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Relinquishing Frozen Embryos for Conception by Infertile Couples

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We would probably never know him and yet he would be a unique part of our life forever.

—a donor mother

This qualitative study sought to provide an in-depth understanding of the experiences of couples who have relinquished their stored frozen embryos to one or more infertile couples. All couples were recruited through a U.S. based not-for-profit, prolife, Christian "embryo adoption" agency. In-depth semistructured interviews were undertaken via e-mail. Implications for practice strategies, including effective ways for educating couples with surplus frozen embryos are offered.

Keywords: frozen embryo disposition, embryo donation and adoption, third party reproduction, frozen embryos and decision making, embryo donors and motivation

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Cryopreservation (i.e., freezing) of embryos is now routinely offered in in-vitro fertilization (IVF) treatment. One consequence of this practice is that couples who have completed their family following infertility treatment are often left with unused embryos and face the need to make a "disposition decision" regarding the fate of these embryos. The number of such embryos has been increasing because of significant improvement in the technology of cryopreservation and the increasing restriction through legislation, regulation, or professional guidelines, on the number of embryos that may be transferred during a single cycle of treatment (Jones, Cohen, Cooke, & Kempers, 2007). While there is no single statistic on the number of "surplus" embryos in storage worldwide, it has been estimated that there are roughly 400,000 frozen embryos in the United States alone, ~12% or 47,000 of which will not be used by the couples who are storing them (Hoffman et al., 2003). The number of frozen embryos in storage in Australia and the United Kingdom are estimated to be more than 92,500 and 52,000, respectively (Zweifel, Christianson, Jaeger, Olive, & Lindheim, 2007).

Four alternative disposition options are available for frozen embryos that remain unused after infertility treatments were

completed (i.e., when use for future pregnancies by the couple is not anticipated), including thawing and discarding, donating to research, continued storing, or, relinquishing to another couple for reproduction (Lyerly et al., 2010). However, not all of these options are always available. For example, some countries have statutory limits on the duration for storage; the states of Victoria and New South Wales in Australia have a 5 year limit (Fuscaldo & Savulesco, 2005), in the U.S. embryos may be stored indefinitely, but individual states may impose specific guidelines (N. C. S. L., 2007), and, in Belgium patients are obliged to decide the disposition of possible left-over embryos before their first treatment (Provoost et al., 2009). In the U.K. embryos may be stored for up to 10 years, although storage may be extended for a maximum of 55 years if certain conditions are met (HFER, 2009).

While all the aforementioned options stir considerable political, ethical, and religious debate related to the ongoing question of when life begins, transferring frozen embryos to another couple raises both short and long term complex psycho-social dilemmas relative to the interests and welfare of the potential baby (i.e., the embryo), the genetic parents (i.e., the woman and man whose egg and sperm were used for fertilization) and to other children in the families of the genetic parents and the recipient(s). Further issues emerge if the embryo is created using donor eggs and/or sperm and then relinquished to another couple.

Because of these challenges, relinquishing embryos for the treatment of others is not permitted under law in Austria, Denmark, Germany, Israel, Italy, Latvia, Norway, Slovenia, Sweden, Switzerland, Taiwan, Tunisia, and Turkey. Nonetheless, it is a valid option in the United States, Belgium, the Czech Republic, France, Greece, Hong Kong, the Netherlands, New Zealand, Russia, Singapore, Spain, the United Kingdom, and Vietnam (Jones et al., 2007). Countries that permit relinquishment of embryos for the treatment of infertility in others have typically set in place specific criteria and procedures to regulate the practice. For instance, New Zealand requires a case-by-case approval by an ethics committee as well as a preprocedure meeting of genetic parents and recipients (Daniels, 2007). Many jurisdictions impose limits on the number of children born from a single gamete or embryo provider and various states have instituted legal provisions permitting an individual to learn the identity of his or her genetic parents (Blyth & Frith, 2009; Jones et al., 2007). In the U.S. the feasibility of a voluntary gamete donor registry has been discussed at the annual meeting of the American Society for Reproductive Medicine (Braverman, Elster, & Adamson, 2009) but remains at a preliminary stage.

In studies published to date, most couples are reported to remain undecided about what to do with their embryos (Lyerly, Brelsford, Bankowski, Faden, & Wallach, 2004; McMahon et al., 2000; Nachtigall, Becker, Friese, Butler, & MacDougall, 2005). While interest in relinquishing to another couple was reported by 5 to 39% of studies' participants (Achilles & Franz, 1998; McMahon & Saunders, 2007), relinquishing embryos to another couple has been found to be more often contemplated than actually performed (Burton & Sanders, 2004; Lyerly et al., 2004).

For participants in these studies, factors that determined disposition decisions included the conceptualizations of the embryo as potential people and specifically as their future child(ren) and sibling(s) of their existing child(ren) versus biologic tissue, feeling of ongoing responsibility for the well-being of the embryo, sense of ownership, concerns about implications for existing children as well as the information that was available to the donors of the embryos (de Lacey, 2007; Lyerly et al., 2006; MacCallum, 2007; McMahon et al., 2000; McMahon et al., 2003; Nachtigall et al., 2005; Söderström-

Anttila, 2001; Zweifel et al., 2007). Irrespective of the decision they reached, couples' disposition decisions were guided by negative (i.e., avoidance of a challenging option) rather than positive (i.e., preference) motivation (de Lacey, 2007).

While disposition decisions and their correlates have been studied, the nature of the process that led to them has not been fully examined. One exception is the work by Provoost (2009) and colleagues who studied the way people undergoing infertility treatment deliberated regarding their surplus frozen embryos. However, in this study "the process of decision making was analyzed in an artificial task [a hypothetical rather than actual] situation and not at the time of the actual decision" (p. 902). The current article describes a study that sought to gain insight into the complex and controversial process of couples' decision making relative to the fate of their unused frozen embryos from the perspective of those who actually completed the process, relinquished their embryos and have experienced the outcomes of their decision. This line of preliminary exploration begins to address the gap in the literature about the downstream consequences of expanding assisted reproduction options.

METHOD

Research Design

An exploratory, qualitative study was conducted to investigate the motivations and experiences of couples who have chosen to relinquish their unused cryopreserved embryos to other couples. Two national agencies, both of which have an explicit prolife mission and some clinics offer embryo relinquishment services (personal communication with American Fertility Association, March 15, 2010). The sample was recruited through one of these agencies. Qualitative methodologies are often indicated to study little-known, sensitive, and complex topics (Dey, 1993; Marshall & Rossman, 2006) and to capture a thick description of the "lived experience" from the perspective of those who live, as well as create meaning of it (Marshall & Rossman, 2006; Padgett, 2008). The qualitative methodology provided contextual data that enabled personal meanings and social realities experienced by the couples to be captured.

Sample

Like similar studies (de Lacey, 2007; Provoost et al., 2009) data were collected from 18 couples and seven wives whose husbands did not take part. Inclusion criteria were: (a) having relinquished at least one frozen embryo for infertility treatment of another couple, whether a recipient had been chosen or not (relinquishing is a two-stage process that includes "freeing" the embryo to the agency followed by choosing the specific couple to receive it) and whether the relinquished embryo already had led to the birth of a child or not; (b) proficiency in English; and (c) having access to the Internet and email. Because an embryo is created with both male and female gametes and the decision to relinquish an embryo to another couple must be a joint one, the views of both members of relinquishing couples were sought; however similar to previous studies (e.g., Provoost et al., 2009), husbands were less likely than their wives or partners to take part in the study. The decision to include the interviews with women whose spouses or partners either dropped out of the project or did not engage in the first place was informed by the desire to honor the voices of the women who took the time and effort to share their experiences.

Participants were typically in their mid-30s to mid-50s. Most husbands were blue or white collar workers. Some of the women worked outside of the home and others were stay-at-home moms caring for young children. Participants were typically White, mostly Christians, varying in degree of religiosity. All were in a heterosex-

ual marriage or partnership, some in a remarriage. They lived in different parts of the United States. The number of children in each family ranged from one to nine and combinations included biological, adoptive, foster, step, and donor-conceived children. All participants had "surplus" embryos after treatment for either primary (e.g., never having completed a pregnancy that led to a live birth) or secondary (e.g., being unable to conceive additional children because of medical conditions or vasectomy) infertility. While the heterogeneity of the sample is somewhat limited, its composition reflects the population of those who relinquish their frozen embryos to infertile couples.

Procedure

The agency sent an e-mail to all of their clients who had relinquished embryos in which the nature of the study was explained and an invitation to participate was extended. Interested participants contacted the primary investigator via e-mail or telephone and following a screening interview, those who met the inclusion criteria were sent a letter providing details regarding participation and consent to participate form. Upon receipt of the signed informed consent participants were randomly assigned to one of the four researchers and arrangements for an e-mail interview were made. The researcher contacted the couple in a joint email, introduced her or himself, reiterated the goal and confidentiality and started corresponding, in most cases, individually with each spouse. Interviewing continued until saturation was achieved; that is, no new information was elicited and the participant stated that she or he believed that all relevant issues were addressed. The trustworthiness and authenticity of the data was promoted using prolonged engagement and member checking (Denzin & Lincoln, 2000; McCoyd & Kerson, 2006).

Data Collection

Because of the limited size and geographic dispersion of this population group email interviewing was used. While in-person interviewing permits richness in data gathering that has made it the gold standard of qualitative research, e-mail interviews offer the advantages of extensive, continuous, rich communication with hard to reach populations such as stigmatized groups, and offers participants control over timing, conditions, pace, self expression, a sense of privacy as well as opportunities for reflection and a low cost (McCoyd & Kerson, 2006). These advantages are considered to outweigh negative aspects including potential participant distraction during the interview, lack of information from visual observation, the possibility of falsification and a false sense of participant anonymity (McCoyd, 2003). Ethical concerns were scrupulously attended to by the researchers through adherence to the ethical guidelines of the Association of Internet Researchers (Association of Internet Researchers [www.aoir.org], 2002) and by paying heed to the practice experience of researchers who had used this method previously (McCoyd & Kerson, 2006). Ethical approval was given by the relevant IRBs in each of the researchers' employing universities.

Consistent with grounded theory methodology, interviews were semistructured, that is, informed by an interview guide to define the scope of the narrative and allowing for flexible probing and elaboration to "tailor" a unique interview for each participant. Issues addressed included the motivation to relinquish embryos to another couple, knowledge of and views regarding alternative disposition, the dynamic of the decision-making process, considerations in the decision, the nature of past and anticipated contact with the recipient couple and the child, involvement of significant others (e.g., extended family, children) in the process.

Data Analysis

Completed transcripts from email interviews were content analyzed by the four researchers. Open and axial coding were employed to identify emerging categories, and selective coding to clarify concepts as well as integrate and refine the emerging theory. Constant comparison method was used for the comparison of data between interviews of each participant but also for comparison of themes and categories within interview (Strauss, 1998). The research team reviewed the transcripts for quality assurance to ensure a consistent approach to data analysis. The data analysis was based on 'a voice centered relational method' (for a detailed account see (Mauthner & Doucet, 1998) where four distinct readings are undertaken: (a) reading for the plots and for responses to the narrative—determining the main events, the protagonists and the subplots; (b) reading for the voice of 'I'—how the participant experiences, feels and speaks about him or herself; (c) reading for relationships—how the participant speaks about interpersonal relationships with their partner, extended families, relatives, friends, and prospective "children"; and (d) reading for placing people in cultural contexts and social structures—the accounts and experiences of participants are placed within broader social, political, cultural and structural contexts with reference to involuntary childlessness, motherhood, fatherhood, and family construction. This in-depth analysis facilitated the development of a multilayered and a detailed appreciation of issues in embryo relinquishment from the perspectives of the participant. Intercoder triangulation was achieved by securing consensus among investigators relative to coding (Krefting, 1999).

FINDINGS

The content analysis yielded 76 codes clustered in four themes; aspects related to decision to relinquish, mechanism for relinquishment, the relinquishment experience, and the life after relinquishment.

The decision to relinquish included one or more triggering event, attitudes toward options available, and the dynamic involved in the decision process. The typical triggering event was the couple's realization that they had to make a decision. Two types of considerations informed the decision. First, the clinic's fees for storage as well as guidelines limiting the duration of cryopreservation and the use permitted for embryo disposition. For example one wife stated "We knew we had to do something with them [frozen embryos] and my clinic would only use them as a donation for another couple if there were five or more." A wife stated, "After storing them for six months our fertility clinic sent us a bill for future storage and that's when we knew we had to make a decision." One husband described coming to terms with having to make a decision by stating that "the status quo was not the best option." The second type of consideration was related to the mothers' or children's health, emotional exhaustion and/or financial considerations. A couple who experienced a severe pregnancy-related condition that causes some stillbirths and often goes undiagnosed, and in their case required preterm cesarean delivery of their twins, stated that they would not go through the same scary experience again. Another couple who initially planned on using their three frozen embryos for expanding their family changed their mind when maternal and child health issues arose. The wife said, "Actually, we seriously considered having more children for several weeks after realizing we had three embryos. Then, when our youngest was faced with some health issues at 4 months of age, we decided that we had been through and done enough fertility treatments."

Narratives reflected couples' struggles with the options available to them regarding disposition of their cryopreserved embryos. For example one husband said, "My

first thought was that NOT donating the unused embryos to another couple would have weighed on my conscience so it was somewhat about me and my peace of mind going forward. I absolutely do not hold anything against folks who would choose to discard, but I knew that this was not the right choice for me" [emphasis original]. A wife said, "If they [embryos] were not going to be used by us to grow our family, we wanted them to go to something or someone who would do something life sustaining with them." While this wife and her husband revealed that donation to research would have been acceptable to them, they were told by their clinic that was not an option at the time. Overall, participants tended to express a negative attitude toward the acceptability of the options they had not chosen for themselves. One woman explained that the decision to relinquish their embryos was reached by elimination because the couple was never fully comfortable with it but it was "the lesser of all evils." A husband echoed this sentiment stating "I don't think that I would ever be comfortable destroying the frozen embryos or using them for a purpose that would have destroyed them."

Either one spouse or both cited religious, ethical and/or personal values relative to "what is right" (e.g., giving a chance of life) and a sense of responsibility toward their embryos, their own children and the potential recipients as informing their decision. One husband's statement reflects these three types of responsibility: "these embryos are our boys' full brothers or sisters and we wanted them to have a chance of life and for our boys to know any of them that might be lucky enough . . . it was roughly 25% of wanting to help another couple and 75% of wanting to give our embryos a chance at life." Other typical statements included, "I remember feeling a certain responsibility for the embryos we had created. I do subscribe to the idea that conception is the beginning of human life," "we didn't really have options because the only other alternatives were against our faith," "we felt responsible that we had created these lives and were responsible for finding them good homes if we could not be that home," and "I didn't feel we could [discard the embryos] based on our Christian beliefs. I don't know if life begins at conception, but it might, and this felt morally wrong, so I could not make this choice." One wife went even further to describe a sense of mission by stating, "The sole reason why we donated is that we were supposed to. This was a God thing and we felt moved by the lord to do this."

The dynamic in the decision making process often involved the wife taking a leadership role. Both husbands and wives tended to report that while decision was made in consensus, the women were often the initiators in contemplating the future of the embryos as well as playing the active role in mobilizing the process. For example one wife said, "I approached [husband] and asked what he thought. He said it sounded good but was worried about me and the "what ifs" . . . . what if I regretted our decision, what if we lost another child . . . . but I told him I refused to live my life as a big what if, so we just jumped." A similar dynamic was described by a husband who said that his wife "loves to be pregnant and loves having little babies around the house." He continued by saying, "I always thought we would just try to have more kids. Then she told me about the possibility of giving our frozen embryos to another couple. Given her age and her assurance to me that she did not want to be pregnant again, it seemed like a great option."

Some couples reported the decision to relinquish their embryos was an easy one, for example, "[husband] felt the same as me [that donating to the couple was the right thing] so there wasn't really anything to discuss except the details." However, for other couples the decision was hard. One couple who, according to the wife was absolutely certain "we did not have the financial and emotional capacity for more IVFs

with the three remaining embryos" and "there was NO WAY we wanted to even entertain the idea [of more children], yet "the initial decision was difficult because I felt like I was giving away my children" (emphasis original).

The Mechanism of Relinquishment

Once the decision was made to relinquish their embryos, the couples entered the phase of going through the procedure of relinquishment. This involved choosing an agency and a recipient, undergoing genetic tests, deciding about the level of openness toward the environment as well as the desired type of relationship with the recipients. Most participants reported identifying the agency through word of mouth, advertisements, online fertility-related discussion boards, and/or occasionally from their fertility clinics. Because of the limited number of agencies, the choice was often by default; for example, one wife stated "We went with [agency] because at the time they were the only agency who was arranging embryo 'adoptions'. They are legal adoptions like with a baby, the law here calls them property transfers or something, but [agency] procedures were the same for an infant." Another couple stated, "They [agency] are a Christian adoption agency. They only allow three embryos to be transferred at a time with NO option of selective reduction. We were able to choose our adoptive family." A wife said, "It [agency] seemed the most organized and it left the eggs [embryos] with us until we selected an appropriate recipient."

After contacting the agency and meeting its procedures including providing medical and genetic history, creating a family profile with photos of all family members and signing relevant legal documents as well as counseling where indicated, the relinquishing couple received from the agency portfolios of potential recipient couples for review. In considering potential recipient couples for their embryos, couples identified diverse factors they took into consideration. For many, these included religious, racial/ethnic and physical similarity, marital status, sexual orientation, health, and socioeconomic status of the recipients, the availability of extended family and options for future contact with recipients. Typical statements were "The family we chose seemed to share our values" and "We wanted a couple with what seemed like a reasonable series of good life experiences. The thought here is perhaps they would handle and raise kids better. We were looking for a couple with a traditional marriage for a few years with a stable home life." A wife who hadn't yet chosen recipients said, "I am really looking for someone who has the same profile as me to raise my children." However a few felt differently. For instance, one husband stated "We were not overly concerned about religion type or otherwise. Political interests or geographical location were not issues. Type of work was not important except as being able to provide a stable home life." The statement by one husband that the major concern was to "avoid negative outcomes for the baby" and that "the child's best interest trumps all other party's rights" reflected responses of all interviewees. Some couples cited just "getting a feeling" that certain recipients "were right for the babies." One wife stated, "We knew that God had brought us together. There was absolutely no doubt in our minds."

Many couples reported that the process of choosing was quite short and relatively easy. One husband's statement, which was echoed in other accounts, was "This was not a very difficult process for me at least, I'm not sure but I suppose I did not have the same attachment as I would to a living breathing child. It was important and we did do our best but it was not an emotional process, it was more analytical for me at least." Some couples rejected couples offered to them until they found what they felt was the right match whereas others opted to affirm the first couple that they were offered. While the majority of inter-

viewees reported dedicating thought relative to placement of their embryos, some expressed an attitude of resignation, "whatever happens, happens" and yet others expressed discomfort about "playing God."

The degree of sharing information about going through the process of relinquishing embryos varied greatly. Some participants were willing and eager to discuss the potential relinquishment with family and friends, others preferred to keep it private and still others shared selectively with some relatives but not with others. For example one wife stated, "We felt that my family would be supportive but his family would react on a large scale . . . my sister in law, who was also undergoing fertility treatment, made a comment that she would NEVER give away her embryos and at that time we didn't feel prepared to handle all of that" (emphasis original). Several participants informed their own parents, their children, coworkers and other relatives and friends. For example, one woman said, "I did talk to people about my decision. I talked to my best friend a lot. She was there when I had stupid things going through my mind and told me what she thought of the process. She was totally on board and loved the idea." A man reported that he shared the information only with a close friend from his college days with whom he reconnected online, and who was also going through infertility treatment. However, another man said, "We chose to keep this between the two of us." Considerations that guided the amount of sharing were seeking support, the wish to avoid negative responses or influence from the environment relative to the decision and fear of the need to explain if none of the embryos resulted in live birth.

Attitudes toward the desired relationship with the recipients tended to change as the couples went through the process. Before the actual transfer some couples expressed the desire to minimize contact with the recipients. For example one husband said, "The fact that the adopting couple was in a far away city for me represented a healthy distance such that I wouldn't tend to feel that any children born of those embryos are my own." Others were willing to allow the recipients to monitor the level of contact such that one wife said, "We did agree to keep in touch with them if that was what they wanted." Another wife said, "Our first contact with the adoptive couple was by e-mail . . . . it was mainly [wife] e-mailing back and forth. I was very nervous every time because I didn't want to seem too nosy or offend her in any way." For some couples things changed when pregnancy was achieved and when a baby was born. For example one wife stated, "As things progressed and I got used to the idea and became more comfortable with my decision I began to desire more contact. I will love to be able to exchange e-mails, Christmas cards and pictures of our kids." Another woman prepared two teddy bears with the agency's name embroidered on the paw and put inside each bear hearts to represent the embryos. She put one bear away for her children when they would be told, and sent the other one to the recipient couple as a gift for their baby. She also made a special photo album with all the pictures received of the baby and keeps all e-mails and correspondence. Another couple met the recipient couple when the recipients' baby was 6 weeks old. The two families have met each others' extended families and now try to arrange periodic gatherings.

The Relinquishment Experience

From participants' discussion of their experience of reliquishment four important milestones emerged: The decision, the shipment/transfer of the embryo, learning the outcome of the transfer, and the birth (if occurred). The decision has been described as very difficult and emotional for some but not for others. For example, one wife said, "The decision to donate our embryos was not challenging at all. We were

thrilled to have this option available to us." This feeling was echoed in another woman's statement "The biggest feeling was relief. We had given them [the embryos] a shot at life and the rest was in the hands of God."

The shipment/transfer date, that is, when the frozen embryos were placed into the uterus of the recipient mother was described by some participants as sad because it made the whole experience an irreversible reality. "There was just a sense of finality about knowing that they were leaving "home" and starting their journey to become someone else's children." Learning the outcome of the transfer, that is, whether a pregnancy was achieved was also challenging and emotional for some participants because it confirmed the long-term nature of the journey. One woman expressed her reaction "of course the best part was finding out the recipient mom was pregnant. I was so happy for her. Then they found out it was a baby boy, and they already had a name picked out." However simultaneous with the relief there was a sense of loss. One wife said, "The day of the announcement of the pregnancy of the mother with our genetic child brought a flood of new emotions. I knew one hundred percent that we didn't want anymore children but it was bittersweet."

Some couples had to learn that a conception did not occur and their responses varied. For example, one couple said that, "we were notified, sort of in a cold and very matter of fact manner, that the transfer took place and it was unsuccessful. Bam. It was over." Another woman whose embryo did not survive the thawing process (preparation for transfer) described her experience, "when I found out it had not survived the thawing process I was far more upset than I ever imagined I would be. It was not dissimilar to hearing of a death. This was not something I expected to feel, but confirmed in me that what we did in finding a home for the embryo rather than just leaving it was the right thing to do. I felt upset because there was no discrepancy between my feelings for the embryos that became our twins and the embryo that did not survive. All were wanted potential children." One woman whose embryo did not result in a conception felt differently. "I hate to admit this but we were very relieved that it didn't work. We were sad for the couple because we lived through all of the disappointments . . . we know the emotional stress, anxiety and expense associated with this whole process. I still often think about what we did and 'what if they would have had our baby,' but then I come back to reality and remind myself that it didn't happen so "don't worry about it.'" And yet another couple shared a mix of emotions including anger at the medical team involved in the transfer for the loss of the embryos, sadness for the recipient couple who did not conceive, and a sense of guilt illustrated in the following statement made by the wife, "I had a small niggle in my gut that this wasn't the right family but I didn't pay attention to it and let the adoption go forward. I could have stopped it at the profile stage and they would have never known."

While almost all participants identified the announcement of a birth as a significant milestone, they tended not to elaborate on it. However, when participants did share reactions, they often reported feeling surprised by them. For example, one husband said that "I was expecting that receiving a birth announcement would be REALLY big and ironically it was not, at least not in any heavy emotional way. I was actually pretty excited and very curious about the baby's appearance. Also I thought it was very cool that the baby was born on our twins' second birthday, so they all share the same birthday" (emphasis original). However, some couples encounter the reality of a conception and pregnancy but later developments were negative such as a prenatal diagnosis and subsequent termination, or a miscarriage or stillbirth. One wife described her an-

guish when she learned that something was terribly wrong with the baby conceived with her embryo. "Sitting and waiting while they went through this was the worst because I felt responsible somehow. I felt like they would be mad at me because I gave them defective embryos even though I did not know anything was wrong. They finally had to deliver the child. I'm not sure how long he lived if at all, and then they had to bury him. All through it I grieved for them and for the baby. Then I started feeling horrible because I started thinking what would have happened had we been the ones to implant that embryo, would we have had the same outcome."

Life After Relinquishment

The two clusters of codes relative to life after relinquishment were reflecting back and planning for the future. In reflecting back participants identified rewards and challenges as well as shared a variety of feelings. Relative to rewards, one wife shared, "When I see the faces of the two boys that came from our embryos and their family and extended family, I feel like it was a miracle that brought life and joy to so many people." One husband expressed relief in "possibly allowing my daughter to have another genetic sibling and knowing that we were not trashing a possible person." A wife said, "This is something we are proud of not something we want to hide," and another said, "The most rewarding part of the process for me would probably be that I have been a part of giving another family hope and the joy of parenting. I know how desperately I wanted a child and the infertility was devastating to me. To know that I have been able to help some other woman and man experience the joys (and trials!) of parenting who might otherwise not have been able to, is a great reward." One wife revealed that there is great reward in her family's relationship with the recipient family; "actually being a part of each others family."

Regarding the challenges, participants identified letting go emotionally of the embryos, choosing a recipient, waiting for results of the transfer, and establishing a level of communication with the recipients. Relative to letting go, one husband shared that "the most challenging part of the process was coming to the realization that we had to make a choice, or that the status quo was not the best option." One woman reported that "The most challenging thing for me, personally, has been the fact that a little boy was born and I only had girls." Another said, "What's challenging for me is the idea that strangers could give birth to and raise my child(ren). They are and always will be "my" babies, and I know it will be extremely hard for me to know that my children are living with other people." Another wife who felt that the letting go was more difficult for her than for her husband said, "[husband] didn't seem as attached to the embryos as I was nor did he want to know as much about what was going on with the other couple. At one point he said to me that his children are right here and that is all he is concerned with. Another woman I talked to said it was harder for her too, but not her husband."

In regard to choosing a recipient, some donors reported discomfort with the agency's policy that requires the review of one portfolio of potential recipients at a time rather than being able to compare several possibilities simultaneously. Consequently, when they were impressed with one couple they were afraid to lose them by looking further. A wife who had not yet chosen a recipient said, "We are just going to be patient and wait until the right family emerges."

A wife said that waiting for the news about the status of the transfer was quite difficult as was the process of getting to know the recipient couple. "Neither myself or [husband] wanted to seem too nosy or pushy. I didn't want to say anything that would upset them. Now that we are such good friends, we have talked about that, and they felt the same way about us. We

were all walking on eggshells unnecessarily. But for some, it might be their choice to not even have a relationship with the adoptive couple."

Feelings included having no regrets, altruism, relief, joy, satisfaction, but also anger, sadness, guilt, loss, and ambivalence. One woman said, "I guess some of the turmoil I felt came from knowing I didn't want any more children yet feeling responsible for creating the extra life and SHOULD keep them, but knowing I was in no position to do so" (emphasis original). The sense of relief is illustrated by one woman's statement, "this process lets you have the choice to know what happens, you never have to lie in bed at night and what if? Did the embryo make it? Did the couple get pregnant? What kind of couple received the embryo? This way we got to know exactly who is going to be a family to what we worked SO HARD to create" (emphasis original).

In planning for the future, participants addressed their fantasies, curiosities, and fears about children they created being raised by others and about the physical and emotional quality of the children's lives, ambivalence relative to potential connection with the children as well as their adoptive parents, reactions from the environment as well as offered advice to others.

Couples raised questions such as how the children will be treated by the recipients. One woman expressed her anticipated fears and curiosity in the following way. "I will always wonder how they are being treated, what they are exposed to and how in general they are being raised." Similar issues echoed in a husband's statement "I do have concerns that if a couple carries a child with the embryos that were donated, that they would not have the same value system as [wife] and I do. There are some aspects of life that I would like to have the child be involved in. One of which is a church affiliation. That is probably the most important aspect. The other is the safety of the child. Since I would not obviously be there in person to protect the child I do feel that it is my obligation to do so as much as I can." This same husband went on to say, "With our children that we have, [wife] and I are very protective in many respects. We feel that kids should be kids but also that they should not have to worry about bad things happening to them in life. There is a sense of security that I think we give. The other is to make sure that the child has a family belonging. Since I didn't have a close family growing up it is something that is important to me that the child experiences."

Thoughts and feelings about future relationships addressed donors' contact with recipient parents, donors' relationships with the children created from the embryos, and their reactions regarding the relationships between the two sets of children (those they raise and those created from the relinquished embryos). Some parents wanted to minimize the contact with the recipient couple while others were thankful for getting photos and reports that documented the child's life. Some wanted it to be like an "open" adoption "where we would keep in touch. The honesty and openness was important to me . . . I wanted the embryos, their adoptive families and our own children to know the truth." One husband describes the relationship with the recipient parents in the following words, "It is not so much an intensive relationship . . . It is more intimate. The four of us have remained open and willing to share information. It is a friendship that crosses all boundaries. We share a wonderful love for a little boy named baby R". Some parents described a process of change in their attitude to communication with recipient couples. "When my husband and I were making the decision we were concerned about giving other people too much access into our lives. We are a fairly quiet, conservative privacy-loving family. Our emotions were very raw from the decision making and we weren't ready to deal with any intrusions into our privacy

where our embryo decision was concerned. We knew that we would try to choose the best couple for the adoption but we were also a little fearful of hooking up with some intrusive, obnoxious people and we felt like we wanted to keep the [agency name] between us and them for a measure of personal space, privacy, security and so forth, but now that we have made a decision, chosen the family and had time to adjust to everything and get to know the couple a little, we no longer fear an intrusion or whatever. Plus, having adjusted emotionally and feeling at peace with the decision and even happy for our couple when we see pictures of their beautiful baby, I now feel ready to open up the communication some and lower the wall of protection a bit."

Ambivalence relative to contact with the children created by the relinquished embryos was abundant. While some participants struggled with questions such as "will they come looking for me?' and "Will the two children that were born ever show up on my doorstep?" others were not sure about the desired relationships with the children. For example one husband said "although I would have liked to generally know about these children's lives I am not sure how close of a relationship I would have wanted to have with them myself." Another man whose relinquishment resulted in the birth of a baby boy said, "I do entertain the possibilities for the future. Possibly meeting this young man? Any regrets on his end? How would this affect my own wonderful family that I love so dearly?" Still others had already established relationships with their recipient families. For example, a wife said, "We are very blessed to have them in our lives. Our children call them Aunt, Uncle and cousin; their children call us Aunt, Uncle and cousins."

Feelings and opinions relative to future contacts between the children created from the relinquished embryos and their own children also varied. Some felt that "it would be entirely our son's choice about whether or not to pursue a relationship with any of these prospective brothers or sisters."

Among the lessons learned that participants wished to share with other couples struggling with the question of embryo disposition was the idea that they have options and all options should be explored thoroughly before a decision is made. "Not many people know that this [embryo relinquishment] is an option. I came upon it by accident, but it is not very advertised and there are a lot of people out there that are probably like me . . . so I wish there was a way that it could become more widely known." Advice to others who have embryos in storage also included suggesting that "folks should make a decision before they go through IVF," and recommending embryo relinquishment while emphasizing that "there is no monetary cost to the relinquishing people—but they should be aware of the emotional cost that goes with proceeding through the lengthy process and possibly being unsuccessful." One wife whose recipient couple did not conceive with any of the 15 frozen embryos she donated said, "I would listen to my gut this time. This is what I would tell others, be sure the couple you chose is the one you feel the best about." Furthermore, couples were encouraged to make the decision together on their own without asking for opinions of family members "because sometimes they cannot see beyond how it is going to affect them. It is a personal decision between you and your spouse and you must feel comfortable with it."

DISCUSSION

It is important to note the limitations of the study, the most significant of which is the small sample size. Additional limitations were associated with distance e-mail interviewing and include lack of information from visual observation and the possibility of falsification (Berger, 2009). Because of these limitations, conclusions from this study should be viewed as tentative

and call for further data collection for comparative analysis.

Despite these limitations, this study can offer some preliminary insights into the process of embryo disposition. First, although for some couples with surplus frozen embryos, relinquishing them to other infertile couples is a viable option preferable to other available possibilities, information about its availability appears to be limited (e.g., very few informative web-based resources exist) and the majority of participants in this study learned about it on their own, without direction from fertility clinics.

Two main reasons possibly contribute to the absence of an open dialogue about this possibility. First, embryo relinquishing is in its infancy and scarcely used and accurate and up-to-date information to fertility professionals to allow them to properly counsel and educate clients and patients is scarce. Second, the ongoing debate about value-related aspects of the transfer of surplus frozen embryos from one party to another for conception (MacCallum, 2009) and the absence of consensus regarding the appropriate language contribute to keeping this option "in the closet." This debate has been demonstrated in a statement in a recent report of the Ethics committee of the American Society for Reproductive Medicine (ASRM, 2009) that the "application of the term "adoption" to embryos is inaccurate, misleading and could place burdens that are not appropriate for embryos that have been donated upon infertile recipients" (p. 1818). Thus, the importance of employing diverse strategies for raising awareness about the availability of embryo relinquishing as an option while maintaining respect for potential sensitivities is suggested.

An additional issue relates to the timing of introducing the dialogue about relinquishing excess embryos. In retrospect couples may wish to have been better prepared to address all the complex future aspects of infertility treatment as reflected in one participant's statement, "I wish I would have thought a little bit more of what to do with frozen embryos before the IVF process so that I had a plan in place." However, at the time of treatment the focus is often exclusively on achieving a pregnancy without emotional availability to consider future challenges (Lyerly et al., 2010) as expressed by another participant, "I did not care what we had to do or how much money we had to pay. My goal was to have a baby." Thus, the challenge for fertility practitioners becomes working simultaneously on present issues as well as preparing for future phases and unavoidable decisions.

Consistent with some previous research (de Lacey, 2007) but not with other (Provoost et al., 2009) the data also highlighted two important variables in determining whether embryo relinquishment is an appropriate option. First is the parents' belief and attitude about the personhood or nonpersonhood of a frozen embryo. Second is their sense of morality in its broad, not necessarily religious sense.

In the current study, women were largely the leaders in the decision making process. This may reflect that women, as the leading consumers of fertility services and those who conceive and carry the embryos, have an earlier sense of attachment and thus a more vested interest in the disposition of the embryo than men. However, it is important to note that women's leadership was not reported by all participants. The fact that some couples reported either balanced leadership or a husband-led process may be related to the degree to which role allocation in the couple was egalitarian as well as to previous parenting experiences of each spouse (e.g., in a previous marriage). This calls for further examination in future studies.

The experience of loss involved in relinquishing appeared to be mitigated by two factors. First, narratives reflected an overall sense of empowerment gained from the opportunities to make decisions throughout the process such as the choice of the

agency and the recipients as well as the type and level of desired contact after relinquishment. Satisfaction with the decision to relinquish their embryos was expressed by virtually all of the participants, despite various outcomes reflected, suggesting the positive power of the sense of giving the embryos a chance of life and another couple a chance at happiness.

Several future directions may be suggested. First, because participants in the current study reported experiences relative to barriers for making timely disposition decisions that were similar to those documented by Lyerly and colleagues (2010), facilitating such decisions may be useful. In agreement with the ethical principle of self-determination, providing access to comprehensive information may help those with frozen embryos in making a fully informed decision about disposition. It would be beneficial to equip them with information about all available options as well as benefits, challenges, logistic and ethical issues associated with each option and available resources. One way of addressing the absence of information is the development of an appropriate and easily accessible clearing house.

Once a disposition decision is made, it may be useful to provide referral to both institutes that responsibly use frozen embryos for research and a few reputable agencies that handle embryo disposition as well as offer education to those who express interest in relinquishing their frozen embryos to another couple about the options of open or closed relinquishment, including the embryo adoption model.

Because the nature of the process of choosing recipients emerged as challenging for some participants, agencies may want to revisit their policy that limits the review of potential participants to one portfolio at a time. This policy has been established for logistic reasons to maximize the efficiency of the matching process; for example, to avoid two couples opting to donate to the same recipients simultaneously (personal communication with Megan Fabian, Agency Program Coordinator, February 3, 2010). It may be helpful for agencies who coordinate the embryo transfer process to assess how the relative benefits of the current policy are balanced vis-à-vis relinquishing couples' increased ownership of the decision making process and overall satisfaction. Future research should compare diverse models and processes of relinquishing to gain better understanding of their dynamics, correlates, and outcomes.

Finally, because participants' narratives indicated the perception of relinquishment of one's embryos as a lifelong process, postrelinquishment services in the form of support groups, Internet discussion forums and written informational material that relinquishing couples can access at their convenience may be suggested. Future research should evaluate such programs to inform the development and delivery of effective services.

This study joins the handful of efforts to examine the complex issues related to constant advancement in reproductive technology. Continued research about more diverse population groups as well as longitudinal studies of long-term outcomes for those relinquishing, recipients and offspring as well as cultural, spiritual/religious, and social aspects associated with the use of assisted reproductive treatment is indicated. Specifically, it would be beneficial to clarify some of the inconsistencies in findings in the available studies and gain better understanding of differential paths taken by couples with excess frozen embryos.

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