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Psychosocial aspects of surrogate motherhood

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This review addresses the psychosocial research carried out on surrogacy triads (surrogate mothers, commissioning mothers and offspring) and shows that research has focused on a number of specific issues: attachment and disclosure to surrogate offspring; experiences, characteristics and motivations of surrogate mothers; and changes in profiles of the commissioning/intended mothers. Virtually all studies have used highly selected samples making generalizations difficult. There have been a notable lack of theory, no interventions and only a handful of longitudinal studies or studies comparing different populations. Few studies have specifically questioned the meaning of and need for a family or the influence and impact that professionals, treatment availability and financial factors have on the choices made for surrogate and intended mothers. Societal attitudes have changed somewhat; however, according to public opinion, women giving up babies still fall outside the acceptable remit. Surrogate and intended mothers appear to reconcile their unusual choice through a process of cognitive restructuring, and the success or failure of this cognitive appraisal affects people's willingness to be open and honest about their choices. Normal population surveys, on the contrary, are less accepting of third party reproduction; they have no personal need to reconsider and hence maintain their original normative cognitively consonant state.

Key words: commissioning or intended mothers/infertility/offspring/surrogate mothers

Introduction

The aim of this review was to address the social and psychological issues involved in surrogate motherhood triads: (i) the surrogate mother (or couple) relinquishing the baby at or soon after birth, (ii) the commissioning or intended mother (or couple) receiving the commissioned baby and (iii) the offspring. The study of surrogate motherhood is of considerable theoretical and practical/clinical interest because it goes against the norm of couples creating families. The clinical place for surrogacy is obvious, for example in cases where a uterus is removed to treat cancers (Duska *et al*., 1998). However, surrogacy also involves ethical and moral dilemmas because commissioning or intended couples seek out a woman to initiate, gestate and deliver a baby for them, usually in return for financial compensation. The surrogate, in turn, does not find herself inadvertently pregnant (as is the case in adoption or social termination of pregnancy): she conceives purposefully with the intention to relinquish the baby and not to keep it as part of her family. The psychosocial concerns are therefore 3-fold: (i) are individuals characterized by different psychological traits and or different social circumstances? (ii) what are the psychosocial effects of surrogacy on the populations involved in these triads? and (iii) what are the long-term outcomes for each, and for the offspring? In theory, surrogacy can be carried out according to any one of a number of sequences outlined in Figure 1. This diversity can cause significant psychological and social uncertainty in the short and long term for all individuals depicted, including the offspring at the centre of this chaotic representation, because cognitively people feel uncomfortable if their thoughts (a mother and father and a baby conceived within the relationship, genetically both theirs and gestated by the mother) do not match their behaviours (organizing multiple people to contribute to the achievement of another type of family). Broadly, these combinations include only two types of surrogacy: genetic surrogacy, which refers to the surrogate using her oocyte, and gestational surrogacy, which refers to the combinations where the surrogate does not use her own oocyte.

In general, the popularity of ART is affected by differences in the procedures available (including technological advances), economics, time, stigma, suitability, assessment/quality control and genetic link considerations. Furthermore, social and cultural attitudes to any new innovations or interventions are largely shaped by what is considered the norm. Although it is thought that surrogacy has been practised since ancient times (Schenker, 1997), there is no widely acceptable precedent in the practice of gestating and relinquishing babies. Nevertheless, trends have shifted. Early reports in the scientific literature of donor insemination in the *BMJ* in the 1940s generated a great deal of controversy. The cycle of resistance followed by acceptability was similar for IVF in the 1970s and oocyte donation (and surrogacy) in the 1980s (Buster *et al*., 1983). This pattern also repeats itself within the relevant professions where, according to Addelson (1990), the 'public problem of reproduction becomes transformed into a battlefield on which many experts fight for ownership and for the right to define'.

Figure 1. The nine (theoretically) possible combinations of offspring resulting from surrogate arrangements, where the gestation in all instances is with the surrogate mother.

Another immensely confusing factor in the determination of parenthood in the present era of reproductive technology concerns the classification used to define preferred or true parenthood. Current laws and most cultural values define parenthood and the family in biological rather than social terms (van den Akker, 2001b), contributing to the overwhelming preference for medical interventions for treatment of infertility in infertile populations (Bartholet, 1993; Bartholet *et al*., 1994). Interestingly, however, popular discourses of motherhood and fatherhood leave out important biological facts, as is seen for example in (i) the absence of heterosexual sex in establishing an assisted reproduction technique (ART) pregnancy and (ii) the absence of gestation and delivery in gestational surrogacy parenthood. In these examples, the resultant individuals who became the parents consider themselves to be the real parents because their chromosomes were involved, even though the biological components were not. Strathern (2002) refers to this as a 'new reality'. This new reality is not limited to chromosomal parenthood: intended mothers of genetic surrogate babies will also describe themselves as the real mother, based on yet another reality (that of being the social mother), and the surrogate mother considers herself not to be the real mother, even though in legal, biological (gestational) and genetic terms, she is. This latter new reality goes against the Oxford Dictionary definition of motherhood. According to the dictionary, the true surrogate is the one who acts in place of another and this, in surrogacy (if the birth mother is the legal mother), is the intended mother!

Fears have also been expressed about the possibility of the inappropriate use of surrogacy, as for example a 'convenience' for non-medical reasons (Warnock, 1984; Chliaoutakis *et al*., 2002). The UK Government, nevertheless, has legalized non-commercial surrogacy (see Surrogacy Arrangements Act UK, 1985), although the contracts are unenforceable in law [Human Fertilization and Embryology Authority (HFEA) Act, 1990; Brazier *et al*., 1998]. Within the professions, the British Medical Association (BMA, 1996) changed its stance on surrogacy from seeing it as an unacceptable means to overcome childlessness to accepting it as an inevitable option. They issued further guidelines for support and good practice, but unfortunately, a decade later, the legal literature is still fraught with regulations which can have devastating effects on the triads involved in surrogacy arrangements. To date, in the UK (unlike some states in the US), no one in the surrogate triad can be sure about the child's future because arrangements and contracts in the UK cannot be legally enforced. The surrogate is always registered as the legal mother of the child, even if an embryo from the recipient couple was used as in gestational surrogacy. Lastly, although surrogacy is carried out relatively openly within the UK, social support for the practice is still lacking. Appleton (2001) noted, 'surrogacy puts human nature under pressure because it creates uncertainty in relationships—those uncertainties go far wider than the couple who is desperately seeking a child. It raises fundamental questions about how other people's lives are going to be affected by a surrogacy arrangement and how people can be open and honest about their actions'.

These apparently minor 'problems' can have significant effects on the couples involved in surrogacy, as it instils uncertainty in those involved and makes a farce of any attempts to behave within a legal/contractual manner. The fact that most surrogacy arrangements take place within licensed clinics, however, makes it unlikely that commissioning mothers would use surrogacy for social reasons, at least in the UK, because clinics can only be licensed by the HFEA if they comply with their code of conduct, which demands that surrogacy should only be considered when it is 'physically impossible or highly undesirable for medical reasons for the commissioning mother to carry the child'. Nevertheless, although the risks are small, it is possible that in cases of 'at home surrogacy' (self-insemination by the surrogate with the commissioning males' semen) any legislative specifications can be ignored.

Methodology

A number of sources were used to access the research evaluated within this review, including Medline, Science Direct and Psychinfo, Ovid Online, PubMed, Cinahl and Assia. Numbers of 'hits' varied between the databases, and exact numbers were not noted because there was considerable overlap and many 'hits' were irrelevant (e.g. endocrinological studies) to the present evaluation. Studies meeting criteria for a systematic review were insufficiently available. Keywords used included gamete/embryo donor(s), gamete/embryo offspring, gamete/embryo recipient(s), surrogate(s), surrogate baby(ies), commissioning mothers/parent(s) and birthmothers. Other references came from a review and a document made available by the HFEA (van den Akker, 2002a) and a number of books, including Jennings (1995), Leiblum (1998), Hammer-Burns and Covington (1999) and van den Akker (2002b).

Trends in opinions towards surrogacy over time

Public opinion has demonstrated that acceptance of surrogacy (like other forms of third party treatments) tends to be limited (Brook *et al*., 1992; Wiess, 1992; ICM Research, 1994; Chliaoutakis *et al*., 2002). There are, however, some doubts about the consistency

across populations and type of surrogacy. At one extreme, Stern *et al*. (2002) found that a small, but nevertheless significant proportion of US directors of assisted reproduction clinics would be willing to support and offer surrogacy for convenience. Fishman (1996) and Schenker (1997) reported that religion played a role in the legal availability of surrogacy in Israel. In 1996, a compromise to satisfy Halachic law was reached in Israeli law allowing only gestational surrogacy using the intended mother's oocyte and intended father's sperm. Similar compromises have been observed in Catholic teachings (Kopfensteiner, 1998), although the Vatican does not accept IVF. A recent small pilot survey of fertile people's opinions of the acceptability of different methods of overcoming involuntary childlessness which they would either use themselves or find acceptable for use by others has shown that those practising a religion were less accepting of surrogacy, particularly as a hypothetical option for themselves (Murphy *et al*., 2002). Chliaoutakis *et al*. (2002) also reported that church attendance was negatively related to intention to use gamete donation or surrogacy in a Greek population of 365 men and women. Others have reported that commercial surrogacy is unacceptable (Krishnan, 1994), but non-commercial gestational surrogacy is perceived as relatively acceptable compared with genetic surrogacy (Appleton, 1990; Bromham, 1991; Frasier and Chapman, 1994; BMA, 1996; Suzuki *et al*., 2006).

Unfortunately, any general population survey on surrogacy is likely to be heavily influenced by the prevailing negative cases portrayed in the media (Appleton, 2001). More importantly, normal populations have not been subjected to a need to redefine the concept of parenthood and are therefore likely to strive to maintain what Festinger (1957) called a cognitively consonant state. Cognitive consonance is described as a state of equilibrium between their thoughts or beliefs (about e.g. a family) and their actions or behaviour (e.g. choosing a surrogate and her or another's oocytes to create their family). It is likely (though untested) that infertile couples who choose to opt for third party reproduction do so after a considerable amount of thinking about how such a family will work for them, that is, they have to move from cognitive dissonance (an imbalance or disequilibrium between beliefs and actions) to consonance. It is also likely that many infertile populations never reach cognitive consonance, and they are likely to be the included in the large numbers who do not initiate treatment (Greil and McQuillan, 2004).

Preferences for a genetic link

Today, with the options of full or part biological offspring available to in/subfertile populations, adoption tends to be seen as a last resort option, or a second best choice. One study of adoptive parents, who subsequently conceived naturally, reported that they were significantly more likely to say that if they could do it again, they would not adopt (Berry, 1993). Miall's (1989) study substantiates these findings. She found that a paradox was evident in her study sample: although adoptive mothers were generally very positive about adoption, a biological child will always be seen as best, perhaps more consonant. Kane (1988) and Langdridge *et al*. (2000) confirm this in their studies of infertile couples. Moreover, van Balen *et al*. (1997) and van den Akker (2000) reported that infertile women voiced a spiralling of preferences where invariably a full biological link was preferred to a part link, which was in turn preferred to no genetic link at all as in adoption (Figure 2). To some infertile couples, not having a genetic link at all was so unattractive that they were not prepared to consider that as a realistic option.

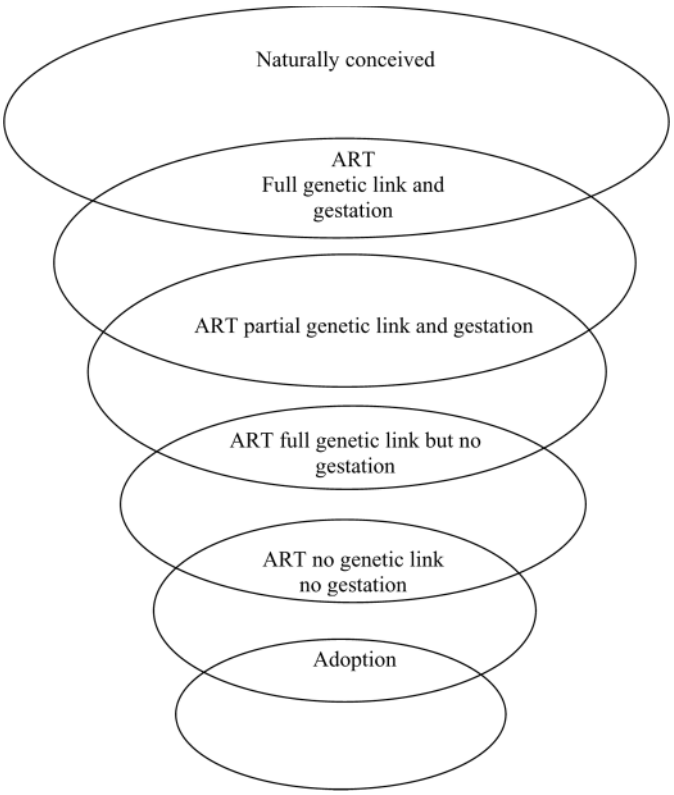

Figure 2. Spirals of preferences from a naturally conceived fully genetically related and gestated baby to adoption with no genetic or biological ties.

Comparisons with adoption

In treatment for infertility, the aim is to obtain a pregnancy or baby for the infertile parent; in adoption the opposite occurs: the aim is to obtain a family for the baby or child (Kopfensteiner, 1998). Children available for adoption also tend to be older, with few healthy infants or young children available for adoption placement. They are therefore not good comparisons in all respects. Nevertheless, some of the research and practices on adoption can serve as models for surrogate practices. Research into adoption has shown that information and practices change rapidly (Hill and Shaw, 1998). Adoption has moved from 'closed' to 'open' adoption, ensuring the adoptive children feel secure within their new families but also maintain contact with important people from their past. Indeed, current debates and new legislations enforce a similar level of openness and disclosure for donor conception practices (e.g. van den Akker, 2006), showing how 'good practice' transfers between different families composed of entirely different triads.

Surrogate mothers

Research is beginning to develop some understanding of surrogate mothers' characteristics and motivations. Surrogates themselves believe surrogacy takes a special type of person. Somehow, they say, they 'know' if they can do a genetic surrogacy, that is if they can or cannot relinquish a baby that is genetically theirs (Ragone, 1994;

Snowden, 1994; van den Akker, 2003), although there are exceptions. Some surrogates are very young and may not understand the consequences and regret their decisions later at the time of relinquishment or even later in life, when it is too late to do anything about it (Cotton, 1985; van den Akker, 2002b). Overall, no psychopathology was evident in surrogates studied by van den Akker (2003) and Hanafin (1987), although Franks (1981) did report some minor psychological problems in his American surrogates. Baslington (1996) interviewed 19 surrogate mothers and found them to be assertive and not medically or otherwise controlled. In the latter study, genetic surrogates in particular felt in control.

Motivations

Ragone (1994) summarizes American surrogate mothers characteristically as women willing to 'give the gift of life'. To some extent, this altruistic picture of surrogates has been supported in British studies. Blyth (1994) interviewed 19 surrogates and van den Akker (2003) asked 15 surrogates to complete long questionnaires 7 years later. The socioeconomic status, educational level, age and parity were similar in the latter studies. Few surrogates explicitly stated that money was one reason for becoming a surrogate, and the majority said they did it for altruistic reasons. Most surrogates enjoyed pregnancy and childbirth, and many surrogates said surrogacy fulfilled or added something to their lives (increased feelings of self-worth and self-confidence, and the development of intense and unusual friendships with the commissioning parents, particularly the commissioning mothers). In van den Akker's (2005c, in preparation) samples, some surrogates went through a phase of positive personal development (climbing a mountain, starting a degree, studying midwifery, etc.). Relinquishment of the baby was a happy event for most surrogates, although some said they felt relief when it was all over. Happiness was mixed with sadness during relinquishment for a proportion of the women. Similar sentiments were found in American surrogates by Ragone (1994).

Anonymity and contact

The surrogates from Blyth's (1994) and van den Akker's (2003) UK studies unequivocally said they believed the commissioning mothers should disclose the arrangement to their surrogate child(ren). Where 'closed' arrangements have been used, regrets have been reported (Davies and Cotton in van den Akker, 2002b). Cotton's revelations about her first genetic surrogate baby produced some heart-wrenching truths about the disadvantages of 'closed' or anonymous surrogacy. She admits that this can have 'barbaric' consequences for the surrogate and can be as dramatically perceived by the child once he/she finds out. Similar concerns were expressed by Davies concerning an anonymous arrangement. A longitudinal study of surrogate mothers in open arrangements has noted that in the first 6 months following relinquishment, no negative psychological consequences are reported (van den Akker, 2005c).

Relinquishing the surrogate baby

Conceiving, carrying and delivering a baby is the start of a process of care and commitment to nurture the baby through childhood and into adulthood. This is culturally expected. Having a social termination of pregnancy or giving a child up for adoption are controversies to the accepted norm, and for surrogacy, where the surrogate conceives only to give the baby up following delivery, the process is even more unconventional. Theoretically, women are known to develop varying degrees of attachment to their fetus during pregnancy (Rubin, 1984), and this is carried over to the baby following birth. According to research in the 1980s and 1990s, prenatal attachment is influenced by a number of factors such as maternal age and attitude towards the pregnancy (Marteau *et al*., 1988; Siddiqui *et al*., 1999). These factors are relevant in explaining the surrogate's ability to relinquish the baby after delivery; surrogate mothers tend to be in their late 20s or older, and most believe they have completed their own family (Blyth, 1994; Edelmann, 1994). Research, which has looked at attachment, has found that surrogate mothers are less attached to the fetus (Fisher and Gilman, 1991; van den Akker, in preparation) and less attached to the baby following delivery (van den Akker, in preparation). Both studies have shown that surrogates are advised by their surrogate agency to ensure they understand whose baby they are carrying and giving up. Consequently, surrogate mothers do not allow themselves to be attached to the baby or infant following delivery. The practice of handing the baby over to the commissioning couples straight after birth also reinforces the advice. The surrogate agencies assist surrogates in reconciling their own maternal thoughts and feelings, by cognitively restructuring these feelings to match their behaviours (relinquishment of the baby). In fact, in general, the surrogate agency information appears to be quite successful in assisting surrogates to achieve a cognitively consonant state (van den Akker, 2005c).

Surrogate welfare

van den Akker (2003, 2005c) assessed self-efficacy in surrogates in relation to the process of gestating and relinquishing the baby. Surrogates were confident about the surrogate arrangement and about the health and well-being of the surrogate baby. They also thought it would be easier for a commissioning mother to accept a baby that would be genetically hers. The latter statement was particularly pronounced in gestational surrogates, who did not believe they could relinquish a genetically related baby as easily as a non-genetically related gestated baby. Furthermore, although research has shown that most surrogates said they would do it again, some would not. In Blyth's (1994) study, one surrogate could not relinquish the baby. Lastly, although genetic and gestational surrogate arrangements are different in some respects (including their stance on the importance of a genetic link), in terms of psychological functioning, van den Akker (2003) found no significant differences between them on standardized assessment scales. In the longer term, however, differences may well emerge, because as Blyth pointed out, gestational surrogates benefit from the 'full panoply of regulation (as it is)' involving organizational control and support provisions, while genetic surrogates operate 'in a moral and psychological twilight'. Only one study has followed surrogate and intended mothers from the start of the arrangement through to 6 months post-partum. In that study, van den Akker (2005c) found that the beliefs and attitudes surrogate mothers had before the arrangement were stable over time, with little differences noted up to 6 months post-relinquishment. Any differences that were apparent indicated a more conservative attitude to some of the questions. One notable exception was that before the arrangement, some surrogates thought the fact that this was an 'arrangement' which included a financial component made it easier

to relinquish the baby at birth, whereas 6 months post-delivery, fewer surrogates maintained that belief. Zweifel *et al*. (2006), in a study of pre- and post-assessment of oocyte donors responses to various uses of their oocytes, substantiated these findings.

Social support

The lack of equivocal support for surrogacy, as previously shown in studies of population attitudes, has impacted upon the stigma some surrogates report (van den Akker, 2002a) and the lack of social support they received (Fisher and Gilman, 1991; Appleton, 2001), which could predispose them to be particularly vulnerable (Edelmann, 2004). It has also been noted that the continuing contact which many surrogates hope for with the commissioning mother could be problematic. For example, Brazier *et al*. (1998) suggest that the surrogate mother could be reminded about the child she has given up and the commissioning couple could fear interference in the upbringing of the surrogate child. Furthermore, the surrogate's own children could suffer fears of being relinquished too (Brazier *et al*., 1998; Holder, 1988). Either way, whether contact is discontinued or continued, counselling for the surrogate mother before, during and after the pregnancy is advocated (Steadman and McCloskey, 1987; Edelmann, 2004), and research about the surrogate's own children is essential.

Exploitation

Few surrogates report feeling exploited in Blyth's (1995) and van den Akker's (2003, 2005c) studies, and many surrogates involve their own family in the surrogate process. In addition, in van den Akker's studies (2003, 2005c), surrogate mothers expected their commissioning parents to be open about the child's origins, as they themselves had told all their own children about the surrogate baby being part of the intended couple's family—not their own. As a result of this, most surrogate mothers expected some contact between them to continue following relinquishment of the baby, so that they maintained their new friendships and their children could still see the surrogate child. It was argued that this made it easier for their own children to understand what is involved and who the couples are who will have their mother's 'tummy baby'. Unfortunately, in some cases, this contact ceased unexpectedly after the legal proceedings had been completed. It is seen as a betrayal when the intended couple with the surrogate baby disappears from the surrogate and her children's lives. The long-term care and support for surrogate mothers is not always considered by intended couples, once they remove themselves from the surrogates' life. Further longitudinal research on surrogate mothers is needed, and this should also address the well-being of the surrogate's own children.

Commissioning/intended mothers

The socioeconomic status of intended couples is significantly different from that of surrogates (Blyth, 1994, 1995; Baslington, 1996; van den Akker, 2000, 2003, 2005b,c), and this has been an issue of concern to the Government, the clinicians treating them and researchers. Intended mothers also tend to be older, have a more notable obstetric/gynaecological history and are better educated. Reassuringly, no negative effects of the socioeconomic inequity have been reported. Surrogacy offers a unique option for infertile mothers. It differs from adoption because it allows for a full or partial genetic link with the child and differs from donation because a pregnancy is not possible. In a study of 29 women commissioning a surrogate baby, reasons for considering having a surrogate baby were mainly that 'it was the only way for them to have a child'. Other reasons were because they would have a full or partial genetic link with the child or because IVF or adoption failed (van den Akker, 2000). Langdridge *et al*. (2000) in their study of reasons for parenthood found that couples expressed a desire to have a child that is theirs (i.e. genetically part of both of them) (Figure 2).

Few psychological studies have been carried out in the UK on intended mothers, and even less is available on the fathers (Snowden, (1994). Snowden (1994), Blyth (1995), van den Akker (2000, 2005c) and Golombok and Murray (2004) studied intended mothers in the UK. In general, surrogacy was largely initiated through information from the media and was based on gut feelings in the matching process and trust (the surrogate trusting the commissioning couple to pay the fee; the commissioning couple trusting the surrogate to care for the baby *in utero* and relinquish it upon delivery). Recipients were happy with their choice and told their social network (Blyth, 1995), and in studies where psychopathology was investigated, none was found (van den Akker, 2000, 2005b,c). A number of concerns have also been documented including financial exploitation (Fasouliotis and Schenker, 1999; van den Akker, 2000), medicalization (Baslington, 1996), fear of non-relinquishment by the surrogate mother, legal, emotional and social stigma, genetic links and baby worries. Nevertheless, in Golombok and Murray's (2004) study of 42 commissioning families and van den Akker's (2005b) study of 28 intended mothers using standardized psychological assessments, the psychological well-being of the parents was good.

Genetic link

In 1995, Blyth reported that a minority of his study group were using IVF or gestational surrogacy, although some of these evidently preferred genetic surrogacy. This was confirmed by Baslington (1996) in the UK. A few years later however, the picture was reversed with a small majority of van den Akker's (2000) sample opting for gestational surrogacy (n = 16) and a minority opting for genetic surrogacy (n = 13); and in 2005c, van den Akker reported on a sample of 39 gestational and 22 genetic surrogates. Although this shift in type of surrogacy used suggests a change in availability of IVF surrogacy, it must be borne in mind that in van den Akker's studies, all women explained that they opted for the gestational route because they could use their own oocyte. The reverse was true for most of the women opting for genetic surrogacy, although a few chose this for financial reasons, because of surrogate preference or because the gestational option had already failed. It is also likely that as the studies were based on volunteers, self-selection could account for these differences, because in statistical terms, the majority of surrogate arrangements are reported to be genetic surrogacy arrangements (Baslington, 1996; van den Akker, 1998, 1999).

Interestingly, van den Akker (2000, 2005c) observed that the importance of a genetic link was largely based on pragmatics and subsequent cognitive restructuring. If they were in a position to use their own genetic material, the majority of intended mothers

reported it was important. Conversely, if gestational surrogacy was not an option, intended mothers tended to report a genetic link was not important. These studies also reported that intended mothers will inform their child(ren) about their surrogate conception—a finding that is opposite to the views held by recipients of donor gametes. The decision to tell the child(ren) is confirmed in Golombok and Murray's (2004) study of parent–child relationships.

The family

Another important observation made in studies of commissioning mothers is that intended mothers were not inclined to attempt to justify their unusual choice. Baslington (1996) described them as highly 'assertive and professionals', atypical of 'infertile women desperate to have a child'. She noted that although many women experience infertility, few go to such lengths as surrogacy to overcome it. Her explanation for the few infertile women opting for surrogacy is the contributing biological force. Virtually all the women studied by van den Akker (2000, 2005c) were able to reconcile the difference of a surrogate family with other families. They did not feel the need to deny their choice or their differences. These results were interesting because there has been a decline in public support for surrogacy (Brook *et al*., 1992; Halman *et al*., 1992; Chliaoutakis *et al*., 2002) and little acceptance of the practice in general (ICM Research, 1994). The majority of intended mothers in van den Akker's (2000) study said they intended to maintain some contact with their surrogate. However, these intentions were not always adhered to as van den Akker (2005c) found in her longitudinal follow-up study.

Openness

Accounts of commissioning mothers show that most intend to tell their child from an early age how they were conceived and carried. In the USA, Ragone (1994) described some recipient mothers as having good intentions but having difficulty (like gamete recipients) knowing when to tell the child. American guidelines tend to encourage openness about origins to the child (even in some closed programmes), but the guidelines do not specify how and when the optimum time to tell the child is. A UK commissioning mother of twins tells her story of openness and honesty, not only towards her children but the wider social network: 'I have not been aware of any change in other people's attitude towards the twins, which would be my only concern' (Nelson, 1998). From the point of view of the child's knowledge of their origins, Nelson notes 'I can only hope that, as they grow up, they will understand our struggle to bring them into the world'.

Openness about conception, gestation and genetic origins has practical reasons too, particularly in the UK, where many surrogate and recipient couples develop a strong bond or friendship, as physical and emotional changes are relevant to both parties. Many couples also experience tremendous ups and downs, for example the joy when the result of a pregnancy test is positive and the experience of birth is shared, or if a pregnancy has not been established or results in a miscarriage both parties suffer together under these difficult conditions. They therefore get to know each other intimately for the duration of at least a year and most intend to keep in contact well after the arrangement has terminated. Another practical reason is that the UK does not allow profit-making organizations to broker surrogate arrangements, so it is practically impossible not to know each other. Finally, it is impossible for the many women commissioning a surrogate baby to hide the truth that they were not pregnant in their social environment.

Surrogate offspring

There is a paucity of information on surrogate offspring, even though there are now at least several hundred children born as a result of surrogate arrangements in the UK (van den Akker, 1998). This figure is likely to be larger, because not all surrogate and commissioning couples feed back to the agencies if they successfully completed these arrangements, and some are known to take place outside of any involvement of organizations, making accurate documentation impossible. The surrogate children born in the UK are all roughly under the age of 16 years. Nelson (1998) wrote a personal account of how one of her 7-year-old surrogate twins relates to their surrogate mother: 'It was a good job we had Kim as your friend, mummy. Otherwise you wouldn't have us'. Both parties are satisfied with the children's behaviour, reactions and understanding, and neither the surrogate nor the commissioning mother has any regrets about the arrangement. Golombok and Murray (2004) in the first UK study of 1-year-old surrogate children's relationships with their (intended) parents reported good family functioning and child development in their intended mothers sample compared with naturally conceived families. In van den Akker's study (in preparation), most mothers reported good mental and physical health and good development in their children.

Surrogate baby welfare

Unfortunately, no one can predict what will happen when a surrogate baby is born with a disability. To date, the author is not aware of any disabled surrogate births, but this is a possibility in the future. There is no law available to ensure a commissioning mother adopts the disabled commissioned surrogate baby, and she could therefore renege on her 'contract'. It would be unfair in such circumstances for the surrogate mother to be asked to bring up the baby. Another existing recent case (Leidig, 2006) of a very sad outcome for a surrogate baby concerns a 55-year-old Russian woman who lost her son and used IVF surrogacy to have a surrogate baby using his frozen sperm. Unfortunately, the child was born using donated oocytes, and a dead man's sperm, leading the courts to declare the child as 'not existing' and therefore could not have a birth certificate. This has implications for the child's (grand) commissioning mother who may not be able to claim the baby as hers. Although these cases are rare, the fact that they do occur should be addressed.

Disclosure

The question of parents informing their offspring of their origins has been of concern in research and practice for many years, particularly in relation to gamete donation. van den Akker attempted to address this concern in three studies of subfertile populations—adoptive mothers (van den Akker, 2001a), IVF mothers (van den Akker, 2001b) and intended mothers of surrogate offspring (van den Akker, 2000). Differences between groups were found, and more importantly, differences in openness within groups across different options to overcome infertility were apparent (Table I). These results are comparable with previous reports with donor

Table I. Intended mothers of surrogate offspring, ART mothers and adoptive mothers—different responses to 'openness' about a child's origins

Intended mothers	Using genetic surrogacy tell child (with surrogate genes) (%)	Using gestational surrogacy tell child (with own genes) (%)	
Surrogacy	24	***52***	
Oocyte donation	10	***24***	
Sperm donation	10	***24***	
IVF	17	***45***	
Adoption	24	***45***	
	Tell child (%)	Tell family (%)	Tell friends (%)
ART mothers			
Surrogacy	43	***50***	33
Oocyte donation	43	***45***	31
Sperm donation	41	***41***	26
IVF	***71***	69	52
Adoption	79	***86***	69
Adoptive mothers			
Surrogacy	***66***	60	43
Oocyte donation	***59***	52	35
Sperm donation	***58***	53	35
IVF	***78***	75	64
Adoption	***100***	100	98

ART, assisted reproduction technique.
The percentages indicate 'yes' responses. Intended mothers using gestational surrogacy (and their own oocyte) are much more likely to tell the child it was conceived using third party involvement. ART mothers are most willing to tell the child it was conceived using IVF, and adoptive mothers are most likely to tell the child how it was conceived regardless of the third party involvement used. All bold italic percentages indicate higher responses.

Table II. How a normal population responds to the involvement of others in different types of third party reproductive options (adapted from Chliaoutakis *et al*. 2002)

Normal population	Brother/sister/ close relative (%)	Friend/well known (%)	Healthy stranger (%)
Becoming the intended mother	8	6	***17***
Receiving oocytes	15	7	***27***
Receiving sperm	14	7	***33***
Become a surrogate mother	***11***	7	9
Donate oocytes	***24***	7	20
Donate sperm	17	12	***20***

The percentages indicate 'yes' responses. Normal populations believe they can involve people anonymous to themselves when receiving gametes or a surrogate child, whereas they are more likely to donate oocytes or become a surrogate for close relatives. They appear not to be too likely to involve their friends in any of the third party options. All bold italic percentages indicate higher responses.

insemination parents being least willing to disclose and IVF parents being more willing to disclose (Edelmann, 1990; McWhinnie, 1995). Disclosure is related to comfort or discomfort with the manner of creating a family, indicating yet again that cognitively individuals are either able to reconcile their differences in procreation or they are not. Chliaoutakis *et al*. (2002) reported results of a fertile general population using questions that related closely to those used in the studies above. The results of their study (Table II) also reveal a mix of preferences for third party involvement that people are comfortable with, when asked 'what if' from a recipient or donor point of view. Clearly, when asked to respond to questions of receiving a surrogate baby, few were willing to consider this, and if they did, the involvement of a healthy stranger was preferred to family or friends. The respondents were somewhat more accepting of gamete donation and the preferred donors were again healthy strangers. However, the preferences provided as a hypothetical recipient were not mirrored for scenarios of being the donor. Here, the respondents preferred being a surrogate or donating oocytes for family, although the picture was different for being a hypothetical sperm donor. It is possible that pragmatic and altruistic factors compete with each other and that close genetic links from family are in competition with the social factors involved in rearing such a child.

Surrogate mothers themselves, who are likely to have reached a cognitively consonant state in relation to their actions, almost invariably report a desire for openness and normalization of its origins for the sake of the child (Blyth, 1994; van den Akker, 2003). It is clear that appropriate counselling must continue to be advocated to assist parents in making the decision to disclose and in helping them in how and when to do this (Edelmann, 2000, 2004). If they can do that, the populations opting for third party reproduction are more likely to reconcile their differences. First and foremost, it is imperative to remind one self that 'the right to a child should not be achieved at the expense of the rights of the child' (Kopfensteiner, 1998).

Future trends and concerns

Openness

Openness and disclosure of identifying information or the identity of donors in gamete donation is still a contentious issue, despite recent changes in UK legislation. Most donor offspring (and adoptees), for example prefer openness and more rather than less information about their genetic heritage. Preliminary evidence from surrogacy indicates that relinquishing surrogate mothers would like openness and contact, and surrogate offspring are currently being studied, but limited data are available. Most, but not all, recipient mothers in surrogacy tend to be happy with this. The fact that there is a discrepancy here, no matter that this is a minority, can be a cause for future conflict and concern.

Psychological consequences

Some surrogates who have experienced closed surrogacy arrangements have reported difficulties coming to terms with this (Davies and Cotton in van den Akker, 2002b). Long-term difficulties in women relinquishing a child for adoption have also been reported (Winkler and van Keppel, 1984; Condon, 1986; Field, 1991) and should be borne in mind as possible also in surrogacy in the future. Psychological functioning in the recipient families tends to be good, as are parent/child relationships (Golombok and Murray, 2004; van den Akker, in preparation). Consequently, from a psychological health point of view, the specific aim of counselling is not to curtail psychological disturbance because all parties appear to be well adjusted, but to assist to 'ease specific anxieties, facilitate decision-making and ensure that issues are resolved at an early stage before difficulties have a chance to arise' (Edelmann,

2004). Unfortunately, despite efforts made to highlight the importance of counselling in the latest report concerned with surrogacy (Brazier *et al*., 1998), counselling and follow-up procedures although available, are not always used by all parties.

Welfare

Patient welfare is crucial in any evaluation of the psychosocial, ethical or moral consequences of surrogacy arrangements, whether these arrangements were successful or not. A study monitoring patients following a failed first IVF cycle reports that 21% of patients whose first treatment fails opt for counselling (Greenfield *et al*., 1988). Grief scores are higher in women who discontinue treatment at midcycle (Reading, 1989), and feelings of sadness and depression are higher in women failing to conceive following treatment (Leiblum *et al*., 1987; Baram *et al*., 1988) or who voluntarily give up (Trounson and Wood, 1981). Other infertile people may give up following rejection on medical, psychological or social grounds. Edelmann (1990) and Greenfield and Haseltine (1986) reviewed some of the issues involved in patient selection and reported that it is extremely difficult to decide on who should assess patients for suitability, what should be used to determine suitability and when suitability assessments should be carried out. Even if an optimum professional, measure and time are found, it is possible that infertile populations will respond with bias, knowing that a good profile is more likely to get them accepted than an unstable profile. In UK surrogacy, assessment is largely carried out *ad hoc* (van den Akker, 1999). Ten years after Edelmann and Connoly's statements regarding the lack of evidence-based procedures adopted by counsellors, some progress is evident. We are developing a better understanding of the needs of infertile couples, and we know what coping strategies they use (Connolly *et al*., 1992; van den Akker, 2005b), but we do not know what success of counselling means. What is also known is that not all the patients' needs are met (Souter *et al*., 1998) and that issues of honesty and lineage are not resolved. Studies of patient satisfaction have revealed that counselling or support particularly after successful or unsuccessful treatment is seen as beneficial (Donegan, 1994; Smith *et al*., 2000).

Genetic link

Few studies have focused on the importance of a genetic link. van den Akker (2001a, 2005a) found that most recipients of gestational surrogacy and most undergoing IVF believe a genetic link is important. There is a prevalence of males favouring the genetic link (73.5% male versus 48.6% females), as was found in Ravin *et al*.'s (1997) study of men and women from the general population. These data suggest that the future of infertility treatment must consider the relevance, opportunities and coping mechanisms of couples undergoing genetic surrogacy (surrogacy using the surrogate's genetic material). It is possible that gut preferences have to be overruled by options, and these may need to be resolved with the assistance of appropriately qualified and experienced professionals.

However, an ethical and preferred choice cannot be made in isolation from the feasible alternatives. Templeton (1996) reported on a large study using 36 961 cycles in their analyses and found that the predicted live birth rate per cycle for women aged 25 years was 16.1%, whilst for those aged 45 years it was a meagre 1.9%. Furthermore, at each age group >30 years, donor oocytes resulted in a significantly higher pregnancy rate than did treatments with their own oocytes. This has ethical dilemmas for the infertile; they could achieve a much wanted pregnancy relatively easily using donated oocytes or using genetic surrogacy but have a partially non-genetic child, or they have great difficulty conceiving using their own gametes or opting for gestational surrogacy, with a lower success rate and hence less chance of conceiving a genetically related child.

Conclusion

The review revealed that most studies report on responses from female participants and, in a few cases, from couples (e.g. Salter-Ling *et al*., 2001). Data from surrogate mothers (on psychopathology and motives), from intended/commissioning mothers (on openness and psychopathology) and from offspring (on attachment and openness) are rare. The evaluation of the evidence presented in this review has also demonstrated that there was a notable lack of theory and experiments testing appropriately defined models. No interventions and few longitudinal studies have been carried out. Virtually all studies, of necessity, used highly selected samples, making generalizations difficult. Only a handful of studies have specifically questioned the meaning of and need for a family and the influence and impact that professionals, treatment availability and financial factors have on the choices made. Couples opting for surrogacy are cognitively comfortable with their unusual method of creating a family and, like divorced, gay or adoptive families, have no problems showing this openly to those around them, although this is not unequivocally reported. The evidence demonstrates what lessons can be learned from the experiences of other 'alternative' families, but clear comparisons cannot be made. Disclosure is not much of an issue in surrogate and adoptive parents, because they cannot get away with a make-believe pregnancy, so they have little choice but to disclose information. On the contrary, the importance of a genetic link continues to influence surrogate and intended mothers and appears to be reconciled following the weighing up of pragmatic reasoning and cognitive restructuring.

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