

Year/Authors	Title	Journal/PMID	Description of study (from abstract)	Research methods (qualitative or quantitative, brief detail)	Barriers to eating fish	Incentives to eating fish
2015/Carluccio D, Nocellab G, De Devitiisc B, Viscecchiac R, Bimbod F, Nardonec G	Consumer purchasing behavior towards fish and seafood products. Patterns and insights from a sample of international studies	Appetite/25453592	Systematic review assessing consumer purchasing behavior towards fish and seafood products in developed countries; looks at main drivers and barriers of fish consumption and consumer preferences	systematic review	sensory dislike of fish; lack of convenience; lack of self-confidence in selecting or preparing fish; health risk concern; lack of fish availability; high price	positive attitude toward fish; perception that fish is a healthy food
2015/Niederdeppe J, Connelly NA, Lauber TB, Knuth BA	Using Theory to Identify Beliefs Associated with Intentions to Follow Fish Consumption Advisories Among Anglers Living in the Great Lakes Region	Risk Anal/25946393	Mail survey of 1,712 licensed anglers to gauge advisory awareness, cognitive factors influencing fish consumption behaviors, and sociodemographic characteristics	cross-sectional survey	n/a	n/a
2015/Skuland SE	Healthy Eating and Barriers Related to Social Class. The case of vegetable and fish consumption in Norway	Appetite/25982927	2000 Norwegians surveyed to explore whether barriers reduce consumption of vegetables and fish	quantitative, survey	taste; competence; time; price; quality; limited selection	n/a
2014/Connelly NA, Lauber TB, Niederdeppe J, Knuth BA	How can more women of childbearing age be encouraged to follow fish consumption recommendations?	Environmental Research/5262080	857 woman surveyed (via mail), 130 surveyed (via telephone), and 25 women participated in focus groups to better understand what might be done to encourage women of childbearing age to eat healthy fish	mixed method--survey and focus groups	n/a	n/a
2014/Lin S, Herdt-Losavio ML, Chen M, Luo M, Tang J, Hwang SA	Fish consumption patterns, knowledge and potential exposure to mercury by race.	Int J Environ Health Res/23865562	421 adults surveyed to compare fish consumption, knowledge of benefits/warnings, and potential of Hg exposure from fish in Chinese -Americans and non-Chinese Americans	questionnaire	n/a	healthy (Chinese Am); good for the brain; good for the heart (non-Chinese Am)
2013/Engelberth H, Teisl MF, Frohberg E, Butts K, Bell KP, Stableford S, Smith AE	Can fish consumption advisories do better? Providing benefit and risk information to increase knowledge.	Environ Res/24074700	808 women surveyed to evaluate effectiveness of Maine's fish consumption advisory on improving knowledge	survey (mail and web)	n/a	benefits of Omega-3s (promoting neurological development in babies)

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2013/Hall TE, Amberg SM	Factors influencing consumption of farmed seafood products in the Pacific northwest	Appetite/23428939	1159 people living in Pacific Northwest surveyed on general seafood preferences (familiarity, price, freshness, health and environmental concerns), beliefs and attitudes specific to aquaculture versus wild products, and how those cognitive factors affect decisions to consume types of farmed seafood products	mail survey	n/a	price, freshness, and familiarity= most important determinants of seafood choices
2013/LePrevost CE, Gray KM, Hernández-Pelletier M, Bouma BD, Arellano C, Cope WG	Need for Improved Risk Communication of Fish Consumption Advisories to Protect Maternal and Child Health: Influence of Primary Informants	Int J Environ Res Public Health/23629591	109 anglers interviewed to study effectiveness of a fish consumption advisory sign for Badin Lake	interviews	n/a	n/a
2013/Oken E, Guthrie LB, Bloomingdale A, Platek DN, Price S, Haines J, Gillman MW, Olsen SF, Bellinger DC, Wright RO	A pilot randomized controlled trial to promote healthful fish consumption during pregnancy: the Food for Thought Study	Nutr J/23496848	61 women involved in pilot study to increase consumption of high-DHA, low-mercury fish in pregnancy (advice group; advice + gift card group; control group)	randomized control trial	n/a	n/a
2013/Raatz SK, Silverstein JT, Jahns L, Picklo MJ	Issues of Fish Consumption for Cardiovascular Disease Risk Reduction	Nutrients/23538940	A review to provide an overview of the issues affecting this shortfall of intake and to describe the relationship between fish intake and CVD risk reduction as well as the other nutritional contributions of fish to the diet	literature review	n/a	n/a
2012/Clonan A, Holdsworth M, Swift JA, Leibovici D, Wilson P	The dilemma of healthy eating and environmental sustainability: the case of fish	Public Health Nutr/21619717	842 people; whether health and/or sustainability are motivating factors when purchasing and consuming fish and whether there are sociodemographic trends	survey	n/a	health benefits; understanding what type of fish to eat for health reasons
2012/Driscoll D, Sorensen A, Deerhake M	A multidisciplinary approach to promoting healthy subsistence fish consumption in culturally distinct communities.	Health Promot Pract/21730195	Formative and evaluative research to determine knowledge, attitudes, and practices related to fish consumption and develop/evaluate educational materials on fish consumption	interviews	n/a	n/a

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2012/Grieger JA, Miller M, Cobiac L	Knowledge and barriers relating to fish consumption in older Australians	Appetite/2272774	854 Australians surveyed on fish intake, barriers, and knowledge regarding fish	cross-sectional survey	high cost, smell, cooking	n/a
2012/Mertens F, Saint-Charles J, Mergler D	Social communication network analysis of the role of participatory research in the adoption of new fish consumption behaviors	Soc Sci Med/22172976	Follow-up on a participatory intervention to reduce methylmercury exposure while maintaining fish consumption; explored change in fish consumption and discussion networks about methylmercury	interviews	n/a	n/a
2011/Bloomingdale A, Guthrie LB, Price S, Wright RO, Platek D, Haines J, Oken E	A qualitative study of fish consumption during pregnancy.	Am J Clin Nutr/20844071	22 pregnant women participated in a study to determine knowledge, behaviors, and received advice regarding fish consumption among pregnant women who are infrequent consumers of fish	focus groups	lack of knowledge regarding which fish types are safer to eat during pregnancy; women's inability to remember which fish types are more or less healthful; pregnancy-related nausea or aversions; cost; women's preference to eat only very fresh fish; perception that fish can be difficult to prepare; fact that other family members, especially children, may not like fish	if family members ate it
2011/Tan ML, Ujihara A, Kent L, Hendrickson I	Communicating fish consumption advisories in California: what works, what doesn't.	Risk Anal/21231943	46 key informant interviews conducted to characterize barriers to understanding fish advisories and make recommendations to improve advisory communications	interviews	n/a	n/a
2011/Teisl MF, Fromberg E, Smith AE, Boyle KJ, Engelberth HM	Awake at the switch: improving fish consumption advisories for at-risk women.	Sci Total Environ/21663945	769 new mothers surveyed to assess effect of Maine's CDC advisory on fish consumption	survey	n/a	n/a
2010/Pieniak Z, Verbeke W, Scholderer J	Health-related beliefs and consumer knowledge as determinants of fish consumption.	J Hum Nutr Diet/20831707	4786 people from European countries surveyed to determine knowledge and health beliefs and how those affect fish consumption frequency	survey	n/a	n/a

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2007/Olsen SO, Scholderer J, Bruns K, Verbeke W	Exploring the relationship between convenience and fish consumption: a cross-cultural study.	Appetite/17261344	Households from Netherlands, Spain, Belgium, Denmark, and Poland surveyed/interviewed to explore cross-cultural differences in convenience orientation and the relationships between convenience orientation, perceived product inconvenience, attitudes, and consumption in the context of fish	interviews, surveys	perceived inconvenience (indirectly effects attitude and directly effects consumption choices)	n/a
2003/Trondsen T, Scholderer J, Lund E, Eggen AE	Perceived barriers to consumption of fish among Norwegian women	Appetite/14637329	9407 Norwegian women surveyed about eating habits, perceived barriers to fish consumption, socioeconomic status, and questions related to health	survey	lack of supply of fresh fish; lack of 'pre-prepared dishes'; variation of quality; family did not like fish; taste; price; region of residence	n/a
2005/Verbeke W, Vackier I	Individual determinants of fish consumption: application of the theory of planned behavior	Appetite/15604034	429 people completed questionnaires to investigate consumer behavior towards fish in Belgium using theory of planned behavior	questionnaire	safety, smell, bones in fish	sensory liking
2005/Verbeke W, Sioena I, Pieniaka Z, Van Campa J, De Henauwa S	Consumer perception versus scientific evidence about health benefits and safety risks from fish consumption	Public Health Nutr/15975189	429 people completed questionnaires to investigate consumer perceptions of fish consumption benefits and risks and then compared these to scientific evidence	questionnaire	n/a	n/a

Year/Authors	Specific key messages that worked	Specific messages that did not work	Successful communications modes	Failed/poor communications modes	Demographic differences found (describe age/race-ethnicity/education level, income, etc)	Other
2015/Carluccia D, Nocellab G, De Devitiisc B, Viscecchiac R, Bimbod F, Nardonec G	n/a	n/a	n/a	n/a	children under age 10 express increased dislike towards fish; older, well educated individuals experience more motivational factors toward consumption; pregnant women, nursing mothers, and mothers of young children have higher risk perception related to fish consumption	n/a
2015/Niederdeppe J, Connelly NA, Lauber TB, Knuth BA	n/a	n/a	n/a	n/a	n/a	study identified that several beliefs with likely room to change and strong associations with intentions to follow fish consumption advisories include: beliefs about the long-term health risks of chemical contaminants, norms surrounding the use of fish consumption advisories, and those about the utility of advisories in helping anglers to choose healthier fish to eat
2015/Skuland SE	n/a	n/a	n/a	n/a	lower education=more constrained by food knowledge barriers; lower income= more constrained by food quality barriers; low education and low income= more constrained by both knowledge and quality food access	n/a
2014/Connelly NA, Lauber TB, Niederdeppe J, Knuth BA	n/a	n/a	succinct statements rather than longer ones; statements that described positive characteristics of fish not shared by many other foods; statements about Omega-3s; statements with particular relevance to the individual	messages about health risks made it difficult for women to reconcile information about the benefits	more educated women ate more fish during pregnancy; more educated women also report decreasing fish consumption during pregnancy than before; higher educated women report receiving information about consumption of purchased fish than lower educated	women who report receiving information during pregnancy were more likely to decrease fish consumption than those who didn't receive information
2014/Lin S, Herdt-Losavio ML, Chen M, Luo M, Tang J, Hwang SA	n/a	n/a	n/a	n/a	higher general knowledge about fish warnings among non-Chinese Americans; higher consumption of potentially high-Hg fish by non-Chinese Americans	n/a
2013/Engelberth H, Teisl MF, Frohberg E, Butts K, Bell KP, Stableford S, Smith AE	switching from "don't" messaging to positive messaging; information on how to buy, store, and prepare fish; info on how to eat 2 fish meals/week on limited budget	n/a	booklets with information on benefits of Omega-3s (promoting neurological development in babies); positive messaging about fish consumption; guide depicting fish both high in Omega-3s and low in MeHg and fish to avoid during pregnancy distributed through WIC clinics and healthcare providers; posters with images of fish and mercury level in waiting rooms of health care offices	n/a	n/a	n/a

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2013/Hall TE, Amberg SM	n/a	n/a	n/a	n/a	n/a (presented demographic differences only in relation to fresh vs. wild)	included because while the article seeks to compare wild vs. farmed fish, it also touches on general factors influencing consumption, Table 1
2013/LePrevost CE, Gray KM, Hernández-Pelletier M, Bouma BD, Arellano C, Cope WG	n/a	n/a	sign did result in a significant increase in knowledge of the fish consumption advisory was found for the entire sample of study participants (however, not the subgroup of anglers who share fish with women and children)	sign did not produce statistically significant increase in knowledge about the fish consumption advisory on Badin Lake among anglers who share fish with women and children	Knowledge of the Badin Lake-specific advisory significantly increased with age for the overall sample and the subsample of anglers who share with women and children	n/a
2013/Oken E, Guthrie LB, Bloomingdale A, Platek DN, Price S, Haines J, Gillman MW, Olsen SF, Bellinger DC, Wright RO	n/a	n/a	booklet that summarized the health effects of DHA in pregnancy encouraged fish intake and included a list of recommended low-mercury fish sorted according to DHA content; shopping list notepad that included the list of recommended low-mercury fish ranked by their DHA content; wallet-sized card summarizing the information in the brochure; "Weekly Thoughts" email about fish and recipe	n/a	n/a	n/a
2013/Raatz SK, Silverstein JT, Jahns L, Picklo MJ	n/a	n/a	n/a	n/a	younger adults were more cognizant of the health risks of fish consumption; older adults had more awareness of health benefits and perceived fish consumption as healthy; higher education level leads to higher awareness of health risk	listed as factors influencing fish consumption (not listed as barriers or incentives): taste and convenience, demographic factors such as age , cultural background , socio-educational status , economic factors such as affordability and availability , knowledge of health benefits from eating n-3-rich fish, toxicological concerns such as contamination by mercury and dioxin, and environmental concerns of overfishing and habitat destruction
2012/Clonan A, Holdsworth M, Swift JA, Leibovici D, Wilson P	n/a	n/a	n/a	n/a	Participants from the oldest age group (61–91 years) were more likely to agree that they 'buy fish mainly for the health benefits'	included because the study includes data on attitudinal factors found to influence fish consumption, Table 5
2012/Driscoll D, Sorensen A, Deerhake M	n/a	n/a	tri-fold brochure (successful in increased perceptions to vulnerability to MeHg and perceptions of risk severity)	n/a	African American participants in high-risk group intended to cease consumption of fish entirely (not limit like suggested in materials); Latino participants intended to continue consuming fish with no change; high risk Native Americans intended to eat fish with low levels of MeHg as described in educational materials	n/a

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2012/Grieger JA, Miller M, Cobiac L	n/a	n/a	information from health providers; word of mouth; magazines; current affairs reports; television advertisements; news; scientific reports	n/a	n/a	n/a
2012/Mertens F, Saint-Charles J, Mergler D	n/a	n/a	interpersonal discussion on mercury issues; spousal interaction; individual involvement in health studies	n/a	women who participated in health studies were more active in the discussion network related to mercury than men	n/a
2011/Bloomingtondale A, Guthrie LB, Price S, Wright RO, Platek D, Haines J, Oken E	n/a	messages only about fish you should not consume	portable list of safe fish and advice from OB (potentially successful)	n/a	n/a	n/a
2011/Tan ML, Ujihara A, Kent L, Hendrickson I	advisories focused on frequency of consumption; advisories giving info about mercury levels as reason for recommendation; providing new knowledge about fish (not just consumption limits); visual using 2 adult hands with different portions to show adult and child portions; circular meter for mercury level	advisories relying on controlled portion size; words including: women of childbearing age, anglers, meal, uncooked and Omega-3 fatty acids; visual images of adult and child hands to show portion size; vertical and horizontal mercury meters	word of mouth (friends); fishing magazines	n/a	n/a	n/a
2011/Teisl MF, Fromberg E, Smith AE, Boyle KJ, Engelberth HM	providing risk-benefit information (induced switch behavior to safer fish consumption)	providing only risk-related information	brochure describing safe eating guidelines for commercial and sport caught fish distributed at WIC clinics, OBGYN offices, family physicians practicing obstetrics, nurse midwives	n/a	n/a	n/a
2010/Pieniak Z, Verbeke W, Scholderer J	interest in healthy eating; subjective knowledge about fish; objective knowledge about fish	n/a	n/a	n/a	older people had higher frequency of fish consumption	n/a

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2007/Olsen SO, Scholderer J, Bruns K, Verbeke W	n/a	n/a	n/a	n/a	n/a	included because this study highlights the need to educate consumers about where to buy and how to prepare fish in convenient forms, and change some consumers' beliefs and attitudes about fish as an inconvenient product
2003/Trondsen T, Scholderer J, Lund E, Eggen AE	n/a	n/a	n/a	n/a	responding positively to "do you eat enough fish" increased in women following recommendations for f/v consumption; those reporting higher physical activity level increased with age and in households with children below age 7 and with 2 people vs. 1; people w/ increased education reported less barriers to eating fish	n/a
2005/Verbeke W, Vackier I	n/a	n/a	n/a	n/a	presence of children <18 y.o. in household, lower consumption; age positively correlated with attitudes toward consumption; higher intention to eat fish with higher education level	n/a
2005/Verbeke W, Sioena I, Pieniaka Z, Van Campa J, De Henauwa S	n/a	n/a	n/a	n/a	higher tendency for women to eat fish weekly than men; >40 y.o. higher fish consumption frequency than younger age groups; families with children had significantly higher fish consumption frequency than those without children	study included data on beliefs about harmful substances in fish, belief that fish is healthy, data on understanding of nutrient content of fish---did not link those beliefs directly to consumption but found differing beliefs among different demographic groups