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Title Page

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The exchange of maternal milk has been the subject of increasing popular media discussion, and many people have turned to health care providers for guidance – providers who in turn seek a more internationally and scholarly informed context. Historical and cultural considerations of wet nursing, including a more formalized milk kinship ethos, have emerged

globally in recent years. Infant feeding was identified specifically as a "problem" by influential paediatricians at the turn of the twentieth century (Snyder, 1908), who debated how to deal with issues associated with reduced breastmilk supplies due to economic, medical and/or socio-cultural concerns. This same issue has exercised the imaginations not only of the medical community but also multi-national corporations (Cassidy and El Tom, 2014).

In 2010 *World Breastfeeding Week* took as its theme, "breastfeeding in emergency situations", capturing one context where breastfeeding can save lives. Other, more medicalized, global circumstances include the increasing rates of prematurity and low birth weight deliveries within an economy of stretched resources. Connected to these issues is the WHO recognition of donor human milk banking which is experiencing an unprecedented growth worldwide, while traditional cultural systems of milk sharing such as the Islamic milk kinship system are being displaced in nations at war, such as the Sudan.

Simultaneously, the familiar slogan "breast is best" has been challenged by voices at either extreme of the breastmilk versus artificial substitutes continuum. Those who seek to legitimate formula feeding argue for a more holistic lifestyle-orientated displacement of the primacy of breastmilk feeding while breastmilk advocates have suggested that the word "best" fails to convey either the normalcy of breastfeeding or the negative sequelae of formula feeding. At the same time, following a lead set by the breastmilk bank programme in Brazil, there is a growing recognition of the medicinal need for donor human milk banks around the world (for example, in the context of the feeding of very premature or unwell babies) as well as increased attention on informal/unregulated/commercial milk sharing practices (in which milk is used for full-term babies as well as for adult consumption) (Smith, 2015).

This interdisciplinary special issue offers an opportunity to consider social, cultural and health issues when we envisage not only how infants have been, are being, and will be fed when they are not given milk from their mother's own breast. In this brief introduction, as well as summarising the important contributions in this special issue, we identify some of the current issues associated with interdisciplinary and international research on human milk exchange.

Meanings of Maternal Milk

Underlying human milk exchange are cultural understandings of the meanings of maternal milk. Very clearly a gendered biofluid, human milk can materially embody a variety of cultural responses, including as Shaw (2004) has called the “yuk factor”. The maternal body is cultural constructed in many societies as being messy, uncontrollable, inside/out, often leaving human milk to be considered “matter out of place” (Douglas, 1966). At the same time, more medicalized constructions of human milk see it as “liquid gold” and potentially “life-saving”. The clash of these two perceptions, of both life-giving and “body dirt”, helps to frame some of the most emotional debates which occur around ideas about motherhood and how mothering should be practiced (Carroll, 2014; Dykes, 2007).

One could argue that human milk is exchanged whenever a mother feeds her own infant at her own breast, but it is rarely discussed in such terms (Kent, 2018). This maternal infant dyadic relationship not only provides nutrition to the infant but also serves to nurture the mother. The mother benefits from this exchange not only in terms of the maternal health benefits associated with breastfeeding but also through bonding, facilitated by prolonged skin-to-skin contact (Crenshaw, 2014).

However, what of human milk exchange between a mother and an infant who is not her own? It is this that we concentrate on in this special issue; making a division in our

discussions (represented by the papers published here) between the more formal (and sometimes regulated) arrangements associated with human milk banking and those less formalized (usually unregulated), often digitally facilitated, forms of human milk sharing (Falls, 2017). The most widely discussed topic of human milk exchange are the more formal exchanges associated with wet nursing (Fildes, 1988; Sussman, 1982). We chose to bring the two issues together in this volume, seeing them as interrelated and a joint discussion fruitful. Human milk banking was the catalyst for many of the original ideas for this special issue, although it was not the topic on which we received the most papers, despite attempting to solicit papers from recent doctoral studies on this topic (Sigurdson, 2015; Zizzo, 2011, 2013; Pineau, 2013).

There is also the more extensively anthropologically studied topic of Islamic milk kinship (Clarke, 2007; Cassidy and El Tom, 2010). Connected with these formal arrangements of wet nursing, in which commercial exchange has occurred, others have considered what has been called “medicalized wet nursing” or donor human milk banking (Cassidy, 2012a; Palmquist, 2014), although the commercialized and western nature of this later term has created some problems cross-culturally (Cassidy and Dykes, forthcoming). Over a century old, this medically framed form of human milk exchange has been expanding internationally and, as we will discuss in this special issue, has also been linked to the less formal, often social media facilitated forms of human milk exchanged variously called “milk sharing” or peer-to-peer sharing. Sometimes more commercial exchanges may also form part of these discussions (Cassidy, 2012b; Cassidy and Dykes, forthcoming). The contributions we received to this special issue fell either in the world of human milk banking, or that of the less formal and often digitally facilitated world of human milk sharing. Briefly, we will discuss current issues related to each of these two sides of the human milk exchange coin.

Donation and/or Sharing

Human milk banking has not always been based on maternal donations but instead originated with women, in certain cases, receiving some form of compensation or financial remuneration for their lactation labours (see Golden, 1996; Swanson, 2014; Cassidy and Dykes, forthcoming). However, today in most countries the model of maternal generosity underlies most of these services, although some women are compensated or at least thanked through less formal means.

Underlying these issues is the concern of donation and how we view donation. Donations are seen as gifts, and anthropologically gifts are seen not as unproblematically or transparently pure statements of altruism but as being part of a reciprocal arrangement, involving obligations of future exchange (Mauss, 1990 [1922]). In the context of milk banking, donations are controlled, and the donor is anonymous to the recipients, although this anonymity has been the subject of urgent discussions across the world in terms of how it impacts upon Islamic concepts of milk kinship (Cassidy and Dykes, forthcoming). This medically controlled gift is often regarded as a key factor in improving outcomes among the globally expanding population of preterm and low birth weight infants. At the same time, if not controlled, and part of an informal collaborative economy, it is often identified as potentially risky behaviour. Moreover, although this medicalized practice of human milk banking is often demedicalized by those offering the service, it is popularly juxtaposed with the actively de-medicalized versions of milk sharing, although in some Islamic countries milk-sharing is the preferred term (Daud, 2016; Khalil, 2016) since the sharing has been offered as a form of medically controlled human milk exchange in a fashion deemed more compatible with Islamic milk kinship rules. However, in this instance, the individuals involved in the exchanges get to know each other personally, before establishing cultural informed kinship ties based on their milk exchange. The exchange is between friends, and

people who become known as family, rather than being a clinical and medically controlled arrangement between strangers.

The much-theorised figure of the “stranger” is also someone around whom social scientists have long discussed potentially negative societal constructions (Bauman, 1991, 1992, 2000), especially in terms of other potentially “viral fluids” such as are linked to HIV and exchange between strangers. In the case of human milk banking, the donors are known by the human milk bank staff, literally inside and out, meaning they are talked to personally and give histories, but they also undergo blood tests to ensure that they and their milk can be trusted. There continues, however, to be a perception that online milk sharing is done primarily for profit, although, as the papers in this special issue discuss, this is not necessarily the norm, and more altruistic sharing often happens online in these less formal exchanges. Nonetheless, fearful perceptions of the unregulated persist, evidencing the larger societal reality that mothers are not trusted to help other mothers.

Human milk exchange differs from other forms of biological transfer for several reasons. Firstly, it is formed in the body of a lactating woman, meaning it contains strong cultural meanings associated with the ways in which female bodies and bodily fluids are viewed (Kent, 2018). In addition, human milk is designed to leave her own body to go into the body of another person, which means it is mobile (Boyer, 2010). Because it is mobile, it means the exchange can be informal or formal, and it can have a specific monetary exchange value or be free, and therefore the issue of value is critical (Cassidy and Dykes, forthcoming).

The papers

Most of the studies in this special issue draw on data from the United States, but one of these is also linked to Europe. One study is from Australia, and another from South Africa. The authors are at different career stages; many have established global reputations for their work

in human milk exchange. There are more papers on the less formalized peer-to-peer exchanges, rather than medically controlled donor milk banking. The anxieties expressed online associated with informal exchanges may account for some of the recent increase in research being funded in this area. The studies included are often interdisciplinary and offer a variety of methodological approaches. All studies point to the deficit of research, and we hope that this special issue will encourage a number of future studies on human milk exchange.

The issue opens with the interdisciplinary team of Perrin *et al*, with their study entitled “A pilot study on nutrients, antimicrobial proteins, and bacteria in commerce- free models for exchanging expressed human milk in the USA”, which compares milk samples from mothers own milk (MOM), unpasteurized donor human milk from a not for profit human milk bank, peer to peer exchanged milk, and health care professional facilitated peer to peer exchanged milk. We learn that these are similar on many levels, thus adding in a positive way to the research related to potential risks of peer to peer sharing. O’Sullivan *et al*’s study entitled “Awareness and prevalence of human milk sharing and selling” uses qualitative interviews to capture detailed perceptions regarding human milk exchange across America. Our third paper by Cassar-Uhl and Liberatos entitled “Use of Shared Milk Among Breastfeeding Mothers with Lactation insufficiency” uses Internet survey-based data to conduct a statistical analysis, arguing that this form of human milk exchange leads to women being able to breast feed longer. We then turn to an economic analysis from South Africa by Taylor *et al* entitled “Prioritising allocation of donor human breast milk amongst very low birthweight infants in middle- income countries”, which presents compelling evidence that donor human milk co-exists alongside support for mother’s own milk (MOM). Gribble’s study entitled ““Someone’s generosity has formed a bond between us”: Interpersonal relationships in internet-facilitated peer-to-peer milk sharing” clearly discusses how these

relationships can and do often develop into deep friendships between mothers. Finally, Schafer et al discuss the potential for perinatal mood disorders experienced by many mothers, and how safe support can be provided to these women throughout this difficult time.

Conclusions

It is important to recognize that human milk exchange involving both donation and sharing is increasing around the world and this growth area suggests a myriad of possibilities across the globe. In many countries, we have no real idea regarding the scale, scope or structure of informal milk sharing, whereas in several countries more formalized systems of human milk banking may not be controlled either by governments or regulatory bodies. Global discussions of risk are part of the “official” frame associated with informal collaborative relationships of exchanging human milk, but at the same time, some concept of “trust” is key within western medicalized versions.

“Risk” and “trust” are complex ideas that have invited much theoretical scrutiny. That which is identified as a risk achieves this status not merely or even primarily because of some transparent arithmetical calculation but rather in the context of how societies deem certain outcomes as unavoidable or inevitable and other outcomes as uncertain and unacceptable. Likewise, “trust” is a concept that is inseparable from the politics of social structuration, in both macro and micro terms. (Cassidy and Dykes, forthcoming)

Similar arguments pertaining to infant feeding “choices” regarding feeding at one’s own breast versus artificial (usually bovine) infant foods, also engage issues of risk and trust underlying them, anxieties fostered by a global industry which has sometimes supported maternal divisions, rather than recognizing maternal solidarity. As a reply to a recent discussion about so-called “big formula” noted, surely it is a choice of parents to decide how their infants can and should be fed and policies around the world need to be in place that

support all decisions. It is also important to remember that human milk exchange is a gendered biofluid, making the exchange, especially in relationship to donation, different from other forms of biological donations. Most importantly of course, we need support to conduct more research in this area.

Finally, we would like to point out that this endeavour was part of the networking which grew out of an EU Horizon 2020 Marie Skłodowska Curie Award (654495). Our original call for papers asked for contributions on topics ranging from wet nursing and milk banking to cross nursing and milk sharing, and we were happy to have received a number of international abstracts, resulting ultimately in the papers currently in this special issue (although two additional papers were not able to be completed in time and will hopefully appear in future volumes of this journal).

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