

Beliefs about IVF as a personal fallback option

Assisted reproductive technology has enabled many couples to fulfil their dreams of having a family. However, the success rate of treatments involving this technology declines rapidly when women enter their thirties. How likely are men and women to believe they would use this treatment, and how optimistic are they about its success?

Louise Brown, the world's first "IVF baby", was born 27 years ago, in 1978, in Northern England. Just one year later, IVF (or "in vitro fertilisation") was introduced in Australia and success soon followed with the birth in Melbourne of Candice Reed on 23 June 1980. Since this time, assisted reproductive technology in general has advanced rapidly, as has its use. Although such treatments encompass more than IVF, the "IVF" label is now often used to refer to all forms of assisted reproductive technology. Such an approach is adopted in this article.

A rough idea of the escalating demand for IVF procedures is provided by the number of treatment cycles that take place in various years. For Australia and New Zealand combined, treatment cycles increased by 77 per cent between 1992 and 2001 (from nearly 16,300 to nearly 28,800) and had more than doubled by 2002 (nearly 36,500) (Dean and Sullivan 2003; Bryant, Sullivan and Dean 2004).

For a variety of reasons, including delays in partnership formation, increased instability of these relationships, increasing participation in higher education, and concerns about achieving a secure income stream, women are having their first child at increasingly older ages (Weston, Qu, Parker and Alexander 2004). However, women's ability to have children diminishes with age from their late twenties or early thirties.

It can take many months of unsuccessful attempts to achieve conception before couples begin to wonder whether they might need to seek IVF treatment, and the decision to follow this pathway may be a protracted one. In addition, the initial consultations, further investigations, then acceptance into a program, followed by the commencement of treatment, can also take considerable time (Alesi 2005).

Use of IVF is thus strongly age-related. In 2002, the average age of mothers who had a child following IVF was 34.4 years – more than five years older than the average age of all Australian mothers who gave birth that year (29.2 years) (Bryant, Sullivan and Dean 2004). While the burgeoning demand for IVF partly results from the trend towards postponing parenthood, it is also possible that advancements in IVF provide couples with the confidence that they can afford to wait longer than they might otherwise have done before

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attempting to start a family. But what are their chances of having a child through the use of IVF?

In Australia and New Zealand in 2002, 16 per cent of all treatments resulted in at least one live baby. However, just as the ability to have a child naturally decreases with women's advancing age, the chances of success in having a child through IVF decrease progressively once women enter their thirties – a trend that is particularly marked after the mid-thirties. For example, of all treatment cycles started in 2002 for women in their late twenties, 26 per cent resulted in a live baby, compared with less than 2 per cent of cycles started for those aged over forty (Bryant et al. 2004).

The chances of a woman having a live baby through IVF are also related to the reasons for infertility, the nature of the treatment received, the centre providing the treatment, the number of treatment cycles already received, and the number of embryos transferred. For example, of all treatment cycles started in 2002, 18 per cent of those that involved fresh, non-donor eggs resulted in one or more babies, compared with 14 per cent of those that involved thawed embryos, while success rates across treatment centres ranged from 15 per cent to 22 per cent (Bryant et al. 2004).

However, the media attention given to "success stories" in the area of IVF may unwittingly provide a sense of false security for those who decide to defer childbearing until the female partner is well into her thirties or who continue to shelve all decision-making until such time. Furthermore, postponement of childbearing or planning to meet other needs may be encouraged by an over-confidence in IVF as a fallback option.

What proportion of people in their childbearing years believe they would use IVF should they face problems in conceiving, and how confident are they about their success in having a child through such procedures? This paper draws on data from the *Fertility Decision Making Project* to examine views regarding the use of IVF held by men and women in their twenties and thirties who were in a committed relationship (regardless of whether or not they were living with their partner). Socio-demographic factors linked with respondents' beliefs about their preparedness to use IVF and its likely success are examined.



The Fertility Decision Making Project

The *Fertility Decision Making Project* was conducted in 2004 by the Australian Institute of Family Studies in collaboration with the Australian Government Office for Women, Department of Family and Community Services, to explore factors linked with the aspirations and decisions of Australian men and women regarding having children (Weston, Qu, Parker and Alexander 2004). A national randomly selected sample of 3201 men and women aged 20–39 years (61 per cent women and 39 per cent men) was interviewed by telephone.

In total, 56 per cent of respondents were living with a partner (46 per cent of men and 62 per cent of women) and 10 per cent were in a committed relationship but not living with that person (12 per cent of men and 9 per cent of women). Most of these respondents were asked about whether or not they would use IVF or other similar fertility treatments if they encountered problems in having children. The present analysis focuses on this group.

Such questions were not asked of: (a) those who had had a sterilisation procedure or whose partners had received such treatment ($n=283$); (b) those who reported that they had physical problems that would prevent child-bearing even with the use of IVF (either self or partner) ($n=19$); and (c) those in couple relationships in which

the female partner was pregnant ($n=148$). Of the last group, ten respondents indicated that they had used IVF to achieve pregnancy.

The questions that were asked varied according to whether respondents were trying to have a child ($n=150$) and whether they were aware of physical problems (in either partner) that made conception unlikely but “perhaps possible with IVF or other assisted procedure” ($n=57$) (see boxed text for further details).

Twenty-five respondents reported that they and their partner were currently receiving IVF: 13 of these people indicated that they were aware of physical problems (in themselves or their partner) that explained their difficulty in having a child, while 12 said that they were not aware of any such physical problems. In total, 16 of the 25 respondents (64 per cent) believed that they were either likely or very likely to achieve pregnancy and bring a child to term.

However, the views of these people about the success of IVF may be quite different from those of others who have not used such treatments. For example, beliefs about their chances of having a child through IVF are likely to have influenced their decision to seek IVF, and these beliefs themselves may be influenced by a strong but frustrated desire to have a

Questions asked about IVF

As explained in this article, not all respondents were asked about their views on IVF or similar treatments. Furthermore, the nature of questions asked about the use of IVF varied according to answers provided to other questions.

Respondents who were trying to have a child and those who felt that they were unlikely to have a child without IVF or similar reproductive treatments were asked whether they were using or were considering using IVF or similar treatments. Those who were currently trying to have a child, and who were not considering using IVF or similar treatments were also asked whether they would use IVF or similar treatments if they encountered problems in achieving pregnancy or bringing a child to term.

Respondents who were not actively trying to have a child were asked whether or not they would use IVF or similar treatments if they decided to have a child, but encountered problems achieving pregnancy or bringing a child to term.

Respondents who reported on whether they and their partners were using or would use IVF or similar reproductive treatments were also asked about their likely success in having a child through these treatments. The responses offered were “very likely”, “likely”, “neither”, “unlikely”, and “very unlikely”, and volunteered “don’t know” responses were recorded.

child and by advice and treatments so far experienced at the clinic. These respondents were therefore excluded from the analysis.

In total, 1608 respondents who were in a committed relationship (whether living together or apart) but were not using IVF reported their views about IVF or other similar reproductive treatments. The reports of these respondents formed the focus of this paper.

Beliefs about personal preparedness to use IVF

All 1608 respondents in this analysis were asked whether they would be prepared to use IVF should they encounter difficulties in having a child. While the answers people give to questions about what they would do in hypothetical situations are notoriously poor predictors of behaviour, such answers should nonetheless provide insight into what people *think* they would do should the situation discussed arise (in

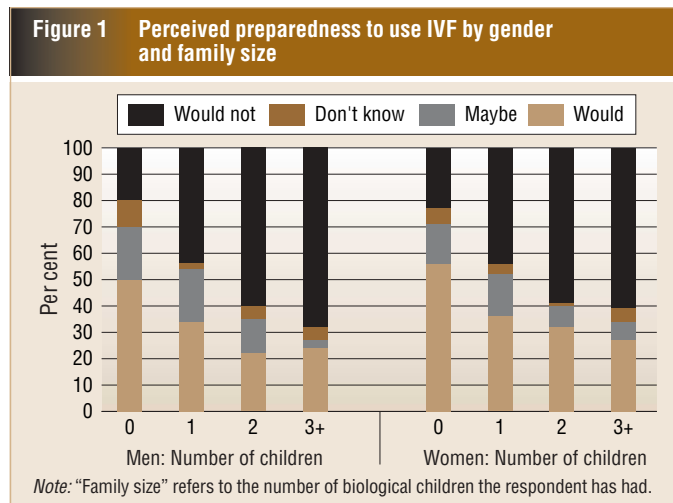
this case, should they confront difficulties in having a child). The nature of these beliefs may well influence plans about the timing of attempts to have a child or decisions about whether any such planning can be shelved for some time.

Respondents were asked to indicate whether they would, might, or would not use IVF, and any “don’t know” answers volunteered by respondents were recorded. Each analysis outlined here compares the patterns of responses to this question provided by the men and women taken separately. First, the views of all men and women are compared. This is followed by an examination of the views of childless respondents and of parents according to their family size. The third set of analyses focuses on the views of childless respondents and of parents (taken separately) of different ages. Finally, views about preparedness to use IVF are examined according to respondents’ perceived ability to have children naturally.

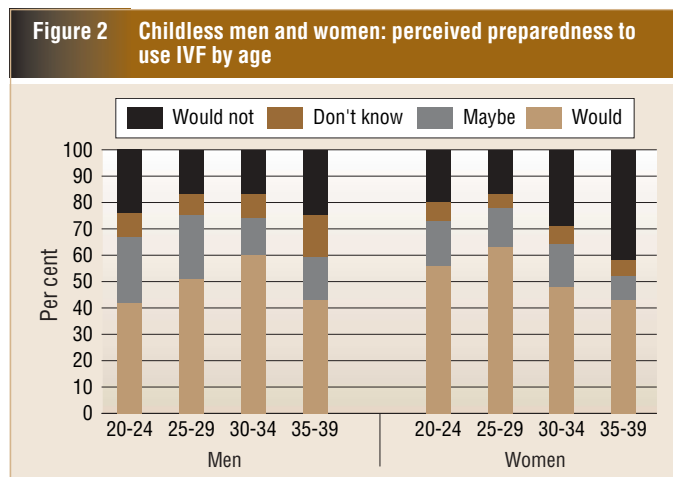
	Men	Women	All
Would use	41.1	42.1	41.7
Would not use	33.4	40.6	38.1
Maybe	18.4	12.8	14.7
Don't know	7.1	4.5	5.4
Total	100.0	100.0	99.9
N	560	1048	1608

Table 1 shows that just over 40 per cent of men and women felt that they would use IVF, while 13–18 per cent believed that they might do so. Another 5–7 per cent were unsure. In total, a slightly higher proportion of women than men believed that they would *not* seek such treatment (41 per cent compared with 33 per cent).

Not surprisingly, beliefs about preparedness to use IVF varied according to the number of biological children respondents already had. Figure 1 shows that those without children were the most likely to believe that they would use IVF (50–56 per cent) and the least likely to believe that they would not do so (20–22 per cent), while those with two or more children were the most likely to reject the notion of seeking treatment (59–68 per cent) and the least likely to accept this idea (22–32 per cent).



Among childless respondents, beliefs about preparedness to use IVF varied significantly according to the age of female respondents but not according to the age of male respondents (Figure 2). Women in their thirties were significantly less likely than women in their twenties to believe that they would seek such treatment (42–48 per cent vs 56–64 per cent). In fact, childless women in their late thirties were the most likely of all childless groups, including men, to state that they would not use IVF (42 per cent vs 17–29 per cent). Furthermore, women in their late thirties were just as likely to believe that they would or would not seek such treatment (42 per cent), with the remainder expressing some level of uncertainty.



On face value, this pattern of results is difficult to interpret because the proportions of childless men and women who indicated that they “definitely” or “sort of” did not want children increased progressively with age (women: from 8 per cent to 31 per cent for those in their early twenties and late thirties respectively; men: from 6 per cent to 30 per cent respectively). This is to be expected, given that many of those who wanted children would have already become parents by the time they were in their late thirties. Some who did not want children may have always felt this way; others may have decided that they were now too old to adjust to parenting. The following analysis therefore focuses on childless respondents who indicated that

they “definitely” wanted to have children. Owing to the small sample size, the respondents were grouped into two (rather than four) ages: those in their twenties and those in their thirties.

Of childless men who “definitely” wanted children, those in their thirties were more prone than those in their twenties to believe they would use IVF (69 per cent vs 47 per cent), but the opposite trend emerged for the childless women who “definitely” wanted children: 52 per cent of the women in their thirties and 66 per cent of those in their twenties believed they would use IVF. It is noteworthy that these gender differences in age-related patterns of beliefs continued to hold for the childless men and women who indicated that both they and their partner definitely wanted to have children – the older men were more likely than the younger men to believe that they would seek IVF, while the older

desire for children are likely to be particularly unreliable, owing to the small sample size (13 men and 26 women).

As noted above, it can be difficult for people to predict how they would behave if confronted with circumstances that they have not so far experienced. In total, 57 respondents reported that they and their partner were unlikely to be able have children together without the use of IVF (15 men and 42 women). It appears that these respondents were less likely to indicate that they would use IVF compared with those respondents who were not aware of any physical problems in either themselves or their partner (25 per cent vs 43 per cent). The number of respondents in this group was too small to justify a comparison of their beliefs about their propensity to use IVF with those of other respondents, while controlling for the effects of gender, age and family size.

Postponement of childbearing or planning to meet other needs may be encouraged by an over-confidence in IVF as a fallback option.

women were less prone than the younger women and older men to believe they would take this action.

How can these gender- and age-related trends be explained? One possibility is that, of all childless respondents who definitely wanted children, the older women may have been more inclined than others to have confronted the real prospect that they may have to resort to the use of IVF – procedures that are invasive and not only involve much discomfort and disruption for women in particular, but also carry the threat of great disappointment for the couple. Given that men are typically older than their partner, those in their thirties may tend to feel that “time is still on their side”. In other words, the IVF option may become less attractive to women when they feel they may well need to make a choice about seeking such treatment in the near future.

Figure 3 replicates the above analysis for parents. Across the five-year age groups, 22–36 per cent of parents believed that they would use IVF, while 45–64 per cent believed that they would not do so. (Percentages were not derived for the 12 fathers aged 20–24 years). These results may be linked with age differences in family size. For instance, the oldest group was more likely than the youngest group to have at least two children (fathers: 31 per cent vs 75 per cent; mothers: 36 per cent vs 79 per cent). Nevertheless, patterns of responses presented for the youngest and oldest fathers were fairly similar (58–64 per cent said they would not use IVF; 23–28 per cent said they would). Once again, women (this time mothers) in their thirties were the most likely to believe that they would not use IVF (64 per cent vs 45–51 per cent).

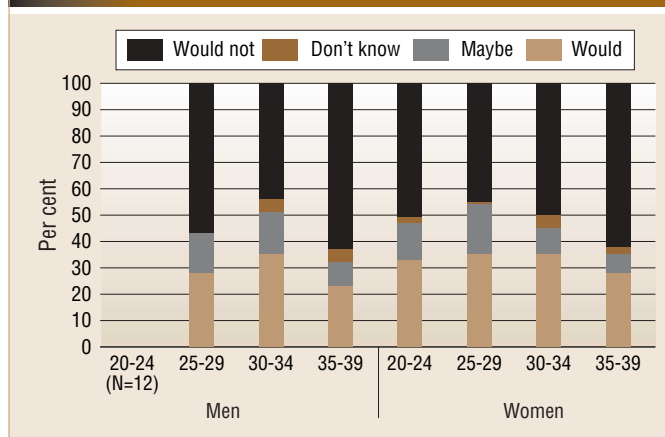
Interestingly, the general patterns apparent in Figure 3 continued to hold for fathers and mothers who indicated that they “definitely” wanted another child as well as for those who indicated that *both* they and their partner “definitely” wanted another child. However, trends for parents aged in their late thirties who indicated that they and their partner shared a definite

Another 133 respondents indicated uncertainty about their ability to have a child with their partner without the use of IVF. For some, uncertainty may simply arise from the view that they could never really find out about their ability to have a first or additional child until they tried to have such a child. Given the difficulty in interpreting the meaning behind statements of uncertainty and the small sample size, the trends outlined below should be treated with caution. They may, however, suggest hypotheses that form the basis of future research.

Were these 133 respondents who indicated fertility uncertainty any more or less inclined than others to believe that they would use IVF if they wanted to have a first or additional child? A slightly higher proportion of these respondents than others were in their thirties (men: 64 per cent vs 52 per cent; women: 59 per cent vs 53 per cent) and had only one child (men: 22 per cent vs 18 per cent; women 31 per cent vs 20 per cent). These differences were not statistically significant.

Compared with other respondents, a slightly higher proportion of those who indicated fertility uncertainty

Figure 3 Parents: perceived preparedness to use IVF by age



reported that they would use IVF should they confront difficulties in having a child (50 per cent vs 42 per cent) – a pattern of results that was consistent for both men and women, regardless of whether they were parents or childless. Once again, the difference was not statistically significant owing to the small sample size.

Views about the success of IVF

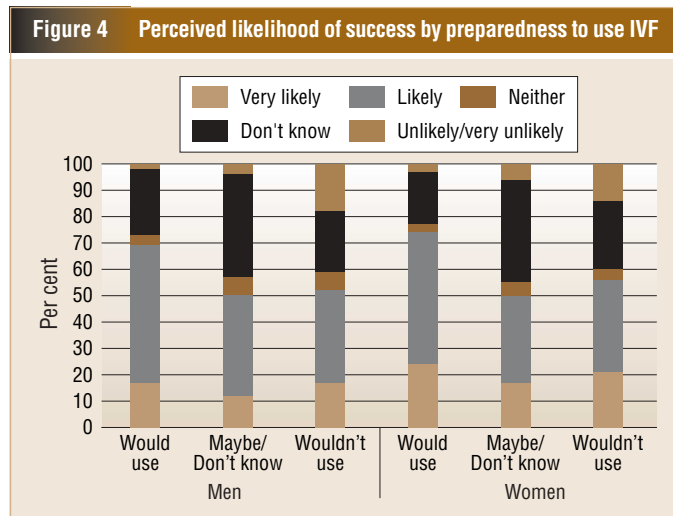
Respondents who were asked about their preparedness to use IVF were also asked to indicate their chances of having a child through the use of such treatments. The response options provided to these survey participants were: “very likely”, “likely”, “neither likely nor

unlikely”, “unlikely” or “very unlikely”. Statements such as “don’t know” that were volunteered by respondents were also recorded. The following analysis focuses on the proportion of men and women (taken separately) who provided these different answers. First, patterns of answers of all men and women are compared. This is followed by an examination of the patterns of answers provided by childless respondents and by parents (taken separately). Finally, the answers of different age groups of childless respondents then of parents are compared.

Table 2 shows about 60 per cent of the men and women believed that they or their partner were likely or very likely to achieve conception if they used IVF, with 19 per cent stating that success was very likely. Only around 8 per cent considered the prospect of success to be unlikely or very unlikely, while around 30 per cent expressed uncertainty (or said that success was “neither likely nor unlikely”).

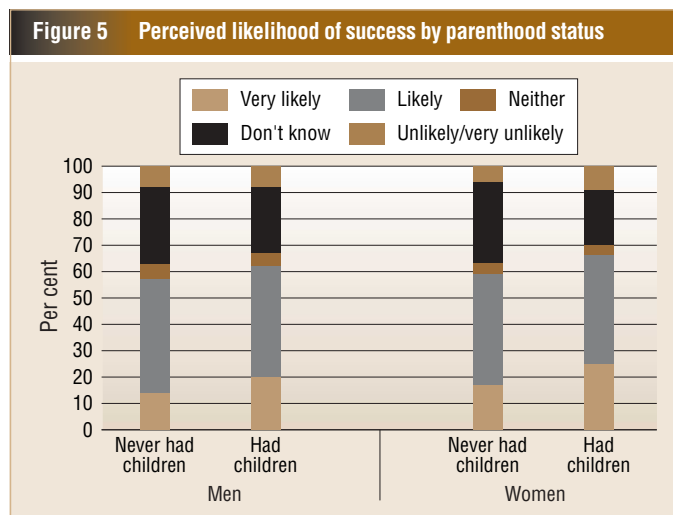
The perceived likelihood of having a child through IVF cannot be compared directly against the rate of live births from IVF, given that the number of treatment cycles received varies. That is, failure of one cycle may result in additional cycles or termination of treatment. Nevertheless, the pattern of results in Table 2 does suggest that men and women are generally more optimistic about having a child through IVF than the clinic data suggest.

	Men	Women	All
Very likely	15.7	21.3	19.3
Likely	42.9	41.2	41.8
Unlikely	6.1	6.9	6.6
Very unlikely	1.8	0.9	1.2
Neither likely nor unlikely	5.4	4	4.5
Don't know	27.9	25.3	26.2
Refused	0.4	0.5	0.4
Total	100.2	100.1	100.0
N	560	1048	1608



Not surprisingly, those who believed that they would use IVF were more inclined than others to consider that success would be likely or very likely (men: 69 per cent vs 50–53 per cent; women: 75 per cent vs 50–56 per cent). This pattern of results is depicted in Figure 4.

While childless men and women were more inclined than parents to believe that they *would use* IVF if they encountered problems having children, much the same proportion of childless men and fathers felt that their partner was likely or very likely to conceive through IVF (57–61 per cent). The childless women, on the other hand, were less certain than mothers about the success of achieving pregnancy through IVF (59 per cent vs 66 per cent considered that they were likely or very likely to achieve pregnancy; 35 per cent vs 25 per cent expressed uncertainty).



On face value these results may suggest that achievement of parenthood did not lead to an increase in confidence in the ability to have a child through the use of IVF. However, the results fail to take into account the fact that parents were generally older than those without children. But does confidence in IVF decline with age?

As noted above, the success of IVF is considerably greater for younger than older women. This issue has led to a recently established review of the funding of treatments for women of different ages. However, Figures 6 and 7 show that the level of optimism about having a child through the use of IVF did not vary significantly according to respondents’ age. This non-significant result applied to both mothers and fathers, as well as to both childless men and women (taken separately). Of course, some respondents who believed that they would not use IVF may have felt this way because they were pessimistic about its success.

There is a need for raising public awareness about the pitfalls of postponing childbearing and the age-related success rates of IVF.

Summary and conclusions

Since the birth of Australia's first IVF baby 25 years ago, assisted reproductive technology (here called IVF) has advanced rapidly, thereby enabling an increasing number of Australian couples to have children. But, consistent with age-related trends in women's ability to have a child naturally, the success of IVF declines after women reach the age of thirty. This is particularly problematic given that parenthood is increasingly being postponed. The *Fertility Decision Making Project* suggests that most men and women in their twenties and thirties wanted at least two children and only 6–8 per cent wanted to be childless (Weston et al. 2004). Yet the ABS projects that nearly one-quarter of women in their early childbearing years will never have children (ABS 2001).

Given the age-related progressive decline in women's ability to have children, coupled with increases in postponement of childbearing and progressive advancements in IVF, it is not surprising that the use of IVF has increased markedly over the last two decades. The present analysis shows that many men and women (42 per cent) who are in their reproductive years believe that they would use IVF if they encountered difficulties in having children.

While most fathers and mothers in this study rejected the notion of using IVF if they encountered fertility problems, most childless men and women were at least open to the idea of using IVF. In fact, the majority of childless women in their early and late twenties, and childless men in their early thirties, believed that they *would* use IVF should they face difficulty in having a child. Even if such people change their mind later, their current beliefs may add credence to any current decision to postpone attempts to have a child or to postpone all thoughts about childbearing.

Overall, the majority of men and women believed that they were likely or very likely to succeed in having children through the use of IVF. While a sizeable minority expressed uncertainty about this matter, only a small proportion expressed pessimism. Optimism about the success of IVF may strengthen confidence in a belief that attempts to have a child can be safely postponed.

A key finding in this analysis is that, despite the declining live-birth rate from IVF with increasing age, those in their late thirties were just as likely as those in their twenties or early thirties to be optimistic about their ability to have a child through the use of IVF. These results suggest that many people of childbearing age are unaware of the importance of the female partner's age in determining the chance of having an "IVF baby".

There is thus a need for raising public awareness about the pitfalls of postponing childbearing and the age-related success rates of IVF. Otherwise, some people

who continue to postpone attempts to have children may have the mistaken impression that IVF will be a viable fallback option for them.

References

- ABS (2001), *Births Australia 2000*, Catalogue No. 3301.0, Australian Bureau of Statistics, Canberra.
- Alesi, R. (2005), "Infertility and its treatment: An emotional roller coaster", *Australian Family Physician*, vol. 34, no. 3, pp.135-138.
- Bryant, J., Sullivan, E.A. & Dean, J.H. (2004), *Assisted reproductive technology in Australia and New Zealand 2002*, Assisted Reproductive Technology Series Number 8, Australian Institute of Health and Welfare, National Perinatal Statistics Unit, and the Fertility Society of Australia, Canberra.
- Dean, J.H. & Sullivan, E.A. (2003), *Assisted reproductive technology in Australia and New Zealand 2000 and 2001*, Assisted Reproductive Technology Series Number 7, Australian Institute of Health and Welfare, National Perinatal Statistics Unit, and the Fertility Society of Australia, Canberra.
- Weston, R., Qu, L., Parker, R. & Alexander, M. (2004), "It's not for lack of wanting kids": A report on the Fertility Decision Making Project, Research Report No. 11, Australian Institute of Family Studies, Melbourne.

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Figure 6 Childless men and women: Perceived likelihood of success by age

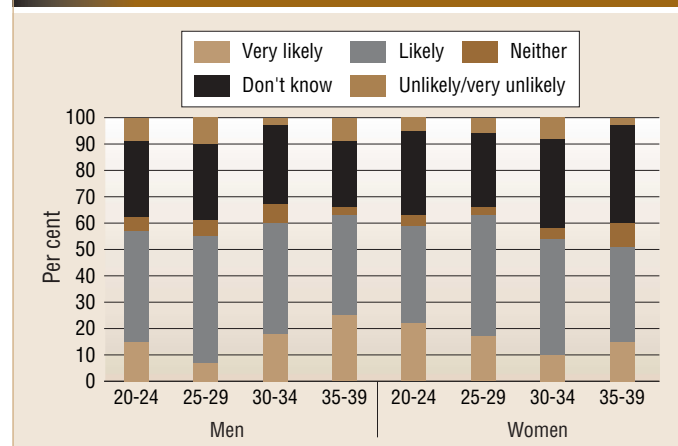


Figure 7 Parents: Perceived likelihood of success by age

