Tapping into authentic presence: key components arising from a concept analysis of online breastfeeding support

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Abstract

Background. The internet is widely used by women to guide infant-feeding decisions and practice, but there is no clear understanding of women's self-directed use of the internet to support breastfeeding.
Aim. To conceptualise online breastfeeding support.
Methods. With ethical approval, a mixed methods triangulated study was undertaken based on a concept analysis that used an eight-step framework. The study was designed in three phases – Phase 1: a concept analysis to identify components of online breastfeeding support; Phase 2: testing of tentative components arising from the concept analysis through observation of breastfeeding-related online discussions (based on 126 threads containing 1230 messages generated by 510 individuals); Phase 3: confirmation of the resultant model through online interviews with 12 women.
Findings. In total, 16 components of online breastfeeding support emerged indicating that women who engaged in this practice had antecedents of: a breastfeeding goal; a breastfeeding query or interest in discussion/debate; inadequate face-to-face support or seeks additional/optional support; willingness to seek and offer support online. Attributes manifested as a tailored menu of support or enablement of debate by more experienced others, in an accessible, responsive, optionally anonymous environment sustained by indirect reciprocity. Confirmed consequences were: reconstruction of breastfeeding experience; impact on breastfeeding outcomes and other aspects of parenting; becoming expert and enabling face-to-face support. Together, these components constitute an authentic presence of support created by a global community of breastfeeding women.
Conclusion. To our knowledge, this study is unique and has potential to impact on strategies targeting maternal and child health at a national and international level. The study provides new theoretical knowledge about women's behaviour and usage of online support to enable them to achieve desired breastfeeding goal(s). This study provides empirical evidence of 'woman-generated', sustainable, online breastfeeding support and opens the doors for targeted public health research investment.

Key words: Breastfeeding, support, online, mixed methods, concept analysis, antecedents, attributes, consequences, indirect reciprocity, evidence-based midwifery

Introduction

The need for robust evidence about effective breastfeeding support has been topical for some time in view of static or decreasing breastfeeding rates worldwide (Renfrew et al, 2012). The internet has been identified as one approach to support women to breastfeed (Stockdale et al, 2007; Gribble, 2001). Global internet usage has increased from around 1% in 1995 to over 40% today (Internet World Statistics, 2014). Seven out of ten internet users have sought health information online (Fox and Duggan, 2013). It is estimated that around 30% of new mothers seek lactation support online (Leahy-Warren et al, 2009). A structured search of the literature (Herron, 2013) identified a lack of published studies exploring women's use of the internet for breastfeeding support. A recent review (Giglia and Binns, 2014) reported little evidence of effective online professional interventions impacting on breastfeeding outcomes.

Rationale

This study focused on gaining an understanding of women's self-directed use of online breastfeeding support (OBS) – reflecting the need to learn from women's experiences in order to ensure that breastfeeding support is effective and relevant (Barclay et al, 2012).

Methods

The eight-step concept analysis framework developed by Walker and Avant (2005) was selected to guide the study and was undertaken using a non-linear approach. The concept analysis was enhanced by contextualisation through testing and validation as recommended by Gillen et al (2004) and resulted in three distinct but interlinked phases.

Phase 1: All eight steps of the concept analysis were undertaken, including a literature review to identify the key components of OBS.

Phase 2: An online observational study was undertaken to test components arising from the concept analysis. The online environment is acknowledged as a suitable location for observational research (Hine, 2008), however, given the lack of a standardised approach for extracting and analysing online data (Murthy, 2008), the following processes were adopted:

Selection of site: A breastfeeding forum was selected for observation by emulating user behaviour on a search engine (Eysenbach and Köhler, 2002) and applying criteria recommended by other authors including:

- Forum has more than 50 postings per month (van Uden-Kraan et al, 2008)
- Site is freely accessible without membership (Coursaris and Liu, 2009)
- Website owners permit research (O'Connor and Madge, 2001)
- Copyright is not infringed (Copyright, Designs and Patents Act 1988). Netmums.com with 756,000 members (2010) was the only site found to meet all criteria.

Selection of sample: The search facility on netmums.com enabled identification of threads with 'breastfeeding' in the title. Entire threads, rather than a sample of messages, were downloaded to enable analysis of whole conversations (Coursaris and Liu, 2009).

Relevant threads from a consecutive three-month period were selected to explore data patterns (van Uden-Kraan et al, 2008). This resulted in the selection of 126 threads consisting of 1230 messages posted by 510 individuals during August to October 2010.

Coding: Each message was selected as the unit of analysis (Rourke et al, 2001). A dynamic approach to coding advocated by Lampert and Ervin-Tripp (1993) enabled multiple coding of each unit of analysis. A directed content analysis (Hsieh and Shannon, 2005), which incorporated both deductive coding of components identified in the concept analysis, as well as inductive coding of new aspects of the concept observed online, was undertaken by the first author. This generated 121 codes, including 14 key variables. To ensure validity of the coding, key variables were tested by a second coder using a process outlined by Lombard et al (2002), which included coder training and testing of a 10% random sample of the dataset. Codes generated by both coders were subjected to inter-coder reliability analysis using the Kappa statistic (Landis and Koch, 1977). Data were managed and analysed using SPSS version 19.0 and an online tool called 'ReCal' (Freelon, 2010).

Phase 3: Confirmation of analyses was undertaken via internet-based interviewing as outlined by O'Connor et al (2008). Following a small pilot study with two volunteers from the university (who identified an additional attribute of OBS), a purposive sample of mothers who had sought or offered OBS was obtained via invites posted to popular online breastfeeding forums. A target of 12 respondents was set to reach theme saturation (Guest et al, 2006). Respondents were aged 24 to 39 with young children (aged six to 28 months) and were living in the UK, US and Germany. Semi-structured interviews were conducted via email exchanges (n=72). Transcripts were subjected to a directed content analysis (Hsieh and Shannon, 2005) and managed using NVivo 9.0.

Ethical considerations

Ethical considerations for undertaking online interviews were addressed through informed consent, while additional clarifications were required for accessing user-generated material (Herron et al, 2011). It was concluded that publicly accessible material was exempt from human subjects research (O'Brien and Clark, 2010) and that such research was also permitted under the 'fair use' exemption of UK copyright infringement (Copyright Design and Patents Act 1988). Ethical approval was obtained from Ulster University.

Findings

The concept of OBS evolved over the three phases of research, yielding a tentative model with 16 components as presented in Figure 1 (overleaf). Nine tentative antecedents, attributes and consequences were identified in Phase 1 and one additional component was identified in the pilot of online interviews. These provisional components were confirmed and supplemented with two additional components in Phase 2 through analysis of the online discussions. In Phase 3, interviewees validated all 12 components with some modifications, and highlighted four further aspects. No hierarchy is ascribed to the components, apart from indirect reciprocity, which emerged as the pivotal component.

Antecedents (n=5)

Antecedents are described as 'events or incidents which must occur before the occurrence of the concept' (Walker and Avant, 2005: 73).

Antecedent 1: Having a breastfeeding query or need to discuss/debate wider breastfeeding issues

During August to October 2010, 126 threads with breastfeeding in the title were posted to netmums.com by 104 individuals. The majority of threads (90%, 114/126) were queries which related to either:

- Contemplating, initiating or sustaining breastfeeding (46%, 58/126)
- Stopping breastfeeding (23%, 29/126)
- General personal queries about breastfeeding (21%, 27/126)
- Wider discussions/debates about breastfeeding (10%, 12/126).

Inter-coder reliability for thread theme using Cohen's Kappa was (.72) which is considered to be substantial according to Landis and Koch (1977).

Approximately 37% of threads (46/126) contained queries similar to 'breastfeeding problems' identified in the *Infant-feeding survey* (IFS) (Bolling et al, 2007). However approximately 63% of issues raised online (80/126) were not listed in the IFS, including tongue-tie, lactose intolerance, re-lactation, as well as concerns about the use of medicines/drugs, confusion about fertility, trying to conceive, breastfeeding while ill and being advised to stop breastfeeding due to use of medications. This antecedent encompassed a wide range of breastfeeding-related reasons for engaging with OBS, which was confirmed by interviewees:

"I have no doubt that I will turn to it frequently over the rest of our [breastfeeding] journey" (M12).

Antecedent 2: Inadequate face-to-face support or seeks additional/optional support

Available data indicated that approximately 60% (59/99) of those seeking OBS on netmums.com were first-time mothers; most knew no-one or few others who had breastfed; had difficulty accessing local support particularly after leaving hospital and one in five (22%, 23/104) mentioned receiving conflicting or discouraging advice from healthcare professionals (HCP).

Similar circumstances were described by interviewees whose families and partners were mainly supportive but (with a few exceptions) lacked breastfeeding knowledge. Some interviewees felt unable to discuss breastfeeding issues with friends as most had not breastfed or had not breastfed for long:

"It would be a case of "I told you so" and suggestions of formula rather than advice on how to continue breastfeeding" (M1).

Some interviewees (5/11) had received positive support from HCPs including antenatal preparation, latching and establishing breastfeeding. However, most interviewees (11/12) had negative experiences, which portrayed an apparent lack of breastfeeding knowledge by some HCPs: no encouragement to breastfeed a premature baby, staff unable to demonstrate breast pump; conflicting advice; being 'man-handled'; not being shown how to latch properly; scheduled feeding; advice to top-up with formula; undiagnosed tongue-tie; advice to stop breastfeeding due to mastitis including instruction to stop 'cold turkey':

"One of the midwives actually told me to wait 'one and a half hours so that he is really hungry' when he was two weeks old. The doctor told me to 'top off' with formula. The lactation consultants told me that I should switch every 20 minutes and one left a bruise on my breast" (M6).

Another interviewee who experienced difficulties accessing satisfactory real-life support said:

"I think it would make a real difference to see someone that actually specialises in [breastfeeding support]" (M12).

Some interviewees had access to face-to-face support options, but expressed preference for OBS:

"Help was there at the time of need rather than having to wait for a breastfeeding group or a call back from the health visitor/midwife" (M4).

Antecedent 3: Having breastfeeding goals

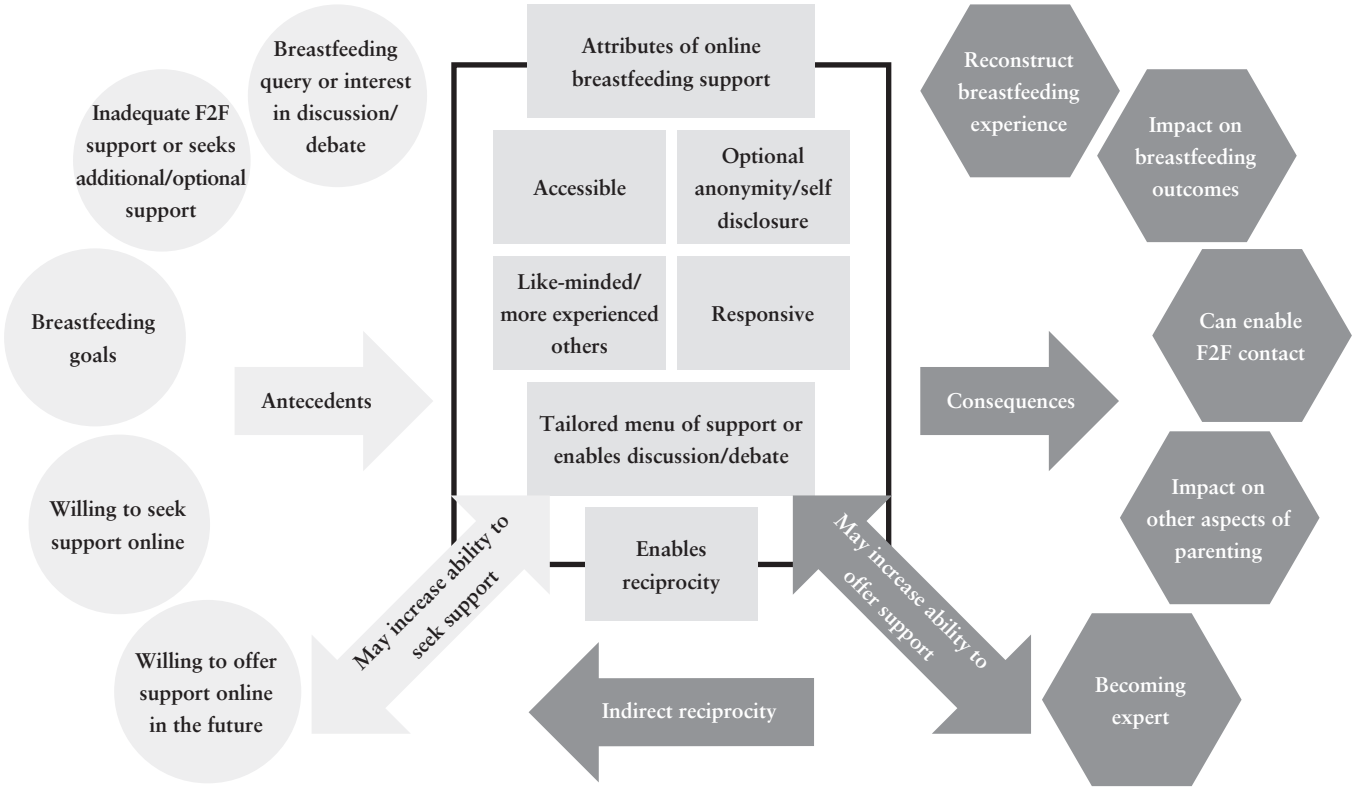
Most interviewees (11/12) identified breastfeeding goals as an antecedent. Women also described how goals changed over time as confidence in breastfeeding grew. Furthermore interviewees who had previously breastfed tended to set longer-term breastfeeding goals than mothers breastfeeding for the first time.

Antecedent 4: Willing to seek support online

This had two aspects:

- A level of online proficiency that was confirmed by all interviewees (12/12). Despite competency, interviewees described how initial searches could take time or lead to unsatisfactory sites

Figure 1. Tentative model of online breastfeeding support composed of five antecedents (left), six core attributes (centre) and five consequences (right) with indirect reciprocity emerging as the overlapping and pivotal component (Herron, 2013: 313)



- Women felt free to seek OBS knowing that only those who wanted to would respond, and that they were not inconveniencing others:

"I am a quiet, private person who hates to interrupt or disturb people; I loathe the phone and am not good at small talk. But I am used to bulletin boards and forums, which circumvent all the awkwardness" (M9).

Antecedent 5: Willing to offer support online

This was identified in the high ratio of responses to queries. Most interviewees (11/12) had offered OBS and one explained that this was somewhere that you can:

"Get help if you need it and eventually you will be giving advice on there when you get through your problem" (M5).

Attributes (n=6)

Attributes are the 'defining characteristics' or recurring themes that represent core features of a concept (Walker and Avant, 2005: 68).

Attribute 1: Accessibility

Four distinct aspects emerged: being accessible by anyone, anytime, anywhere and being able to ask anything:

- Anyone with an internet connection could access OBS as a seeker, supporter or observer. Seekers generated 126 initial posts and 153 feedback posts while supporters provided 951 responses. Distinctions between types of post was verified through inter-coder reliability testing which identified Kappa to be (0.98) considered to be almost perfect (Landis and Koch, 1977)
- Ability to seek or offer support anytime was identified on netmums.com, where more than half the queries (55%, 69/126) were posted outside working hours:

"Even at 5am, there is always some else up feeding that you can chat to" (M3).

- Interviewees described being able to access support from anywhere via PCs, laptops or mobiles phones
- Women appreciated being able to ask anything in the online setting:

"I wasn't made to feel like an idiot for asking, which is good, because if I had been, I probably wouldn't have gone back and I might have given it all up when things got bad" (M5).

Attribute 2: Optional anonymity or self-disclosure was initially identified in the pilot of online interviews, and was apparent in the analysis of breastfeeding-related discussions on netmums.com. This attribute had two aspects:

- There was an overall average of 322 views for every thread initiated indicating a high level of passive viewing by observers. Differences in viewing numbers were noted depending on whether the thread was a query (1:243 views) or a debate (1:1072). Viewing discussions anonymously was regarded as beneficial by interviewees:

"There's the ability to 'lurk'… to read yet not take an active role; it's amazing how much you learn from that" (M9).

- Online observation confirmed that two-thirds of participants (66%, 338/510) had low disclosure of identity, 29% (146/510) had high disclosure, including having their child's birth details embedded in their posting. Only 1% of individuals (7/510) were effectively anonymous. Approximately 4% (19/510) varied anonymity level (low and high disclosure) during the observational period. Inter-coder reliability for anonymity was found to be Kappa = .77 which is considered to be substantial (Landis and Koch, 1977). Option to vary anonymity level was confirmed by interviewees who described developing friendships online, which sometimes led to face-to-face meet-ups. Having some level of anonymity was seen as a benefit in seeking support:

"Easier to discuss challenges online than it is F2F or over the phone as there is a sense of anonymity" (M4).

Attribute 3: Responsive

Over half (56%, 70/126) of the queries or debates posted to netmums.com received a response within 60 minutes and almost all (92%, 116/126) were answered within 24 hours. Only three queries (2%) received no response. One interviewee reported:

"Knowing that you can get an answer to queries or worries, often within minutes… so reassuring and really invaluable" (M12).

Attribute 4: Like-minded/more experienced others

Netmums.com enabled mothers to support each othe, as well as offering support from HCPs. Approximately 90% of all responses (858/951) within threads were from other mothers. Inter-coder reliability for author type was found to be Kappa = .94 indicating almost perfect agreement (Landis and Koch, 1977).

Variations in thread dynamics were observed when the initial response to the thread was from another mother (76%, 94/123) compared to an HCP, resulting in more responses to the thread ($p<0.0005$) and more likelihood of a feedback post from the original author ($p<0.05$).

This apparent preference for engagement with other mothers was also indicated by interviewees whose descriptions of OBS referred mainly to:

"Mums with vast breastfeeding experience" (M4).

There were also references to times where support (online or offline) from an HCP might be required, with particular emphasis on breastfeeding counsellors and lactation consultants and more generic descriptions, such as:

"The amazing supportive people out there in the world who share their knowledge, experience and support" (M6).

Attribute 5: A tailored menu of support was often provided to those who posted queries on netmums.com, through apparently spontaneous teamwork by supporters. By studying patterns in these query threads, six observations were made:

- Queries usually received prompt replies
- Multiple responses to a query often contained specific types of support, which matched the support types sought in the initial query
- Those offering support often affirmed contributions from others on the thread
- Some supporters made extra effort to provide relevant

information including online links
- Mutual intentionality was identified whereby supporters and seekers worked together to fine tune the issue/solution
- A self-correcting mechanism was observed when either incorrect or unconventional information was posted, which was subsequently corrected.

When asked for their own definitions of OBS, one interviewee described it as:

"The community of breastfeeding women that in the past would have been our own mothers, sisters or friends, but now in real life, none of those people may have ever [breastfed] a baby or know anyone who did – so the online community provides a way to gain back that support from others who have done it before and replace what we have lost" (M8).

One in 10 threads (10%, 12/126) initiated for wider discussions or debates about breastfeeding, generated high levels of interaction in the threads, accounting for almost half of all responses (49%, 469/951).

Attribute 6: Enables reciprocity

Mothers who had previously received support were able to return to support others. During the initial observational period (three months of data), over half the seekers (56%, 58/104) returned to their own thread to give feedback or express gratitude. There was no evidence of direct reciprocity (whereby the seeker returned a favour to the supporter), however, there was evidence of indirect reciprocity where some seekers (17%, 18/104) returned to help others who were looking for support. When this behaviour was noted, it was decided to extend the observational period for a further nine months.

Consequences (n=5)

Consequences are defined as 'those events or incidents that occur as a result of the occurrence of the concept' (Walker and Avant, 2005: 73).

Consequence 1: Reconstruction of breastfeeding experience

In netmums.com and throughout interviews, women described how OBS helped them to:
- Normalise the breastfeeding challenges:

"The start was so difficult and it was so critical to know that people all over the world struggled too and that it does get better" (M6).
- Normalise breastfeeding:

"Reassurance that not only was I doing a good thing for my baby, but that it was in fact normal to breastfeed a child for as long as s/he wanted" (M11).

This attribute differs from breastfeeding outcomes as it reflects women's personal experience of breastfeeding, including stopping breastfeeding, which was often presented as an emotionally and physically difficult task.

Consequence 2: Impact on breastfeeding outcomes

During the extended observational period, it was possible to retrieve data on 100 of the 104 individuals who posted the original threads. Of those who sought OBS specifically to initiate or maintain breastfeeding, it was found that half (50%, 21/42) continued to breastfeed for weeks or months after posting their query for help. However 7% (3/42) of women stopped breastfeeding around the time of their query and 43% (18/42) did not post any further updates on their breastfeeding status, presumably stopping shortly after seeking help. It is not clear what differentiated these two groups of women who posted similar queries. Most interviewees (9/12) said they would not have breastfed for as long without OBS:

"I probably would have stopped at six months, when the TV ads for follow-on milk 'suggest'" (M3).

Consequence 3: Can enable face-to-face contact

In approximately 13% (127/951) of responses, supporters advised or reassured seekers that it was appropriate to seek face-to-face or telephone help for specific queries including breast pain, latching problems, possible infection, tongue-tie or intolerance. This practice of referring some online queries to face-to-face support was explained by an interviewee:

"If you are having a latch issue or have a baby with a tongue-tie, someone who knows what they're doing needs to actually see the baby/feeding to help" (M8).

However, interviewees outlined problems with referrals to real world support, including:
- Perceived lack of HCP availability or knowledge, with one mother concluding that it was better to:

"Get advice from trained peer support workers rather than midwives, nurses or doctors" (M7).
- Underfunded services staffed by unpaid volunteers which sometimes meant that:

"No one can pick up the phone or come out to see you" (M9).

Some seekers were advised to find peer support groups, and while it is unknown if they did this, over half the interviewees (7/12) attended parent/breastfeeding support groups and considered these groups important for meeting, as well as seeing, other mothers breastfeeding:

"By the time I attended my first meeting, I was nursing well, but it was great to see women nurse their babies" (M10).

Consequence 4: Impact on other aspects of parenting

Some interviewees (4/12) described how engagement with OBS led to exploration of new ideas such as extended breastfeeding, co-sleeping, attachment parenting, baby-led weaning, no-cry sleep systems and home birth. One parent explained:

"People who think deeply and consciously [about] breastfeeding tend to apply that to lots of other aspects – sleep, food, education and subsequent births. I doubt I'd have chosen a home birth second time round if it hadn't been for online friends who helped me through the minefield" (M9).

Consequence 5: Becoming expert

This encompassed four aspects:
- Ability to discern helpful/unhelpful sources online.
- Acquiring knowledge about breastfeeding initially through resolution of a personal challenge, which sometimes led to wider interest in breastfeeding.

- Becoming politically aware – this aspect was initially observed in online debate threads where recurring themes included breastmilk versus formula, breastfeeding in public, extended breastfeeding and cry-it-out versus no-cry sleep solutions. While some interviewees expressed concerns that such threads could be a source of conflict and potentially off-putting to new mothers, others regarded these debates as an opportunity to discuss contentious issues.
- Indirect reciprocity – when the online observational period was extended to one year, it was found that 46% (48/104) of the individual seekers returned to help others with breastfeeding queries on netmums.com. The retrieved data were checked by the second coder who went online to verify the specific examples. A total of 11 interviewees (11/12) confirmed that they had returned to help others online and offered three main reasons for this reciprocity: to repay support they had previously received; not wanting to see other women struggle with similar problems; or because it felt good to help others. Nine interviewees (9/12) had also offered breastfeeding support to other women in real life; two had subsequently trained as peer supporters, while one was working towards becoming a La Leche leader.

Operational definition of online breastfeeding support

The recurring attributes of a concept distinguish it from other concepts and form the basis of its definition (Walker and Avant, 2005). A working definition of OBS has been developed based on the six key attributes identified, tested and validated in this study: Online breastfeeding support is a sustainable mother-generated system based on indirect reciprocity, which offers easily accessible, highly responsive, tailored support from more experienced others in a discrete online environment.

Discussion

Breastfeeding support is recognised as a key component in breastfeeding success, along with self-efficacy and intention (Meedya et al, 2010). Obtaining effective breastfeeding support from statutory agencies can be difficult (Schmied et al, 2011) and access to breastfeeding support via family, friends or wider community appears to be increasingly rare (Scott and Mostyn, 2003). In this study, some women initially sought OBS because of perceived inadequate face-to-face support, while others expressed preference for the convenience of online support.

Some seekers expressed reluctance about pursuing real-life breastfeeding support. Reluctance to seek conventional breastfeeding support even when experiencing serious difficulties has been reported previously (Gill, 2001). The act of seeking support involves weighing up costs, such as feeling beholden to the support giver – in order to alleviate feeling obligated, people can feel compelled to return a favour and thus a perceived opportunity to reciprocate may be an important factor in deciding whether to seek or accept support (Uehara, 1995). Interviewees described feeling free to seek OBS because they knew they were not inconveniencing anyone, and there was an awareness among some women of the opportunity to reciprocate.

While reciprocity was originally regarded as a direct exchange between two parties (Gouldner, 1960), it can manifest as an indirect exchange involving a third party (known or unknown), which increases an individual's opportunity to reciprocate and ability to participate in an exchange (Ekeh, 1974).

Indirect reciprocity can manifest as either 'downstream' or 'upstream' (Nowak and Roch, 2007). Downstream reciprocity occurs when an individual helps another, with the aim of obtaining help for themselves in the future; while upstream reciprocity occurs when someone who has received help subsequently offers help to another.

The main type of reciprocity observed in netmums.com was upstream indirect reciprocity, where almost half those who sought help, returned within a year to offer support to other mothers. While indirect reciprocity has been identified in other online communities through reflections or intentions of participants (Lin et al, 2015; Wasko and Faraj, 2000), this appears to be the first study to confirm upstream indirect reciprocity through observed behaviours of an online breastfeeding support community.

This study provides unique information about issues raised by mothers at different stages of their breastfeeding journey, which are not officially listed as 'breastfeeding problems' (Bolling et al, 2007), nor are they routinely addressed by health services (Cross-Barnet et al, 2012).

A synthesis of women's views and experiences of breastfeeding support found that 'authentic presence' was the most valued type of breastfeeding support and incorporated 'being there for me; empathetic approach; taking time, touching base; providing affirmation; being responsive; sharing the experience; having a relationship' (Schmied et al, 2011: 54). Tentative attributes of OBS suggest that breastfeeding women may find 'authentic presence' in OBS.

An apparent contradiction was initially observed when tailored support found in query threads was compared to the negative sentiment expressed in debate threads. However, these debates were regarded as predictable by the interviewees, and appear to reflect public discourses that are taking place about breastfeeding (Callaghan and Lazard, 2012). Concerns have previously been raised about incorrect information being shared online (Scullard et al, 2010). While there was some evidence of incorrect or unconventional information within query threads on netmums.com, this was usually promptly corrected through the observed teamwork of more experienced others. This online self-correction mechanism was confirmed by interviewees and has been noted elsewhere (Esquivel et al, 2006).

While this study of OBS found that support was offered mainly by other mothers, two important aspects about this finding were also identified. Firstly, support was provided by more experienced mothers, rather than by peers at a similar level. This important distinction was unforeseen in an online intervention, which brought together peers at the same stage of breast cancer diagnosis, resulting in negative consequences for some participants (Salzer et al, 2010). Furthermore, while OBS was delivered predominantly

by mothers, this did not preclude involvement of HCPs, particularly breastfeeding counsellors and lactation consultants, who were recommended and sought for specific breastfeeding problems.

Anonymity appeared to be an important aspect of OBS, as observed in the high levels of lurking, as well as low-level disclosure practised by most individuals who engaged on netmums.com. While this behaviour reflects the 'online disinhibition effect' (Suler, 2004), there was also evidence of some individuals foregoing anonymity through higher level disclosure and the development of online/offline friendships.

This study provides unique information on the consequences of OBS, including the impact on breastfeeding experience, outcomes and becoming expert, thus helping to address a knowledge gap on the impact of online activity (Eysenbach et al, 2004). Self-directed online behaviour in relation to health has been highlighted as an important activity on the internet and could be key to more effective and sustainable healthcare models (Ferguson and Frydman, 2004).

Breastfeeding has been described as 'an engrossing personal journey' (Nelson, 2006: ??) but, for many women, this experience can be short-lived and disappointing (Bolling et al, 2007). People struggling through a transition state may benefit from an opportunity to discuss this with others (Harrison et al, 1995). This study found evidence that OBS offered women space to query, ponder, discuss, debate and rant about breastfeeding issues and interests.

Evidence gathered in this study indicates that approximately half of those who sought OBS to initiate or maintain breastfeeding, continued to breastfeed for weeks or months after their request for help. This appears to be significant in a culture of static breastfeeding rates and may reflect both the determination of some individuals to meet their breastfeeding goals (Hegney et al, 2008), as well as the potential of OBS (Gribble, 2001).

For some mothers, involvement in OBS resulted in consideration of alternative parenting practices as well as becoming expert in breastfeeding matters. For many mothers, becoming expert culminated in them sharing knowledge and experience online and offline. This process of 'expert development' is recognised in the theory of online social support developed by LaCoursiere (2001), however, this theory does not describe indirect reciprocity, found to be the pivotal component of OBS in this study.

Practice implications

OBS offers a valuable resource for mothers with internet access, as well as a cost-effective solution for authorities striving to improve population health with limited resources. To optimise the value of OBS, developers should consider the components and gaps of OBS identified in this study.

Intelligence obtained in cooperation with mother-initiated online forums could contribute to more effective statutory breastfeeding support.

Limitations

The observational study was based on breastfeeding discussions from the only UK parenting website that met inclusion criteria. Generalisation of findings may, therefore, be restricted to a mainly UK perspective; this was partially addressed through the online interviews that included non-UK experiences. Interviews were undertaken with women who were highly proficient online, and different perspectives may have been elicited from women with less online competence.

Conclusion

To the authors' knowledge, this study is unique and has potential to impact on strategies targeting maternal and child health at a national and international level. The study provides new theoretical knowledge about women's behaviour and usage of online support to enable them to achieve their desired breastfeeding goal(s). It provides empirical evidence of 'woman-generated', sustainable, online breastfeeding support and opens the doors for targeted public health research investment.

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