ knowledge and confidence in knowing what seafood to give and how to cook it influenced their seafood choices: “It’s maybe because I don’t eat it, I don’t know how to cook it” (Old Torry FGD, P2). This lack of knowledge and skills was often linked to a concern with food poisoning and thus the safety of providing seafood, resulting in many avoiding providing seafood. It was also apparent that mothers perceived a lack of confidence in cooking seafood and wished to avoid food wastage due to the expense, thus they often saw seafood and unfamiliar species as a treat to experience in an environment out of the home.

**Moral obligation**

Mothers across internet forums and FGDs discussed a moral obligation to provide seafood for their child which often conflicted with their lack of knowledge:

“I should probably be feeding my family more fish. I am totally confused about what I should or should not be buying.” (Mumsnet, P5)

This moral obligation was linked to providing a healthy diet for their young child and wanting them to try seafood as part of a varied diet, with some mothers discussing the benefit of omega-3:

“I always think fish as good for your brain. That’s why I give a lot to [child’s name] I dunno if it’s true or not” (Old Torry, FGD, P4)

“it’s so good for them, great to get them to have a taste for it before they can decide they don’t like it” (Mumsnet, P8)

“I’m keen to feed [child’s name] (9 months) oily fish cos of the omega 3” (Mumsnet, P9)
A further aspect which was mentioned by the mothers was the issue of environmental sustainability which they had become aware of and felt an obligation towards heeding:

P1 - “nobody’s talking about there not being enough cod anymore. No, but, actually I think I probably would pick haddock over cod because I still have that ringing in my head somewhere, that there’s not enough cod in the world. I don’t know why”.

P2 – “You do want them to grow up and have that and it does stick in the back of your head that you think if it’s running low at this age are they going to have, like, is [child’s name] going to have that when she’s, do you know what I mean?” (Charleston Angus FGD)

**Social norm**

Mothers from fishing community discussion groups implied a societal influence on including seafood into the diet of their child, whereby tradition and local availability of seafood made an impact on providing seafood and different varieties of seafood to their child:

“I think living in Johnshaven they have to like fish, simple as that” (Johnshaven FGD, P1).

“So I once made something with tinned salmon, which I went to buy tinned salmon because I got a recipe for making, like, salmon fishcakes, but I’d never bought –so I stood there at the supermarket for ages going, “tinned salmon”. But I don’t know if we’re spoilt in this area that we would just go straight and buy fresh salmon and that it’s quite normal” (Johnshaven FGD, P7)

**Family-centred aspects**

**Infant response**

The child’s preferences and previous response to being given seafood was often perceived as an influence on whether mothers provided seafood.

It was apparent from the internet and FGDs that some mothers provided separate meals for their first infant during weaning:

“I remember making him a fish pie, stood over the cooker making this milk and fish and veg stuff and he absolutely hated it. He wouldn’t even entertain it.” (Old Torry FGD, P2),

with some discussing the use of commercial infant meals as a method to introduce and try seafood:
“it was like “oh fisherman’s pie”, oh well we’ll try it, we’ll give it a go, and she loved it”
(Johnshaven FGD, P1)

**Family meal**

Providing just one family-shared meal and the difficulty of getting something that everyone will eat was discussed with a particular consideration given to partner’s preferences and those of other children. This often acted as a barrier to seafood provision despite mothers feeling that seafood would be a nutritious option for the family.

“But yeah, if all my family would sit and eat a fish pie I would happily do it because then I would know they were eating something good and it was one meal. But because they don’t it kind of puts me off doing it” (Old Torry FGD, P2)

**Habit**

Mothers often discussed the role of habit in their shopping and meal decisions. Habit impacted on the how often seafood was provided, with some mothers discussing particular days and situations when seafood would be selected as a meal option. Habit was also discussed in terms of which seafood was chosen by mothers to provide for their family, with familiarity being discussed as playing a role in shopping and eating habits and often resulting in the avoidance of new or different seafood species.

**External information sources**

**Family and friends advice**

Although mother’s own instincts and knowledge were identified as influencing their decision-making of food choices for their young child, the discussions revealed that advice mothers received from a variety of different sources also influenced their decision on whether to provide seafood. These information sources included friends and family members:

“I’m the youngest of four so all my brothers and sisters have children that are older than mine so kind of what they did or what my mum says, because no matter how much that annoys you, you still listen to your mum, don’t you? She’s always right.” (Charleston Angus FGD, P1)

**Media**

Mothers often discussed the use of targeted weaning books: “Annabel Karmel, I used to use that” (Charleston Angus FGD, P2), “There are Annabel Karmel recipes regarding both of
these [cod and salmon] options” (Mumsnet, P10). The reliance on these books in the first stages of weaning was discussed by mothers and was additionally used to confirm choices to include seafood types:

P4 - “Tinned tuna OK for 8 month old?”
P5 – “there’s a tuna pasta recipe in my weaning book so I’d say it must be ok” (Netmums)

**Health professional advice**

Mothers additionally cited that the formal advice they received was often in the form of information leaflets provided by health professionals (in particular the health visitor (HV)):

P7 – “I think you get quite a lot of leaflets when you start weaning.”
P1 – “Yes, you get leaflets and stuff” (Johnshaven FGD)

However, differences in the advice between sources were often discussed by mothers, where mixed messages often led to confusion, particularly when concerning the safety of providing seafood:

“The health visitors all suggest six months for them and when you go in the supermarkets and all the jars are saying different things - from four months” (Charleston Angus FGD, P4)

“Hi. My baby was weaned at 17 weeks under advice from the HV. I was wondering how old he has to be before I can give him tinned tuna (and other fish)? I have been getting conflicting advice, some say it is OK from about 8 months others have told me you should not give tinned fish until a child is 6 years due to high mercury and potassium” (Netmums, P4)

**Discussion**

Exploring the perceived influences to mothers’ decisions on whether to provide seafood during early years’ feeding revealed the complex nature of maternal decision-making and how many different factors can interrelate and often contradict one another. Our findings suggest that there are four central themes to these influencing factors; - food-related attributes; mother-centred aspects, family-centred aspects, and external information sources. The scope and interrelated nature of these influencing factors mirror many of those identified, such as social and personal norms, habit, past experiences and health benefits, in previous studies (Leek, Maddock and Foxall 2000, Trondsen et al. 2003, Trondsen et al. 2004b, Verbeke and Vackier 2005).
The food-related attributes of seafood found in our study support previous findings which indicated that there is often both a positive and negative perception of the sensory attributes of seafood, in particular smell (Leek, Maddock and Foxall 2000, Neale et al. 2012) and taste (Myrland et al. 2000, Verbeke and Vackier 2005, Neale et al. 2012) with some mothers liking these attributes and others disliking them. However, the role of texture in the mothers’ decisions to give seafood to their infant or young child was an additional aspect to emerge from our study. Interestingly, mothers perceived the texture of seafood to be suitable for young children due to the light, flaky consistency which was easy for the child to gum or chew. The mothers’ own dislike of the sensory properties of seafood however often influenced their decision to not provide seafood in their child’s diet, a finding supporting previous evidence that there is a relationship between mothers’ food consumption and that of their child (Skinner et al. 2002).

Our findings indicated that mothers often highlighted the expense and a perceived lack of value for money of seafood, mirroring previous studies with mothers (McManus et al. 2007) and pregnant women (Bloomingdale et al. 2010). However, many mothers found solutions to this perceived expense indicating that cheaper seafood options, such as frozen seafood, are readily available and provide an affordable, convenient meal option. Thus, despite a negative attitude to price this did not necessarily act as a barrier to provision, matching previous conclusions (Verbeke and Vackier 2005). The perceived convenience of seafood considered by mothers in this study and others (Leek, Maddock and Foxall 2000, Olsen et al. 2007) may interrelate with familiarity and habitual food purchasing and consumption. Familiarity has been shown to be positively associated with seafood consumption in an Australian consumer study (Birch and Lawley 2014). Furthermore, knowledge and familiarity with seafood are learned through experiences and can result in a perception of lower effort of preparing and cooking seafood, resulting in the perception of a convenient meal option. It can be considered that mothers from fishing communities, who discussed the role of tradition on their decision-making, may have a greater familiarity with seafood due to previous experiences and exposures. A familiarity with seafood can also develop confidence in knowing that seafood is properly cooked, reducing the risk of food poisoning, a concern which was evident particularly for mothers unaccustomed to cooking seafood. A lack of knowledge of seafood also highlighted a concern for knowing when and what types of seafood to introduce throughout the early years for some mothers. A previous study with pregnant women found the mercury exposure of seafood was a concern (Bloomingdale et al.
2010), a finding also seen in the mothers in our study. These concerns may come from advice based on the recommendations for infants and pregnant women to avoid high mercury containing seafood, such as shark, marlin and swordfish, and for pregnant women to restrict tuna consumption (Scientific Advisory Committee on Nutrition 2004). Furthermore, discussions within internet forums highlighted a concern for high salt intakes associated with canned and smoked seafood and discussions from both sources revealed a concern for allergic reactions, particularly for shellfish. The confusion about if and when you can provide shellfish found across the discussions mirrors concerns by pregnant women in a US study (Bloomingdale et al. 2010). The confusion on shellfish may be a result of different messages portrayed on shellfish’s inclusion during the early years across the different information sources available to mothers. However, global recommendations do not stipulate an avoidance of shellfish or other seafood, except before six months of age and with raw shellfish (World Health Organization 2009). Despite many mothers being concerned with the safety of seafood, it was perceived as a healthy food with benefits of omega-3 and brain development being cited as a reason to consider providing seafood in their child’s diet. This finding supports previous work summarising that European consumers have a strong belief that seafood is healthy (Verbeke et al. 2005, Pieniak, Verbeke and Scholderer 2010). The interrelation found between mothers’ desire to provide this healthy food and the perceived contradictory messages portrayed on seafood safety during the early years highlights the complex nature of decision-making.

It was also apparent from this study that some mothers had a concern with the environmental impact of seafood consumption raising the issue of overfishing of cod in particular. This perceived moral obligation towards the environment has not been raised in previous seafood consumption research to our knowledge and may be the result of media attention to this issue in the past few years (Black 2012, The Telegraph 2012). Interestingly, FGDs held in fishing communities revealed that tradition was a further influence for many mothers on their decision-making. Seafood tradition could be an interest to these mothers due to current and/or previous family generations relying on it as a livelihood. Furthermore, it may be that the past experiences and exposure to seafood experienced by these mothers provided a knowledge of preparing and cooking it, more so than for those in non-fishing communities. Mothers from these fishing areas felt that residing in these areas resulted in a social norm and expectation to eat seafood and this may have also impacted on their perceptions and desire for good quality seafood, which is often associated with fresh seafood (Leek et al, 2000).
Finally, mothers portrayed that having a shared family meal often influenced the regular provision and offering of seafood to their young child. The preferences of their husband/partner and the presence of other children in the household were discussed as influences to the decision to provide seafood, as found in other studies (Myrland et al. 2000, Verbeke and Vackier 2005). These family preferences acted as an enabler for those whose family enjoyed seafood and a barrier for others when trying to provide a shared, seafood-based meal. Despite many mothers desiring a shared family meal, some raised the fact that separate meals and foods offered to their infant during the early stages of weaning provided an opportunity to offer foods which they themselves did not like. Some mothers also held the hope of changing their own diet by including perceived healthful foods, such as seafood, more often.

The multiple data collection methods used in this study, known as ‘Multiple Operationism’ (Campbell and Fiske 1959) or ‘Methodology Triangulation’ (Denzin 1978), provided a means to gain a broad view of the perceived influences on mothers decisions on whether to provide seafood. The use of publicly-accessible parenting discussion forums provided an opportunity to passively observe natural conversations between mothers without the intrusion of the researcher. Previous research has identified that interactive discussions, where there is an opportunity to share experiences with other mothers, are seen as vital resources and provide a chance for mothers to anonymously ask questions they deem embarrassing or trivial (Hoddinott et al. 2010). Thus, by reading posted discussions instead of guiding the topic of conversation, the researcher was able to observe the types of questions and discussions normally posted by mothers on seafood and young child feeding, gaining a naturalistic view.

In particular, mothers using internet discussion forums raised concerns about the salt content of smoked and canned seafood which was not an issue discussed across the FGDs.

Previous research has indicated that parents’ socioeconomic status appears to relate to the access and use of the internet (Martin and Robinson 2007, Rothbaum, Martland and Jannsen 2008); however, others have found no evidence of a socio-economic divide (Carroll et al. 2005, Sarkadi and Bremberg 2005). Unfortunately the nature of internet discussions meant that we are unable to conclude the diversity of this sample as demographic characteristics and details were not provided. However, by including parent and baby groups from a range of urban/rural, fishing and non-fishing based communities, and deprivation areas we attempted to include a diverse sample of mothers. It should be considered that the findings from our
FGDs may be limited by participant bias as we relied on volunteers to take part. The natural discussions initiated on internet forums resulted in an inability of the discussion to concentrate specifically on the research topic of this study and often resulted in a narrow discussion on the concerns and influences of seafood inclusion. However, the inclusion of FGDs provided the opportunity to explore many of these areas further and revealed further perceived influences reducing this limitation. Furthermore, it is important to consider that the inclusion of historical discussions from internet forums may be important when considering any advice and information mothers shared with each other in respect to the timing of feeding guidelines. Nevertheless, only one discussion was dated within the same year as the Scientific Advisory Committee on Nutrition’s advice on fish consumption (Scientific Advisory Committee on Nutrition 2004), thus the formal information provided to the majority of mothers should have been in line with recommendations and with those from global complementary feeding guidelines (World Health Organization 2005, World Health Organization 2009). However, it is impossible to know what advice these mothers had been provided and very few could remember the specific source of the information and knowledge they had gained.

Providing the discussion in the normal time and location of the pre-existing mother and child group minimised any inconvenience for the mother in taking part; however, this did result in some poor audio quality for two discussions resulting in an inability to fully capture quotes and data from these sessions. Despite the anonymity offered by a group of strangers (Finch and Lewis 2003, Hennink, Hutter and Bailey 2011), the familiarity of the pre-existing group and the homogeneity of socio-demographic characteristics, such as deprivation area, provided a comfortable environment where participants may feel they have shared backgrounds and experiences and could therefore express their concerns and experiences without the fear of judgement. It is possible however that the presence of the researcher impacted on the opinions and experiences the mothers shared during the discussions.

**Conclusion**

This study of mothers highlighted that there are a combination of factors influencing the decisions on whether to provide seafood to young children that include; - food-related attributes, mother-centred and family-centred aspects, and external information influences. This study provided an exploratory view of the perceived influences to the provision of seafood during the early years providing some understanding of mothers’ decision-making.
Findings indicated a concern for the safety and expense of seafood, thus clear, consistent guidelines highlighting inexpensive seafood options should be reiterated by health professionals working with parents of young children and in the information they provide. The knowledge and skills to prepare and cook seafood often acted as a barrier to provision exacerbating concerns of food safety thus, community-based projects to encourage and educate, using practical cooking experiences, are required. Further research investigating the importance of these factors in driving infant feeding decisions is key to understanding how mothers balance and value these influencing factors in their decisions on whether to include seafood into the diet of their child.
Transparency declaration

The lead author (SC) affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained.

Acknowledgements

The authors would like to thank participants of the focus group discussions.

Conflict of interest

The authors confirm there are no conflicts of interest. The funding for this research study was for a PhD scholarship by the Seafood Authority and Interface Food and Drink Scotland which do not financially benefit from this research or have any influence on the results found and presented here.

Sources of funding

This study was funded by the Seafood Authority and Interface Food and Drink Scotland as part of a PhD scholarship for SC.

Disclaimer

The authors views expressed in the submitted article are their own and are not an official position of the University of Aberdeen or any of the funding bodies.

Contributorship

Substantial contributions to the conception or design of the work; data collection, analysis, and interpretation of data for the work were conducted by Sharon Carstairs (SC) under the supervision of Dr K Kiezebrink (KK), Dr L Craig (LC) and Dr D Marais (DM). Drafting of the publication was done by SC with the revision for important intellectual content and final approval of the version to be published given by KK, LC and DM. There is agreement between the authors that SC is accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
References


Appendices

Appendix 1: Details of internet discussion threads

A search of discussion threads in June 2013 identified 26 discussion threads which took place from March 2004 to June 2013. The majority of discussion threads (n=17, 65%) identified in the search were dated from 2012 onwards (Table 3). Furthermore, discussion threads were responded to by mothers over the course of a few days; however, some threads spanned across the duration of a month from the date of posting. The length of threads ranged from only two responses up to 101 responses. Parent identifiers were removed from quotes as it was deemed unethical to provide these where parents may be identified. A sequential number was assigned to each quote used in this study, checking the parent identifier for each to depict multiple quotes by the same mother.
Table 3: Range of dates of internet discussion threads

<table>
<thead>
<tr>
<th>Post date</th>
<th>End of thread date</th>
<th>Source</th>
<th>Number of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 March 2004</td>
<td>20 April 2004</td>
<td>Mumsnet</td>
<td>27</td>
</tr>
<tr>
<td>21 January 2007</td>
<td>9 February 2007</td>
<td>Mumknowsbest</td>
<td>9</td>
</tr>
<tr>
<td>23 April 2007</td>
<td>24 April 2007</td>
<td>Mumsnet</td>
<td>17</td>
</tr>
<tr>
<td>6 January 2009</td>
<td>6 January 2009</td>
<td>Mumsnet</td>
<td>4</td>
</tr>
<tr>
<td>19 February 2010</td>
<td>23 February 2010</td>
<td>Mumsnet</td>
<td>6</td>
</tr>
<tr>
<td>10 September 2010</td>
<td>10 September 2010</td>
<td>Mumsnet</td>
<td>10</td>
</tr>
<tr>
<td>6 December 2010</td>
<td>6 December 2010</td>
<td>Netmums</td>
<td>7</td>
</tr>
<tr>
<td>5 November 2011</td>
<td>5 November 2011</td>
<td>Netmums</td>
<td>2</td>
</tr>
<tr>
<td>23 November 2011</td>
<td>28 November 2011</td>
<td>Netmums</td>
<td>101</td>
</tr>
<tr>
<td>29 January 2012</td>
<td>30 January 2012</td>
<td>Netmums</td>
<td>30</td>
</tr>
<tr>
<td>2 March 2012</td>
<td>4 March 2012</td>
<td>Mumsnet</td>
<td>6</td>
</tr>
<tr>
<td>27 May 2012</td>
<td>1 June 2012</td>
<td>Mumsnet</td>
<td>17</td>
</tr>
<tr>
<td>19 October 2012</td>
<td>19 October 2012</td>
<td>Netmums</td>
<td>14</td>
</tr>
<tr>
<td>9 November 2012</td>
<td>9 November 2012</td>
<td>Mumsnet</td>
<td>7</td>
</tr>
<tr>
<td>9 November 2012</td>
<td>9 November 2012</td>
<td>Mumsnet</td>
<td>6</td>
</tr>
<tr>
<td>12 November 2012</td>
<td>13 November 2012</td>
<td>Mumsnet</td>
<td>5</td>
</tr>
<tr>
<td>13 November 2012</td>
<td>18 November 2012</td>
<td>Mumsnet</td>
<td>30</td>
</tr>
<tr>
<td>14 November 2012</td>
<td>23 November 2012</td>
<td>Mumsnet</td>
<td>6</td>
</tr>
<tr>
<td>15 November 2012</td>
<td>19 November 2012</td>
<td>Mumsnet</td>
<td>24</td>
</tr>
<tr>
<td>28 November 2012</td>
<td>28 November 2012</td>
<td>Mumsnet</td>
<td>13</td>
</tr>
<tr>
<td>6 April 2013</td>
<td>6 April 2013</td>
<td>Netmums</td>
<td>2</td>
</tr>
<tr>
<td>29 April 2013</td>
<td>30 April 2013</td>
<td>Mumsnet</td>
<td>5</td>
</tr>
<tr>
<td>5 May 2013</td>
<td>9 May 2013</td>
<td>Netmums</td>
<td>62</td>
</tr>
<tr>
<td>15 May 2013</td>
<td>19 May 2013</td>
<td>Mumsnet</td>
<td>12</td>
</tr>
<tr>
<td>6 June 2013</td>
<td>6 June 2013</td>
<td>Netmums</td>
<td>6</td>
</tr>
<tr>
<td>19 June 2013</td>
<td>19 June 2013</td>
<td>Mumsnet</td>
<td>8</td>
</tr>
</tbody>
</table>
Appendix 2: Focus group topic guide

**Research Question: What factors influence mothers’ decisions whether to provide seafood in the diet of their infant?**

I’d like to start by asking each of you to tell me what is the biggest thing that influences what you feed your little one?

**PROMPTS**
- what others (family and friends) say
- You and your family’s eating preferences
- Cost/your budget
- Time/convenience

What are your thoughts on giving seafood to your little one/child? *By seafood I mean, fish, fish fingers, prawns, tuna etc.*

**PROBE:**
- For you, what are the benefits/advantages of giving seafood to your little one?
- Are there any disadvantages/barriers to you giving fish to your little one?

**Prompts:**
- what you have done with all your kids/children
- What your family and friends/partner say/do
- What the health visitor/professional say
- What baby foods and recipes are available

Do you eat fish yourself?  
Do you eat different fish to your little ones?

When you first starting giving your little one food what baby jars, packets, and pouches did you use?  
- What brand did you use?  
- Was there any fish options in these?

What types of meals do you make with seafood?  
- Evening meals/lunch  
- Weekday vs weekend  
- Batch cooking and freezing
What things on food label do you look at when you buy seafood?
- Origin
- Catch type (line vs net)

Who tells you to give/not give seafood to your little one/child?

**PROMPTS**
- Its what you have done with all your kids/children
- What your family and friends say/do
- What the health visitor/professional say
- What baby foods and recipes are available

What things would make it easier for you giving seafood to your little one/child?

**PROMPTS**
- Knowledge of seafood types
- Cooking methods and recipes
- Pre-prepared options
- Less expensive options

Let’s summarise what we’ve said....... Have we missed anything? Is there anything more you would like to add?

*I’d just like to take this opportunity to thank you again for coming today and taking part in this group discussion.*
### Appendix 3: The emergence of topics across the data sources

<table>
<thead>
<tr>
<th>Topic</th>
<th>Focus group discussion</th>
<th>Internet discussion forum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Old Torry</td>
<td>Mastrick</td>
</tr>
<tr>
<td>Age appropriateness</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Salt content</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mercury content</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Food poisoning</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Bones</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Smell</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Appearance</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Taste</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Texture</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Quality</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Wastage</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Quantity</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Quick to make</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Easy to make</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Availability</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Previous experience</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Own</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Own likes/dislikes</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Confidence</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Knowledge</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Health</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Food variety</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Environment</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Tradition</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Infant likes/dislikes</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Family meal</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Partner preferences</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Other children preferences</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Frequency of consumption</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Species consumed</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Family advice</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Friends advice</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Media</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Health professional advice</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>