Food Safety Knowledge and Self-Reported Practices of Parents with Young Children

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Introduction

Children are especially vulnerable to foodborne illnesses and are affected more severely due to:

- 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 affected (PEW, 2009). Subsequently, children are associated with increased incidence of foodborne illness, indeed incidence of many pathogens is highest among children aged <4 years (CDC, 2009).

Given the association of the domestic kitchen with sporadic foodborne illness, accounting for around 20% of cases (Redmond and Griffith, 2009), implementation of safe food handling/storage practices are essential when preparing food for young children.

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 sites (Statista, 2017), 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 topics.

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 <5years) (n=78).

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

References

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Results

A total of 78 parents/guardians of children aged below the age of five, based in the UK completed the online questionnaire. The majority (95%) were females. Only 9% were aged 18 – 25 years, 55% were aged 26 – 33 years and 35% were over the age of 34.

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) (WHO & FAO, 2007).

- 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 that they did not know the current 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 consumers (Wilson, 1996).

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

Trusted sources of food safety information and use of online parenting-communities

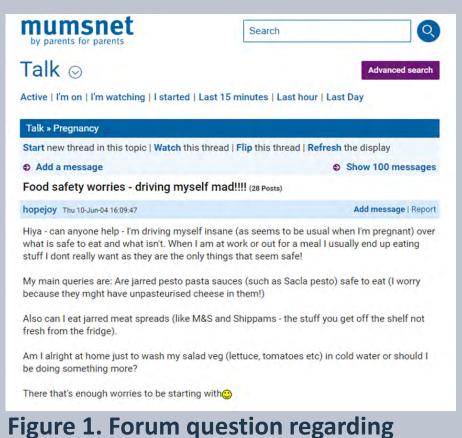
The most trusted sources for food safety information were medical professionals. Midwives were the most trusted (95%), along with general practitioners (89%) and health visitors (70%). Findings indicate online parenting-communities may be used to obtain food safety information:

- 95% reported accessing online parenting-communities.
- <60% reported using online parenting-communities to obtain information.</p>
- <32% believed information acquired from such sources to be trustworthy.</p>
- 48% reported that social-media influenced their everyday 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.

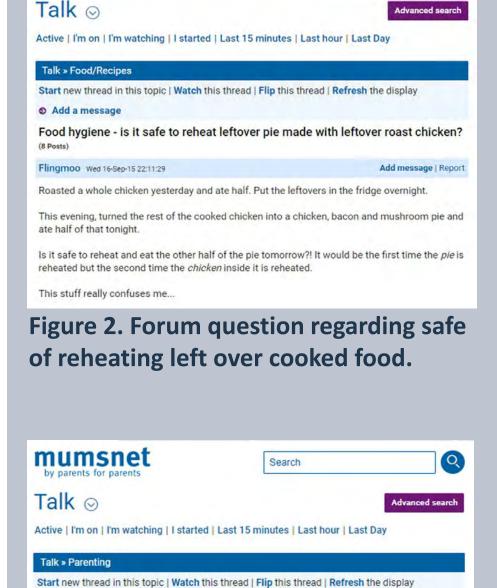
Inclusion of food safety information in online parenting-communities

Examples of food safety questions posted on forums:



food safety during pregnancy.

mumsnet



bottle. It's such a waist. I know I could make smaller bottles but was just wondering if it can be kept safely
Figure 3. Forum question regarding safe storage of reconstituted PIF.

people say they do), and if so, how long do you keep it in there? I've never done it and have never kept a bottle passed the 2hr deadline but ds is weaning and may only dring 1-2 oz of a 7oz The netnography study reviewed and analysed publically accessible comments (n=489), made in response to food safety related forum threads (n=20) on Mumsnet.

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 (Figure 5). 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) (Figure 6) and referred to the need to follow such guidance (Figure 7), 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 in-line with food safety recommendations. Many comments that suggested 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 guidelines.

"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 food-related 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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