Food Safety Cognition of Parents with Young Children and the Potential Use of Online Parenting-Communities to Obtain Food Safety Information. Ellen W. Evans¹*, Kayleigh J. Knowles² & David C. Lloyd¹



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Introduction

Children are especially vulnerable to foodborne illnesses and are affected

- immature immune systems (reduced ability to fight infection),
- lower body weights (smaller doses of pathogens causing more pronounced effects than in an adult), and,
- reduced stomach acid production (limiting the amount of pathogen denaturation during the digestion process).

Consequently, children are disproportionately affected¹, and are associated with increased incidence of foodborne illness, indeed incidence of many pathogens is highest among children aged <4 years².

Although numerous consumer food safety studies have been conducted involving the general population, data detailing the food safety knowledge and self-reported practices of parents are currently lacking.

Furthermore, with over two billion people reported to be users of social media sites³, there has been an increase in the popularity of social networking sites and forums for parents and online parenting-communities. For example, 'Mumsnet' is a website for UK parents, it hosts discussion forums where users share advice and information on parenting and other related topics⁴.

Given the potential for the sharing of advice and information, there is a need to determine the potential use of such platforms by parents to share and obtain information relating to food safety for children such as during preparation of powdered infant formula (PIF), weaning and solid food preparation phases.

Purpose

The purpose of the study was to determine the food safety knowledge and self -reported practices of parents and identify trusted sources of food safety information. Additionally, the study aimed to explore the use of online parenting communities in relation to food safety information.

Methods

Self-complete questionnaire: An online self-complete questionnaire, distributed using social media was completed by parents of children (aged <5 years) based in the UK (n=78). The majority (95%) were female. Only 9% were 18–25 years, 55% were 26–33 years and 35% were over 34 years.

Netnography study: Discussion threads relating to food safety (n=20) and all relating comments (n=489) from the UK based parental social media site 'Mumsnet' were reviewed and analysed with a netnographic approach to explore peer-to-peer sharing of food safety advice or promotion of food safety malpractices.

Ethical Approval: Approval was obtained from the Health Care and Food, Ethics Panel at Cardiff Metropolitan University.

Results

Food safety knowledge and self-reported practices

Powdered infant formula:

PIF is not sterile, even when manufactured to meet hygiene standards it can contain pathogens. Reconstituted PIF provides ideal conditions for growth of pathogens. It should be held for no more than two hours at room temperature and no more than 24 hours in a refrigerator (≤5°C)⁵.

- Only 56% were aware PIF is not sterile.
- 84% reported they would store reconstituted PIF at room temperature for up to two hours before disposing of it.
- 99% reported refrigerated storage of PIF would not exceed 24 hours.

Refrigeration temperatures:

Although parents indicated awareness of recommended refrigeration temperatures, self-reported practices suggest formula may be stored at potentially unsafe temperature in the home:

- 79% were aware that their refrigerator should operate at a temperature between 0 – 5°C.
- 59% reported they did not know the temperature of their refrigerator.
- 71% reported they never use a thermometer to check the operating temperature of their refrigerator.

Use-by date:

The use-by date, is determined based upon pathogen growth parameters, to ensure food remains safe for consumers⁶.

- 66% were aware that the use by date indicated the last date the product was safe for consumption.
- Only 35% reported 'always' following use-by dates.
- 91% were 'more likely' of adhering to use-by dates if the food was intended for a child and not themselves.

Trusted sources of food safety information and reported usage of online-parenting communities:

The most trusted sources for food safety information were medical professionals. Midwives were the most trusted (95%), along with general practitioners (89%) and health visitors (70%). Findings indicate online parenting-communities may be used to obtain food safety information:

- 95% reported accessing online parenting-communities.
- <60% reported having used online parenting-communities to obtain</p>
- <32% believed information from such sources to be trustworthy.</p>
- 48% reported social-media influenced their opinions and practices.

The majority (73%) reported that if they saw a comment advising a food safety malpractice in an online parenting-community, they were likely of correcting the information. Furthermore, 92% stated they would be more likely of correcting the advice if it was given to a friend. However, fewer (74%) stated they would correct the advice if it came from a friend.

Inclusion of food safety information in online parenting-communities

Examples of food safety questions posted on forums:

mumsnet by parents for parents

mumsnet by parents for parents

mumsnet

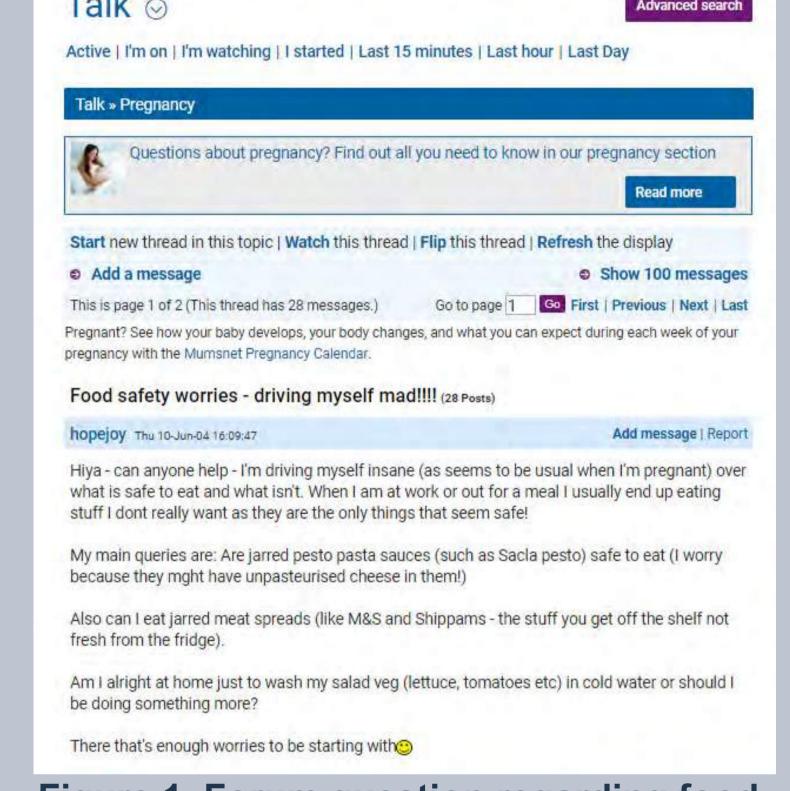


Figure 1. Forum question regarding food safety during pregnancy.

Talk ⊙	Advanced search
Active I'm on I'm watching I started Last 15 minutes Last hour Last [Day
Talk » Food/Recipes	
Looking for inspiration for dinner (or breakfast, or lunch?) Try our Top Banana cookbook - 120 family meals from Mumsnetters. Now under £10	Find out more
Start new thread in this topic Watch this thread Flip this thread Refresh the Add a message	e display
This is page 1 of 1 (This thread has 8 messages.)	
Food hygiene - is it safe to reheat leftover pie made with leftove	r roast chicken?
Flingmoo Wed 16-Sep-15 22:11:29	Add message Report
Roasted a whole chicken yesterday and ate half. Put the leftovers in the fridge	e overnight.
This evening, turned the rest of the cooked chicken into a chicken, bacon and ate half of that tonight.	mushroom pie and
Is it safe to reheat and eat the other half of the pie tomorrow?! It would be the reheated but the second time the <i>chicken</i> inside it is reheated.	e first time the <i>pie</i> is
This stuff really confuses me	
igure 2. Forum question regard for the string left over cooked for	

Talk » Parenting		
What's for lunch today? Take inspiration from recipes in our Top Bananas! cookbook - no		nd-tested Find out more
Start new thread in this topic Watch this threa	ad Flip this thread R	efresh the display
Add a message		Show 100 messages
his is page 1 of 2 (This thread has 37 messages.)	Go to page 1	Go First Previous Next Last
Storing formula, quick question (37 Posts)		
emilyeggs Wed 31-Jul-13 22:22:56		Add message Report
evening all, I was just wondering if anyone stor	es ara mada farmula	in the fridge (this each

safe storage of reconstituted PIF.

The netnography study reviewed and analysed publically accessible comments (n=489), made in response to food safety related forum threads (n=20) on Mumsnet. Content analysis determined that the majority of comments (83%) were classed as 'irrelevant' as they did not relate or refer to the nature of the thread. It was determined 5% provided potentially unsafe advice, 11% provided advice in-line with food safety recommendations, and only 1% provided links to official information.

Findings indicated that such forums are utilised by parents to obtain information by posting food safety questions or concerns (Figure 1, Figure 2 and Figure 3).

The forums provide open and free discussion, however disagreements and differences in opinion are seen, particularly in relation to topics that can be controversial, such as preparation of PIF. Indeed, in response to a question regarding safe storage of reconstituted PIF, some responses were emotional (Figure 4).

Although a number of responses to the forum thread provided correct information, some were providing vague or only partly-correct information as indicated in Figure 5, whereby a recommended practice is given, but states they are unsure of recommended storage length.

Only a small proportion of comments refer to reliable sources of food safety information such as citing information provided from the National Health Service (NHS), as illustrated in Figure 6, a direct quote from a leaflet provided by the NHS if given, similarly in Figure 7 the commenter refers to the need to follow such guidance.

Others responded by giving correct food safety information supported by a link to the Food Standards Agency (FSA) guidance (Figure 8), others referred to Unicef guidelines and advice given verbally by healthcare professionals such as Health Visitors.

However, the majority of comments made in responses to the forum thread provided information based up on personal experience and may not be inline with food safety recommendations.

Many comments that suggested for recommended potential food safety malpractices, often indicated they were aware that they were not adhering with guidelines and defended their actions by stating the method they follow had never resulted in their children being ill, this seemed to reinforce the acceptability of potential food safety malpractices in the peer-to-peer information exchange (Figure 9).

Completion of the netnography study has identified the need to explore the potential of positively utilising parental social media platforms to effectively communicate the importance of domestic food safety to parents when preparing food for young children.

Examples of response to food safety forum questions:

"Oh FFS its not bollocks. Formula needs to be made up with hot water, not cold." (RobotHamster)

Figure 4. Emotional response to thread.

"Yes, you CAN pre make bottles, as long as you make them with 70 degree+ water, flash cool them and keep them at the back of the fridge. I'm not sure there's any agreement on how long you should store them for." (AnythingNotEverything)

Figure 5. Response providing partly correct information.

"From the NHS leaflet... and this is from March this year so up to date... 'If you have no choice and need to store a feed, it should always be stored at the back of the fridge and for no longer than 24 hours. Any infant formula left in the bottle after a feed should be thrown away. Infant formula that has not been used and has been kept at room temperature must be thrown away within two hours'." (MiaowTheCat)

Figure 6. Response citing NHS provided information.

"Emily, you have to follow the NHS and manufacturers guidelines and do what you are comfortable with." (Desi279)

Figure 7. Response referring to NHS

"This [link to FSA guidance] explains why the water needs to be 70 degrees, and also how to refrigerate bottles safely." (notso)

Figure 8. Response providing correct information supported by a link.

"I have always done that for all mine and none have ever been ill. I think we get far too uptight about germs. IMO there is no problem with doing that at all." (kitywits) "The new guidelines say you shouldn't but I have used this method for both my children and they are both fine and have never been ill as a result." (sweetheart)

Figure 9. Comments that support promotion of food safety malpractices.

Significance of study

- Although parents are knowledgeable of some key aspects of domestic food safety when preparing food to be consumed by young children, gaps exist and food safety malpractices are reportedly implemented.
- The potential role of online parenting-communities in obtaining foodrelated information has been established.
- Completion of the study has determined the need for research to investigate the communication of food safety malpractices among peers on parental social media platforms and explore the potential for such platforms to promote food safety.

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References

- 1.PEW. (2009). Children and Foodborne Illness. [Accessed 13 November 2017]. Available from: http://www.pewtrusts.org/~/media/assets/2009/11/12/ childrenandfoodborne.pdf?la=en
- 2. Centers for Disease Control and Prevention (2009). Preliminary FoodNet Data on the Incidence of Infection with Pathogens Transmitted Commonly Through Food - 10 States, 2008. Morbidity and Mortality Weekly Report, 58(13): p333-337.
- 3. Statista. 2017. Number of monthly active Facebook users worldwide. [Accessed 14 November 2017]. Available at: https://www.statista.com/statistics/264810/number-of-
- 4. Mumsnet (2017) Mumsnet about us. [Accessed 13 November 2017]. Available from: https://www.mumsnet.com/info/about-us
- 5. WHO, & FAO. (2007). Safe preparation, storage and handling of powdered infant formula Guidelines. [Accessed 14 November 2017]. Available at: http://www.who.int/ foodsafety/publications/micro/pif guidelines.pdf
- 6. Wilson, I. G. (1996) Occurrence of Listeria species in prepacked retail sandwiches. Epidemiol. Infect., 117(1): p89-93.

Handouts

All posters from the ZERO2FIVE Food Industry Centre are available for download from: http://www.cardiffmet.ac.uk/health/zero2five/research