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Human Maternal Placentophagy: A Survey of Self-Reported Motivations and Experiences Associated with Placenta Consumption

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Maternal placentophagy, although widespread among mammals, is conspicuously absent among humans cross-culturally. Recently, however, advocates for the practice have claimed it provides human postpartum benefits. Despite increasing awareness about placentophagy, no systematic research has investigated the motivations or perceived effects of practitioners. We surveyed 189 females who had ingested their placenta and found the majority of these women reported perceived positive benefits and indicated they would engage in placentophagy again after subsequent births. Further research is necessary to determine if the described benefits extend beyond those of placebo effects, or are skewed by the nature of the studied sample.

KEYWORDS *placentophagia, afterbirth, encapsulation, postpartum mood, maternal health*

Maternal placentophagy, the postpartum consumption of the placenta by the mother, is a ubiquitous behavior among eutherian mammals, but has never been recorded in human female postpartum behavior in pre-industrial societies or natural fertility conditions (Kristal 1980; Soyková-Pachnerová et al. 1954; Trevathan 1987; Young and Benyshek 2010). Although several hypotheses have been suggested to explain the adaptive value of the

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behavior, none is able to explain its benefit across mammalian species (for a review, see Kristal 1980). The effects of placentophagy on lactation have been investigated using both human (Soyková-Pachnerová et al. 1954) and animal models (Blank and Friesen 1980), however, these studies are not without limitations and the benefit to lactation remains unclear. One evidence-based benefit of placentophagy is the enhancement of opioid-mediated analgesia (increased pain tolerance through opioid pathways) in postpartum rodents (DiPirro and Kristal 2004; Kristal 1991), which suggests there may be similar mechanisms operating in other mammalian species. Despite these findings, the ultimate adaptive benefit of placentophagy for mammalian mothers remains unknown.

Although placentophagy is absent in the cross-cultural ethnographic record, accounts of the behavior emerged in the professional literature in the early 1970s (Ober 1973) and is currently promoted among a small number of women, primarily in the United States and Mexico, that claim therapeutic benefits (Bastien 2004; Field 1984; Janszen 1980; Selander 2009; Young and Benyshek 2010). While the frequency and frequency trends of the practice are currently unknown, demand for placenta-preparation services and an increase in the numbers of people becoming trained in providing those services may indicate an increasing popularity of, and interest in, the practice. While Internet-based trends should be interpreted with caution, given overall growth in Internet websites and access, the amount of web-based information on human placentophagy, and the visitor access of that information, has increased substantially in recent years. For example, in 2006, the website Placenta Benefits (<http://PlacentaBenefits.info>) was launched to provide women with information about placentophagy and its potential for helping aid in postpartum recovery for mothers. In 2007, a program designed to train specialists in the process of placenta encapsulation was launched through the Placenta Benefits organization (PBi) in response to increasing demand for specialists trained in this preparation method. Since 2007, the number of clients being serviced by PBi-trained providers and entered in the PBi client-management database increased four-fold from 95 in 2008, to 380 in 2010 (Selander 2011). Additionally, a search conducted on June 25, 2012, via the internal search engine on the media host YouTube, using the phrase “placenta encapsulation,” yielded 97 results related to placentophagy, including news broadcasts, preparation videos, personal experiences with placentophagy, and commentary, all uploaded to the site within the past three years (YouTube 2012). Finally, emerging public interest in placentophagy appears to be reflected in the recent popular media coverage of the subject in such national outlets as *TIME* magazine (Stein 2009), *USA Today* (Friess 2007), MSNBC (Dahl 2007), *The Huffington Post* (McLaughlin 2011), and *New York* magazine (Abrahamian 2011).

Among placentophagic practitioners, there is a variety of ways that the placenta is typically ingested, including being eaten raw immediately

postpartum, prepared as a postpartum meal, and encapsulated after dehydration (Enning 2007). During dehydration and encapsulation, the placenta is cooked—typically steamed—before being sliced and placed on a food dehydrator. Once the placenta strips are dehydrated, they can then be ground and placed into capsules for easy ingestion. Placenta capsules can also be created through dehydration of raw placenta. In this method, the placenta is dehydrated without being steamed or otherwise cooked prior to dehydration, and is then ground and encapsulated. Some women choose to ingest the placenta immediately after birth, with little to no preparation at all. This type of ingestion can take several forms, including swallowing pieces of whole, raw placenta, blending the placenta with fruits and juices into a drink, and consuming bite-sized frozen portions. There are also many recipes that incorporate placenta as a meat substitute, and some women report eating placenta as an ingredient in a stew, a stir-fry, or mixed into a sauce over spaghetti, among other dishes (Enning 2007; Mothers 35 Plus 2012).

For many current practitioners and advocates, placentophagy is rooted in the belief that ingesting the placenta provides benefits to the recovering postpartum mother—benefits alleged to be provided by the hormones and nutrients that remain in the organ postpartum. Although future research is needed to determine the precise nutritional and hormonal content of human placental tissue, as well as the effects that the various preparation methods have on this composition, the placenta does contain at least some of these substances after it is expelled. It is unclear, however, if the biological components in the placenta remain active after the organ has been prepared for consumption.

During pregnancy, the placenta functions as an interface between mother and fetus for the transfer of nutrients and gases, and is responsible for the production and secretion of various hormones. The placenta is known to transfer essential nutrients such as A and B vitamins (thiamin, riboflavin, niacin, pyridoxine, biotin, folate, and cobalamin), vitamin C, and vitamin D (Prasad, Leibach, and Ganapathy 1998; Smith, Moe, and Ganapathy 1992), minerals, such as calcium, magnesium, potassium, sodium, and phosphate (Smith et al. 1992), trace elements such as copper, iron, selenium, and zinc (de Moraes et al. 2011; Lorenzo Alonso et al. 2005; Smith et al. 1992), and other substances necessary for fetal growth such as fatty acids, amino acids, and glucose (Donnelly and Campling 2008; Jones, Powell, and Jansson 2007; Prasad et al. 1998). The placenta is also responsible for the synthesis and secretion of a number of hormones across pregnancy such as progesterone, estrogens, androgens (i.e., testosterone, androstenedione, dehydroepiandrosterone), human placental lactogen, human chorionic gonadotropin, placental growth hormone, corticotropin releasing hormone, oxytocin, and relaxin (Di Santo et al. 2003; Gude et al. 2004; Guibordenche et al. 2009; Hall et al. 1977; Schmidt et al. 1984; Sugahara et al. 1985; Taylor and Lebovic 2007).

Because many hormones and nutrients are produced by and transferred across the placenta, this suggests that term placentas would contain detectable amounts of some of these substances within the tissue, an assumption in which advocate support for the practice is based. While the exact concentration of many of these hormones and nutrients in the placenta is unknown, researchers have measured some of these substances in unprepared, term human placental tissue, including selenium (Lorenzo Alonso et al. 2005), iron (Wong and Sana 1990; Bradley et al. 2004), the vitamins riboflavin, thiamin, and pyridoxine (Ramsay et al. 1983), the fatty acids arachidonic acid (AA) and docosahexaenoic acid (DHA) (Bitsanis et al. 2006), oxytocin (Sugahara et al. 1985), progesterone (Piasek et al. 2001), human placental lactogen (Lin, Halbert, and Kiefer 1976), relaxin (Schmidt et al. 1984), inhibin and activin (Bersinger, Groome, and Muttukrishna 2002; Mylonas et al. 2006), β -endorphin and β -lipotrophin (Facchinetti et al. 1990; Laatikainen et al. 1987) and calcium, iron, copper, and zinc (de Moraes et al. 2011). Additionally, the most rigorous investigations of the physiological effects of placentophagy have identified a putative substance in human and non-human placental tissue, termed Placental Opioid Enhancing Factor (POEF), that appears to enhance analgesia through a specific endogenous opioid pathway in rodent models (for a review, see Kristal, DiPirro, and Thompson 2012). Although advocates claim that these nutrients and hormones assumed to be present in both the prepared and unprepared forms of placenta are responsible for many benefits to postpartum mothers, exceedingly little research has been conducted to assess these claims and no systematic analysis has been performed to evaluate the experiences of women who engage in this behavior.

Although non-maternal placentophagy has been clearly recorded in Traditional Chinese Medicine for centuries (Shizhen and Xiwen 2003; Yanchi 1988), and the potential benefits of human maternal placentophagy have been suggested in the literature sporadically since the early 1900s (*BMJ* 1902; Moir 1937; Soyková-Pachnerová et al. 1954; Ober 1968, 1979), the first clear reference to a case of human maternal placentophagy was not reported until the early 1970s in an account of a natural childbirth in which the placenta was consumed by the mother and her friends and was described as “replenishing and delicious” (Ober 1973). During the 1980s, ideas about placentophagy as a natural part of the birth process circulated in the professional literature (Field 1984; Janszen 1980; Trevathan 1987). Advocates proposed that because virtually all other mammalian mothers consume the placenta postpartum, it is a natural behavior that must be beneficial, and therefore, placentophagy should be incorporated into the human birth process. Specific benefits were suggested, often related to the presumed hormonal and nutritional richness of the organ. In addition to the prevention of fatigue, placentophagy is also commonly believed to suppress

postpartum hemorrhage, improve lactation, increase iron levels, improve hair and skin texture, and aid in uterine recovery from the birth process among many of those who engage in the practice (Field 1984; Janszen 1980).

Initial published discussions of human placentophagy as a natural and beneficial practice (Field 1984; Janszen 1980; Ober 1973; Trevathan 1987) had shifted to emphasize the specific roles placenta ingestion may play in maternal recovery from delivery and relief of postpartum mood lability by the early 2000s (Bastien 2004; Selander 2009). Discussion of the potential benefits of placentophagy for postpartum maternal health, and as a means to prevent or relieve postpartum depressive symptoms, have also been described in the literature, with possible mechanisms for these benefits suggested by some authors (Apari and Rózsa 2006; Bastien 2004; Selander 2009).

Today, the demand for information about placentophagy and encapsulation services has increased substantially, as is evident by the over 250,000 visits per month recorded for the Placenta Benefits website and the more than 200 Placenta Encapsulation Specialists trained across the United States, Canada, and the United Kingdom (Selander 2011). Given the growing demand for information and services related to placentophagy, it is important to assess the perceived positive and negative effects associated with the practice and identify the women who are likely to engage in this behavior, as well as determine why they are choosing to so. The purpose of this study is to identify a demographic profile of women who have engaged in placentophagy, and to evaluate their self-reported motivations for, and experiences with, the practice.

RESEARCH QUESTIONS

Although the practice of maternal placentophagy may be increasing, and advocates claim there are important benefits associated with the practice, no systematic research has been conducted to identify the demographic profile of women who have engaged in placentophagy, or to record and evaluate the subjective, self-reported motivations for, and experiences with, the practice. In order to examine the demographics, motivations and experiences of women who have engaged in maternal placentophagy, we conducted an internet survey designed to address the following questions:

- What is the demographic profile and birth setting for women who have engaged in placentophagy?
- Why do women choose to engage in placentophagy?
- What is the most frequently used preparation method for placentophagy?
- Did the mother perceive any subjective benefits or negative effects associated with placentophagy?

METHODS

Study Population and Participant Recruitment

All recruitment methods and study protocols were approved by the Institutional Review Board at the University of Nevada, Las Vegas. Participants were recruited through notices on the social media sites Facebook and Twitter, as well as online message boards with links that led to the survey description and informed consent page, and upon consent, the survey questions. Survey respondents were 189 women over the age of 18 who use the Internet and who had ingested their placenta after the birth of at least one child. The survey was conducted between October and November of 2010.

Questionnaire

The Internet-based survey was hosted through a third party platform that allowed respondents to remain anonymous. The survey consisted of 21 questions, and included forced-choice variables as well as open-ended questions. We collected basic demographic information that included age, ethnicity, household size and income, marital status, education, zip code, and the birth location of children (e.g., hospital, home birth, birthing facility). We included questions that asked participants about previous postnatal mood disorders, why they had chosen to engage in placentophagy, which preparation method was used, whether the experience was positive or negative (answered using a 5-point Likert scale), whether they would ingest their placenta again after future pregnancies, and whether they perceived experiencing any positive or negative effects after engaging in placentophagy (see the appendix).

ANALYSIS

Quantitative data was analyzed using SPSS statistical analysis software, version 19. Frequency tables were generated for forced choice responses. Responses to open-ended survey questions were analyzed using a data-driven, inductive approach, allowing major themes to be identified for participant responses to the survey's open-ended questions (Boyatzis 1998). Identified thematic categories of participant responses to each question were validated through independent coauthor inter-observer agreement.

Respondents were first asked an open ended question as to why they chose to engage in placentophagy. Analysis of participant responses identified the following themes: *improve mood*; *increase iron*; *restore hormones or nutrients* (i.e., responses that discuss the replenishment of vitamins, minerals or hormones); *recommended by placentophagy supporter* (i.e., a

friend, family member or others that had already ingested the placenta); *recommended by midwife or doula*; *hormonal regulation* (i.e., supplemental hormones while body resumes production); *natural behavior* (i.e., the belief that it is a natural part of the birth process or a natural postpartum supplement); *alleviate postpartum hemorrhage*; *improve lactation*; *normal mammalian behavior* (i.e., responses that discuss other mammals consuming placenta); *improve/accelerate recovery from childbirth*; *makes sense* (i.e., placentophagy is logical, just makes sense to them); *increase energy*; *desire to ingest the placenta*; *weight loss or maintenance*; *unspecified benefits* (any response that refers to general benefits without indicating a specific one).

Participants were also asked to list both perceived positive and negative effects of placentophagy, if any were experienced. Analysis of participant responses identified the following themes associated with perceived positive effects: *balance* (any response that discussed balance without specifying what was being balanced); *improved mood* (i.e., alleviated symptoms of the baby blues or a mood disorder, or otherwise elevated mood); *prevented or treated anemia*; *improved lactation*; *increased energy/decreased fatigue*; *alleviated postpartum bleeding/discharge* (i.e., decreased duration, intensity of lochia); *increased strength/vitality*; *improved/accelerated recovery*; *weight loss*; *prevented/relieved headaches* (i.e., decreased the frequency or intensity of headaches); *facilitated bonding with infant* (i.e., spent more time with or felt closer to the infant); *reduced pain* (i.e., decreased the use of pain medication postpartum); *treated/prevented hypothyroidism* (i.e., alleviated symptoms of hypothyroidism or improved thyroid function); *replenishment/regulation of hormones*; *increased/improved duration or quality of sleep*; *uterine involution* (i.e., rapid return of uterus to pre-pregnancy size); *facilitated postpartum healing/recovery* (particularly after caesarian birth); *increased libido*; and *no reported benefits*.

Thematic analysis of participant responses regarding negative perceived effects of placentophagy revealed the following categories: *unpleasant taste or smell of placenta/capsules* (including belching); *difficulty remembering to take capsules*; *increased uterine cramping*; *increased vaginal bleeding*; *limited supply of capsules* (i.e., the amount of capsules did not last through the postpartum recovery period); *digestive difficulty* (i.e., the capsules caused upset stomach, or other digestive complications); *contraindicated with infection* (i.e., inability to take capsules while treating an infection); *increased frequency/intensity of hot flashes*; *affected infant* (i.e., the baby developed a skin rash); *inconvenient preparation process*; *social stigma* (from friends, family or themselves); *developed mastitis*; *affected mood* (i.e., increased anxiety or excessive energy); *increased nausea*; *excessive lactation*; *increased constipation*; *increased heartburn*; *increased skin blemishes*; *cost to encapsulate*; *no negative effects reported*.

Participants who used the encapsulation method (the method used by the majority of respondents in our sample) were asked why they chose this method for ingestion. The following categories were identified from thematic analysis of their responses: *easy to use*; *more appealing/less disgusting than other preparations* (e.g., more palatable); *less messy than other preparations*; *appropriate for vegetarian/vegan*; *service offered by midwife or doula*; *preservation of capsules* (i.e., easier to save for future); *safer to ingest than other preparations*; *comfortable with this form*; *the preparation has been validated* (i.e., through reported use in Traditional Chinese Medicine); *availability/convenience of preparation* (i.e., the service is offered by someone in their area); *best method* (refers to any response that claims that this is the best method but is otherwise vague and does not explain what makes this preparation superior).

RESULTS

Demographics

The women who participated in this survey were an average age of 31 years old, with a majority residing in North America; 91% from the United States, and 7% from Canada. A regional breakdown of the U.S. residence data shows the highest regional representation in the West (37%). Caucasian women made up the vast majority of our sample (93%). Of the women participating in the survey, 90% are married. Only 3% of our sample identified as single. Fifty-eight percent of the respondents have a family income of more than \$50,000 a year, with only 5% reporting a family income of less than \$15,000. For comparative purposes, the 2010 median household income in the United States was \$51,914. More than one third of the respondents have obtained a bachelor's degree, compared to the national average of 28% (U.S. Census Bureau 2012), while another third of our sample have received some college education (see table 1).

Birth History

On average, the women in our sample have 2.2 children, for a total of 415. Of the women in our survey, 36% had one child, 34% two children, and a smaller percentage of women reported having up to seven children. The women participating in our survey reported engaging in placentophagy after the birth of 212 of their 415 children (51%). Of these 212 births, 59% were home births, while 34% occurred in a hospital. The percentage of home versus hospital births varied considerably, however, depending on whether or not the participants' first placentophagic experience followed the birth of their first child or a subsequent child (see figure 1).

TABLE 1 Demographic Characteristics

| | Frequency | % |
|------------------------------------|-----------|------|
| Age (<i>N</i> = 189; mean = 31) | | |
| Ethnicity (<i>N</i> = 189) | | |
| Caucasian | 176 | 93.1 |
| Asian | 4 | 2.1 |
| Hispanic/Latina | 2 | 1.1 |
| American Indian/Alaska Native | 1 | .5 |
| African American | 1 | .5 |
| Hawaiin/Pacific Islander | 2 | 1.1 |
| Other | 3 | 1.6 |
| Marital status (<i>N</i> = 189) | | |
| In relationship | 1 | .5 |
| Cohabitation with partner | 12 | 6.3 |
| Married | 170 | 89.9 |
| Single | 6 | 3.2 |
| Country (<i>N</i> = 189) | | |
| Australia | 1 | .5 |
| Canada | 13 | 6.9 |
| Singapore | 1 | .5 |
| United Kingdom | 1 | .5 |
| United States | 173 | 91.5 |
| Region (<i>N</i> = 173) | | |
| Northeast | 16 | 19.2 |
| Southeast | 38 | 22.0 |
| Midwest | 38 | 22.0 |
| Southwest | 12 | 6.9 |
| West | 65 | 37.6 |
| Unspecified | 4 | 2.3 |
| Income (<i>N</i> = 189) | | |
| <\$15,000 | 9 | 4.8 |
| \$15,000–\$30,000 | 28 | 14.8 |
| \$30,000–\$50,000 | 42 | 22.2 |
| >\$50,000 | 110 | 58.2 |
| Education (<i>N</i> = 189) | | |
| High School or equivalent | 12 | 6.3 |
| Some college | 63 | 33.3 |
| Bachelor's degree | 69 | 36.5 |
| Master's degree | 28 | 14.8 |
| Doctoral degree | 4 | 2.1 |
| Professional degree (MD, JD, etc.) | 4 | 2.1 |
| Vocational/technical school | 9 | 4.8 |

Motivation for Placentophagy

Participants were asked to explain why they chose to ingest the placenta, and a total of 304 responses were provided and subjected to thematic analysis. The most common responses to this question were to *improve mood* (34%) and for *general, but unspecified, benefits* (12%). *Recommended by placentophagy supporter* (10%) was the next most commonly given reason for engaging in placentophagy, followed by *restore or balance*

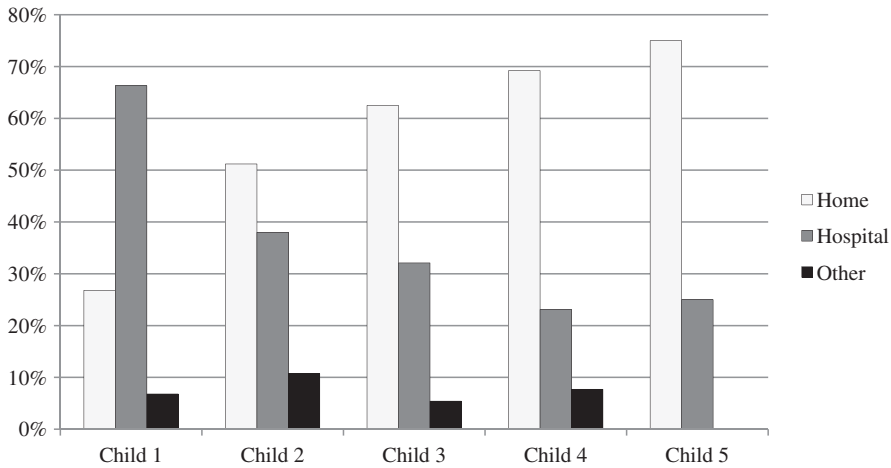


FIGURE 1 Birth location by birth order.

hormones/nutrients (8%), *improve lactation* (7%), and *aid in recovery from birth* (7%). Other reported responses included *increase iron*, *natural behavior*, *alleviate postpartum hemorrhage*, *recommended by midwife or doula*, *logical/makes sense*, *increase energy*, *desire to ingest the placenta*, *couldn't hurt*, *curious*, *ease symptoms of menopause*, and *weight loss or maintenance* (see figure 2). We also asked participants if they had ever experienced a postnatal mood disorder after the birth of any of their children. The responses were split with almost half of the women in the sample reporting suffering from a postnatal mood disorder (50%). However, more of these women had self-diagnosed their mood disorder (63%) than were diagnosed by a health-care professional (37%). Of the women who stated they did experience a

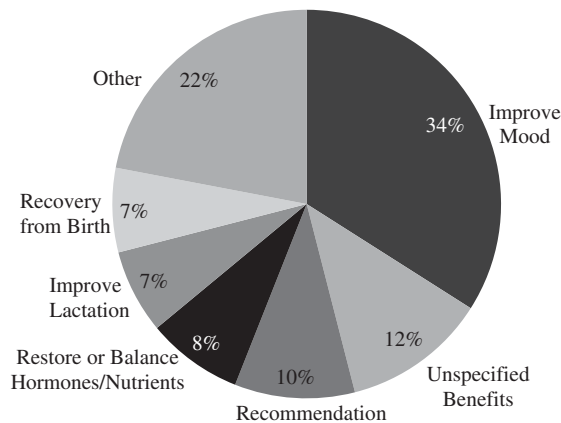


FIGURE 2 Motivation for engaging in placentophagy.

postnatal mood disorder at least once ($n = 93$), the most common mood disorders reported were depression (47%), the “baby blues” (24%), and anxiety (19%). Less commonly reported disorders were psychosis (3%) and various combinations of the baby blues, depression, anxiety, and post-traumatic stress syndrome (5%). When asked to rate the severity of their mood disorder on a Likert scale, 43% chose “severe” and 52% described it as “mild”. The extreme ends of the scale were “very severe” (3%) and “very mild” (2%).

Mode of Placenta Consumption

Most of the women in this sample (90%) had participated in placentophagy only one time. The next most frequently reported number of experiences was two (10%). Of the 189 women in our sample, 37% had ingested placenta with their first and only birth, 52% ingested the placenta beginning with a birth other than the first birth, 6% ingested the placenta with all births, and 5% ingested placenta one or more times, then did not ingest placenta in at least one subsequent birth.

Participants were asked how the placenta was prepared to be ingested, and were given the following choices with the option to select only one: *dehydrated (encapsulated) from raw*; *dehydrated (encapsulated) from cooked*; *raw*; *cooked*; and *other* (see figure 3).

The proportions of the various modes of ingestion varied slightly according to the number of experiences women had with placentophagy. Approximately 80% of the women in our sample ingested placenta in an encapsulated form for their first experience with the practice. This percentage fell slightly for the twenty women in our sample that had two experiences with placenta consumption, with 70% of these women ingesting the placenta

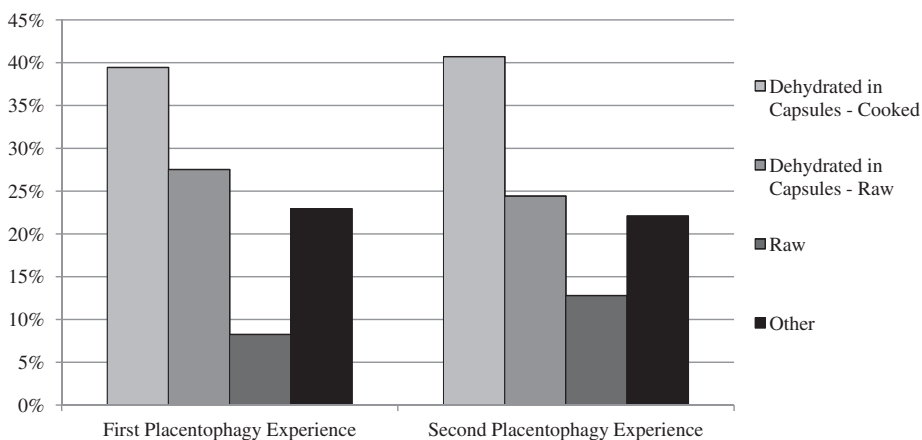


FIGURE 3 Mode of placenta consumption.

in encapsulated form, although the proportion of women choosing the raw-encapsulated option increased among these women. Only two women in our sample ingested placenta a third time, with one woman eating her placenta raw on this occasion, and the other in the cooked and encapsulated form (see figure 3).

Women were also asked to explain why they chose the dehydration and encapsulation method. The most common responses constituted the categories *more appealing/less disgusting than other preparations* (27%; i.e., that this was more appealing to them or described the alternatives in a negative way), *easy to use* (16%) and *preservation of capsules* (20%; i.e., explaining that the pills could be used for months postpartum or saved for menopause). Other responses reflected the following thematic categories: *less messy than other preparations*; *appropriate for vegetarians/vegans*; *service offered by midwife or doula*; *safer to ingest than other preparations*; *comfortable with this form*; *the preparation has been validated*; *availability/convenience of preparation*; and *best method*.

Overall Experience

Analysis of participant responses revealed some dominant trends (see figure 4). When asked to describe any positive effects experienced, the majority of women in the sample claimed that they experienced *improved mood* as a result of consuming their placenta postpartum (40%). The second most frequently given response to this question was *increased energy/decreased fatigue* (26%). Women also reported benefits related to *improved lactation* (15%) and *alleviated postpartum bleeding/discharge* (7%). Other positive self-reported effects were *balance*; *prevented or treated anemia*; *increased strength/vitality*; *improved/accelerated recovery*; *weight loss*; *prevented/relieved headaches*; *facilitated bonding with infant*; *reduced pain*; *treated/prevented hypothyroidism*; *replenishment/regulation of hormones*; *increased/improved duration or quality of sleep*; *uterine involution*; *increased libido*; *facilitated healing/recovery*; and *no reported benefits*. These latter responses were combined and shown as *other* in figure 4.

When asked about any negative effects experienced, the majority (69%) of the 195 total responses indicated that they experienced no negative effects with either a response of “none” or no response given. The single most commonly cited negative effect was *unpleasant taste or smell*, including unpleasant belching, (7%), followed by *headache* (4%). The remaining 20% of the 195 total responses touched on various other unpleasant aspects of placentophagy, including *difficulty remembering to take capsules*, *increased uterine cramping*, *increased vaginal bleeding*, *limited supply of capsules*, *digestive difficulty*, *contraindicated with infection*, *increased*

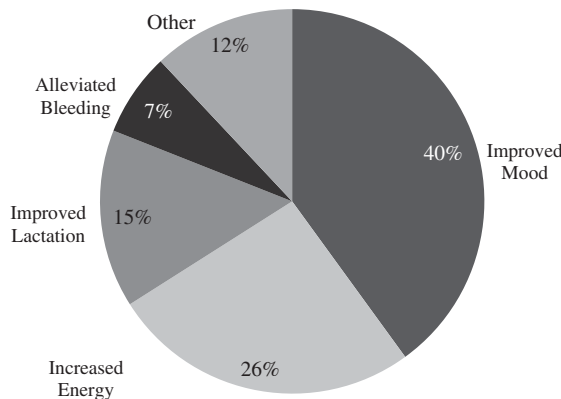


FIGURE 4 Reported positive effects of placentophagy.

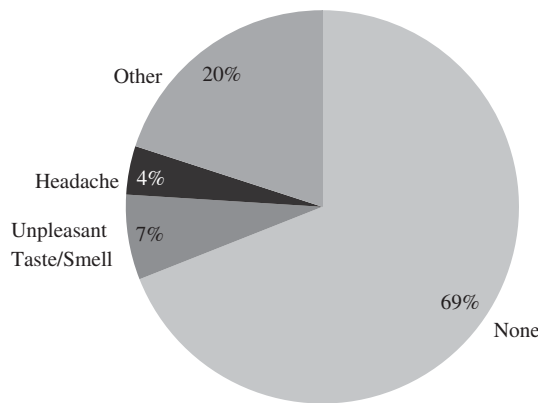


FIGURE 5 Reported negative effects of placentophagy.

frequency/intensity of hot flashes, affected infant (e.g., caused rash), inconvenient preparation process, social stigma, adversely affected mood, increased nausea, excessive lactation, increased constipation, increased heartburn, increased skin blemishes, and cost to encapsulate (see figure 5).

When asked to rate how positive the placentophagy experience was on a Likert scale, the majority of women reported that placentophagy was a *very positive experience* (75%) or *positive experience* (20%). Four percent of participants described it as *slightly positive* and 1% of participants selected *not positive* (see figure 6). When asked to rate how negative the placentophagy experience was on a similar Likert scale, 92% reported that this experience was *not negative*, 7% chose *slightly negative*, less than 1% said *negative*, and less than 1% said *very negative*. Nearly all participants (98%) indicated that they would participate in placentophagy again.

Participants were asked to respond to the open-ended survey question “Would you engage in placentophagy again? Why or why not?” The following

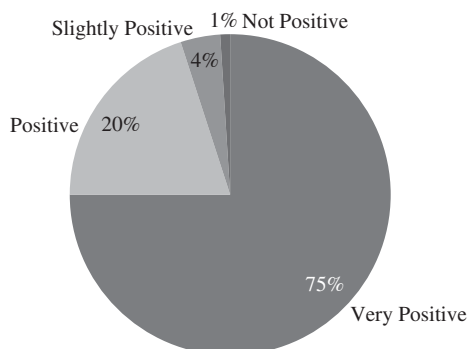


FIGURE 6 Overall experience rating.

is a selection of direct quotes from the 187 participants who selected the “yes” response, and both of the comments from the two participants who chose the “no” response:

“YES” RESPONSES

The [two] postpartum periods were markedly different. My recovery was faster. My moods were lifted. I had more energy than I ever thought possible just days after giving birth.

I had no negative effects at all, only positive effects. The placenta encapsulation affected my mood to the point that I was able to enjoy my time with my new baby instead of stressing about having a 17 month old, a newborn, and a brand new house. Within hours of taking the first pills I felt a definite change in my mood and energy level. I would absolutely do it again, and would recommend it to anyone.

Definitely. My family could always tell if I hadn't taken the placenta pills that day!

Everyone, including myself, noticed a big difference in how I bonded with my first five babies and how I bonded with my sixth, the placentophagy baby. Even though my capsules are long gone, I still have a very special bond with this baby, unlike my others at this point.

I have never felt so good after having a baby. I was happy and healthy and lost baby weight quickly. My milk supply was higher and my energy level was very high. Emotionally, I was very calm and positive and peaceful.

I felt almost immediate relief after my first “smoothie.” Previously I was feeling dizzy from low iron and had no energy. After my energy was up,

I felt back to normal. I had no problems with depression after this birth unlike past births.

I went one week without it and when I started taking it I felt more energy and less weepy. I had considered my recoveries to be fairly easy, so I didn't know how big a difference it would make for me in my postpartum time. It was astoundingly positive to have that kind of energy and positive mood, without ever hitting a "low point" or experiencing the baby blues.

I noticed a huge difference in my recovery—more energy, less bleeding, and no depression or feelings of "baby blues."

After returning home from the hospital, all I did was cry and lacked energy. About an hour after I took two pills, I stopped feeling "blue" and regained my energy. I never really experienced depression.

"NO" RESPONSES

I was warned not to take it if I was feeling sick because it would cause the sickness to go deeper into my tissue. I always feel a little bit sick so I am too afraid to take my placenta pills.

Didn't see enough benefit to deal with the hassle.

DISCUSSION

Early accounts of placentophagy in the literature suggest that the practice arose as part of the natural birth movement, traditionally associated with home births. (Bastien 2004; Field 1984; Janszen 1980; Ober 1973; Selander 2009). Indeed, for the women in our sample, of births that were followed by maternal placentophagy, homebirths outpaced hospital births by 25%. When placentophagy followed the birth of a first child, however, the majority of women in our sample (52%) gave birth in a hospital (see figure 1). This may indicate that not all women participating in placentophagy for the first time are necessarily adherents of the natural birth/home birth movement. However, while the number of home births in the United States rose by 20% in recent years, the percentage of mothers delivering their babies at home is still small, hovering around 1% of total births (MacDorman, Declercq, and Mathews 2011). Since women in this sample overwhelmingly exceeded this percentage for each birth, our sample has a higher percentage of home birthing women than would be expected.

The results from this preliminary investigation reveal the following profile for the women in our non-representative sample: survey participants were most likely to be American, white, married, middle class,

college-educated, and more likely to give birth at home. It is important to note that this is a non-representative sample, and that because the survey was web-based, there could be additional bias due to the fact that these women have differential access to the Internet and the forms of social media (e.g., Facebook or Twitter) used for recruitment. In addition, responses to this survey reflect the views of only those women who had access to the questionnaire and who elected to participate in the study.

The most common way that the placenta was prepared for ingestion, at least for the first experience with placentophagy, was dehydrated and encapsulated. This suggests that women had access to this service or learned how to prepare the placenta in this way. The proportion of women in our sample that ingested the placenta raw (either in encapsulated or non-encapsulated form) did increase for the second placentophagic experience. We did not provide a category for multiple preparation methods per placenta; respondents could choose only one. Therefore, if a woman consumed a portion of the placenta raw and encapsulated the rest, for example, our survey did not account for this option. Based on our survey results, dehydration and encapsulation of the placenta seems to be the most preferred method of ingestion for most women, particularly for those engaging in the practice the first and second time.

Our survey implies that women are engaging in placentophagy for a variety of reasons, though the most commonly reported reason was for its purported mood enhancing benefits. This preliminary data indicates that postpartum women are hearing about the practice from friends, family members or other acquaintances that have had a previous experience consuming the placenta. It could be that since the placentophagy novice initially hears about the practice from a friend, she feels more comfortable trying it. The other commonly reported reason for engaging in placentophagy was for the generally vague *unspecified benefits* as opposed to specific treatment options, which could also be the result of hearing general information via word of mouth that the practice was helpful for postpartum recovery.

It is interesting to note that half of the sample reported experiencing a postnatal mood disorder, either clinically or self-diagnosed, and that the most common benefit of placenta consumption reported was a positive effect on mood. This is notable, both for the frequent occurrence of self-reported postnatal mood disorders in our sample, and the perceived efficacy of placentophagy in alleviating these symptoms by survey participants. According to a meta-analysis of 59 studies, the mean prevalence of postpartum depression is 13% (O'Hara and Swain 1996). Postpartum women in our sample reported that they believed placenta consumption was very effective in helping improve their overall mood.

Fatigue is one symptom that is linked to the development of postpartum depression (Corwin 2005). *Energy* was the second most commonly reported positive effect of placentophagy in our survey. *Placenta Hominis*

(dried human placenta) has been used in Traditional Chinese Medicine to alleviate fatigue and anemia (Bensky 2004; Shizhen and Xiwen 2003; Yanchi 1988), and an increase in energy is touted as one of the benefits of maternal placentophagy among its supporters. Therefore, it is noteworthy that this was commonly reported as a subjectively perceived, positive effect among our respondents as well. There was a notable lack of negative side effects of placentophagy reported in the survey, with only a small percentage of women reporting the negative effect of *unappealing taste or smell of placenta/capsules*. So while placentophagy may be unappealing from a gastronomic perspective, our survey suggests that mothers who choose to engage in the practice do not often perceive negative effects as a result. Additionally, because the overwhelming majority of our respondents indicated that their experience was *very positive*, this suggests that the negative effects reported were not unpleasant enough to negatively influence their overall experience.

In addition to nearly all respondents indicating a positive or very positive experience with placentophagy, almost all of the participants reported that they would engage in the practice again with the placentas of subsequent children. In fact, both of the participants who selected *negative* or *very negative* to describe their placentophagy experience also indicated that they would engage in placentophagy again.

CONCLUSIONS

Our survey shows that the vast majority of women in our sample who engaged in placentophagy did so in the belief it would provide benefits to themselves (and their babies) after delivery. These expected benefits included improved mood and lactation in the postpartum period, among others. Our survey participants generally reported some type of perceived benefit from the practice, felt that their postpartum experience with placentophagy was a positive one, and overwhelmingly indicated that they would engage in placentophagy again after subsequent pregnancies. The most commonly reported negative aspect of placentophagy regarded the nature of the placenta's overall appeal. While a small percentage of our sample (24%) reported some other negative association with placentophagy, even the women who noted these negative aspects responded that they would engage in placentophagy again if given the chance. This suggests that women could derive some perceived benefits from placentophagy without experiencing negative results unpleasant enough to dissuade them from this postpartum practice. At the same time, we recognize that our results should be interpreted with caution for at least two reasons. First, the women who participated in our survey likely represent a biased sample of mothers who have engaged in placentophagy, since participant recruitment relied on social

media sites that are generally supportive of, and advocate for, the practice. Secondly, our attitudinal survey results should not be interpreted as objective evidence of the benefits described by our study participants. To what extent the positive subjective experiences reported by women in our survey reflect anything beyond those associated with placebo effects awaits further study.

More research is necessary to explore the motivations behind a woman's choice to engage in placentophagy and to track their experiences with the practice. While women in our sample reported various effects which were attributed to placentophagy, the basis of those subjective experiences and the mechanisms by which those reported effects occur are currently unknown. Future research focusing on the analysis of placental tissue is needed in order to identify and quantify any potentially harmful or beneficial substances contained in human placenta. In addition, while the current study represents the first attempt to identify a demographic profile of women who have engaged in maternal placentophagy and to systematically evaluate the self-reported experiences of women who have ingested their placenta postpartum, ultimately, a more comprehensive understanding of maternal physiological responses to placentophagy and its effects on maternal mood must await studies employing a placebo-controlled double blind clinical trial research design.

NOTE

Placenta Benefits LTD is an informational web-based resource created by one of the survey's authors, Jodi Selander, in order to share the latest research and information about the use of placenta for postpartum recovery. Jodi Selander personally advocates for the practice of placentophagy based on her own experiences with the practice and anecdotal evidence as reported from women who have used the capsules. Placenta Benefits also provides an online training course to educate service providers on how to process and encapsulate the placenta for consumption. Placenta Benefits raised \$3,000 in 2011 on the sale of DIY Placenta Encapsulation Kits for mothers.

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APPENDIX

Survey: Effects of Human Placentophagy in Postpartum Women

Please answer each question as accurately as possible and to the best of your ability. Remember that all answers are anonymous.

1. Zip code:
2. Age:
3. As which ethnicity would you describe yourself? (Please check one):

| | |
|--|--|
| <input type="checkbox"/> American Indian/Alaska Native | <input type="checkbox"/> Hawaiian/Pacific Islander |
| <input type="checkbox"/> Asian | <input type="checkbox"/> Hispanic/Latina |
| <input type="checkbox"/> African American | <input type="checkbox"/> Middle Eastern |
| <input type="checkbox"/> Caucasian | <input type="checkbox"/> Other _____ |
4. Marital Status (please check one):

| | | | |
|---------------------------------|----------------------------------|--|--|
| <input type="checkbox"/> Single | <input type="checkbox"/> Married | <input type="checkbox"/> Cohabitation with partner | <input type="checkbox"/> In relationship |
|---------------------------------|----------------------------------|--|--|
5. Household Income (Please check one):

| | | |
|--|---|---|
| <input type="checkbox"/> under\$15,000 | <input type="checkbox"/> \$15,000–under\$30,000 | <input type="checkbox"/> \$30,000–under\$50,000 |
| <input type="checkbox"/> greater than \$50,000 | | |
6. What is the highest level of education you have completed? (Please check one):

| | |
|--|---|
| <input type="checkbox"/> Grammar School | <input type="checkbox"/> Bachelor's degree |
| <input type="checkbox"/> Doctoral degree | <input type="checkbox"/> High school or equivalent |
| <input type="checkbox"/> Master's degree | <input type="checkbox"/> Professional degree (MD, JD, etc.) |
| <input type="checkbox"/> Some college | <input type="checkbox"/> Vocational/technical school |
7. How many people live in your household?
8. How many children do you have?
9. Location of births (Please mark the appropriate response for each child and list the five most recent births):

| | | | | |
|----------|------|--------|---------|-------|
| Hospital | Home | Other: | Reason: | Year: |
| Hospital | Home | Other: | Reason: | Year: |
| Hospital | Home | Other: | Reason: | Year: |
| Hospital | Home | Other: | Reason: | Year: |
| Hospital | Home | Other: | Reason: | Year: |

10. Did you experience a postpartum mood disorder after having any of your children? (Please check one):

| | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|
11. If yes, which mood disorder? (check one)

| | | | | |
|---|-------------------------------------|----------------------------------|------------------------------------|---------------------------------|
| <input type="checkbox"/> The baby blues | <input type="checkbox"/> Depression | <input type="checkbox"/> Anxiety | <input type="checkbox"/> Psychosis | <input type="checkbox"/> Other: |
|---|-------------------------------------|----------------------------------|------------------------------------|---------------------------------|
12. If so, please rate the severity of the mood disorder (Please check one):

| | | | |
|------------------------------------|-------------------------------|---------------------------------|--------------------------------------|
| <input type="checkbox"/> Very mild | <input type="checkbox"/> Mild | <input type="checkbox"/> Severe | <input type="checkbox"/> Very severe |
|------------------------------------|-------------------------------|---------------------------------|--------------------------------------|
13. If you answered yes to Question 11, was this mood disorder diagnosed by a physician, or other health/counseling professional?

| | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

14. Why did you choose to engage in placentophagy?

15. How many times have you eaten your placenta?

16. How was your placenta prepared to be eaten?

| | | | |
|-----------|---------------------------------------|--------|--------|
| Child #1: | Dehydrated (encapsulated) from raw | Raw | Cooked |
| | Dehydrated (encapsulated) from cooked | Other: | |
| Child #2: | Dehydrated (encapsulated) from raw | Raw | Cooked |
| | Dehydrated (encapsulated) from cooked | Other: | |
| Child #3: | Dehydrated (encapsulated) from raw | Raw | Cooked |
| | Dehydrated (encapsulated) from cooked | Other: | |
| Child #4: | Dehydrated (encapsulated) from raw | Raw | Cooked |
| | Dehydrated (encapsulated) from cooked | Other: | |
| Child #5: | Dehydrated (encapsulated) from raw | Raw | Cooked |
| | Dehydrated (encapsulated) from cooked | Other: | |

17. If you participated in the encapsulation method, why did you choose to eat the placenta in this form?

18. How did you hear about the encapsulation method? (Please check one):
 Friends Family Internet, what source: Other:

19. What were the perceived effects (if any) that you noticed/experienced after participating in placentophagy? (Please list all that apply for each column)

Positive

Negative

20. Please rate how positive this experience was for you (Please check one):
 Not positive Slightly positive Positive Very positive

21. Please rate how negative this experience was for you (Please check one):
 Not negative Slightly negative Negative Very Negative

22. Would you do it again? (check one) Yes No

23. Why or why not?