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DNA Paternity Testing: Public Perceptions And The Influence Of Gender

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Abstract

This article reports on the findings of the Swinburne National Technology and Society Monitor in relation to public perceptions of DNA paternity testing, with particular reference to the effects of gender. The Monitor included a large-scale random survey and focus groups. Taken together, the survey and focus groups suggest that most Australians are 'comfortable' with DNA paternity testing in a variety of contexts. At the same time, this comfort is qualified, conditional upon the knowledge of all parties. It is also tentative, heavily grounded in the media rather than real-life experience. The survey and focus groups suggest that most men and women do not hold different perceptions of DNA paternity testing. There are several important caveats though. First, the focus groups suggest that reliance upon the media as a source of information leads to a 'gendered perception' of DNA paternity testing in terms of 'paternity fraud' for both men and women. Second, the survey shows that women are significantly more likely to feel comfortable about DNA paternity testing where all parties have agreed to the test, consistent with a concern to establish paternal responsibility and child support. Finally, the focus groups suggest that having a personal stake in DNA paternity testing generates opinions that are polarised on the basis of gender. The gender dynamics of public perceptions on DNA paternity testing are likely to become more important as the tests become more widespread.

Key Words: DNA paternity testing, public perceptions, gendering of technology, biotechnology, fathers' rights movement

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Introduction

From the early days of the 'genetic revolution', scientists and public policy makers recognised the importance of public perceptions in relation to biotechnology. This awareness arose on account of the extraordinary implications of the genetic revolution for everyday life, going to the heart of what it means to be human (Davies 2002). It was sharpened by the experience around the introduction of genetically modified crops (Winston 2002), and then by the controversy around stem cell research (Kelley, Zanjani & Evans 2002). Yet this awareness of public perceptions was often speculative, given that most people were still not sure what the technology involved or how it might influence their lives.

DNA-based identity testing is different to other forms of biotechnology. The new techniques for identity testing were invented in 1984, almost two decades ago. A variety of public agencies – police, courts, social security, immigration – rapidly adopted the new tests in their own procedures. During the 1990s private companies commercialised the tests, making them available to consumers on a fee-for-service basis. The tests were also the focus of high-profile media stories; most famously, in connection with Monica Lewinsky's semen-stained dress. In other words, DNA identity testing is already with us. Most people know more or less what the technology involves. The technology is already embedded in social institutions.

One of the first applications of DNA identity testing was parentage testing – or more to the point, paternity testing. The test meant that for the first time in human history it was possible to identify paternity and misattributed paternity with reasonable confidence. By implication, the test had ramifications for gender relationships and the family. As one government report observed, 'it not only provides information about related persons, but goes to the very nature and identity of the family itself' (ALRC 2002: 746). The tests – or more specifically, the relationships embedded in the tests and the ways in which the tests are used - highlighted the 'gender dimension' of new technology, often overlooked in sociological accounts of technology (Wajcman 1991: 22). They did so in a very public way. By the early 2000s paternity tests were 'the hottest genre of daytime television' in the US (Stanley 2002); they had been used to resolve high-profile disputes, involving celebrities such as Boris Becker, Mick Jagger and Liz Hurley; and the fathers' rights movement had rallied around high-profile court cases where men sued their former partners for alleged 'paternity fraud' (Anderlik and Rothstein 2002).

DNA paternity testing provides a unique opportunity to explore public perceptions in relation to a particular application of biotechnology. It also presents an opportunity to examine the 'gender dimension' in public perceptions of new technology. This article presents the findings of a study about DNA paternity testing and public perceptions, arising from the Swinburne National Technology and Society Monitor. First, it describes the test, its implications for paternity, and gender issues arising from the test. Second, it describes the techniques used to investigate public perceptions, involving a combination of quantitative and qualitative techniques. Third, it discusses the findings of our national survey on public perceptions of DNA paternity testing. Fourth, it discusses the findings arising from six focus groups, three male and three female. Finally, the article explores the implications of the findings; in particular, the lack of gender differences among men and women without direct experience of DNA paternity testing, and the sharp gender differences between men and women with a personal stake in the technology.

Background

DNA parentage tests involve the testing of biological material from two or more individuals in order to confirm or deny biological parentage. The tests entail the comparison of banding patterns on non-coding or 'junk' DNA, making it possible to estimate the probability that the putative parent is the biological parent of the child. According to one commercial provider, 'a probability of ≥ 99.9% can regularly be obtained' (Genetic Technologies 2002). Given that a child's maternity is usually self-evident, most tests relate to paternity. The tests are conventionally conducted on samples obtained through a mouth swab or finger prick in a laboratory context – but they can also be conducted on samples obtained outside of the laboratory, say saliva from a drink can or a hair follicle (ALRC 2002).

Parentage testing may occur in a variety of contexts. A 2002 Discussion Paper by the Australian Law Reform Commission (ALRC) observed that these include 'family law and child support proceedings; paternity fraud proceedings; succession to estates; immigration applications; identification of human remains; incidental parentage testing; and personal interest' (ALRC 2002: 749). Three of these contexts warrant special attention. First, family law and child support proceedings involve DNA parentage testing in disputes relating to 'child support, child maintenance or parental responsibility' (ALRC 2002: 750). Given that a child's parents are responsible by law for his or her maintenance, DNA tests provide a mechanism to resolve disputes about biological paternity. Government institutions such as the Family Court, the Child Support Agency and Centrelink have incorporated DNA parentage testing into their existing practices.

Second, 'paternity fraud proceedings' refer to those circumstances where a man seeks damages through civil action on account of having provided for children when in fact those children were not his own. Such cases have attracted high-profile media attention in Australia and other western countries (AAP 2002; Munro 2002; Stapleton 2002). For example, in November 2002 the national media reported a 'landmark paternity fraud decision' where the Victorian County Court awarded a man $70,000 compensation for 'pain and suffering, and loss of income', following the discovery that he was not the father of two out of three children from his former marriage (De Kretser 2002; Kelly 2002).

Third, 'incidental parentage testing' refers to those circumstances where genetic testing for medical or research purposes reveals misattributed paternity 'as an incidental effect'. Such cases raise ethical dilemmas for health professionals (Lucassen and Parker 2001). They have also attracted high-profile media attention, and are closely associated with the 'paternity fraud' scenario.

As the ALRC observed, DNA paternity testing involves a unique set of considerations. The tests are 'particularly sensitive'; the context in which information is revealed is 'often highly emotionally charged'; the tests require the participation of two, sometimes three, individuals; and in most cases, one of the individuals is a child (ALRC 2002: 746-7). The ALRC observed that submissions from 'various support groups, laboratories conducting parentage testing, and private individuals' had adopted a wide variety of positions in regard to 'the current regulatory framework and industry practice':

> Concerns focused on access to parentage testing; the provision of what is known as 'motherless testing'; consent and decision-making in relation to testing (in particular on behalf of children); the provision of associated counselling and support; and the need to protect against fraudulent practices. (ALRC 2002: 44-5)

These concerns are all the more sensitive given the accessibility of DNA paternity testing. The tests do not require referral from a medical practitioner. The emerging industry is consumer-oriented, advertising its services on the Internet and late night television. Although there is a national accreditation system for service providers, it is not compulsory. In any case, accredited laboratories can conduct parentage tests that do not comply with accreditation standards. Home-use kits are also readily available, and offshore providers advertise their services through the Internet (ALRC 2002).

It is difficult to estimate the current extent of DNA parentage testing. In 2000 one journalist estimated that there were 3000 paternity tests carried out each year in Australia. In 2002 the ALRC quoted this figure, and speculated that most of these tests took place 'outside the court system altogether'. (ALRC 2002: 753). Whatever the case, the extent of DNA parentage testing is likely to grow substantially. Rapid development in DNA testing technology means that paternity testing will become cheaper and more accessible. It also means that health-related tests will become routine, and incidental paternity testing will become more widespread (ALRC 2002).

Gender And Technology

Since the 1980s there has been a growing literature concerning the 'social shaping of technology'. In close connection, social scientists have explored the 'gendering of technology' (Wajcman 1991; Haraway 1991; Jananoff et al. 1995; MacKenzie & Wajcman 1999; Ettore 2002; Handwerker 2003). The main point of this literature has been the mutual constitution of gender and technology. Men and women (and masculinity and femininity) are shaped by technology in different ways; technology is shaped by men and women (and masculinity and femininity) in different ways. This is true for all forms of technology, but it is especially true for reproductive technology. As Judy Wajcman observed, 'women are the bearers, and in most societies the primary nurturers, of children'. In turn, 'reproductive technologies are of particular significance to them', and 'birth control has been a major issue for all movements for women's equality' (Wajcman 1991: 54).

The 'gendering of technology' usually refers to the way in which gender relationships are embedded in the production and application of technology. This includes the mobilisation of gender-based social movements, such as the birth control movement. It does not usually refer to gender patterns in public perceptions of new technologies, but there is no reason why it should not. Indeed, the literature on public perceptions has often documented significant gender differences in acceptance of new technologies (Evenson, Hoban & Woodrum 2000; Hampel, Pfenning & Peters 2000; Biotechnology Australia 2001; Gilding & Critchley 2003).

Like reproductive technologies, DNA parentage testing affects gender relationships in fundamental ways. In earlier times attribution of fatherhood depended upon social markers, notably marriage and registration on a birth certificate. In English law, for example, there was a 'marital presumption': 'If a husband, not physically incapable, was within the four seas of England during the period of gestation, the courts would not listen to evidence casting doubt on his paternity' (cited in Anderlik & Rothstein 2002: 222). This reliance upon social markers goes at least some of the way in explaining men's efforts to control women's sexuality in earlier times (Clark & Lewis 1977). DNA identity testing meant that it became possible to identify biological paternity with much more confidence.

The availability of DNA paternity testing coincided with new tensions around gender relationships and the family. From the early 1970s a new wave of organised feminism

pressed for gender equality inside and outside the family. During the same era women were increasingly likely to bear children outside of marriage, and they became more likely to leave marriages than men - for the first time in recorded history (Gilding 1997). In turn, from the late 1980s governments in western societies became more demanding in relation to paternity establishment for nonmarital children receiving welfare payments (Millar & Whiteford 1993) About the same time there also emerged a father's rights movement, antagonistic to feminism and the state (Anderlik & Rothstein 2002).

In this context, men – not women – were conspicuous in gender-based mobilisation around DNA-based paternity testing. As Anderlik and Rothstein observed, fathers' rights activists 'often believe that just as DNA evidence has revolutionized criminal law, so should it, in roughly parallel ways, lead to a revolution in family law' Anderlik & Rothstein 2002: 220). More specifically, they publicised 'paternity fraud' on their websites, creating hyperlinks with commercial providers of DNA identity testing; they rallied around high-profile legal cases where men sued their former partners for fraud in relation to child support payments, following the discovery of misattributed paternity (Anderlik & Rothstein 2002: 219-20); and they lobbied for ready accessibility of testing, irrespective of the wishes of mothers (Schneider & McLean 2000).

The 'gendering of technology' suggests that men and women would have distinctive perceptions in relation to DNA paternity testing. Gender-based mobilisation around the family and DNA paternity testing would lead to the same suggestion. This article explores the gender dimension of public perceptions in relation to DNA paternity testing.

Method

In April and May 2003 the Australian Centre for Emerging Technologies and Society (ACETS) conducted a national survey concerning public understandings of emerging technologies. The survey included a raft of questions that focussed upon DNA paternity testing. The questions were intended to provide a general picture of public perceptions, including the effect of key variables – most obviously, gender. Following the survey, ACETS conducted 6 focus groups, designed to explore the qualitative dimensions of public perceptions; in particular, the effect of gender upon perceptions.

The survey involved a random sample of 1044 Australians over the age of 18 years (amounting to about 30% of those contacted), conducted through the ACETS Computer Assisted Telephone Interviewing (CATI) facility. The sample was representative in terms of the states and territories, employment status and median income, but skewed towards women, older Australians and more educated Australians (for more information, see Gilding & Critchley 2003).

In the first place, respondents were asked to rate how 'comfortable' they were in relation to 'the idea of DNA testing', on a scale of 0 ('not at all comfortable') to 10 ('very comfortable'). This question followed a series of other questions where respondents had been asked to rate their comfort level in relation to a variety of technologies, ranging from the Internet to cloning. This question was intended to provide a broad indication of how respondents felt about DNA testing compared with other new technologies.

Respondents were then asked to rate their comfort level in relation to four scenarios, involving more specific applications of DNA testing associated with misattributed paternity. The first scenario was the most neutral, insofar as there were no explicit conflicts of interest involved. More specifically, respondents were asked how 'comfortable' they were with 'DNA

testing of a father and child to see whether he actually is the father – where all parties have agreed to the test'.

The second scenario addressed the issue of 'motherless testing', salient in the debate around 'paternity fraud'. That is, respondents were asked how comfortable they were with 'DNA testing of a father and child to see whether he actually is the father – where the test is conducted without the knowledge of the mother'. Following the logic of the debate around 'paternity fraud', this question might be expected to elicit different responses from women and men.

The third scenario addressed the existing requirement for sole mothers to enforce DNA testing through the courts in order to be eligible for welfare support. Respondents were asked how comfortable they were with 'mandatory testing of a father and child to establish whether he actually is the father, so that he can be made to pay child support'. Again, it might be anticipated that this question would elicit gendered responses.

The final scenario addressed the ethical dilemmas arising from incidental paternity testing, when a DNA test for a medical condition incidentally revealed misattributed paternity. More specifically, respondents were asked how comfortable they were in 'providing DNA results to a man – where the man and his family have had a DNA test for an inherited disease - but the test shows he is not actually the father of one of the children'. Again, there is an apparent conflict of interest in this scenario, which might be expected to elicit a gendered response.

Once the survey had been completed, a series of focus groups were conducted in June and July 2003. The purpose of these groups was to provide a more detailed understanding of public perceptions than was possible through a survey. In particular, we wanted to explore the gender dynamics of public perceptions in relation to DNA paternity testing. Accordingly, we recruited three focus groups consisting of women, and another three consisting of men.

We also wanted to explore sources of diversity within gender. Following this logic, we focussed upon two possible sources of diversity. The first was education, given that the national survey identified this variable as significant. The second was the extent to which respondents had a personal stake in DNA paternity testing: this was based upon the well-publicised activities of the fathers' rights movement on this issue. On this basis, the focus groups for women and men were recruited by the following criteria:

- Two focus groups (one female, one male) consisted of individuals who had at least a tertiary education. There were eight individuals in both of these groups, which were conducted face-to-face in Melbourne.
- Two focus groups (one female, one male) consisted of individuals who did not have a tertiary education. The male group had 8 participants; the female group had 7 participants; both were conducted face-to-face in Melbourne.
- Two focus groups (one female, one male) consisted of individuals who had a personal stake in relation to DNA paternity testing. The men's group consisted of four individuals who were involved in fathers' rights groups. The women's group consisted of six individuals with personal experience of DNA paternity testing. These groups were conducted through an Internet discussion board, involving asynchronous communication over a week.

The 31 participants in the education-based focus groups were drawn from the ACETS focus group register, which was recruited through the national survey and 'snowballing'. The participants in the stakeholder focus groups were more difficult to recruit; hence, the fact that

they came from around Australia, and the use of an Internet discussion board. Computer-mediated communication allowed the researchers to cross time and space barriers to reach hard-to-access populations (Mann and Stewart 2000). In this case the online environment made it easy for the members of each group to speak openly and anonymously about a politically and personally sensitive issue in a way that was not possible in face-to-face focus groups.

The four men from the fathers' rights movement were recruited through direct approach to one father's rights group, 'snowballing', and notices in relevant online chat groups. All of the men were divorced with children, and they all had at least a graduate qualification. Their responses were grounded in their experience of family breakdown; ongoing conflict with their former wives, the Family Court and Child Support Agency; and participation in the fathers' rights movement.

The six women with direct experience of DNA paternity tests had all been required to enforce the tests in order to become eligible for child support or gain a birth certificate (at least one was not claiming child support). In all but one case (which is pending), the results of the paternity test showed that their ex-partners were in fact the fathers of the children whose paternity was disputed. These women were recruited through publicity around the Monitor, a flyer issued through the Council for Single Mothers and their Children, and notices in relevant online chat groups. All of the women were divorced or separated with one child each, and their educational qualifications ranged from secondary to postgraduate. Their responses were heavily grounded in their personal experience of relationship breakdown, and subsequent struggles with the legal system and Child Support Agency.

Survey Results: The Limited Effect Of Gender

Respondents in the national survey were very comfortable with 'the idea of DNA testing'. The mean score for respondents was 7.9 (see Table 1). Remarkably, this score was higher than the reported comfort levels associated with technologies such as stem cell research and even the Internet and mobile phones (Gilding & Critchley 2003). Respondents were even more comfortable with the use of DNA testing to determine paternity where all parties have provided consent. Here the mean was an extraordinary 9.0 – higher than for any other scale-based question in the entire survey (Gilding & Critchley 2003). Respondents were also reasonably comfortable with the scenario whereby mandatory DNA testing was used to enforce child support (mean = 7.1), and to a lesser degree, when men were provided with the results of incidental paternity testing (mean = 6.5). For all of these questions the mode was 10, reflecting high levels of reported comfort among respondents in a variety of contexts.

Even so, many respondents were not comfortable when DNA testing was used without the mother's consent. Here the mean was 4.9, reflecting a wide range of responses. This range was evident in the fact that the mode was 0 (not at all comfortable), nominated by 18.8% of the sample; the second most common response was 5 (indicating uncertainty, ambivalence or indifference), nominated by 16.4%; and the third most common response was 10 (very comfortable), nominated by 14.5%. In other words, this issue was relatively controversial, in contrast with the other scenarios.

Table 1: Comfort with DNA paternity testing in Australia 2003: 0 = Not at all comfortable, and 10 = Very comfortable.

	Mean	Standard Deviation	Not at all comfortable (%)	Very comfortable (%)	Mode (incl. %)
(1) The idea of DNA testing.	7.9	2.30	2.1	33.7	10 (33.7)
(2) DNA testing of a father and child to see whether he actually is the father – where all parties have agreed to the test.	9.0	1.74	1.0	60.8	10 (60.8)
(3) DNA testing of a father and child to see whether he actually is the father – where the test is conducted without the knowledge of the mother.	4.9	3.44	18.8	14.5	0 (18.8)
(4) Mandatory testing of a father and child to establish whether he actually is the father, so that he can be made to pay Child Support.	7.1	3.02	5.8	32.3	10 (32.3)
(5) Providing DNA results to a man – where the man and his family have had a DNA test for an inherited disease. But the test shows he is not actually the father of one of the children.	6.5	2.91	5.2	22.7	10 (22.7)

Differences in the responses of men and women were neither consistent, nor straightforward (see Table 2). The most significant difference occurred in relation to the scenario for which there was most comfort among respondents, where all parties agreed to the test ($F = 10.08$, $p<.005$). In these circumstances, women were more likely to indicate that they were comfortable with a paternity test than men. This result is not consistent with the 'paternity fraud' scenario around which fathers' groups have mobilised; it is consistent with the child support scenario, whereby women agree with child support policy that enforces paternal responsibility.

There was also significant difference between women and men in relation to the other question for which there was a high level of comfort among respondents, concerning 'the idea of DNA testing' (F = 4.17, p<.005); again, women were more comfortable than men. There was some indication that women were slightly more comfortable with mandatory testing in order to establish child support payments, but the results did not reach significance (p = .06). There was no significant difference in the responses of women and men regarding the controversial question about DNA paternity testing without the knowledge of the mother. There was also no significant difference in the responses of women and men in relation to the question about incidental paternity testing.

Table 2: Mean comfort levels with DNA testing by gender of the respondent: Australia 2003

	Mean		Standard deviation		F
	Males	Females	Males	Females	
(1) The idea of DNA testing.	7.75	7.98	2.44	2.17	4.17*
(2) DNA testing of a father and child to see whether he actually is the father – where all parties have agreed to the test.	8.77	9.13	2.07	1.46	10.08**
(3) DNA testing of a father and child to see whether he actually is the father – where the test is conducted without the knowledge of the mother.	4.99	4.79	3.43	3.44	0.53
(4) Mandatory testing of a father and child to establish whether he actually is the father, so that he can be made to pay Child Support.	6.92	7.24	3.22	2.89	3.41
(5) Providing DNA results to a man – where the man and his family have had a DNA test for an inherited disease. But the test shows he is not actually the father of one of the children.	6.43	6.59	3.00	2.86	0.82

Notes: * p<.05; ** p<.005

A series of Analyses of Covariance (ANCOVA) found that these patterns persisted when controls were introduced for age, education, life satisfaction and income. There were also no significant interactions found between gender and marital status, gender and occupation, and gender and ethnicity (all p values were >.05). In other words, the gender patterns described so far were not attributable to differences in other demographic characteristics.

The demographic variable most consistently related to responses regarding DNA paternity testing was education. Those with lower levels of education were more comfortable with DNA testing without the mother's knowledge, mandatory testing to establish child support, and providing results to men in incidental paternity testing. There was no significant relationship for the 'high comfort' questions concerning the idea of DNA in general ($r= -.06$, $p>.05$) and DNA testing when all parties consent ($r= -.02$, $p>.05$).

Education was the only demographic variable that was significantly associated with the controversial question concerning DNA paternity testing, where the test is conducted without the mother's knowledge. It was also the only demographic variable significantly associated with the question about making results available to men in the event of incidental paternity testing. In each case, the less education, the more comfortable. Age, marital status, occupation, income, religious affiliation, ethnicity and life satisfaction made no difference for these questions.

Briefly, the survey results indicated that Australians are very comfortable with DNA testing, and more specifically DNA paternity testing. They are not comfortable with DNA paternity testing where the mother has no knowledge of the test. The most consistent predictor of attitudes concerning DNA paternity testing is education, notably in relation to the controversial scenario of 'motherless testing'. Gender is a significant predictor of attitudes on DNA paternity testing where all parties have consented, but not for other scenarios.

Education-Based Focus Group Results: The Influence Of The Media

In some ways surveys are a 'blunt instrument' to gauge public perceptions (Davison et al. 1997). After all, our survey defined the issues for respondents, whereupon respondents were asked to nominate a number between 0 and 10 to identify their comfort with different scenarios. It is possible that men and women might frame the issues in quite different terms to those of our survey. It is also possible that men and women might arrive at the same number by taking very different considerations into account. The focus groups provided an opportunity to explore how respondents framed the issues in relation to genetic paternity testing; the considerations that led them to frame the issues as they did; and whether these considerations were different for women and men.

Consider first the four focus groups where participants were recruited on the basis of gender and education. These participants were overwhelmingly similar in their perceptions. All of them were aware of DNA paternity testing, but they were not confident about their knowledge. Overwhelmingly their knowledge came through the media. Participants mentioned American talk shows, such as Jerry Springer and Ricki Lake; television dramas, such as Stingers, CSI and The Bold and the Beautiful; television advertisements for commercial paternity services; and newspaper and television current affairs coverage, notably recent court cases whereby men had taken legal action against their wives following discovery of misattributed paternity. Only one participant from the four groups (31 participants altogether) declared that they knew somebody who had undertaken a DNA paternity test.

Participants – women and men - overwhelmingly understood the issue in terms of women who deceived their husbands. 'Trust' was a consistent point of reference, and it largely referred to whether or not men were able to trust women. In turn, participants consistently talked about 'family strife' and 'legal issues' arising from DNA paternity tests. When they did so, they mainly referred to the breakdown of trust following the discovery of misattributed

paternity. Participants were generally sympathetic to men in these circumstances. For example:

> If a guy trusted a woman, he wouldn't get a paternity test, would he? (*Emma, Non-tertiary female*)

> The bottom line is money … You know, people go to court because they're paying maintenance for three children, and they're basically being – you know – tapped in the neck for all they've got, and then you find out that two of those three children that you've been paying for – for the last six or seven years – they're not yours. (*Patrick, Tertiary male*)

Several participants – women and men – acknowledged other scenarios, whereby fathers wanted to avoid child support payments or punish their former partners. These scenarios were the exception, not the rule. The participants were sometimes sympathetic to women in these circumstances, but not necessarily. For example:

> You just hear about the father wanting to distance himself from the child, but then there's also the case where the mother wants to establish that that person is the responsible one. *(Patrick, Tertiary male)*

> I know an ex-colleague. Had a paternity test. He was pretty sure that the child was his, but … there was a nasty break up and legal battles, and she was claiming child support ... And it got very nasty so he had a test just to prove that … the child was his, which she was. And he wasn't denying the fact … the mother became nasty, very nasty, physically nasty, abusive to him. (*Joanne, Non-tertiary female*)

All participants but one accepted that DNA paternity testing should occur where all parties agreed to the test. They generally agreed that it should occur in the context of seeking support for child maintenance. They mostly agreed that men should be told about misattributed paternity in the context of incidental paternity testing, albeit with substantial reservations. The basis for these views was the 'the truth', or the 'right to know'. There was more diversity in relation to 'motherless testing', where testing occurred without the mother's knowledge. In this instance, the principle of the 'right to know' became more complex: that is, the father was seeking information, while denying information to the mother.

Although the four focus groups were overwhelmingly similar, there was one consistent pattern of difference grounded in education. The tertiary groups – men and women – were more likely to address regulatory issues than non-tertiary groups. The tertiary female group was especially concerned with the accreditation of laboratories and reliability of tests. The tertiary male group was especially insistent upon the importance of process in relation to consent, converging around the view that legal or administrative avenues were required where couples could not agree on having a test. Perhaps this emphasis upon regulation and process underpins the influence of education as a variable in relation to the scenarios in the survey.

In general terms, participants in the focus groups – men and women - were 'comfortable' in relation to DNA paternity testing, but their comfort was weakly grounded. Their perception was not based on direct experience. Rather, it was highly abstracted and tentative, based upon the media. There was no enthusiasm for DNA paternity testing. It was something that happened to 'other' people, and was associated with the breakdown of trust in a relationship, family strife and legal conflict. It opened 'a can of worms' (as one participant put it), but the 'right to know' meant that there was no choice but to open the can.

Fathers' Rights Activists: DNA Paternity Testing As An Enabling Technology

Like the four education-based focus groups discussed already, men from the focus group drawn from the fathers' rights movement overwhelmingly framed their discussion in terms of the scenario where women had deceived their husbands. Unlike the education-based groups, they believed in the absolute right of fathers to test for paternity without permission from the courts or their ex-wives. This was because DNA paternity testing was a means to 'determine once and for all' the biological father of a child. The men believed that the test should be viewed as having the same 'privacy as a pregnancy test'. Private testing meant that men could know the truth about their fatherhood and then decide for themselves what they wanted to do with that knowledge. For example:

> At present one may organise a test and see the result without the child knowing. It allows you to then think the next step very carefully. Just because one is not the DNA father does not mean you wish to step out of the child's life. (*Fred*)

From the perspective of these men, the issue of DNA paternity testing arose in the context of a socio-political system that was unjust and biased in favour of mothers. Women had the 'whip hand'; the Family Court and the Child Support Agency operated in the interests of women; and lawyers had been captured and corrupted by the system. Fathers were treated 'like criminals'. Court decisions meant that 'family law settlements and ongoing child support [were] a sentence into financial hell'. There was a 'lack of support in the broader community' and the media was 'mainly feminist'. Men often felt 'that suicide is the only option'.

More specifically, the men believed that child support payments were often payments to women rather than for the support of children. Women were manipulative and fraudulent in their quest to extract money from men through child support payments, and they were 'aided and abetted by the state'. For example:

> Women have many newfound freedoms today. So be it. However, all too many still expect men to pay for them and for those freedoms. Generalisation, but... generally true. A person of integrity, who chooses to end her relationship and family would be prepared to deal with and meet the consequences of her choices, decisions and actions. This may mean leaving the children with Dad if SHE wants to leave. Why take the children? The answer, after participating on chat groups for the past 7 years is MONEY: children are taken as cash cows to ensure assets (at time of separation) and an income stream. (*Phil*)

> Men are now aware that there are some women who are willing to use the parentage of children as a means of income. The old game of trapping a man through parentage has taken a new twist with Family Law and Child Support. (*Madison*)

DNA paternity testing meant that men, as non-custodial parents, were able to make sure that they were not treated as just 'a wallet', or a 'means of income' for women to 'live off the Family Law settlements and on-going Child Support'. The men believed that paternity fraud is widespread, and the criminal justice system is reluctant to bring fraudulent mothers to account. For example:

> In any other case a person who passed off something as being not what it really is and took money for it could be charged with FRAUD. That is essentially [what] can occur and why DNA testing is important, so as to expose and counter such 'fraud'. (*Phil*)

Even so, the men were still ambivalent about DNA testing. Madison described how he was 'not game' to have the test done, because he would prefer to think his children were his own. Fred was convinced that a child he currently supported was not his own, but reluctant to have the test because he was unsure what he 'would do with the knowledge'. Greg acknowledged that he would find it 'hard to handle knowing that my father was checking to see if he really was my father'. In the words of Phil:

> The whole issue is fraught; fathers are caught between a rock and a hard place, because in most cases they love the children and have bonded with them and vice versa ... and they don't want that to end. This is true with or without infidelity. In the case of infidelity, though a relationship [with the child] may still continue, it does not have to cease simply because the fraud has been exposed and payments ceased.

The focus group highlighted an unambiguously gendered response to DNA paternity testing. These men regarded DNA paternity tests as an enabling technology in the context of an unfair legal system stacked in favour of fraudulent women. In this context they believed in men's absolute right to conduct paternity tests without the knowledge of the mother or the involvement of the state.

Mothers With Experience Of The Tests: DNA Paternity Testing As An Instrument Of Revenge

The focus group consisting of women with direct experience of DNA paternity testing had a different perspective from participants in the other focus groups. For these women, the scenario where women had deceived their husbands was irrelevant. The women in this group had all been obliged or 'forced' to undertake the test and, in some cases, instigate the process because the fathers of their children had denied paternity. This denial had been made public on account of the need for legal documentation in the form of birth certificates and access to child support payments, which were contingent upon naming the father of the child. As one participant explained:

> The Child Support Agency advised me that I had to prove that the father was the father … my sole parent pension was suspended [and] I could get no child support, which was denied me because I had no proof of paternity. This all meant that it took me nearly 12 months to establish paternity - through Legal Aid I had to get a court order to get the father to take the test he was insisting was performed before he would sign the birth certificate. (*Anne*)

In this context, the most important considerations for the women were the 'accuracy', 'validity' and 'confidentiality' of the test itself. The women wanted correct information obtained through formal channels, that is, court-approved and accredited laboratories to prove without doubt the paternity of their children. Their insistence upon formal channels distinguished them sharply from the fathers' rights focus group.

The process into which women were drawn by the denial of paternity was itself a public event that was protracted (women cited between 12 and 18 months) and expensive ($600 to $800 was quoted for an ordinary test where both parents provided consent). Women complained about the 'intrusive' and 'impersonal' character of the administrative and judicial system, including the Family Court: 'phone calls were not answered', 'information was difficult to access', and correspondence was 'full of legal jargon'. Above all, the women complained about the public humiliation of the process:

> Where the father denies paternity from the outset and the mother knows that he is the father, then it casts doubts about her in others' minds. (Those who don't know her will take his side). This can lead to low self-esteem and depression.(*Sophie*)

> I started to wonder if the father of my child was actually the father, although it was impossible that anybody else could be. Did someone come and sleep with me while I was asleep? (*Kate*)

The women accepted that there was a place for paternity tests where paternity was uncertain. By the same token, they believed that men used paternity tests as a means to 'delay and thwart' access to child support payments, and as 'a way to punish their ex-partner, rather than out of any real concern about paternity'. They described feeling 'traumatised', 'distressed', 'angry', 'upset' and 'let down'. They also described a sense of futility:

> It's not just a DNA test, it's a year and a half of child support appeals, tribunals, legal battles – all for what? So the father can keep being a non-father! (*Anne*)

> I thought that the whole thing was a waste of my time and his money. I knew he was the father and felt that his need for paternity testing was a result of me leaving him. I do wonder whether it would have even been an issue if the technology hadn't been available. (*Natalie*)

The women expressed deep concern about the destructive and long-lasting impact of the technology upon the father-child relationship and the 'ongoing "partnership" of parenting'. Relationships and communication were 'irreversibly damaged' through the process of DNA paternity testing. They also worried about the child finding out what had happened when they got older and the likelihood of it being a 'painful discovery'. For example:

> I think my heart broke for my child - how could he look at her and not love her as a father (he was at the birth and saw her regularly until 6 months ago) and also knowing me as he did how on earth could he think that I would lie to him and my child about paternity - it has destroyed any respect I had left for him - and regardless of the paternity results a father is more than DNA. *(Jenny)*

> The consequences of a child finding out in later years, that testing had taken place could be devastating for that child. I doubt that I would ever tell my son, if anyone should it should be his father! … It would raise many questions about love, identity and a sense of security for the child in relation to the relationship with their father. *(Natalie)*

The focus group of women with experience of DNA paternity testing, like the fathers' focus group, highlighted an unambiguously gendered response to DNA paternity testing. These women regarded DNA paternity tests as a destructive technology, used as a weapon by angry men to punish their former partners. In this context they believed in the importance of formal institutions to manage the tests in an accredited and sensitive way.

Gender And Perceptions

The methodology of this study highlights the importance of multiple methods in the investigation of public perceptions of emerging technologies. The national survey and the focus groups provided different and unique perspectives on public perceptions of DNA paternity testing and the influence of gender.

The survey and focus groups suggest that most Australians are ‘comfortable’ with DNA paternity testing in a variety of contexts. At the same time, this comfort is qualified, conditional upon the knowledge of all parties. It is also tentative, heavily grounded in the media rather than real-life experience. This is notwithstanding low reported trust in the media as a source of information about new technologies (Gilding & Critchley 2003).

Taken together, the survey and focus groups also suggest that most men and women do not hold different views concerning DNA paternity testing. There are several caveats though, and they are important ones. First, the focus groups suggest that reliance upon the media as a source of information leads to a ‘gendered perception’ of DNA paternity testing for both men and women. This is so in the sense that both men and women in the focus groups understood the tests overwhelmingly in terms of ‘paternity fraud’ whereby women deceive their husbands, rather than in terms of other scenarios such as child support.

Second, women are significantly more likely to feel comfortable about DNA paternity testing where all parties have agreed to the test. This pattern is consistent with the view that women are particularly concerned with establishing paternal responsibility and child support. They are thus more comfortable with institutionalised practice that requires consent.

Finally, women and men who have a personal stake in DNA paternity testing apparently hold heavily gendered perceptions of the tests. Stakeholder focus groups held much stronger views on DNA paternity tests than non-stakeholder groups. They also held deeply polarised views. Men from the fathers’ rights movement saw the tests as enabling technology, facilitating the ‘exposure’ of ‘paternity fraud’. They wanted minimal regulation of the tests. Women with experience of the tests saw them as destructive, serving as instruments of revenge for ‘angry men’. They wanted close regulation of the tests.

Public perceptions of DNA paternity testing are gendered in a variety of ways. As DNA paternity testing becomes more widespread and more people become ‘stakeholders’ in the technology, public perceptions will presumably become less tentative. There will be more at stake in how DNA paternity testing is generally understood and used. The gender dynamics arising from personal experience will become more important. DNA paternity testing will inform personal negotiation and social debates around marriage, sexual behaviour and child support.

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