

# Conditional embryo relinquishment: choosing to relinquish embryos for family-building through a Christian embryo ‘adoption’ programme

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**BACKGROUND:** Currently, there is little evidence about conditional relinquishment of frozen embryos to others for family-building. This paper begins to address this gap by reporting findings from a study that investigated the experiences of couples who chose to relinquish their embryos conditionally through an embryo ‘adoption’ programme.

**METHODS:** An exploratory qualitative study was conducted between September 2008 and December 2009. Participants were recruited from a Christian embryo ‘adoption’ programme in the USA. Forty-three people (18 couples and 7 wives) participated in in-depth email interviews.

**RESULTS:** The data show that the following factors contributed to the participants choosing an embryo ‘adoption’ programme: how they conceptualized their embryos; dislike of alternative disposition options available; conceptions of their parental responsibility towards their embryo and a desire to have an ‘open’ relinquishment with (varying) degrees of information-sharing and contact arrangements between themselves and recipient couples.

**CONCLUSIONS:** This study identifies a diversity of views on embryo relinquishment and some couples’ wishes for elements of conditional relinquishment that are offered by embryo ‘adoption’ programmes. A range of disposition options should be available to enhance choice for those with unused embryos so that they can relinquish in ways that are both morally and practically acceptable to them. The current polarized debate concerning the language of embryo ‘adoption’ detracts attention from the practical considerations of formulating ‘best practice’ in this area. These considerations are better addressed by the use of less politically charged terminology such as ‘conditional relinquishment’.

**Key words:** cryopreserved embryos / embryo disposition / embryo relinquishment / decision-making / patient attitudes

## Introduction

This paper aims to contribute to the understanding of the complex decision-making process regarding the disposition of unused cryopreserved embryos, by drawing on findings from an exploratory study that investigated the perspectives of couples who relinquished their embryos conditionally using a Christian embryo ‘adoption’ programme in the USA. The paper concentrates on why these couples chose to relinquish their embryos in this way. Other findings from the study have been reported elsewhere (Paul *et al.*, 2010). Previously, there has been little investigation into the experiences of those who have relinquished their embryos ‘conditionally’ to guide policy and practice in this area.

## Background

As a result of recent developments in reproductive technology, women undergoing IVF are likely to produce more oocytes than can be used in a single treatment cycle. Frequently, efforts will be made to fertilize the oocytes not used and cryopreserve the resulting embryos. Subject to legal and regulatory provisions in different jurisdictions, four disposition options may be available regarding any unused cryopreserved embryos at the end of a couple’s treatment: leaving them in storage; permitting their destruction; allowing them to be used for research; or—the focus of this paper—transferring them to one or more couples or individuals for family-building.

Options that are actually available vary between jurisdictions, as indicated by the global survey of assisted reproduction technology regulation undertaken by Jones *et al.* (2010). This survey provided data on time limits placed on the storage of cryopreserved embryos. Thirty-one jurisdictions were identified that had relevant regulation or legislation on storage limits, ranging from 3 years in Brazil and Montenegro to unlimited in Canada and unspecified in the Czech Republic. In 14 of these jurisdictions, the maximum storage period is 5 years, although some allow for further extension in some circumstances, and the limit is 10 years in eight jurisdictions. In the USA, where there is neither legislation nor regulations regarding the time limits for storage of cryopreserved embryos, such embryos can be stored indefinitely—and even where storage fees have not been paid, storage facilities are reluctant to destroy embryos without explicit consent from the individuals who deposited them (Gurmankinn *et al.*, 2004). Storage fees for cryopreserved embryos vary from facility to facility, but range from approximately \$700 to \$1150 per annum (MHFG, 2011).

Embryo donation for family-building was first reported in 1983 (Trousseau *et al.*, 1983). However, such practices are expressly forbidden in many jurisdictions (Jones *et al.*, 2010), and where they are permitted, the prevalence is not easy to ascertain. In the USA, according to the Centers for Disease Control and Prevention (CDC, 2009), in 2007, 67% of the 430 fertility clinics reporting treatment outcomes offered donor embryo services. However, the CDC data offer no further information about the services actually provided. In 2004, Gurmankin *et al.* reported that 76% of the clinics responding to their survey offered donor embryo services but, as with the CDC data, provide no information regarding the prevalence of the services actually provided. Two studies indicated varying differences between the number of clinics offering embryo relinquishment services and those actually providing them. Kingsberg *et al.* (2000) reported that only 37% of clinics had provided embryo relinquishment, while Hurwitz *et al.* (2005) reported that 60% had done so. A study by Hammond *et al.* (2009) reported on an opportunistic poll of fertility clinics' representatives attending a symposium on third party reproduction, of whom 41% claimed to currently offer a programme and another 20% were considering doing so.

## Embryo relinquishment for family-building

Embryo relinquishment for family-building can operate on a continuum from anonymous relinquishment to procedures that have parallels with the adoption of an existing child—conditional relinquishment. Anonymous embryo relinquishment operates in a way similar to anonymous gamete donation, in which the donors of the embryos would generally play no part in any decision regarding the selection of recipients of their embryos (ASRM, 2009a,b). The recipients of the embryo(s) could receive some information about the donors, but this (as is the case for gamete donation) is generally limited to physical characteristics and health status of the donor (ASRM, 2006). The ASRM guidelines on this initially promoted anonymous donation, 'but by 2002 indicated an acceptance of directed, known donation if all parties agree...and also regard known oocyte donation as acceptable.' (ASRM, 2004, p. 530).

Conditional relinquishment services offered by embryo 'adoption' programmes have the following features: the ability of those

relinquishing their embryos to vet and choose the recipient(s) of their embryos—if they wish—based on recipients having undertaken a home study evaluation; and the possibility of negotiating with them possible future information exchange, contact and involvement in the life of the resulting child. Even if the relinquishing couple chooses not to know the identity of recipients and plans no contact with them, conditional relinquishment programmes generally operate as an 'open' non-anonymous system and stipulate that any child born should be able to learn the identity of his/her genetic parents. Therefore, records are kept and the possibility of the child having access to the identifying information about their genetic parents is ensured. A key difference between infant adoption and embryo relinquishment under an embryo 'adoption' programme is that no court proceedings have, to date, taken place regarding the transfer of parental responsibility for an embryo. However, the State of Georgia recently passed a law to facilitate such transfer—the Option of Adoption Act (Georgia State Senate, 2009).

The first embryo 'adoption' programme, Snowflakes® Embryo Adoption, was launched in 1997 by Nightlight Christian Adoptions, a California-based adoption agency [Nightlight (personal communication), 2006]. In 2002, the US government launched a programme of significant federal funding for 'public awareness campaigns on embryo adoption' (Federal Register, 2002) and provided money to embryo 'adoption' programmes that met certain criteria. This raised considerable controversy and public debate due to the 'pro-life' agenda that was seen to underpin the campaign. By 2010, the federal administration had disbursed a total of \$17 489 000 to several programmes under this funding stream (Office of Population Affairs, 2010). Currently, seven organizations in the USA are reported as offering an embryo 'adoption' service (EmbryoAdoption.com, 2009).

In New Zealand, guidelines on relinquishment of embryos for family-building incorporate conditional relinquishment procedures that have similarities to those applied by USA embryo 'adoption' programmes. These provide both for those relinquishing embryos to be involved in choosing recipients and for future offspring to find out information about their genetic origins (including their donors' identities) (ACART, 2008). The guidelines require relinquishing couples to be provided with a recipient profile that includes any police vetting information and both relinquishing and recipient couples to have independent legal advice and counselling. Counselling is expected to include discussion of the impact of the relinquishment on both the child born as a result of the relinquishment and any children of the donors and to have considered the participation in the decision making of any existing children of either party or of extended family members (Goedeke and Payne, 2009).

## Studies on embryo disposition

A number of studies have examined the views of couples and individuals with unused cryopreserved embryos regarding their use for family-building by others (see Blyth *et al.*, 2011 for a detailed review of this literature), with four main themes emerging that are relevant to our study. First, several studies have reported that disposition decisions are very difficult emotionally (Oke *et al.*, 1998; McMahon *et al.*, 2000, 2003; Newton *et al.*, 2003; de Lacey, 2005; Nachtigall *et al.*, 2005; Hammarberg and Tinney, 2006; Fuscaldò *et al.*, 2007; McMahon and Saunders, 2009; Provoost *et al.*, 2009, 2010).

Second, studies have consistently reported that, where comparison with other disposition options is made, relinquishment of embryos is frequently the least-favoured alternative (Klipstein *et al.*, 2001; Klock *et al.*, 2001; Kovacs *et al.*, 2003; Newton *et al.*, 2003; Elford *et al.*, 2004; Nachtigall *et al.*, 2005; Hammarberg and Tinney, 2006; Lyerly *et al.*, 2006, 2010; Lanzendorf *et al.*, 2010; McMahon and Saunders, 2009).

Two studies have solicited views of those with stored embryos about their attitudes to the amount of information and the type of contact they would like to have with the potential recipients of their embryos that are particularly relevant for our study. Newton *et al.* (2003) undertook a postal survey of IVF patients at a Canadian infertility clinic to ascertain their reasons for continuing to store their embryos and their attitudes towards relinquishment to others. Almost three quarters (73%) 'moderately or completely agreed' with relinquishment, although only 12% claimed that they would 'definitely consider' relinquishment if a programme was available (at the time of the survey, the clinic did not offer such a programme), while 18% stated that they might consider 'conditional' relinquishment, i.e. an arrangement giving them some choice in respect of potential recipients. McMahon and Saunders (2009) also conducted a postal survey of 283 couples from an Australian clinic with embryos in store for at least 3 years to ascertain their willingness to relinquish their embryos for family-building to others, their attitudes towards conditional relinquishment and the extent to which its availability would influence their decision-making. Ninety-nine women (35%) and 66 male partners (23%) responded. Of these respondents, 4% claimed that they were likely to relinquish their embryos, 48% endorsed the ability of relinquishing couples to specify desired characteristics of recipients and 41% indicated that they were more likely to relinquish their embryos if a conditional relinquishment arrangement was available. However, these studies did not investigate the views of couples who had actually relinquished their embryos in this way.

Third, relinquishing embryos to another couple has been found to be more often contemplated than actually performed. While some studies (Laruelle and Englert, 1995; Bangsbøll *et al.*, 2004; Lyerly *et al.*, 2006; Mohler-Kuo *et al.*, 2009) indicate moderately high levels of support in principle for relinquishment among patients with unused embryos (52, 39, 29 and 28% respectively), studies of actual relinquishment typically report rates lower than 10% (Kovacs *et al.*, 2003; Elford *et al.*, 2004; Lanzendorf *et al.*, 2010; Nachtigall *et al.*, 2010).

Fourth, couples' disposition decisions appear not to be influenced by abstract religious or philosophical beliefs regarding the inherent value of embryonic life *per se*. Rather, they are grounded more in their conceptualization of their embryo(s) as their 'future' or 'virtual' child(ren) and—where they have conceived children themselves—as their children's full sibling(s). Most studies reporting this phenomenon noted that conceptualization of embryos as 'virtual' children contraindicates relinquishment to facilitate the building of someone else's family (Laruelle and Englert, 1995; Oke *et al.*, 1998; Van Voorhis *et al.*, 1999; McMahon *et al.*, 2000, 2003; Klipstein *et al.*, 2001; Söderström-Anttila *et al.*, 2001; Svanberg *et al.*, 2001; Tinney *et al.*, 2002; Newton *et al.*, 2003; Bangsbøll *et al.*, 2004; Burton and Sanders, 2004; Lyerly *et al.*, 2004, 2006, 2010; de Lacey, 2005, 2007; Nachtigall *et al.*, 2005; Hammarberg and Tinney, 2006; Roberts, 2007; Zweifel *et al.*, 2007; McMahon and Saunders, 2009; Melamed *et al.*, 2009; Nachtigall *et al.*, 2010; Provoost *et al.*, 2009).

Against the trend, Elford *et al.* (2004) reported on the decision of 11 couples to anonymously relinquish their embryos because of their unwillingness to destroy what they considered to be their 'unborn children'.

Despite this wealth of literature, except for one previous study in Spanish (Collard and Kashmeri, 2009), the experiences of people who have actually relinquished embryos conditionally through an embryo 'adoption' programme has been under-researched—and this study seeks to address this gap in our knowledge.

## Methods

This exploratory qualitative study sought to examine the attitudes and views of couples about their decision to relinquish their frozen embryos for family-building through a Christian embryo 'adoption' programme in the USA. Embryo relinquishment is a two-stage process. In the first phase, a relinquishing couple registers with the programme and the embryos are made available to potential recipients. In the second phase, potential recipients are matched with relinquishing couples, who then choose the recipient couple (unless they have delegated this decision to the programme), and the embryos transferred to the recipients' medical facility, completing the relinquishment process. Couples for the current study were recruited at both stages of this process and whether it had led to the birth of a child or not.

Despite its own religious orientation, the programme did not require either relinquishing or recipient couples to be Christian and those of other faiths, or none, were eligible. Those planning to relinquish embryos could take an active part in choosing the recipients of their embryos, by specifying criteria and evaluating information on potential recipients by means of a family profile completed by all potential recipients. Relinquishing couples could also arrange meetings prior to relinquishment with prospective recipients if they wished. Alternatively, relinquishing couples could adopt a more passive approach and leave the programme to choose recipients for their embryo. Thus, exactly how the relinquishment was organized could be determined by the couples involved. Potential recipients completed a Home Study that included counselling by a social worker, a medical evaluation and education/preparation (through the social worker and/or books and short courses) and a family profile. Irrespective of the chosen approach, the programme required that channels of communication remain open, to allow resulting children to have the possibility of finding identifying information about their genetic parents.

All participants were recruited through the programme by sending an email to all their eligible clients, approximately 300 couples, outlining the study and inviting them to participate. Over the course of the study, 36 consent forms were mailed to couples, of which 30 were returned. Interviewing continued until theoretical saturation was reached (Bryman, 2001), resulting in 25 couples taking part in the study. See Table 1 for demographic information and the details of numbers of existing children and brief fertility history, time of embryo storage, numbers of embryos relinquished and outcomes of these relinquishments. There was a lower completion rate from the husbands (despite their initial agreement to take part) who were less likely to either reply or continue with the interview—a phenomenon previously reported in this area (Provoost *et al.*, 2009). Seven husbands did not participate and interviews with their wives were included in the data set so as not to lose valuable data. Due to the low number of husbands responding and the method of email interviewing, it was not possible to analyse the data by gender or couple dynamic.

Couples were allocated randomly to one of the four researchers and the researcher began emailing, in most cases, individually with each member of the couple. Completion of the interviews took a varying

**Table 1** Demographic information.

Participant	Religious affiliation, practising yes or no	Education level	Number of children (from ART, adopted etc.)	Number of embryos in storage (time if known)	Number of embryos given up for relinquishment	Number of embryos used	Resulting pregnancies, and if relevant age of child
Couple 1							
Woman	Catholic—yes	Diploma level	Three from previous relationship Two with husband conceived naturally Two adopted Two from IVF (egg donor)	3 3 years	3	3	Twin pregnancy 5 years (approximately)
Man	Catholic—yes	Degree					
Couple 2							
Woman	Jewish	Degree	One from IUI One from IVF PGD (couples own gametes)	3 9 months	3		Waiting to be matched to a suitable couple
Man	Catholic—no	Masters					
Couple 3							
Woman	Protestant—yes	Masters	Twins by IVF (donor egg)	15 1 year	15	15 Only one transferred (rest perished)	One pregnancy ectopic
Man	Protestant—yes	Degree					
Couple 4							
Woman	None	Degree	Twins by IVF (own gametes)	9 3 years	9	9	One girl 2 years old
Man	Christian—yes	Degree					
Couple 5							
Woman	Christian—yes	Diploma	Twins by IVF (own gametes)	3 1 year	3	3	One girl, died at 6 months gestation
Man	None	Diploma					
Couple 6							
Woman	Christian—yes	Degree	Twin by IVF (own gametes)	4 2 years	4	4	One boy 8 years old
Man	Christian—yes	Degree					
Couple 7							
Woman	Christian—yes	Not stated	Four naturally conceived Two by IVF (own gametes)	4 2 years	4	4	One boy 1 year old
Man	Christian—yes	“					
Couple 8							
Woman	Christian—yes	Degree	Triples by IVF (own gametes) One child conceived naturally	2 12 years	2		Waiting to be matched to a suitable couple
Man	Christian—yes	Masters					

Couple 9								
Woman	Christians—yes	Degree	One by IVF (own gametes) One conceived naturally	4 4 ½ years	4	4	4	Twins 2 years old
Man	Christians—yes	Degree	One from previous relationship					
Couple 10								
Woman	Christian—yes	Degree	One girl and then twins by IVF (own gametes)	3 6 months	3	3	3	One child 4 years old
Man	Did not respond	Masters						
Couple 11								
Woman	Christian—yes	Degree	Twins by IVF (own gametes) One conceived naturally	10 6 months	10	10	10	One boy 3 ½ years old
Man	Christian—yes	Degree						
Couple 12								
Woman	Christian—yes	High school	One child naturally Twins by IVF (own gametes)	2 2 years	2	2	2	One girl 8 months old
Man	Christian—yes	Diploma						
Couple 13								
Woman	None	Master	One child with donor sperm insemination Twins IVF (with donor sperm)	4 3 years	4	4	4	Two boys from two pregnancies 6 and 4
Man	Catholic—no	Degree						
Couple 14								
Woman	None	Degree	One child by IVF (donor egg)	5 1 year	5	5	5	No pregnancy resulted
Man	None	Degree						
Couple 15								
Woman	None	Masters	Twin by IVF (own gametes)	9 4 years	9	9	9	Pregnancy that did not go to term
Man	None	Degree						
Couple 16								
Woman	Catholic—yes	Degree	Adopted child Twins by IVF (own gametes)	10 4 years	10	10	10	Two transferred to one couple who had a miscarriage Others relinquished to another couple who have had a baby boy, 4 years old
Man	Did not respond							
Couple 17								
Woman	Christian—yes	Degree	One by IVF (own gametes) One by IVF (with egg donor)	5 2 years	5	5	5	Implanted but pregnancy not achieved
Man	Christian—yes	Degree						

Continued

Table I Continued

Participant	Religious affiliation, practising yes or no	Education level	Number of children (from ART, adopted etc.)	Number of embryos in storage (time if known)	Number of embryos given up for relinquishment	Number of embryos used	Resulting pregnancies, and if relevant age of child																																																																																																																																															
Couple 18																																																																																																																																																						
Woman	Christian—yes	Not stated	Twins by IVF (own gametes)	2	2	2	Found a couple, but embryos did not survive the thawing process (2 years ago)																																																																																																																																															
Man	Christian—yes	Not stated						Couple 19								Woman	None	Degree	Two by IVF (own gametes)	3 1 year	3	3	Relinquished to a couple (no pregnancy so far)	Man	None	Masters	Couple 20								Woman	None	Degree	Twins by IVF (own gametes)	4 2 years	4	4	No pregnancy achieved	Man	None	Degree	Couple 21								Woman	Christian—yes	Masters	One by IVF (own gametes)	4 2 years	4	4	No pregnancy achieved	Man	Christian—yes	Degree	Two by previous relationship					Couple 22								Woman	None	Diploma	Twins by IVF (own gametes)	2	2	2	Waiting to be matched to a suitable couple	Man	Did not respond		Couple 23								Woman	Christian—yes	Degree	One by IVF (own gametes) Twins by IVF (own gametes)	3	3	3	No pregnancy achieved	Man	Did not respond							Couple 24								Woman		Degree	Twins, by surrogacy had embryos left over	16 4	16	16	Twins 10 years old	Man	Did not respond							Couple 25								Woman	Christian—yes	Degree	Twins by IVF (donor eggs)	1	1
Couple 19																																																																																																																																																						
Woman	None	Degree	Two by IVF (own gametes)	3 1 year	3	3	Relinquished to a couple (no pregnancy so far)																																																																																																																																															
Man	None	Masters						Couple 20								Woman	None	Degree	Twins by IVF (own gametes)	4 2 years	4	4	No pregnancy achieved	Man	None	Degree	Couple 21								Woman	Christian—yes	Masters	One by IVF (own gametes)	4 2 years	4	4	No pregnancy achieved	Man	Christian—yes	Degree	Two by previous relationship					Couple 22								Woman	None	Diploma	Twins by IVF (own gametes)	2	2	2	Waiting to be matched to a suitable couple	Man	Did not respond		Couple 23								Woman	Christian—yes	Degree	One by IVF (own gametes) Twins by IVF (own gametes)	3	3	3	No pregnancy achieved	Man	Did not respond							Couple 24								Woman		Degree	Twins, by surrogacy had embryos left over	16 4	16	16	Twins 10 years old	Man	Did not respond							Couple 25								Woman	Christian—yes	Degree	Twins by IVF (donor eggs)	1	1	1	Did not survive thawing process	Man	Did not respond															
Couple 20																																																																																																																																																						
Woman	None	Degree	Twins by IVF (own gametes)	4 2 years	4	4	No pregnancy achieved																																																																																																																																															
Man	None	Degree						Couple 21								Woman	Christian—yes	Masters	One by IVF (own gametes)	4 2 years	4	4	No pregnancy achieved	Man	Christian—yes	Degree	Two by previous relationship					Couple 22								Woman	None	Diploma	Twins by IVF (own gametes)	2	2	2	Waiting to be matched to a suitable couple	Man	Did not respond		Couple 23								Woman	Christian—yes	Degree	One by IVF (own gametes) Twins by IVF (own gametes)	3	3	3	No pregnancy achieved	Man	Did not respond							Couple 24								Woman		Degree	Twins, by surrogacy had embryos left over	16 4	16	16	Twins 10 years old	Man	Did not respond							Couple 25								Woman	Christian—yes	Degree	Twins by IVF (donor eggs)	1	1	1	Did not survive thawing process	Man	Did not respond																																		
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Woman	None	Diploma	Twins by IVF (own gametes)	2	2	2	Waiting to be matched to a suitable couple																																																																																																																																															
Man	Did not respond							Couple 23								Woman	Christian—yes	Degree	One by IVF (own gametes) Twins by IVF (own gametes)	3	3	3	No pregnancy achieved	Man	Did not respond							Couple 24								Woman		Degree	Twins, by surrogacy had embryos left over	16 4	16	16	Twins 10 years old	Man	Did not respond							Couple 25								Woman	Christian—yes	Degree	Twins by IVF (donor eggs)	1	1	1	Did not survive thawing process	Man	Did not respond																																																																													
Couple 23																																																																																																																																																						
Woman	Christian—yes	Degree	One by IVF (own gametes) Twins by IVF (own gametes)	3	3	3	No pregnancy achieved																																																																																																																																															
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Couple 24																																																																																																																																																						
Woman		Degree	Twins, by surrogacy had embryos left over	16 4	16	16	Twins 10 years old																																																																																																																																															
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Couple 25																																																																																																																																																						
Woman	Christian—yes	Degree	Twins by IVF (donor eggs)	1	1	1	Did not survive thawing process																																																																																																																																															
Man	Did not respond																																																																																																																																																					

amount of time, with an average of one month. The email interviews were semi-structured, guided by a topic guide that was based on a theoretical approach that seeks participants' own categories and frames of reference (McCracken, 1988). Questions were open and broad, such as 'What was the post-relinquishment experience like?' (see attached topic guide for details of the questions asked) and researchers followed up participants' answers by specific, probing questions.

The choice of asynchronous email interviewing as the data collection method was informed by practical considerations because the participants were spread over a large geographic area in the USA and the research team comprised both UK-based and US-based researchers. This made synchronous email, telephone or face-to-face interviewing logistically challenging, whereas conducting asynchronous email interviews allowed for interviewing a greater number of couples than would have been possible otherwise. Although there are negative aspects of email interviewing, such as lack of visual cues, possible distractions and lack of concentration during the interview (McCoyd, 2003), it can offer advantages of practical efficacy and a richness of communication and opportunities for reflection. Further, this can all be achieved at a relatively low cost (McCoyd and Kerson, 2006). Ethical issues raised by email interviewing were addressed through adherence to the ethical guidelines of the *Association of Internet Researchers* (2002) and ethics approval was given by IRBs at each of the researchers' universities.

Transcripts from the email interviews were content analysed, using a modified grounded theory approach (Strauss and Corbin, 1998), by all members of the research team. Open and axial codings were used to identify emerging categories. A constant comparison method was used both for the comparison of data between interviews of each participant (and for differences between couples) and also for comparison of themes and categories within interviews. The research team reviewed the transcripts for quality assurance to ensure a consistent approach to data analysis. Inter-coder triangulation was achieved by securing consensus among the members of the research team relative to coding (Krefting, 1999).

## Results

This paper focuses on participants' reasons for relinquishing their embryos via an embryo 'adoption' programme. Illustrative quotations are taken from the email transcripts and are reproduced verbatim. In keeping with conventions for reporting results from qualitative studies using a relatively small number of participants, the terms 'many' or 'most' are used to refer to commonly reported responses and 'several', 'some' and 'a number' to refer to responses by more than two participants. The data analysis identified four inter-related factors that contributed to participants' decisions to relinquish their embryos using an embryo 'adoption' programme: (i) how they conceptualized the 'status' of their embryo(s); (ii) dislike of the other disposition options available; (iii) conceptions of their parental responsibility towards their embryo(s) and (iv) a desire to have an 'open' relinquishment where (varying) degrees of information giving and contact were arranged.

### Conceptualizations of the embryo

It is not surprising, given the source of our recruitment, that the dominant conception of the embryo was one that accorded it (some) moral importance. Several participants believed that life began at conception:

Disposal or using them for research wasn't an option as we see embryos as potential people (from the moment of conception). Wife 1

I do believe life begins at conception and those eggs on ice are children. Husband 2

Because they are my 'babies' and I do believe life begins at conception, I couldn't destroy them or have them used for research. Wife 8

We believe, strongly, that life begins at conception, so there was never any doubt that we would not have the embryos destroyed or donated to scientific research—they were children. Wife 9

I believe that life begins at conception. I did not mean to make those 10 extra embryos, but once I did I became responsible for them. If I could not use them I would find someone who could. I am also pro-life and anti-abortion. Wife 16

Many participants thought that the embryo deserved 'special' and careful consideration—but not a status akin to an existing child:

Those embryos are very important to many different things. Whether or not you donate them to science, or donate them to an organization, those embryos can mean a lot to someone and I don't think a lot of people know about that. Wife 5

Discarding seemed wasteful and sad (even though at least I have no moral or religious objection to that). Husband 14

A common view expressed was that embryos deserved some chance of life:

The thought that they might have a chance at becoming a living person was very important to me. Wife 3

I, personally, could not bear to think of 'flushing' them. We had to go through a great deal more to accomplish this, but I felt that it was worth anything to make sure that they had a viable chance at finding a place in the world. Husband 4

Some participants did think of embryos as potential people:

I would have to say that I believe the embryos to be potential children not merely reproductive cells. Wife 3

Although our recruitment site might have indicated that all participants would share views such as those cited earlier, this was not the case as some were unsure of how they saw the status of the embryo:

I guess a small part of me believes that life begins at conception. Wife 17

Several participants thought that the embryo had no moral significance:

I guess I didn't really care what happened to them. Husband 16

Thus, our participants held a wide range of views on the moral status of the embryo.

### Dislike of other disposition options

Views on other disposition options were often related to participants' perceptions of the embryo.

Discard the embryos. I didn't feel we could do this 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. Wife 18

I don't think I would ever be comfortable destroying the frozen embryos or using them for a purpose that would have destroyed them. Husband 1

Not all participants were opposed to embryo experimentation. For instance, one couple did consider donating their embryos to research as a first option:

At that point we did speak with our fertility specialist about embryo studies and asked if there were projects being done on certain diseases etc that we could donate the embryos for. At that time we were told no. Wife 19

Using an embryo 'adoption' programme was frequently seen as the least 'bad' option out of a range of unattractive ones. For example, one wife wrote:

Embryo adoption. In truth, this was the lesser of all evils, not something we were ever 100% comfortable with. Wife 18

We were very much done having children and keeping them frozen wasn't an option, neither was research. Wife 7

We were still reluctant to destroy the last two embryos. Although selfishly it would have been much easier on my wife and myself, we could not bring ourselves to destroying the two remaining embryo's. Husband 12

Well, we could have implanted them, destroyed them or donated and the last was the only option that worked. Husband 17

Therefore, embryo relinquishment to others for family-building was not always perceived as an ideal disposition for unused embryos. Rather, some participants thought it was the 'least bad' among a range of unattractive alternatives. Destroying them, donating them for research or leaving them in storage were all, for different reasons, seen as undesirable—and less acceptable—options, and most participants wanted to give their embryos a chance of becoming a child.

## Conceptions of parental responsibility

A predominant theme emerging from the data that influenced couples' disposition decisions was their feelings of responsibility for the future welfare of their embryos. This was reflected in their concern to find a 'good' home for their embryos—a view held by most participants, irrespective of their views of the embryos' status:

We felt responsible that we had created these lives and were responsible for finding them good homes if we could not be that home. Wife 18

My hope is that we can place our three frozen embryos with great families who will appreciate and love them as much as I am sure we would if we chose to have more children. Wife 2

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. Husband 8

My only feelings were that I wanted them to be in a good place and today I have never looked back at the decision we made. Husband 13

Further, most wanted to be involved in the process of selecting the families that would receive their embryos:

I really liked the idea that we were able to be involved in the process and pick the couple that we donated to. Husband 5

The reason we chose the agency was because we could be more selective on who received the embryos. In my opinion it is the same as a child in

terms of adoption. We wanted to make sure that the couple that received the embryos had the same beliefs and ideas that we hold. Husband 8

This meant that we could review potential parents and they could view our profile. We felt that this gave us some control over where the embryos ended up. Wife 19

This element of embryo relinquishment, the ability to have input into who received their embryos, was very important to the participants and an aspect of the relinquishment process that an anonymous embryo donation programme is unlikely to provide.

## Desire for an 'open' relinquishment

Participants were asked a broad question on their views on how open they would like the relinquishment to be and their thoughts on the issue of openness versus secrecy. For many participants, the possibility of negotiating an open arrangement for the relinquishment of their embryos was what had attracted them to the embryo 'adoption' programme:

I wanted as much openness as possible. Husband 4

But, we knew we could do our best to select a good home for them through the program, and it would be an 'open' adoption where we would keep in touch. Wife 18

This ability to have information as the child was growing up was important to some of the participants, as Husband 6 said:

The most rewarding part has definitely been the updates. We have received some photos and I think we both find joy in seeing bits of this life we were able to share.

My wife and I think of them [recipient couple] as friends. I am not sure what their position is, perhaps they send us emails in friendship, perhaps it is out of some feeling of obligation or as a way to keep the door open for [child] when she comes of age and wants to explore her biological roots. Husband 4

Others had requested information following the birth of a child:

At my request, she sends a descriptive letter telling us about him and his sisters along with photos. Wife 6

Different levels of contact and involvement were negotiated between couples and embryo recipients following relinquishment. However, it was recognized that it was an evolving process and that the exact levels of future contact and involvement could not be determined in advance. One wife shared a letter she had written to the recipients of her embryo:

I would never ask to meet or intrude on your lives. If you choose to include us further we can explore this. It is important for a child to have a stable and secure home life, thus my request is to watch my biological child grow from a silent distance. Wife 2

Several reported having developed a close relationship with the recipient family:

We are very good friends with the adoptive couple now, in fact. We travel to see each other at least twice a year, but communicate on a regular basis with them. We are very blessed to have them in our lives. Our children call them Aunt, Uncle, and (the children born from the embryos) cousins. Their children call us Aunt, Uncle, and our children, cousins. Wife 11

We have formed a fantastic friendship and even travelled to their home to meet the baby and his mom and dad. Wife 7

As her husband said:

It's a friendship that crosses all boundaries. We share a wonderful love in a little boy named baby R. Husband 7

The desire for contact with the recipients was often related to the anticipated future relationships between the participants' children and the child(ren) born from the relinquished embryo(s):

So, I would say the whole thing about helping other people was less important (at least to me) than our own interest of giving our own embryos a chance at life, and for our son to have 'brothers or sisters', with whom I hoped he could possibly have a special relationship later in life. I always felt our decision had more to do with our hopes than to do with the hopes of the adopting couple. Husband 14

We were also excited about the possibility of our daughter having a natural sibling. Wife 21

Others were keen to keep the channels of communication open for future contact with the child produced from their embryo.

We don't want to insert ourselves in their lives but after 18 years old, we want them to have our information so they can get answers to questions. It will also let [our twins] have their questions answered. Wife 15

Despite choosing to relinquish their embryos through an embryo 'adoption' programme, participants held different views about the level of contact they wanted with the recipient family:

I was most concerned that these babies—if they were born successfully—would not be linked back to me and my family. Husband 1

I preferred the adopting couple to be a healthy distance away. Husband 14

Thus, our participants had diverse opinions on the amount of contact and the kind of relationship they wanted with recipient families, ranging from: those who had formed close relationships with the recipient family and had face-to-face contact; others who wanted regular photos and news; some who wanted periodic updates only; to those who did not want any contact with the family while the child was growing up, but wanted to keep open the possibility of future contact; and some who wanted no contact. Others felt it was important that the child could have a relationship with his or her siblings (the children of the relinquishing couple) in the future.

## Types of relinquishment

Although all couples taking part in this study had relinquished their embryos through an 'adoption' programme, not all were opposed to donating their embryos anonymously for family-building.

I would have been comfortable donating them anonymously through another reproductive facility but my husband wanted input. Wife 20

We were initially going to donate them to the storage facility's anonymous donation program. Wife 4

For many couples, the reasons for choosing to relinquish their embryos through an embryo 'adoption' programme could also be given for other forms of embryo relinquishment for family-building: a

desire to give the embryo a chance of life; not wanting to destroy them or donate them to research; and helping others build a family. For example, Husband 21 articulates these types of reasons:

When my wife first told me about the agency, I was thrilled. It seemed like the perfect way to handle our frozen embryos given my discomfort with destroying them or donating them to research. At least this way, the embryos had a chance to survive and possibly provide a couple with a child they would otherwise not be able to have on their own. Husband 18

Many couples began investigating how they might relinquish their embryos for others' family-building without having firm ideas of what they wanted and not having previously heard of embryo 'adoption' programmes (Paul *et al*, 2010). When they learned of the Programme they were attracted by what was offered and chose it in preference to anonymous relinquishment. When considering relinquishing her embryos to another couple, Wife 5 said:

So I mentioned it one night in the chat room and someone said why don't you donate them? Good idea... Someone else said they knew of an organization that let you pick who you donated them to and was really good. Even cooler idea. They told me about [The Programme] and I looked it up that night.

In sum, our participants' motivations for opting for relinquishing their embryos through an embryo 'adoption' programme were varied and not all of them would have been unwilling to relinquish their embryos for family-building anonymously or unconditionally. However, most wanted the elements that only a conditional model of embryo relinquishment, in which they could choose the recipients of their embryos and negotiate contact, could provide. The following quote encapsulates many of the reasons couples pursued this particular option:

It has been a relief. I rest assured that we have done the right thing for our embryos. My husband and I are satisfied that [child] will be taken care of to the standards that we had hoped for her. I feel confident that one day there will be a meeting for the children. I have no worries or concerns. Wife 4

## Discussion

In interpreting the results of this study, a number of limitations should be borne in mind. First, the participants were drawn from a self-selected group who had chosen an embryo 'adoption' programme through which to relinquish their embryos to others for family-building, and the participants were predominantly Christians (although not all were practicing). This could result in a selection bias; their perspectives are unlikely to be representative of all those relinquishing unused embryos. Further, the number interviewed cannot allow us to make generalizations from our participants to the subpopulation of those relinquishing through the embryo 'adoption' programme. Second, the data were gathered by conducting email interviews, and there are drawbacks to this form of data gathering. Compared with face-to-face engagement between researcher and participants, visual and aural clues are absent in email interviewing and it can be harder to probe extensively.

Despite these limitations, the results of this exploratory study provide insight into what aspects specifically attracted couples to an embryo 'adoption' programme for relinquishing their embryos. This

study focused on those who had actually gone through or were going through this process rather than surveying possible intentions of couples—that may or may not be realized in practice. The study produced a number of important findings that contribute to our understanding of embryo relinquishment to others for family-building. First, this group of participants, despite relinquishing their embryos through a Christian embryo ‘adoption’ programme, held a wide range of views on a number of issues—they were not a homogenous group either in their conceptualization of the embryo or in how they perceived the best way to organize relinquishment of their embryos. Second, the study explored the type of open arrangements that couples were developing and negotiating with recipients of their embryos. Third, it gave an insight into the process of relinquishment using this model and what attracted couples to use such programmes.

Our study shows that not all those who wanted to relinquish in this way believed that the embryo has a moral status akin to an existing child (personhood). Many saw the embryo as a future child whose importance derived more from future kin relationships with themselves and their existing children and the difficulty, stress and expense that they had undergone to create it, than abstract concepts of its moral status. Hence, the embryo’s importance rested in its place in a couple’s life narratives and kinship ties (de Lacey, 2005; Paul et al., 2010).

Two specific features of conditional relinquishment offered by the embryo ‘adoption’ programme were very attractive to many of our participants. First, the opportunity to play an active role in choosing the recipients of their embryos. Most of our participants thought that making sure their embryos went to a ‘good home’ enabled them to act as ‘responsible parents’ to their embryos. Second, in some cases, there was the opportunity to receive information and updates as the child was growing up and/or to have contact with the child. Further, an open relinquishment allowed the child, at some future point, to be able to learn the identity of his/her genetic parents and any siblings. This model has certain advantages as non-anonymity has been argued to be the most ethical way of approaching gamete donation (Frith, 2001) and embryo relinquishment, with a number of jurisdictions having moved towards this model (Blyth and Frith, 2009). Other reasons for using an embryo ‘adoption’ programme, which reflect findings from previous studies regarding embryo relinquishment, were participants’ view of the status of their embryos and their dislike of alternative disposition options available.

At the time of the study, given the stage that most participants had reached, they were only able to reflect on the early implications of their arrangements for themselves and to refer to their perceptions of the children’s experiences. What was apparent was that they had become engaged in an evolving process, the precise nature of which was still to be determined. None of the participants reported difficulties following the relinquishment of their embryos or that their expectations of the arrangement had not been realized. However, any conclusions are by necessity preliminary, since this study focused on a very early stage of not only a lifetime’s, but an inter-generational, project. That this remains a relatively under-investigated field as regards social science research is indicated by the fact that, to date, only two empirical studies investigating the development of families built using relinquished embryos have been reported, undertaken in Finland (Söderström-Anttila et al., 2001) and the UK

(MacCallum et al., 2007). Given the anonymous nature of the placements featured in these studies, neither makes any reference to the information and contact arrangements that are a key element of the conditional relinquishment arrangements entered into by participants in our study.

Previous studies have commented on the wishes of individuals and couples for greater input into the selection of potential recipients of their unused embryos than is afforded by many donation programmes offered by medical facilities, and for information and exchange arrangements with recipients of their embryos that are similar to certain practices in infant adoption, where some level of contact is maintained between the child’s birth and recipient family (Newton et al., 2003, McMahon and Saunders, 2009). As we have previously noted, existing studies have consistently reported significant disparities between reported ‘willingness’ to relinquish and ‘actual’ relinquishment; so the hypothetical levels of interest in conditional relinquishment expressed by respondents in these two studies should be treated with circumspection. Nevertheless, findings such as these and ours have encouraged proposals for the availability of conditional embryo relinquishment programmes (Kovacs et al., 2003; de Lacey, 2005; Fuscaldo and Savulescu, 2005; Fuscaldo et al., 2007; MacCallum, 2009; McMahon and Saunders, 2009; Nachtigall et al., 2010). The recent guidelines in New Zealand on embryo relinquishment provide an example of such a conditional relinquishment programme. While our own study cannot ascertain the levels of interest in such programmes, it does highlight the existence of a demand on the part of couples with unused embryos and a potential loss of embryos for family-building where such programmes are not readily accessible.

Our exploratory study has highlighted the need for future research to examine the longer-term implications of embryo relinquishment. For example, areas such as: how much contact is maintained or initiated when the child is older; how this is experienced by the respective parties and the perspectives of the siblings of the child born following embryo relinquishment need further exploration. With fuller information about the longer-term consequences of embryo relinquishment for family-building, those considering relinquishing unused embryos will be able to ensure that their decisions are based on the best available evidence.

## Conclusions

Our study has shown that those who choose to relinquish their embryos using an embryo ‘adoption’ programme have diverse preferences over how they would like to relinquish their embryos. Further, there are elements of the services offered by embryo ‘adoption’ agencies (relinquishing couples’ ability to choose recipients of embryos and negotiation of contact and/or information-sharing while the child is growing up) that were important to most of our participants. Conditional embryo relinquishment could be organized to reflect the diversity of views that our study has found on the amount, nature and organization of contact between relinquishing and recipient families. The assessment procedures for potential recipients could also be negotiated by the different parties in order to reflect the needs of both the recipients and those relinquishing the embryos.

The political sensitivity of the language of 'embryo adoption', the financial support given to such programmes by both the Bush and Obama Administrations (Federal Register, 2002; Office of Population Affairs, U.S. Department of Health and Human Services, 2010) and the 'pro-life' agenda that is often seen to underpin such a model have to be recognized. Space precludes any detailed discussion of the politics of embryo adoption here. However, it is patently evident that the language employed in the debate can be polarizing and inflammatory (ASRM, 2009a,b). From the perspectives of those with unused embryos as revealed through this study (and—we may reasonably assume—those wishing to build their family through embryo relinquishment), such rhetoric is not conducive to resolving the pressing issues facing them. We contend that the use of 'adoption' in this context is counterproductive to the development of workable policies and best practice and that the use of neutral terminology such as 'conditional relinquishment' is more appropriate.

Given the diversity of views on embryo relinquishment reflected in both our and other studies and the desire of some couples for elements of conditional relinquishment that include choosing recipients and varying forms of openness, those with unused embryos should have the choice over how they relinquish their embryos. Options need to be explored that respect individuals' 'evolving reproductive goals and values.' (Lyerly *et al.*, 2010, p. 508) As long as those options do not harm others, the principle of reproductive choice can be used to justify couples having options available to them that they find both morally and practically suitable.

## Authors' roles

L.F. wrote the paper, re-drafted in line with comments and suggestions, collected and analysed the data. E.B. helped draft the paper, contributed to drafts of the paper, collected and analysed the data. M.S.P. commented on the paper and contributed to drafts, collected and analysed the data. R.B. commented on the paper and contributed to drafts, collected and analysed the data.

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