

**Factors influencing the consumption  
of seafood among young children in Perth.**

Prepared by the

**Western Australian Centre for Health Promotion Research  
Curtin University of Technology**

November 2005

# FACTORS INFLUENCING THE CONSUMPTION OF SEAFOOD AMONG YOUNG CHILDREN IN PERTH

## Contributors

Dr Alexandra McManus  
Project Director  
Senior Research Fellow, Associate Director  
WA Centre for Health Promotion Research  
Curtin University of Technology

Ms Jenny Smith  
Project Coordinator  
WA Centre for Health Promotion Research  
Curtin University of Technology

Ms Sharyn Burns  
Associate Director  
WA Centre for Health Promotion Research  
Curtin University of Technology

Professor Peter Howat  
Associate Director  
WA Centre for Health Promotion Research  
Curtin University of Technology

Dr Richard Woodman  
Biostatistician  
Biostatistical Consulting Unit  
Curtin University of Technology

ISBN 1 74067 438 3

## TABLE OF CONTENTS

<b>Executive Summary</b>	<b>1</b>
<b>1.0 Background</b>	<b>2</b>
<b>2.0 Aims and objectives</b>	<b>4</b>
2.1 Aim	4
2.2 Objectives	4
<b>3.0 Methodology</b>	<b>5</b>
3.1 Focus Groups	5
3.1.1 Sample selection and recruitment	5
3.2 Data Collection	5
3.2.1 Demographic questionnaire	5
3.2.2 Facilitator's guide	5
3.2.3 Focus group schedule	5
3.3 Conduction of focus groups	5
3.4 Data entry, management and analysis	6
3.4.1 Quantitative Data	6
3.4.2 Qualitative Data	6
<b>4.0 Results</b>	<b>6</b>
4.1 Demographic information	6
4.2 Results from focus groups	7
4.2.1 Have your children tried fish or seafood before?	7
4.2.2 What types of fish or seafood have your children tried?	7
4.2.3 What is your child's favourite type of fish or seafood?	7
4.2.4 What type of fish or seafood do you usually purchase?	8
4.2.5 How do you usually prepare fish to be served?	8
4.2.6 What are your experiences when serving fish/seafood as a family meal?	9
4.2.7 What do you think would encourage your family to eat more fish?	10
4.2.8 What do you think are some of the barriers to fish becoming a regular family meal in your community?	11
<b>5.0 Conclusions</b>	<b>11</b>

<b>6.0</b>	<b>Recommendations for future research</b>	12
------------	--	----

<b>7.0</b>	<b>References</b>	13
------------	-------------------	----

	<b>Appendices</b>	14
--	-------------------	----

Appendix A      Participant Information Sheet

Appendix B      Participant Consent Form

Appendix C      Demographic Survey

Appendix D      Focus Group Protocol

Appendix E      Focus Group Schedule

## EXECUTIVE SUMMARY

This formative study sought to investigate the factors that influence the consumption of fish and seafood among pre-primary and Year One school children in the Perth metropolitan area. Focus groups were conducted with mothers of young children to gain insights into the enablers and barriers to regular seafood consumption in children, and the knowledge, attitudes and perceptions of their mothers to including seafood as a regular part of their children's diet.

Purposive sampling techniques were used to select and recruit mothers of children aged between four and six years from Curtin University of Technology and two local playgroups. A total of seven focus groups were conducted. Thematic content analysis was employed to code data generated and to extract major themes.

Findings indicated that all children had tried fish and seafood products, with some being exposed to a wide variety from an early age. Across focus groups, several dominant factors were apparent in influencing the frequency and type of seafood purchased and consumed. Perceived cost, freshness, availability/accessibility, and the level of confidence to prepare and cook a meal to suit all family members were significant determinants of whether these products featured regularly on the household menu. The influence of others in the family, particularly their husband or partner, also tended to impact upon the likelihood of serving fish and seafood, and the types of products mothers were willing to serve.

Findings from this qualitative study form the first phase in a proposed longitudinal research project that aims to develop, implement and evaluate a comprehensive school-based resource package encouraging regular, seafood consumption (particularly fish) in primary school-aged children.

## 1.0 BACKGROUND

Establishing regular fish consumption as a healthy, cost effective option for young children has the potential to impact upon their short and long-term health. It also compliments the existing nutritional messages that relate to fruit and vegetables as essential to a healthy lifestyle. However, relatively little research has been directed towards understanding the complementary relationship between the consumption of seafood and variation in socio-demographic and lifestyle factors, including the presence of children in the household.<sup>1</sup>

Of the research that has been published, emerging themes surrounding the frequency and type of seafood served as a meal seem to be strongly determined by the presence and the age of children in the household. Several studies have reported that the presence of children may lead to some resistance towards seafood consumption.<sup>1-2</sup> Further, the development of negative perceptions associated with seafood, including smell during preparation, taste and 'the family do not like seafood' seem to be greater when teenagers are present as opposed to younger children.<sup>1</sup> It has been reported that the family 'norm', regarded as 'the family don't like seafood' increased with increasing household size, a trend which was mainly associated with the presence of children over the age of eight years.<sup>2</sup> Furthermore, teenagers under the age of 18 may have an indirect negative impact on seafood consumption through their perception of fish, resulting in significantly lower consumption frequency of fish products for family meals.

When investigating trends in the type of seafood consumed, households with young children more frequently eat processed fish, which is often not associated with poor taste, bad smell and variable quality and supply.<sup>1</sup> Highly processed fish products, including battered, crumbed and meals in sauces are regarded as convenient, easy to cook and popular with the family.<sup>3</sup> Processed seafood is also the only type of seafood for which the question of whether the family likes seafood appears to have no effect on consumption levels.<sup>1</sup>

Reports suggest that consumers view processed varieties as subtle and meaty, with coatings and sauces making them colourful, appetising and may mimic traditional home cooking. Such products tend to disguise the qualities of fish and seafood that do not appeal to many consumers, especially children. Fresh fish on the other hand, which tends to generate both the strongest negative and positive beliefs, is

often perceived as expensive, difficult to buy, prepare and cook, and has unpleasant physical properties.<sup>1-2</sup>

Such factors impact strongly upon decisions to serve fish and seafood as a family meal. If the family does not want fish on the menu, arguments for eating fish (such as health benefits) are not considered, resulting in low fish and seafood consumption.

When considering factors that facilitate the consumption of fish and seafood in households with young children, the interaction between social norms and moral obligations are important constructs to consider. Social norms from other family members (husband and children) have been shown to impose a significant negative impact on the frequency of seafood consumption. However, this pressure can be lessened through the presence of moral obligations to perform the behaviour for other reasons, such as the provision of a healthy meal for the family. The co-existence of both social pressure to adhere to family attitudes and preferences, alongside moral obligations to be responsible for the family's health may both influence the frequency and type of seafood products consumed.<sup>4</sup>

Some of the barriers mentioned above to encouraging regular fish and seafood consumption, particularly in children, can be addressed through targeted efforts towards parents, teachers and the children themselves. Resistance against the consumption of fish may be reduced by developing improved products that better suit the tastes and preferences of younger age groups, along with the promotion of taste advantages and variety of preparation options available with high quality seafood products.

The purpose of this research is to conduct a series of focus groups with mothers of young school-aged children to investigate the barriers and enablers to seafood consumption within the target group. This report will summarise the findings from the focus groups and make recommendations for the development of a comprehensive school-based resource package that promotes seafood as an integral component of a healthy lifestyle.

## **2.0 Aims and objectives**

### **2.1 Aim**

The aim of this formative research project was to investigate the factors that influence the consumption of fish and seafood among 4-6 year old children in the Perth metropolitan area.

### **2.2 Objectives**

- To review published literature associated with seafood consumption and young school-aged children;
- To review existing national and international guidelines relating to seafood consumption in young children;
- To identify knowledge, attitudes and behaviours around seafood consumption in the target population; and
- To provide evidence for the development of school-based resources that seek to increase regular consumption of seafood in young school-aged children.

## **3.0 Methodology**

### **3.1 Focus Groups**

#### **3.1.1 Sample selection and recruitment**

Purposive sampling techniques were used to select and recruit mothers of children aged between four and six years from staff and students at Curtin University of Technology and through two local playgroups. A combination of snowballing and volunteer recruitment methods was implemented through services such as flyers, word-of-mouth and Curtin staff and postgraduate student email distribution lists. Prospective respondents were identified by research staff and letters of invitation forwarded to them.

Prior to their involvement, participants were provided with an information sheet outlining the purpose of the research, the type of involvement required of them, who was conducting the research, that their participation was voluntary and their confidentiality was to be upheld. Active consent was obtained from participants prior to their involvement (see Appendices 1 and 2).

Four focus groups were conducted with mothers of young children (n=21 participants). An additional three focus groups were conducted with students (n=17 participants) to investigate their experiences with seafood as children. Interestingly, the same themes emerged from all seven focus groups therefore the data are presented together.



## **3.2 Data Collection**

### **3.2.1 Demographic information**

Prior to the focus groups, participants completed a one page demographic questionnaire. This provided general information on personal characteristics of participants as well as indicating the number of children in their household (see Appendix 3).

### **3.2.2 Focus Group Protocol**

A focus group protocol was developed to provide information to focus group participants relating to the process and procedure of the group discussion. The protocol included: an introduction to the facilitator and observer; an outline of the purpose of the focus group; group rules relating to confidentiality, honesty, respecting others opinions; and clarifications of terminology to be used (see Appendix 4).

### **3.2.3 Focus group schedule**

A focus group questionnaire was developed to provide facilitators with a series of questions related to fish and seafood consumption in children aged 4-6 years. Guided by themes emerging from the literature together with concepts considered important to address the purpose of this formative study, predetermined areas of inquiry included: whether children had tried fish and what type; favourites type of fish; the type of fish usually purchased; how fish was prepared; issues around the mothers' experiences of serving fish as a family meal; and some of the barriers associated with fish becoming a regular family meal (see Appendix 5).

Whilst the focus group schedule was used to guide discussion based upon areas considered important to the purpose of the research, the flexibility of the discussion allowed the facilitator to follow valuable avenues of inquiry. Emergent themes provided direction for areas of further investigation during subsequent focus groups.

## **3.3 Conduction of focus groups**

With permission from participants, each focus group was audio-taped for accuracy of transcription and analysis. A trained observer (Project Coordinator) was present at all sessions to record the content of discussions. All focus groups were led by the Project Director to ensure consistency in data collection whilst also allowing familiarity of emerging themes to be followed during discussion.

### **3.4 Data entry, management and analysis**

#### **3.4.1 Quantitative Data**

Participants' responses to the demographic questionnaire were collated and responses expressed as frequencies.

#### **3.4.2 Qualitative Data**

Immediately following each focus group, responses to the focus group questions were transcribed and analysed thematically.<sup>5-7</sup> The data from each focus group were then amalgamated and the major themes detailed using quotes from participants to support these findings.

## **4.0 Results**

### **4.1 Demographic survey**

Of the 21 mothers interviewed, all were aged between 25 and 45 years and had 44 children between them. Half of the mothers worked part or fulltime (n=10) and the remainder were full-time home keepers (n=11). All students were aged between 20 and 23 years and currently enrolled in an undergraduate degree at Curtin University of Technology. Although all participants resided in the Perth metropolitan area, there was no pattern to the home postcode of participants.

### **4.2 Results from focus groups**

A total of seven focus groups were conducted with staff and undergraduate students from Curtin University of Technology and mothers recruited through two playgroups. Focus groups consisted of between five and six participants (n=38 participants). A criterion for inclusion into the focus groups was that participants were mothers of young children. Several participants did not have children within the age group of interest however their responses were confined to information about family experiences of children within the target group.

Focus groups results are presented thematically. Results presented within this section are based upon the responses from the 39 focus group participants with direct quotations recorded in *italics*.

#### 4.2.1 Have your children tried fish or seafood before?

Participants from all focus groups indicated they and their children had consumed fish or seafood. The discussions centred around the introduction of different types of seafood and fish depending upon what was being prepared for the family. Most participants indicated that they prepared one family meal rather than a separate meal for children and adults.

#### 4.2.1 What types of fish or seafood have your children tried?

The types of seafood children had tried were relatively diverse. Most children had tried tuna (n=35), prawns (n=33), fish and chips (n=34), fish fillets (n=23) and white flesh fish (n=21).

*'We often get just like a firm white fillet and sort of crumb it ourselves'*

*'homemade fish and chips using frozen fish'*

*'She has always loved tinned tuna right from very early solids eating'*

Some had either not been exposed to crustaceans or had expressed negative attitudes to these species for a variety of reasons.

*'They sort of turn their nose up at things like mussels and crabs and anything in a shell'*

*'They haven't really gone into the more exotic seafood'*

*'They're too scared to actually eat the crab because they see them when they're alive'*

#### 4.2.2 What is your child's favourite type of fish or seafood?

The favourite types of fish or seafood noted were tuna (n=31), fish and chips (n=25), prawns (n=12), and boneless, white flesh fillets (n=10). With regards to fish and seafood meals that children did not like, an emerging theme was that young children tended to prefer dishes where they could see the fish rather than those where the fish was hidden in other ingredients such as mornays or in sauces.

*'.....her favourite is prawns but I think that might just be the scarcity value because we don't have them very often, they're a treat'*

*'Her favourite breakfast probably even now still is tuna and pickles'*

*'I have made mornays, they don't tend to eat that as much, I don't know whether it's the texture of it... the kids like to see the meat, they like to identify each component of the meal'*

*'They don't like it prepared in any sort of sauces, they don't like fish mornay or anything like that'*

#### 4.2.3 What type of fish or seafood do you usually purchase?

When asked about the type of fish usually purchased for their family, participants in the majority of focus groups said this decision was influenced primarily by the price (n=34) and the freshness (n=32) of the product. Boneless fillets, tinned tuna and frozen products (n=27) were common purchases among participants. Trends in outlets to purchase fish and seafood products was also apparent, with most participants preferring to purchase products from Action supermarkets, seafood specialty outlets such as Sealanes and Kailis Brothers and also fish mongers. However, accessibility to these outlets was a perceived barrier among participants.

*'That's probably one of the reasons why we don't eat probably as much as what we should do, because of the price'*

*'I won't go over \$20 a kilo. We're not gourmets. I wouldn't taste the difference between an expensive fish and a cheap fish'*

*'I always in the pantry have tins of sardines and tins of tuna'*

*'I must admit in my house I would very rarely buy fresh fish'*

*'I sort of prefer to buy it, you know first thing in the morning and cook it that day'*

*'I'll never buy frozen fish I'll only buy the fresh fish but I will freeze it in my own freezer, at least then I know when it was frozen'*

#### 4.2.4 How do you usually prepare fish to be served?

The preparation and cooking style of fish or seafood most often included crumbed (n=28), oven baked (n=23), pan fried (n=22), barbequed (n=19) and battered fish or seafood (n=17). Themes relating to cultural influences on the methods of preparation and how fish is served as a family meal also emerged from several focus groups. Across focus groups, almost half of the participants said they lacked confidence when it came to preparing and cooking fish (n=18) and tended to remain with dishes they were comfortable cooking and they knew the family liked.

*'We used to do a lot more fish baking and that was a whole fish but just didn't want to have to deal with the bones, I was just too nervous of all that so it was kind of dropped off the menu'*

*'My main problem with fish is I need more creative ways to prepare it and finding a cookbook which has got simple, tasty ways of cooking fish'*

*'if I cook fresh fish, because it is quite expensive then I'll just concentrate on the taste of it'*

*'Barbequed because then my husband goes outside and cooks it'*

*'It's a man's job in our house. It's always been a man's job in Turkey, just men clean the fish and women clean the kitchen afterwards'*

*'In France you would have salad rather than vegetables with fish'*

*'I'm still I guess inexperienced in cooking fish in different ways, like if I know how to cook it one way I'll always cook it that way because I know it won't be dry or mush'*

#### **4.2.5 What are your experiences when serving fish/seafood as a family meal?**

Several commonalities were found between participants regarding their experiences when serving fish or seafood as a family meal. The majority of groups (n=33) considered bones to be an important factor when serving fish to their children.

*'I have no problems with the bones because I'm Asian we usually use chopsticks you know, but my problem is with the children and I'm constantly like did I clean enough or did I check enough'*

*'Mine would just eat it. Just like with olives they eat the seeds, they eat everything, so that's not such a pain for me'*

*'We usually try to de-bone it as much as possible before hand but if it is fish that has bones in it it'll be like who can find the most bones, it kind of becomes a competition'*

The influence of personal attitudes towards fish and seafood (n=33), and those of children or husbands/partners also impacted upon the type and frequency of fish served as a family meal (n=27).

*'My husband doesn't really like fish so I find it kind of hard'*

*'I find what I like, I give them so my variety is not big because I'm quite fussy so they don't probably get to taste that much'*

*'My kids are just reluctant to try new things. You have to disguise it. I remember the first time they ate salmon I had to tell them it was Barbie chicken because it was pink'*

*'Our little boy won't touch like the prawns and the octopus, the squid rings and that could partly be because I don't like it you know, I like white fish with no bones and he tends to be the same'*

*'We go through stages where we would have fish on a weekly basis and then my husband would say look I'm really sick of fish lets go off it so wouldn't have it for maybe three or four months'*

A few participants (n=8) were willing to serve separate seafood or fish-based meals for children that were less spicy than those prepared for adults. This allowed adults to enjoy fish and seafood dishes considered unsuitable for children.

*'For the children I tend to crumb it, I dip it in egg and flour and then crumb it and that looks like nuggets you know'*

*'I must admit we will split it up sometimes, if we really fancy a curry and they're not going to eat that then we will feed them earlier, we actually quite enjoy splitting up meals'*

Strategies employed to introduce and encourage the ongoing consumption of a variety of fish and seafood meals by children included eating fish before being permitted to eat chips or calling fish by a similar food that the children had experienced and enjoyed (e.g. chicken).

*'I find the gimmicky thing for young children worked really well'*

*'We use chips as an incentive to get the kids to eat fish'*

*'The only reason they eat fish is because of the association with chips'*

*'If I have my nephew over we call it chicken'*

*'For a long time everything was chicken, as long as it was called chicken she ate it'*

#### **4.2.6 What do you think would encourage your family to eat more fish?**

Price emerged as the dominant influencing the consumption of fish or seafood (n=32). Availability and accessibility to good quality seafood outlets (n=27), freshness of the products available (n=25) and the availability of good quality boneless varieties (n=21) were also considered important determinants of the frequency of fish consumption.

*'main thing for me is availability, trying to find a good fish monger'*

*'We only go for fresh fish that we can buy, we won't buy frozen fish'*

*'mind you meat has got very expensive lately and I find that I am buying more fish now because meat has got so expensive, so there's not such a huge difference in the price between meat and fish'*

*'I still think that parents have control over what the kids eat and you still have to encourage adults to eat more fish before you can encourage the kids to eat more'*

#### 4.2.7 What do you think are some of the barriers to fish becoming a regular family meal in your community, that is including fish in meals two to three times per week?

When asked to discuss perceived barriers relating to fish becoming a regular family meal in their community, several dominant themes were evident. Participants considered the price of fish and seafood products to be the main barrier for regular consumption (n=33). Lack of preparation and cooking skills (n=20), availability and accessibility of high quality products (n=18), whether family members like fish or seafood (n=14), availability of (boneless) filleted fish (n=12), and the smell associated with fish (n=12) all featured prominently during discussions.

*'it's hard to ruin chicken, you can't really ruin a lamb chop but you can ruin fish very easily'*

*'I try to limit it to fifteen (dollars), you know around there otherwise I don't buy it, we don't eat fish'*

*If you do like a weekly shop when I buy fish I like to cook it that night so I don't usually buy a lot of it'*

*'there is a bit of a fine art to cooking seafood and maybe people are afraid to risk the money that it costs you know to experiment'*

## 5.0 Conclusions

This formative study sought to identify and examine the barriers and enablers to regular seafood consumption in pre-school and Year One school children and the knowledge, attitudes and perceptions to including seafood as a regular part of their children's diet.

Focus group results indicated that most children had tried a variety of seafood. The main barriers to regular consumption of seafood (including fish) were cost and lack of knowledge of how to choose, prepare and store fresh seafood. Most participants indicated quick, wholesome and easy to prepare recipes for seafood were difficult to find. One interesting barrier that emerged was the dominance of the father or adult male preferences in the meals prepared. If the dominant male in the household did not eat seafood, then it was rarely prepared.

Foods regularly eaten as children became dominant foods prepared and eaten in adulthood. Parental influences and childhood experiences had an enormous influence on the foods eaten and prepared by participants in all focus groups.

## 6.0 Recommendations for future research

The following are recommendations for future research based on the findings from this formative study.

1. The influence of fathers and male carers in the foods purchased and prepared in households should be investigated and identify how these attitudes may be changed.
2. Guides to the selection and storage of good quality seafood are required.
3. Quick 'foolproof' recipes and hints of preparation of seafood are required to ensure that seafood is not 'wasted' through inappropriate preparation.
4. The cost and availability of seafood were perceived barriers to regular consumption. Lower cost varieties of seafood that are readily available should be promoted (including ways to prepare them).
5. Strategies should initially be directed at parents and carers to overcome negative perceptions retained from childhood around seafood consumption and preparation.
6. Strategies directed towards young children should centre around experiential examples with 'hands on' preparation and cooking (were appropriate). Tasting a variety of seafood should be integral to all program components directed at children.



## 7.0 References

1. Myrland, O, Trondsen, T, Johnston, R & Lund, E 2000, 'Determinants of seafood consumption in Norway: lifestyle, revealed preferences and barriers to consumption', *Food Quality and Preferences*, vol. 11, pp. 169-188.
2. Verbeke, W & Vackier, I 2005, 'Individual determinants of fish consumption: application of the theory of planned behaviour', *Appetite*, vol. 44, pp. 67-82
3. Leek, S, Maddock, S & Foxall, G 2000, 'Situational determinants of fish consumption', *British Food Journal*, vol. 102, no. 1, pp. 18-31.
4. Olsen, S 2001, 'Consumer involvement in seafood as family meals in Norway: an application of the expectancy-value approach', *Appetite*, vol. 36, pp. 173-186.
5. Broom, A 2005, 'Using qualitative interviews in CAM research: a guide to study design, data collection and data analysis', *Complimentary Therapies in Medicine*, vol. 13, pp. 65-73.
6. Pope, C, Ziebland, S & Mays, N 2000, 'Qualitative research in health care: analysing qualitative data', *British Medical Journal*, vol. 320, pp. 114-116.
7. Roding, K & Nordenram, G 2005, 'Students' perceived experience of university admission based on tests and interviews', *European Journal of Dental Education*, vol. 9, pp. 171-179.

## 8.0 Appendices

### Appendix A Participant Information Sheet

## Appendix B Participant Consent Form

## Appendix C Demographic Survey

## Appendix D Focus Group Protocol

## Appendix E Focus Group Schedule