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# Male broodiness: Does the desire for fatherhood affect men?

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The objective of this study was to assess the level of the desire for parenthood (broodiness) in childless men compared to non-parents and parents. Parenthood brings a high social status. The majority of studies examining reproductive intentions and behaviour have concentrated on women and couples. However, there are very few studies exploring men's desire for fatherhood. This study is a sequential quantitativequalitative mixed-methods online survey on the influences, motivations, and reasons for men and women's desire for parenthood. The quantitative data was analysed using descriptive, univariate and bivariate techniques. Qualitative data were analysed using a latent thematic analysis. Recruitment was by the snowball email method. The sample was formed of 232 respondents with a mean age of 41.37 years (SD = 10.83), a central tendency of female, the majority were White British, degree educated, professional, and heterosexual. The main finding identified non-parent females and males showed similar levels of desire for parenthood with females scoring slightly higher than males. A higher number of childless men desired parenthood (51.9%) than did not (25.9%). For non-parents economic and social factors were the main influences on the decision for parenthood. Female and male parents demonstrated an equal desire not to repeat parenthood. The results from this study did not support the hypothesis (and common belief) that men are not interested or affected by the desire for parenthood. Compared to equivalent women, childless men may experience higher levels of depression and isolation.

**Keywords:** childless; depression; isolation; male broodiness; parenthood

This paper is based on my MSc study (Hadley, 2009a) which examined the responses, motivations and reasons associated with, and incidence of, the desire for parenthood in females and males, parents and non-parents. The results from my MSc were integral to a poster (Hadley, 2013a) presented at the 2013 British Sociological Associations Annual Conference. The finding that childless men were more depressed and isolated than equivalent women received much international press attention (Hadley, 2013b; Hodgekiss, 2013; Kafcaloudes, 2013; Lerner & Bratt, 2014). This piece provides further details of the study.

In 2015, there were approximately 141 million babies born worldwide and the projection for 2020 is 140.66 million. Nonetheless, the global total fertility rate has fallen from an average of 5 children per mother in 1965 to below 2.5 in 2015 (Ritchie, 2019; Roser, 2014). In addition to the decline in fertility, there has been a global trend of increased longevity, which has resulted in growing populations that are increasingly ageing and without children (Greulich, 2018; Organisation for Economic Co-operation and Development, 2018). However, in the vast majority of societies, biological parenthood is a structurally embedded, highly valued, and atypical and expected part of the life cycle (Neugarten, 1969, p. 125). For example, the pronatalist ideal of parenthood is exemplified in religions and other sociocultural practices and structures (Monach, 1993). The vast majority of societies have expectations linked to age/stage transitions across the life course with attendant roles and meanings surrounding each phase (Becker, 1999; Goldberg, 2014) with the transition to parenthood one of the most significant people make (Eggebeen et al., 2012). Indeed, Becker (1999) argues that not becoming a parent is a 'non-transition' that has to be negotiated just as has a transition. Moreover, many studies demonstrate the majority of younger people report the intention to become parents (e.g., Acharya & Relojo, 2017; Riskind & Patterson, 2010; Sylvest et al., 2018; Thompson & Lee, 2011).

Lampic et al. (2006) investigated the fertility intentions, issues and attitudes of 222 female and 197 male Swedish university students with a mean age of 24 years. Results indicated that the majority of childless students (both female and male) wanted to have children at some point. However, females expressed unease about balancing childcare and work and indicated concern regarding the effect of motherhood might have on their career. Interestingly, the authors noted that one of the limitations of the study was the low response rate of males. Contemporary studies have highlighted that gay men and lesbians are interested in parenthood (Smith et al., 2019). In a study of gay (n = 628) and heterosexual (n = 638). Kranz et al. (2018) found that 89.7% of heterosexual men and 76.4% of gay men expressed a wish for fatherhood. In a study of gay and lesbian youth in New York, 86% of the men (n = 83) and 98% of the women (n = 50) expected to become parents in the future (D'Augelli et al., 2007).

The demographic changes resulted in the development of models that would detect and calculate the influences on people's fertility intentions (Hoffman & Manis, 1979; Schoen et al., 1997; Schoen, et al., 1999). Initially, studies concentrated on structural items such as the social value (costs and benefits) of children to parents and social and economic categories (Hoffman, 1975). However, the cost-benefit analysis approach was criticised for reflecting the parent's decision to stop having children rather than people's intention to become parents (Hoffman & Manis 1979). Later, van Balen and Trimbos-Kemper (1995) proposed that costs did not deter childless couples. Additionally, Bagozzi and Loo (1978, p. 318) argued that 'to accurately predict fertility one must examine the attitudes and social relationships of families'. Subsequently, studies that included attitudes and intentions items proved that fertility outcomes were reliably predicted by measuring fertility intentions (Langdridge et al., 2000; Schoen et al., 1999). A study of infertile Dutch couples found happiness, parenthood and well-being were the highest motivators while women showed a stronger desire for parenthood than men (van Balen & Trimbos-Kemper, 1995). Langdridge et al. (2000) study of expectant and Assisted Reproductive Technology (ART)ready British couples found three core motivators for parenthood: 'give love', 'receive love', and 'become a family'. Nevertheless, many scales were criticised for employing different items and measurements, lack of generalisability, and unacknowledged sociocultural commonalities and differences (Armitage & Conner, 2001; Langdridge et al., 2005; Purewal & van Den Akker, 2007).

To consolidate scales, Langdridge et al. (2005, p. 125) developed the *Reasons for Parenthood Scale*. Uniquely, this study included the fertility ideations of both female and male 'intenders' and 'non-intenders' (Langdridge et al. 2005, p. 125). The sample consisted of White British, married, childless couples (men, n = 393; women, n = 481), aged 18–40. The main reasons the 'intenders' cited were 'aspiration', 'bond with child', 'bond between parents', 'centrality of the family', and 'give love'. Female and

male non-intenders cited that 'other things' were more important than parenthood. Male non-intenders listed 'career', 'freedom', and 'responsibility'; while female non-intenders cited 'partners wishes' as their main reason (Langdridge et al., 2005, p. 128). The intention to become parents decreased with age and length of marriage increased (Langdridge, et al. 2005, p. 131). Importantly, all respondents emphasised the significance of their partner's attitude in fertility decision-making (Langdridge, et al. 2005, p. 131). Moreover, European research demonstrated that age, ethnicity, and gender differences influenced fertility intentions (Bos et al., 2003; Rooij et al., 2006). Critics of quantitative fertility behaviour scales argued that the inherent deterministic foundations did not account for people's subjective experience and relational processes (Purewal & van Den Akker 2007, p. 79).

The historical attitude that fertility and family formation are relevant only to women led to the observation there was a relative paucity of data on men's fertility intentions and history (Dykstra & Keizer, 2009; Murphy, 2009). For example, many sociological studies concentrated on measuring women's marital status, experiences, fertility intentions, age at first birth, and family size (Dykstra & Keizer, 2009; Murphy, 2009). Inhorn et al. (2009, p. 1) argued men have been marginalised as the 'second sex' in all academic fields relating to reproduction because of the false assumption that men are not interested and disengaged from reproductive ideation and outcomes. Following their systematic review of international academic literature Hammarberg et al. (2017), found there were few population studies on men's desires, expectations and hopes of fatherhood. Their examination of 47 papers from 14 countries revealed the majority of men want and expect to become fathers, view parenthood as crucial for lifetime contentment and fulfilment and wish for at least two children. Also, they found that men have an equivalent desire for parenthood as women and as with women, the most common reason for men remaining childless was not finding a partner (Hammarberg et al., 2017, p. 478). In addition to finding a suitable and willing partner, men's requirements for parenthood included career and financial stability and being at the right age/stage. Consequently, there has been a growing recognition that the majority of research literature and public media concerning parenthood has focused on women and couples with little interest on the impact of fatherhood or male childlessness (Eggebeen & Knoester, 2001; Fisher & Hammarberg, 2017; Hadley, 2019b; Hadley & Hanley, 2011; Throsby & Gill, 2004).

Historically, fatherhood has only been measured as a component of the cultural, legal, and societal structure that dictated 'rights, duties, responsibilities and statuses' (Hobson & Morgan, 2002, p. 11). However, from the 1990s onwards, there has been an increased interest in fatherhood, fathering and fathers (Dermott, 2008; Eggebeen & Knoester, 2001; Hadley, 2019a; Lupton & Barclay, 1997; Miller, 2010). In the US, Eggebeen and Kester's (2001, p. 392) analysis of data (n = 3088) from two waves of the National Survey of Families and Households found that 'Fatherhood can profoundly shape the lives of men'. Moreover, they found strong evidence that men who made the transition to fatherhood behaved differently to non-fathers. Eggebeen and Knoester (2001) identified that fatherhood led improved well-being, and increased social involvement concerning familial interactions, community activities and work hours.

Keizer and Ivanova (2017) studied the impact of childlessness in relationships of 326 childless individuals in 163 couples aged 40 and over. Their findings revealed that the 'implications of childlessness are no less significant for men than for women' (p. 314). For example, childless men were more strongly affected by relationship conflicts than childless women and more at risk of physical and mental ill-health than childless women (2017, pp. 324–327). Zhang and Hayward (2001) discovered that compared with women in similar circumstances, divorced, never married and widowed, childless men reported higher rates of loneliness. Divorced and widowed childless men also revealed higher rates of depression than comparable women did. In the Netherlands analysis of the Health and Living Conditions of the Population of the city Eindhoven and surroundings found that compared to men who have fathered two or more children, childless men have a higher risk of mortality (Keizer et al., 2012). Likewise, analysis of the Norwegian Central Population Register and the education register demonstrated that compared to equivalent fathers, childless men in late mid-life had higher mortality (Grundy & Kravdal, 2008). Similarly, Weitoft et al., (2004) study of Swedish Census, Health, Multi-Generation, and Death registers found that compared to resident fathers, lone childless men and lone non-custodial fathers had a greater risk of death through addiction, external violence, injury, lung and ischemic heart disease, poisoning and suicide.

## **HYPOTHESIS**

The review of the literature highlights the absence of data on men's reproductive motivations. One of the central issues raised in my previous study (Hadley, 2008) was the prevalence of male broodiness. Biological yearning, nurturing, and parenting are mostly associated with women. Consequently, it is considered natural and socially acceptable for women to desire (biological) parenthood (Gillespie, 2003). How do males and females compare in terms of broodiness and what factors influence the decision to the parent (or not)? For those already in the parous state, what factors influence the decision to repeat parenthood? Therefore, areas to be examined include the following research questions: (1) How widespread is male broodiness in childless men? (2) What is the incidence of male broodiness compared to female broodiness? (3) What factors influence the decision to parent? (4) Is there a difference between those with and those without children? (5) What are the reactions associated with broodiness?

These questions contribute to previous research and therefore this study tests five hypotheses: (1) It is predicted there will be a difference between the numbers of childless men who desire parenthood and those that do not. (2) It is predicted that there will be a difference in the desire for parenthood between non-parents and parents, both female and male. (3) It is predicted that parents and non-parents, both male and female, will have different factors that influence the decision to parent. (4) It is predicted that there will be differences in the reasons that influence the decision to parent between non-parents and parents. (5) It is predicted there will be differences in the reactions associated with broodiness, between non-parents and parents, both male and female.

#### **METHOD**

To examine the issues surrounding the desire for parenthood mixed methods approach was chosen. Mixed methods are particularly suited to understanding complex phenomena as studies 'delve below the surface' and 'seeks to explicate the behaviours, rituals, language, symbols, values and social structures' (Newman et al., 2003, p. 178). This reflects the aims of this study to understand the incidence and consequences of men's desire for parenthood. Mixed methods are founded on pragmatism (Rorty, 2000) and use diverse approaches via 'logical and practical alternative' (Johnson & Onwuegbuzie, 2004, p. 17). For example, in mixed methods research, Teddlie and Tashakkori (2003) argue that the research question has greater significance than either the theoretical framework or the underpinning method (Hanson et al., 2005).

## **Setting**

The setting was online, and recruitment was via email and snowball method.

## Design

A sequential exploratory mixed-methods quantitative-qualitative design was selected as it is a well-established method that is 'suited to explaining and interpreting relationships' (Teddlie & Tashakkori, 2003, p. 227).

The study conformed to the University of Manchester ethical policy and approved by the course director. The ethical structure used was framed by the ethical research policies of the British Association for Counselling and Psychotherapy (BACP, 2009), the British Psychological Society (BPS, 2006) and the British Educational Research Association (BERA, 2004).

#### **Data collection**

An online survey questionnaire was used to measure the influences, motivations, and reasons that may affect the decision to parent. Surveys are a popular form of research instrument as they potentially access a large sample. As the survey had a limited time for the deployment period, an online instrument was chosen and was delivered by email. Online-based surveys are relatively cheap to administer and have the advantage of anonymity being easily built into the design. Malik & Coulson (2008) found the anonymity of a web-based message board led men to reveal more of their concerns regarding matters surrounding

their infertility. The survey is in the form of a self-report questionnaire. A non-experimental method, surveys do not control variables to study change and affect (Punch, 2003).

The survey was created using the default option of the University of Manchester's Select Survey ASP software package. Respondent access was via embedded web-link in an email message: the respondent only had to select the link to connect with the survey page. Security level allowed only a single entry; multiple entries from one individual were not possible. Included in the instrument was a unique item attempting to measure the reactions associated with broodiness. Open questions were integrated into the survey to provide detail of the respondent's life experience and, also, aid validity by providing feedback on the survey. The exclusion criteria were included: not completing the mandatory questions ('informed consent agreement', 'What is your gender?', 'Are you a parent?'), being under 16 years old, not agreeing to the consent form, and not completing the whole survey.

The survey was based on two pilot surveys and the works of Muijs (2004; 2008), Oppenheim (1992), Keith Punch (2003; 2005) and Robson (2002). Given the sensitive nature of the subject, respondents were given the response-option of 'choose not to answer'. The response-option of 'other, please specify' was used with several items and provides information for the further development of the study. Concerning the language used in the survey, items and response-options were drawn from various sources; my previous study (Hadley, 2008), the pilot study (Hadley, 2009a), Lampic et al. (2006), Langdridge et al. (2005), Thompson and Lee (2008). The survey comprised of three elements over six pages: (1) introductory statement and informed consent agreement question; (2) questionnaire; and (3) information.

## Introductory page

The first page of the survey introduces a statement that outlines the purpose, reasons, and background of the study. It is common practice for surveys to offer inducements to potential participants, therefore I informed readers that due to the self-funding status no reward would be offered (Muijs, 2004). This was followed by a 'snowball' request to forward the link onto other parties. The statement concludes with a declaration regarding ethical issues such as confidentiality and data storage. The statement was followed by the mandatory informed consent 'Yes/No' agreement (question one). On selection of 'Yes', the respondent was taken to the questionnaire element. Selection of 'No' or not selecting, terminated the survey.

## Questionnaire

The questionnaire element of the survey comprises of 29 questions in a variety of formats: dichotomous, open, and scaled. The use of different formats aids retain the participants' attention and also acts as a form of validity check (Punch, 2003). The questionnaire was divided into five modules:

- Attitude to becoming a parent/parenthood.
- Attitude to becoming a parent for non-parents
- Attitude to repeating parenthood.
- A few more facts about you.
- Finally

## First module: Attitude to becoming a parent/parenthood

The first page of the questionnaire entitled 'Attitudes to becoming a Parent/Parenthood' consists of a brief guide to the survey followed by five items, with mandatory questions two ('what is your gender?') and six ('are you a parent?'). Questions - three, four, and five were to 'relax' the respondent so they are not trying to give the 'correct' answer. Here respectfully, data on the participant's age, employment and religion were gathered. The response-options for question four, 'How would you classify your employment' were developed from Langdridge et al. (2005) and the Office for National Statistics (ONS, 2008). Question 6, 'Are you a parent?' filtered the respondents into those without children from parents using a yes/no answer. Those without children are automatically taken to the page 'Attitudes to becoming a parent for non-parents' consisting of questions seven through to twelve. Parents are taken to the page 'Attitudes to repeating parenthood' comprising of questions 13 to 19.

Second module: Attitude to becoming a parent for non-parents

- Question 7 (dependent variable): 'Do you wish to become a parent?' Five response-options: Yes / No / Don't know / Undecided / Choose not to answer. The following four items measured the level of 'wish' and influences on intention to parent.
- Question 8: 'How much do you want to be a parent?' Response-options: Not at all / Not bothered / A little / A lot / Not at all / Don't know / Choose not to answer. The scaling order was switched to retain participant attention.
- Question 9: 'Which of the following may influence your decision to become a parent?' Against items: 'Accommodation' / 'Age' / 'Career' / 'Finance' / 'Own health' / 'Health of others'.
- Question 10: 'Do any of the following influence your decision in becoming a parent?' Against items: 'Biological urge' / 'Cultural/societal expectation' / 'Family expectation' / 'Personal desire' / 'Religious/spiritual belief' / 'Global population issues.'
- Question 11: 'Which of the following reasons may influence your decision in becoming a parent?' Against items: 'Children complete a relationship' / 'Continue the family name' / 'Current relationship' / Ex relationship' / 'Feel parent child bond' / 'Future relationship' / 'Give love and affection' / 'Give my experience of childhood to my children' / Improve on my experience of childhood' / 'I want a child' / 'I do not want a child' / 'Parent(s) want to be grandparent(s)' / 'Please family' / 'Receive love and affection' / 'Religious beliefs.'
- Question 12 was an open question, 'Please add any comment you wish to make in the box below. For example, if your situation is not represented.'

Third module: Attitude to repeating parenthood

In this module, the focus is on those who are already parents.

- Question 13 asks the respondent to select what type of parent they are: Biological parent / Non-biological parent / Foster-parent / Step-parent / Other, please specify.
- Question 14 (dependent variable): 'Do you wish to become a parent again?' Response-options:
  Yes / No / Don't know / Undecided / Choose not to answer. These response-options were used
  against the following four items and were identical to the response items in the non-parent
  module.
- Question 15: 'How much do you wish to have another child?'
- Question 16: 'Which of the following may influence your decision in becoming a parent again?'
- Question 17: 'Do any of the following influence your decision in repeating parenthood?'
- Question 18: 'Which of the following reasons may influence your decision in becoming a parent again?'
- Question 19 (repeat of Question 12): was an open question 'Please add any comment you wish to make in the box below. For example, if your situation is not represented.'

Fourth module: 'A few more facts about you'

This module sought reactions to 'broodiness' and indicators of the respondent's ethnicity, faith, level of education, employment type, and sexual orientation. Research has not investigated 'broodiness' but focused on the intentions to become parents or the effects of infertility.

• Question 20: 'To what degree have you had any of the following reactions to broodiness?' This query was located at this point for three reasons. First, the respondents would have connected to their experience of broodiness. Second, this module encompassed those without and parents in this module. Third, should respondents choose not to answer any of the questions at least some data would have been collected? Aware of the sensitivity surrounding the subject I adapted the wording of the response-option, and the scaling was also switched. The response-options 'Unsure' and 'Does not apply' replaced 'Don't know' and 'Not bothered.' The replacement response-options were drawn from previous pilot studies (Hadley, 2009). This question was set against eleven items: 'Anger' / 'Denial' / 'Depression' / 'Elation' / 'Guilt' / 'Isolation' / 'Jealousy' / 'Relief' / 'Sadness' / 'Yearning' / 'Withdrawal'.

The remaining five questions describe the representativeness of the sample:

- Question 20: 'How would you describe your ethnicity?' The ethnic categories were drawn from the ONS (2006). On selecting the box, a list of various ethnicities appears, and the respondent can either select the most appropriate or supply their own. The survey was designed for respondents from outside of the UK to complete the item.
- Question 22: 'What faith are you' had six response-options mainly drawn from the ONS (2003):
  Agnostic / Buddhist / Christian / Hindu / Muslim / Jewish / Other, please specify. The first
  response-option was included following pilot study feedback. This question formed a validity
  check with question five.
- Question 23: 'What is your highest level of educational qualification?' Response-options based on ONS (2005) criteria: 'O' level GCSE/ 'A' level GCSE / Degree (or above) / Skill (National Vocational Qualification, City and Guilds etc.) / Other, please specify.
- Question 24: 'How would you classify your employment?' This item formed a validity check with question four and consisted of eight response-options: Clerical / Homemaker / Managerial / Manual / Professional / Skilled / Student / Other, please specify. Response-options were drawn from the ONS (2008) and Langdridge et al. (2005).
- Question 25: 'How would you describe your sexual orientation?' This item consisted of six response-options: Bisexual/Gay/Heterosexual/Lesbian woman/Choose not to answer/Other (please specify). These response-options were drawn from research by King et al. (2008).

#### Fifth module

This module consists of five questions to generate information for a future study.

- Question 26: 'If a further study takes place would you be interested in participating via one or more of the following methods?' This item had six response-options: Diary / Email contact / Focus group / Personal interview / Telephone interview / Web site chat room/discussion board / Other, please specify. These options were drawn from Punch (2005) and Robson (2002).
- Question 27: 'Please let me know how you found completing the survey.' This item consisted of five response-options: I had no problems / I had a few problems / I had a lot of problems / Some questions were vague / Some answers were vague. I included this item as a validity check on the survey as a whole and as development aid for a future study.
- Question 28: 'Please supply the problem(s) you encountered in this box.' This item enabled the respondent to give details of any issues they had had in completing the survey.
- Question 29: 'Please supply any further comments you would like to add.' The aim was to encourage engagement in the hope new items and categories would be revealed.
- Question 30: 'I would be grateful if you would forward this survey on. If you do so, please indicate
  the number of people you have passed it on to in the box below. This will help me estimate how
  many people have received the survey.' Here the request to 'snowball' the survey was repeated
  and an explanation for the request supplied to aid 'ballers'.

The survey concluded with an information module that reiterated the purpose of the study, ethical policy, and use of the material in publications. Contact details of the researcher, the research supervisor and the course director were supplied.

### Sample

Only adults over 16 years of age were requested to complete the survey as this is the legal age for consensual sex in Great Britain (Public Helath England, 2015). No respondents indicated they were under the age limit. An estimated 2,000 requests to participate were sent. Forty-two respondents reported 'snowballing' approximately 160 requests. In total, two 298 responses were initially generated. Sixty-six were incomplete and removed from the study. A final dataset of 232 responses was produced from the Select Survey material. This was composed of 167 females and 65 males, giving a central tendency mode of 'female'. The study had a mean age of 41.37 years (SD = 10.83) with one participant not completing the age item. The youngest respondent was aged 20 years old and the oldest 65 years giving a median central tendency age of 40 years old with a range of 45 years (Field, 2009). Two hundred and 25 respondents

indicated their ethnicity with the majority of those being 'White British' (83.5%). The ONS (2003) criteria for 'White British' include those who indicated White followed by British, English, Scottish, or Welsh. The majority of participants were heterosexual (90.2%), white-British (83.3%), Christian (52.4%), held a degree or higher qualification (68.9%), professional (69.8%), and worked full-time (68%).

### **ANALYSIS**

## **Quantitative analysis**

The quantitative data were analysed using the Statistical Package for Social Sciences, Version 16 (SPSS, 2007). The statistical methods employed include parametric (descriptive statistics) and non-parametric tests (distribution-free tests): Mann-Whitney and Spearman's Rho. Parametric tests were used to test two the first and fifth hypotheses (respectively):

The first hypothesis, 'That childless men will have a similar level of broodiness to childless women' The fifth hypothesis, 'There will be differences in the levels of reactions between parents and non-parents, both male and female.'

Non-parametric tests are based on the frequency of occurrence or ranking of the data and the analysis applied to the ranks, rather than the raw data (Field, 2009). Due to size and distribution issues and the type of variables, Mann-Whitney and Spearman's Rho tests were applied to the data. These tests indicate the strength and direction of the relationship between items but not causality (Muijs, 2004). The Mann-Whitney test is a 'non-parametric version of the independent *t*-test' (Field, 2009, p. 540). This method was used to test the second hypothesis:

'There will be a difference between parents and non-parents, both male and female, in the incidence in the desire for parenthood.'

Spearman's rho calculates the correlation coefficients of ordinal variables and is recommended for 'small participant numbers...use Spearman's rho' (Dancey & Reidy, 1999, p. 524). This method was used to test the third and fourth hypotheses (respectively):

Fourth hypothesis, 'That parents and non-parents, both male and female, will have different factors that influence the decision to parent.'

The fifth hypothesis, 'There will be differences in the reasons that influence the decision to parent between parents and non-parents.'

## **Qualitative analysis**

An inductive thematic analysis (Braun & Clarke, 2006) was deployed. This method of analysis is not associated with any specific theoretical framework and therefore fits the pragmatic approach of this study. However, the objective of the analysis is focused on emerging themes, the analysis ends at stage four 'review themes' of the six stages. Coding of the data followed Rennie et al. (1988) method where the text is divided into categories of 'passages or meaning units' (Rennie, 2006, p. 67). Most replies are only a line or two long and these were carefully studied before being assigned into a category code. Codes were generated from my interpretation, previous studies and 'in-vivo codes' (Glaser & Strauss, 1967). The initial categories were then examined and compared and grouped into high order categories (Rennie, 2006). As categories were formed those with the greatest number of meaning units were selected for further examination. Following this, the high order categories were further refined, and themes identified. The coding was performed by hand, using scissors and envelopes labelled with the appropriate codes.

## **RESULTS**

In this section, the results of the analysis of both the quantitative and qualitative data are presented. Due to space restrictions, the focus of this section will mainly be on female and male non-parent's male and only summaries of the parent's responses will be supplied. To facilitate between-group comparisons

Questions 9, 10, 11, 16, 17 and 18 (Table 1). First, the desire for parenthood is explored. This is followed by an examination of the environmental, urges and beliefs and statements categories. Third, the broodiness item is examined, and the final section is a summary of the findings from the thematic analysis.

Table 1
Category Labels Applied During Creation of the Dataset

| Question  | Category label    |
|---|-------------------|
| Q 9: Which of the following may influence your decision to become a parent? Q16: Which of the following reasons may influence your decision to become a parent again? | Environmental     |
| Q 10: Do any of the following influence your decision in becoming a parent?<br>Q 17: Do any of the following influence your decision in repeating parenthood?         | Urges and Beliefs |
| Q 11: Which of the following may influence your decision in becoming a parent? Q18: Which of the following may influence your decision in becoming a parent again?    | Statements        |

Both non-parent items of 'environment' and 'statements' had high reliability, Cronbach's  $\alpha$  = .76 and Cronbach's  $\alpha$  = .70, respectively. However, the 'urges and beliefs' item had a low reliability, Cronbach's  $\alpha$  = .55 (discussed later). All the parent items 'environment' 'statements' and 'urges and beliefs' had high reliability, Cronbach's  $\alpha$  = .79, Cronbach's  $\alpha$  = .80, and Cronbach's  $\alpha$  = .83, respectively. The 'broodiness' scale had a high reliability, Cronbach's  $\alpha$  = .92.

The desire for parenthood in non-parents and parents

The sample size and distribution for some items prevented the use of Pearson's Chi-Square and phi. Therefore, a Mann-Whitney test was applied. The analysis for 'Do you wish to become a parent?' (M=1.00 [Yes]), U=995.000, z=-.688, p=.492, and r=-0.06 shows no significant difference between female and male non-parents and a weak effect. 'How much do you wish to become a parent?' (M=2.00 [A little]), U=817.000, z=-1.934, p=.053, and r=-0.18 shows the borderline significance and weak effect size. The analysis for both female and male parents for the item 'Do you wish to become a parent again?' demonstrated no significant difference and a weak effect: (M=2.00 [No]), U=1479.000, z=-1.047, p=.295, and r=-0.09. Similarly, for the item 'How much do you wish to have another child?' there was no significant difference and a weak effect: (M=4.00 [Not at all]), U=1561.500, z=-.318, p=.751, and r=-0.02.

The majority of non-parents wished to become parents (58.9%) with 48.1% indicating the maximum response level of 'A lot'. Of the females (n = 81) in the non-parent group (n = 107), 61.2% wished to become parents with the majority of those indicating the maximum response level of 'A lot' (51.9%). Males within the non-parent group (n = 27) indicated slightly less desire to become a parent (51.9%) than female non-parents. Female and male parents indicated an equal desire *not* to repeat parenthood.

Factors that influence the desire for children follow with results given in descending order of significance and effect. Noting the sample size issues with cross-tabulations, and with the type of the variable being ordinal, Spearman's rho was selected for the next analysis.

## **Environmental factors**

Question 9, 'Which of the following may influence your decision to become a parent?' examined environmental factors that may influence the desire to become a parent for non-parents. The non-parents demonstrated a range of significant outcomes and effect sizes, indicating positive relationships. Tables 2 and 3 show the influences for non-parent males and females, respectively.

Table 2
Environmental Influences on the Non-Parent Males in Deciding to Become a Parent

| Influences   | Rho  | р    |
|--|------|------|
| Career and finance: Significant and a moderate effect                  | .683 | .000 |
| Finance and others health: Significant and a moderate effect           | .681 | .000 |
| Career and others health: Significant and a moderate effect            | .587 | .001 |
| Career and accommodation: Significant and a moderate effect            | .522 | .005 |
| Own health and others health: Significant and a modest-moderate effect | .446 | .020 |
| Career and own health: Significant and a modest-moderate effect        | .438 | .022 |
| Accommodation and others health: Significant and a modest effect       | .394 | .042 |
| Accommodation and own health: Significant and a modest effect          | .388 | .046 |

Table 3
Environmental Influences on the Non-Parent Females in Deciding to Become a Parent

| Influences   | Rho  | р    |
|--|------|------|
| Accommodation and finance: Significant and a moderate effect           | .685 | .000 |
| Career and finance: Significant and a moderate effect                  | .556 | .000 |
| Accommodation and own health: Significant and a modest-moderate effect | .421 | .000 |
| Career and accommodation: Significant and a modest-moderate effect     | .416 | .000 |
| Own health and other health: Significant and a modest effect           | .379 | .001 |
| Finance and own health: Significant and a modest effect                | .319 | .004 |
| Career and age: Significant and a modest effect                        | .303 | .007 |
| Age and own health   | .266 | .019 |
| Accommodation and others' health: Significant and a modest effect      | .259 | .023 |
| Career and own health: Significant and a modest effect                 | .246 | .029 |

The results for non-parent males and females indicated significant and moderate to modest strength interactions across most constituent items for the group. 'Career and finance' was the most common link. However, the males showed a disposition towards health, with six out of eight items relating to health. Four of those six items concerned the health of others. Moreover, the males tended to put others before themselves. Females indicated health in five items, with three of those concerning their health.

The equivalent question (16) for parents was 'Which of the following may influence your decision to become a parent again?' Results indicated significant and moderate to modest strength interactions across most constituent items. The most common links were 'Own health' 'other health' and 'Age'. Differences between female and male parents were slight: females recorded 'Own and other health' and 'accommodation and finance' in first and second place. Male males placed 'own health and age' and 'career and finance' in first and second place.

## Urges and beliefs

Question 10, 'Do any of the following influence your decision in becoming a parent?' explored the relationships between urges and beliefs that may influence the desire to parent. The non-parents demonstrated a range of significant outcomes and effect sizes, indicating positive and negative relationships. The results for male and female non-parents are shown in Tables 4 and 5, respectively.

Table 4
Urges and Beliefs That May Influence the Desire to Parent for Male Non-Parents

| Influences   | Rho  | р     |
|--|------|-------|
| Family expectation and cultural/societal expectation: Significant and a very strong effect | .909 | .000  |
| Religious belief and cultural/societal expectation: Significant and a moderate effect      | .526 | .005  |
| Family expectation and religious belief: Significant and a modest-moderate effect          | .417 | .030  |
| Personal desire and biological urge: Not significant and a modest effect                   | .365 | .061* |

<sup>\*</sup>This result is included for comparison purposes.

Table 5
Urges and Beliefs That May Influence the Desire to Parent for Female Non-Parents

| Influences  | Rho  | р    |
|---|------|------|
| Family expectation and cultural/societal expectation: significant and a moderate effect     | .474 | .000 |
| Personal desire and biological urge: significant and a modest-moderate effect (             | .418 | .000 |
| Culture/societal expectation and global issues: Significant and a modest effect             | .353 | .001 |
| Family expectation and religious belief: Significant and a modest effect                    | .348 | .002 |
| Personal desire and family expectation: Significant and a modest effect                     | .299 | .007 |
| Personal desire and religious belief: Significant and a weak-modest effect                  | .243 | .032 |
| Religious belief and global population issues: Significant and a weak-modest effect         | .231 | .041 |
| Personal desire and global population issues: Significant and a weak-negative modest effect | .222 | .049 |

The results for Question 10 demonstrated significant and modest to moderate strength interactions across most constituent items for the group. 'Family expectation and cultural/societal expectation' was the most common link. Male non-parents demonstrated a very strong response to the influence of 'family expectation' and 'cultural/societal expectation'. Compared to the female group 'desire and biological urge' was not significant. However, it was the fourth rated item, and this indicates some males have both a 'personal desire' and a 'biological urge'. Moreover, the relatively small number of male respondents may have influenced this result. Female non-parents showed a disposition towards 'personal desire' with 'personal desire' and 'biological urge' showing the highest relationship, albeit with a moderate effect. 'Personal desire' and 'global population issues' highlighted a significant and negative relationship, suggesting that the two are not compatible.

The equivalent question (17) for parents was 'Do any of the following influence your decision in repeating parenthood?' Results indicated significant and modest to moderate strength interactions across most constituent items. Combinations of 'family expectation' 'cultural expectation' 'societal duty' and 'religious/spiritual belief' items were the most common link. Female and male parents gave similar responses. However, a disposition towards 'biological urge' was apparent with females recording it in the last four of 10 results. Males gave fewer results –just four - with the last incorporating the 'biological urge' and 'societal duty'. *Statements* 

Question 11, 'Which of the following reasons may influence your decision in becoming a parent?' and question 18, 'Which of the following reasons may influence your decision in becoming a parent again?' examined reasons that may influence the desire to become a parent or repeat parenthood. Due to the number of responses, only the first 15 results are provided. The results for non-parents are shown in Table 6.

Table 6
Urges and Beliefs That May Influence the Desire to Parent for Female Non-Parents

| Influences   | Rho  | р    |
|--|------|------|
| 'Feel parent-child bond' and 'give love and affection': Significant and a moderate effect                          | .636 | .000 |
| 'I do want a child' and 'Feel parent-child bond': Significant and a moderate effect                                | .544 | .000 |
| 'I don want a child' and 'give love and affection': Significant and a moderate effect                              | .534 | .000 |
| 'Feel parent-child bond' and 'receive love and affection': Significant and a moderate effect                       | .500 | .000 |
| 'Children complete a relationship' and 'continue the family name': Significant and a moderate effect               | .444 | .000 |
| 'Parents want to be grandparents' and 'give love and affection': Significant and a modest-moderate effect          | .415 | .000 |
| 'Receive love and affection' and 'give love and affection': Significant and a<br>modest effect                     | .410 | .000 |
| 'Children complete a relationship' and 'give love and affection': Significant and a modest effect                  | .390 | .000 |
| 'Give love and affection' and 'give my experience of childhood to my children':<br>Significant and a modest effect | .384 | .000 |
| 'I do want a child' and 'receive love and affection': Significant and a modest effect                              | .372 | .000 |
| 'Children complete a relationship' and 'future relationship': Significant and a modest effect                      | .356 | .000 |
| 'Children complete a relationship' and 'Parents want to be grandparents':<br>Significant and a modest effect       | .344 | .000 |
| 'Continue the family name' and 'give my experience of childhood to my children': Significant and a modest effect   | .326 | .001 |
| 'Feel parent-child bond' and 'give my experience of childhood to my children':<br>Significant and a modest effect  | .321 | .001 |
| 'Feel parent-child bond' and 'I do not want a child': Significant and a negative modest effect                     | 334  | .001 |

For non-parents, the relationships between 'Which of the following reasons may influence your decision in becoming a parent?' indicated significant and modest to moderate strength interactions across most constituent items. The response-options 'feel parent-child bond', 'give love and affection', 'I do want a child' and 'children complete a relationship' was the most common link.

For the parents, the results from Question 18, 'Which of the following reasons may influence your decision in becoming a parent again?' indicated significantly and approaching a strong to modest-moderate strength interactions across most constituent items. Combinations of 'feel parent-child bond' receive love and affection' and 'give love and affection' items were the most common link. However, 'improve on my childhood experience' appeared on four results compared to twice for 'give my experience of childhood to my children.'

### **Broodiness**

Question 20, 'To what degree have you had any of the following reactions to broodiness?' was used to establish the level of reactions associated with broodiness for non-parents and parents. A visual examination revealed a central tendency median of 4 ('Not at all') for the majority of the responses except for the 'Yearning' response. This response had a central tendency median of 2 ('A little'). Therefore, I used this latter response to examine the differences between male and female parents and non-parents.

# Robin Hadley

# Yearning

Assessing the cumulative per cent of the first two ranks ('A little' and 'A lot'), female non-parents and parents showed a similar level of yearning 58.4% and 61.2% respectively. Using the same criteria, the non-parent males exhibited a higher rate of yearning 40.7% compared to male parents 33.3%. Although the male results are in the minority, they indicate a record of male yearning. This finding supports 'the desire for parenthood' results for male non-parents reported previously. A further visual examination of each category's frequency statistics demonstrated several trends across the subset for those who had indicated 'A lot' and 'A little' responses. The subset of results for Question 20 comprised of the option-responses 'a lot' and 'a little' using the valid and cumulative percentages given by the SPSS statistic output. Table 7 gives the responses with the cumulative percentage of total emboldened.

Table 7
Subset of Question 20 Comparing Group Cumulative Total

| Emotional response | Frequency  | Male<br>Non-parent<br>(%) | Male<br>Parent (%) | Female<br>Non-parent (%) | Female<br>Parent<br>(%) |
|--------------------|------------|---------------------------|--------------------|--------------------------|-------------------------|
|                    | Total      | 18.5                      | 8.1                | 17.9                     | 21.2                    |
| Anger              | A lot      | 14.8                      | 2.7                | 6.4                      | 15.0                    |
| Anger              | A little   | 3.7                       | 5.4                | 11.5                     | 6.2                     |
|                    | Not at all | 77.8                      | 59.5               | 64.1                     | 65.0                    |
|                    | Total      | 18.5                      | 10.8               | 20.5                     | 19.8                    |
| Danial             | A lot      | -                         | 2.7                | 2.6                      | 1.2                     |
| Denial             | A little   | 18.5                      | 8.1                | 17.9                     | 18.5                    |
|                    | Not at all | 77.8                      | 54.1               | 47.4                     | 59.3                    |
|                    | Total      | 26.9                      | 11.1               | 25.6                     | 18.8                    |
| D                  | A lot      | 23.1                      | 5.6                | 2.6                      | 2.5                     |
| Depression         | A little   | 3.8                       | 5.6                | 23.1                     | 16.5                    |
|                    | Not at all | 73.1                      | 63.9               | 59.0                     | 60.0                    |
|                    | Total      | 29.6                      | 33.3               | 17.9                     | 40.0                    |
| EL .:              | A lot      | 7.4                       | 13.9               | 5.1                      | 15.0                    |
| Elation            | A little   | 2.2                       | 19.4               | 12.8                     | 25.0                    |
|                    | Not at all | 66.7                      | 41.7               | 60.3                     | 43.8                    |
|                    | Total      | _                         | 11.1               | 15.4                     | 17.4                    |
| C 11.              | A lot      | _                         | 8.3                | 2.6                      | 1.2                     |
| Guilt              | A little   | _                         | 2.8                | 12.8                     | 16.2                    |
|                    | Not at all | 88.9                      | 63.9               | 65.4                     | 61.2                    |
|                    | Total      | 29.6                      | 19.4               | 26.9                     | 16.2                    |
|                    | A lot      | 3.7                       |                    | 5.1                      | 1.2                     |
| Isolation          | A little   | 25.9                      | 19.4               | 21.8                     | 15.0                    |
|                    | Not at all | 63.0                      | 58.3               | 56.4                     | 67.5                    |
|                    | Total      | 29.6                      | 17.1               | 37.2                     | 38.3                    |
|                    | A lot      | 3.7                       | 2.9                | 2.6                      | 3.7                     |
| Jealousy           | A little   | 25.9                      | 14.3               | 25.9                     | 34.6                    |
|                    | Not at all | 66.7                      | 62.9               | 46.2                     | 45.7                    |
|                    | Total      | 7.4                       | 16.7               | 20.5                     | 25.0                    |
|                    | A lot      | _                         | 5.6                | 2.6                      | 3.8                     |
| Relief             | A little   | 7.4                       | 11.1               | 17.9                     | 21.2                    |
|                    | Not at all | 88.9                      | 61.1               | 57.7                     | 57.5                    |
|                    | Total      | 29.6                      | 22.2               | 43.6                     | 37.5                    |
|                    | A lot      | 11.1                      | 8.3                | 9.0                      | 6.2                     |
| Sadness            | A little   | 18.5                      | 13.9               | 34.6                     | 31.2                    |
|                    | Not at all | 63.0                      | 55.6               | 37.2                     | 47.5                    |
|                    | Total      | 40.7                      | 33.3               | 58.4                     | 61.0                    |
|                    | A lot      | 14.8                      | 11.1               | 22.1                     | 30.5                    |
| Yearning           | A little   | 25.9                      | 22.2               | 36.4                     | 30.5                    |
|                    | Not at all | 55.6                      | 41.7               | 24.7                     | 20.7                    |

Most male non-parents gave higher responses compared to male parents except for the item's 'elation' 'guilt' and 'relief'. The females in both groups exhibited similar responses; non-parent females gave slightly higher responses to the 'isolation' and 'sadness' items. Compared to parents, non-parents were more affected by 'yearning' 'sadness' and 'depression'.

## Qualitative data analysis

Qualitative data was gathered to support and highlight any gaps in the quantitative survey data. Therefore, the survey included open questions for the respondents to complete should they wish. An inductive thematic analysis (Braun & Clarke, 2006) was performed on the responses to questions 12, 19, 28, and 29. Overall, the results revealed clarification of respondents' circumstances and the structure of the survey. The results illustrated non-parents and parent's narratives in areas such as age, health and relationships. The theme of 'family' emerged as a major thematic difference between parents and non-parents. A theme of 'motivation' highlighted parent's unwillingness to repeat parenthood compared to the non-parent's emphasis on desire and plans. The last two questions illustrated the respondent's opinions and issues concerning style, format and presentation of the survey.

## **DISCUSSION**

This study aimed to discover how do males and females compare in terms of desire for parenthood (broodiness) and what factors influence the decision to the parent (or not)? For those who are parents what factors influence the decision to repeat parenthood? Two hundred and thirty-two respondents (n = 165 female and n = 67 male) from a range of educational, ethnic, familial situations, gender, religious and sexual orientations completed an online survey. Descriptive, univariate and bivariate statistical analysis was used to examine the dataset to answer the research questions:

- 1. What is the incidence of broodiness in childless men? Most the study's childless men (51.9%) signalled a desire for parenthood compared to those who did not (25.9%).
- 2. What is the incidence of broodiness in females and males and those with and without children? Most non-parents showed a similar desire for parenthood with the females indicating a slightly stronger wish. Both female and male parents highlighted an equal desire not to repeat parenthood.
- 3. What factors influence the decision to parent? The results show a difference between the non-parents and parents in the factors that may influence the decision for parenthood. For non-parents 'economic' and 'social' were the strongest factors compared to 'health' and 'age' for parents. Non-parents exhibited greater differences between males and females, with the males indicating 'others health' and 'own health' as concerns. Differences between female and male parents were minimal.
- 4. What reasons influence the decision to parent between those with and without children? The results indicated some similarities between the non-parent and parent groups in the reasons that influence decisions regarding parenthood. The two groups show commonality in 'cultural' and 'family expectations' factors. Also, the parent group highlighted 'societal duty' and 'religious/spiritual belief' with little gender divide across items. Non-parents exhibited greater differences between males and females. The males indicated a strong influence of 'cultural' 'societal' and 'family expectations', with the possible suggestion of 'personal desire' and 'biological urge' being a factor. Females indicated that 'personal desire' was a major influence. The results illustrated a similarity between the non-parents and parents in the items 'feel parent-child bond' and 'give love and affection'. However, parents highlighted 'receive love and affection' and 'improve on my childhood experience'. For non-parents, the items 'I do want a child' and 'children complete a relationship' were more prominent. Religious and spiritual beliefs were associated with cultural and family expectations across all groups, with a greater influence in the parent group. Several items were not major factors in the overall results: 'global population' 'parents want to be grandparents' and 'please family' seldom occurring.
- 5. What are the levels of reactions associated with broodiness? The levels of reaction to broodiness demonstrated most respondents did not associate with most of the option-responses provided. The exception was the 'yearning' item. Non-parents were more affected by 'yearning' 'sadness' and 'depression' compared to parents. Females from both groups had similar response levels on most items, with non-parent females recording higher responses in 'isolation' and 'sadness'. Compared to male parents, male non-parents recorded higher in the majority of option responses with the exceptions of 'elation' 'guilt', and 'relief'.

The research questions resulted in five hypotheses being tested:

- 1. It is predicted there will be a difference between the numbers of childless men who desire parenthood and those that do not. This hypothesis is supported. This study to a degree, follows Lampic et al. (2006, p. 599) where 97% of the childless males responded 'Yes' to the question, 'Do you plan to have children?' The difference in the sample may account for this. Lampic et al (2006) study the mean age of the childless male 23.7 (SD = 3.7) compared to the mean age of 37.37 years (SD = 10.15) in this study. Likewise, Lampic et al. (2006) latter study sample were solely undergraduate university students, whereas in this study non-parent males were mainly professionals (55.6%) with degrees (74.1%).
- 2. It is predicted that there will be a difference in the desire for parenthood between non-parents and parents, both female and male. This hypothesis is partially supported by the differences highlighted between the non-parent and parent groups and the differences between female and male non-parents. Most of the non-parents strongly wished to become parents, with females (61.2%) indicating a somewhat greater desire than males (51.9%). Previous research demonstrated that childless females had a greater desire for parenthood (30%) than childless males (Langdridge et al., 2000; van Balen & Trimbos-Kemper, 1995). However, those studies used participants that were in various stages of fertility treatment (Langdridge et al, 2000) or had received infertility treatment (van Balen, 1995). The strength of the desire for parenthood between female and male non-parents, compared to other studies, may be related to the non-specific sample of this piece (see Lampic et al., 2006; Langdridge et al., 2000; Langdridge et al., 2005). Most of the parent group, female and male, exhibited a similar response of not wanting another child. This finding may support criticism of the child cost-benefit model; parents can identify the cost-benefit reality of having a child; the childless can only speculate what the cost-benefit will be (van Balen & Trimbos-Kemper, 1995).
- 3. It is predicted that parents and non-parents, both male and female, will have different factors that influence the decision to parent. The hypothesis that different influences affect the decision to parent is therefore partially supported. Non-parents signalled that matters surrounding career, finance and accommodation were the common influences. However, female and male non-parents differed, with the former following the group trend, whereas the latter highlighted the 'health of others' as being a central influence. The parent group differed in indicating that 'health' and 'age' were the commonest influences, with little difference between female and male. The qualitative data reflected 'age' 'health' and 'socio-economic' were themes for both non-parents and parents.
- It is predicted that there will be differences in the reasons that influence the decision to parent between non-parents and parents. This hypothesis is partially supported, showing the difference between the non-parent and parent groups, and generally indicating divergence between female and male non-parents and agreement among parents. Reasons that influence the decision to parent followed a similar pattern to the previous hypotheses. Both non-parents and parents demonstrated that 'family expectation' 'cultural expectation' 'feel parent-child bond' and 'give love and affection' were the most influential reasons. This result is consistent with other studies (Langdridge et al., 2000; Langdridge et al., 2005; van Balen & Trimbos-Kemper, 1995). For example, Langdridge (2005, p. 131) found there was 'a strong emphasis on values concerned with 'primary group ties and affection' (give love and make family)'. The non-parent results are in line with previous research, as are the parent group response of 'receive love and affection' (Lampic et al., 2006; Langdridge et al., 2000; Langdridge et al., 2005; van Balen & Trimbos-Kemper, 1995). The items 'improve on my childhood experience' and 'give my experience of childhood to my children' originated from the pilot study. Several interesting issues arose from these results. First, only the parent group selected that item. By comparison, the item 'give my experience of childhood to my children' was selected only twice by both parents and non-parents. Second, why only parents? Does the experience of parenting expose the deficiencies of their own formative experience? Is there a cost-benefit that has not been previously identified? Contrary to most other studies (Lampic et al., 2006; Langdridge et al., 2000; Langdridge et al., 2005; van Balen & Trimbos-Kemper, 1995) religious and spiritual reasons were demonstrated as being somewhat influential, more so in the parent group. Again, this may be related to this particular sample - there were a relatively high number of respondents (38.5%) that indicated a religious belief.
- 5. It is predicted there will be differences in the reactions associated with broodiness, between non-parents and parents, both male and female. The hypothesis is partially supported, with males showing more divergence and females more agreement. The main category associated with broodiness was

'Yearning' where females from both groups recorded similar levels, whereas non-parent males recorded a higher rate than male parents (40.7% compared to 33.3%). An investigation of a subset of the other items revealed that overall non-parents were more affected by 'yearning', 'sadness', and 'depression' than parents. Interestingly, a word search for 'yearning', 'sadness', depression', and 'elation' in the papers commonly referred to in this piece (Lampic et al., 2006; Langdridge et al., 2000; 2005; Purewal & van Den Akker, 2007; Schoen et al., 1999; 1997; van Balen & Trimbos-Kemper, 1995). Only 'depression' was once referred to and that was in the context of being associated with infertility treatment (Langdridge et al., 2000). van Balen and Trimbos-Kemper (1995) used 'Happiness' as a motivator in the desire for parenthood; 'Happiness denotes the expected feelings of affection and happiness in the relationship with children' (p.139). Critical here is the word 'expected' as van Balen and Trimbos-Kemper (Ibid) suggest that the cost-benefit model measures 'factual' costs and benefits, which are only apparent post-birth. Thus, childless individuals have 'expected' cost-benefit choices. However, neither 'factual' nor 'expected' cost-benefit models seem to reflect the 'actual' desire for parenthood.

# **Strengths**

This study has several strengths. The lack and evolutionary nature of research into the desire for fatherhood mean there are few directly comparable results with this study. Most quantitative studies use those in either pre or post infertility treatment as a criterion for involuntary childlessness (see Lechner et al., 2007). However, this policy avoids an alternative source of data; as one of the respondents to this study noted, 'What kept me from being a parent was not having the right "constellation of circumstances".' (Hadley, 2009b, p.58). The Langdridge et al. (2005) study was one of the few that accessed and measured the fertility intentions of childless couples, excluding anyone pre or post infertility treatment. However, the difference between male intenders and non-intenders was not published in any detail.

### **Limitations**

The sample (n = 232) consists of female and male non-parents and parents. However, there were relatively few male respondents (non-parent, n = 27; parent, n = 38). Compared to the ONS (2005) data, and similar to Langdridge et al. (2005, p. 126), the sample is not in line with social trends and might generalise across populations. This may reflect an issue with the sampling technique: it is possibly more representative of the researcher's network than the population. Disadvantages of this form of the survey include the exclusion of sectors of the population that have no digital access. Similarly, the ubiquity of surveys may influence the willingness to participate (Couper, 2000).

# **Future studies**

There is a lack of material regarding the desire for parenthood in men. Therefore, this field is open to further research in many areas. Specifically, there is even less work on childless men who yearn to be a father. However, I believe that further exploration of that area would provide invaluable insights into the mental health, behaviour, and social identity of men who yearn for fatherhood. Weitofr et.al. (2004) demonstrated the higher mortality rates for childless men and lone non-custodial fathers.

## **CONCLUSION**

The results indicated several findings that answered the research questions and partly supported the proposed hypotheses. Most childless men wanted to become fathers, female non-parents showed a slightly higher desire. Parents were equally sure of not repeating parenthood. Common reasons influencing parenthood were cultural and family expectations, 'feel parent-child bond' and 'give love and affection'. 'Yearning' was the item most associated with broodiness. Analysis of a subset found that, compared to parents, non-parents were more affected by 'Yearning' 'Sadness' and 'Depression' with male non-parents having the highest reactions to 'Depression' and 'Isolation'. The hypotheses were, in the main, concerned with predicting the differences between the female, and male, parent and non-parent groups. The first hypothesis was supported. Three of the remaining hypotheses were partially supported, the main differences being between female and male non-parents, while female and male parents

displayed very similar responses. The final hypothesis revealed more divergence between males and more agreement between females. The results indicate that male non-parents do get 'broody' and consequently may suffer from some reactions including depression and isolation.

#### **REFERENCES**

- Acharya, S. & Relojo, D. (2017). Examining the role of cognitive distortion and parental bonding in depressive symptoms among male adolescents: A randomised crossover trial. *Journal of Innovation in Psychology, Education and Didactics*, 21(1), 7–20. <a href="https://doi.org/d9m6">https://doi.org/d9m6</a>
- Armitage, C.J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. British Journal of Social Psychology, 40(4), 471–499. https://doi.org/10.1348/014466601164939
- Bagozzi, R. P., & Loo, M. F. V. (1978). Toward a general theory of fertility: A causal modeling approach. *Demography*, 15(3), 301–320. https://doi.org/10.2307/2060652
- Becker, G. (1999). Disrupted lives. How people create meaning in a chaotic world. *American Antropologist*, 101(4), 872–873. https://doi.org/10.1525/aa.1999.101.4.872
- Bos, H. M. W., van Balen, F., & van den Boom, D. C. (2003). Planned lesbian families: their desire and motivation to have children. *Human Reproduction*, 18(10), 2216–2224. https://doi.org/10.1093/humrep/deg427
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77–101. <a href="https://doi.org/10.1191/1478088706qp0630a">https://doi.org/10.1191/1478088706qp0630a</a>
- British Association for Counselling and Psychotherapy. (2009). Framework for good practice in counselling & psychotherapy. Retrieved from <a href="http://www.bacp.co.uk/admin/structure/files/pdf/566">http://www.bacp.co.uk/admin/structure/files/pdf/566</a> ethical%20framework%20feb2010.pdf
- British Educational Research Association. (2004). Revised ethical guidelines for educational research. Retrieved from <a href="http://www.bera.ac.uk/files/2008/09/ethica1.pdf">http://www.bera.ac.uk/files/2008/09/ethica1.pdf</a>
- British Psychological Society. (2006). Code of ethics and conduct. Retrieved from <a href="http://www.bps.org.uk/downloadfile.cfm?file\_uuid=5084A882-1143-DFD0-7E6C-F1938A65C242&ext=pdf">http://www.bps.org.uk/downloadfile.cfm?file\_uuid=5084A882-1143-DFD0-7E6C-F1938A65C242&ext=pdf</a>
- Couper, M. P. (2000). Web surveys: A review of issues and approaches. *Public Opinion Quarterly*, 64(4), 464–494. https://doi.org/10.1086/318641
- Dancey, C.P. & Reidy, J. (1999). Statistics without maths for psychology: Using SPSS for windows. Prentice Hall.
- D'Augelli, A. R., Rendina, H. J., Sinclair, K. O., & Grossman, A. H. (2007). Lesbian and gay youth's aspirations for marriage and raising children. *Journal of LGBT Issues in Counseling*, 1(4), 77–98. https://doi.org/10.1300/j462v01n04\_06
- Dermott, E. (2008). Initimate fatherhood: A sociological analysis. *Journal of Marriage and Family*, 71(4). 1102–1104. https://doi.org/10.1111/j.1741-3737.2009.00656.x
- Dykstra, P. A., & Keizer, R. (2009). The wellbeing of childless men and fathers in mid-life. *Ageing & Society*, 29(8), 1227–1242. <a href="https://doi.org/10.1017/s0144686x08008374">https://doi.org/10.1017/s0144686x08008374</a>

- Eggebeen, D. J., & Knoester, C. (2001). Does fatherhood matter for men? *Journal of Marriage and Family*, 63(2), 381–393. https://doi.org/10.1111/j.1741-3737.2001.00381.x
- Eggebeen, D., Knoester, C., & McDaniel, B. (2012). The implications of fatherhood for men. In N.J. Cabrera & C.S. Tamis-Lemonada (Eds.), *Handbook of father involvement* (2nd ed.). <a href="https://doi.org/10.4324/9780203101414.ch19">https://doi.org/10.4324/9780203101414.ch19</a>
- Field, A. (2009). Discovering statistics using SPSS. (3rd ed.). Sage.
- Fisher, J. R. W., & Hammarberg, K. (2017). Psychological aspects of infertility among men. Endocrinology, 1287–1317. https://doi.org/10.1007/978-3-319-44441-3\_46
- Gillespie, R. (2003). Childfree and feminine. *Gender Society*, 17(1), 122–136. https://doi.org/10.1177/0891243202238982
- Glaser, B. G., & Strauss, A. L. (1967). The discovery of grounded theory: Strategies for qualitative research.

  Aldine Transaction.
- Goldberg, W. A. (2014). *Father time: The social clock and the timing of fatherhood*. Palgrave MacMillan. <a href="https://doi.org/10.1057/9781137372727">https://doi.org/10.1057/9781137372727</a>
- Greulich, A. (2018). Kreyenfeld Michaela, Konietzka Dirk (eds.), 2017, Childlessness in Europe: contexts, causes, and consequences. *Population*, 73(1), 156–158. Springer, Demographic Research Monograph, XI-270. Springer. <a href="https://doi.org/10.3917/popu.1801.0156">https://doi.org/10.3917/popu.1801.0156</a>
- Grundy, E., & Kravdal, O. (2008). Reproductive history and mortality in late middle age among Norwegian men and women. *American Journal of Epidemiology*, 167(3), 271–279. https://doi.org/10.1093/aje/kwm295
- Hadley, R. A. (2008). Involuntarily childless men: issues surrounding the desire for fatherhood. (Master's thesis). University of Manchester.
- Hadley, R. A. (2009a). Attitudes regarding becoming a parent and introduction to quantitative methods. (coursework). University of Manchester.
- Hadley, R. A. (2009b). Navigating in an uncharted world: How does the desire for fatherhood affect men? (Master's thesis). University of Manchester.
- Hadley, R. A. (2013a, April 3–5). The experiences of involuntarily childless men as they age [Poster presentation]. British Sociological Association Annual Conference. London, United Kingdom.
- Hadley, R. A. (2013b). Robin Hadley: I know all about broody men who long to be dads. I am one. *The Telegraph*. Retrieved from <a href="https://www.telegraph.co.uk/men/relationships/fatherhood/9969542/Robin-Hadley-I-know-all-about-broody-men-who-long-to-be-dads.-I-am-one.html">https://www.telegraph.co.uk/men/relationships/fatherhood/9969542/Robin-Hadley-I-know-all-about-broody-men-who-long-to-be-dads.-I-am-one.html</a>
- Hadley, R. A. (2019a). Deconstructing dad. In J. Barry, R. Kingerlee, M. Seager, & L. Sullivan (Eds.), *The Palgrave Handbook of Male Psychology and Mental Health*. Palgrave Macmillan.
- Hadley, R. A. (2019b). The impact of male involuntary childlessness. *Psychreg Journal of Psychology*, 3(2), 58–64. <a href="https://doi.org/fgtw">https://doi.org/fgtw</a>
- Hadley, R. A., & Hanley, T. S. (2011). Involuntarily childless men and the desire for fatherhood. *Journal of Reproductive and Infant Psychology*, 29(1), 56–68. https://doi.org/10.1080/02646838.2010.544294

- Hammarberg, K., Collins, V., Holden, C., Young, K., & McLachlan, R. (2017). Men's knowledge, attitudes and behaviours relating to fertility. *Human Reproduction Update*, 23(4), 458–480. https://doi.org/10.1093/humupd/dmx005
- Hanson, W. E., Creswell, J. W., Plano Clark, V. L., Petska, K. S., & Creswell, J. D. (2005). Mixed methods research designs in counseling psychology. *Journal of Counseling Psychology*, *52*(2), 224–235. https://doi.org/10.1037/0022-0167.52.2.224
- Hobson, B., & Morgan, D. H. J. (2002). Introduction: Making men into fathers. In B. Hobson (Ed.), *Making Men into fathers: Men, masculinities and the social politics of fatherhood* (pp. 1–24). Cambridge University Press. <a href="https://doi.org/10.1017/cbo9780511489440.002">https://doi.org/10.1017/cbo9780511489440.002</a>
- Hodgekiss, A. (2013). Men without children are 'more depressed and sad' than childless women. *Mail Online*. Retrieved from <a href="http://www.dailymail.co.uk/health/article-2302954/Men-children-depressed-sad-childless-women.html">http://www.dailymail.co.uk/health/article-2302954/Men-children-depressed-sad-childless-women.html</a>
- Hoffman, L. W. (1975). The value of children to parents and the decrease in family size. *Proceedings, American Philosophical Society*, 119, 430–438.
- Hoffman, L. W., & Manis, J. D. (1979). The value of children in the United States: A new approach to the study of fertility. *Journal of Marriage and Family*, 41(3), 583–596. https://doi.org/10.2307/351628
- Inhorn, M. C., Tjørnhøj-Thomsen, T., Goldberg, H., & la Cour Mosegard, M. (2009). The second sex in reproduction? Men, sexuality, and masculinity. In M. C. Inhorn, T. Tjørnhøj-Thomsen, H. Goldberg, & M. la Cour Mosegard (Eds.), *Reconceiving the second sex: Men, masculinity, and reproduction* (pp. 1–17). Bergham Books.
- Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33(7), 14–26. <a href="https://doi.org/10.3102/0013189x033007014">https://doi.org/10.3102/0013189x033007014</a>
- Kafcaloudes, P. (2013). How childlessness affects men and why some are choosing singlehood [Radio broadcast]. Australian Broadcasting Corporation.
- Keizer, R., Dykstra, P. A., & van Lenthe, F. J. (2012). Parity and men's mortality risks. *The European Journal of Public Health*, 22(3), 343–347. <a href="https://doi.org/10.1093/eurpub/ckr024">https://doi.org/10.1093/eurpub/ckr024</a>
- Keizer, R., & Ivanova, K. (2017). What's a (childless) man without a woman? The differential importance of couple dynamics for the wellbeing of childless men and women in the Netherlands. In *Demographic Research Monographs*. 313-330. https://doi.org/10.1007/978-3-319-44667-7\_15
- King, M., Semlyen, J., Killaspy, H., Nazareth, I., & Osborn, D. (2008). A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay and bisexual people. *BMC Psychiatry*, 8(70). https://doi.org/10.1186/1471-244x-8-70
- Kranz, D., Busch, H., & Niepel, C. (2018). Desires and intentions for fatherhood: A comparison of childless gay and heterosexual men in Germany. *Journal of Family Psychology*. 32(8), 995–1004. <a href="https://doi.org/10.1037/fam0000439">https://doi.org/10.1037/fam0000439</a>
- Lampic, C., Svanberg, A. S., Karlstrom, P., & Tyden, T. (2006). Fertility awareness, intentions concerning childbearing, and attitudes towards parenthood among female and male academics. *Human Reprodroduction*, 21(2), 558-564. <a href="https://doi.org/10.1093/humrep/dei367">https://doi.org/10.1093/humrep/dei367</a>
- Langdridge, D., Connolly, K., & Sheeran, P. (2000). Reasons for wanting a child: a network analytic study. Journal of Reproductive and Infant Psychology, 18(4), 321–388. https://doi.org/10.1080/713683044

- Langdridge, D., Sheeran, P., & Connolly, K. (2005). Understanding the reasons for parenthood. *Journal of Reproductive and Infant Psychology*, 23(2), 121-133. https://doi.org/10.1080/02646830500129438
- Lechner, L., Bolman, C., & van Dalen, A. (2007). Definite involuntary childlessness: associations between coping, social support and psychological distress. *Human Reprodroduction*, 22(1), 288–294. <a href="https://doi.org/10.1093/humrep/del327">https://doi.org/10.1093/humrep/del327</a>
- Lerner, T., & Bratt, A. (2014, 24 April). "Det finns en smärta i att inte få bli pappa [There is a pain not to be a father]. Dagens Nyheter.
- Lupton, D., & Barclay, L. (1997). Constructing fatherhood: Discourses and experience. Sage.
- Malik, S. H., & Coulson, N. (2008). The male experience of infertility: a thematic analysis of an online infertility support group bulletin board. *Journal of Reproductive and Infant Psychology*, 26(1), 18–30. https://doi.org/10.1080/02646830701759777
- Miller, T (Ed.).(2010). Anticipating fatherhood. In *Making sense of fatherhood* (pp. 54–80). https://doi.org/10.1017/cbo9780511778186.004
- Monach, J. H. (1993). *Childless, no choice: the experience of involuntary childlessness.* Routledge. https://doi.org/10.4324/9780203169094
- Muijs, D. (2004). Doing quantitative research in education with SPSS. Sage.
- Muijs, D. (2008). *Designing a survey*. Introduction to Quantitative Method [Course notes]. University of Manchester.
- Murphy, M. (2009). Where have all the children gone? Women's reports of more childlessness at older ages than when they were younger in a large-scale continuous household survey in Britain. *Population Studies*, 63(2), 115–133. <a href="https://doi.org/10.1080/00324720902917238">https://doi.org/10.1080/00324720902917238</a>
- Neugarten, B. L. (1969). Continuities and discontinuities of psychological issues into adult life. *Human Development*, 12(2), 121–130. <a href="https://doi.org/10.1159/000270858">https://doi.org/10.1159/000270858</a>
- Newman, I., Ridenour, C. S., Newman, C., & DeMarco, G. M. P. J. (2003). A Typologogy of Research purposes and Its Relationship to Mixed Methods. In A. Tashokkori & C. Teddlie (Eds.), *Handbook of mixed methods in social & behavioral research* (pp. 167–188). Sage.
- Office for National Statistics. (2003). Ethnic group statistics: A guide for the collection and classification of ethnicity data. Retrieved from <a href="http://www.statistics.gov.uk/about/ethnic group statistics/">http://www.statistics.gov.uk/about/ethnic group statistics/</a>
- Office for National Statistics. (2005). Population of working age: By highest qualification, Spring 2003: Regional Trends 38. Retrieved from <a href="https://www.statistics.gov.uk/STATBASE/ssdataset.asp?vlnk=7743&More=Y">www.statistics.gov.uk/STATBASE/ssdataset.asp?vlnk=7743&More=Y</a>
- Office for National Statistics. (2006). A guide to comparing 1991 and 2001 census ethnic group data. Retrieved from http://www.statistics.gov.uk/CCI/article.asp?ID=1471&Pos=&ColRank=1&Rank=224
- Office for National Statistics. (2008). The National Statistics Socio-economic Classification (NS-SEC). Retrieved from <a href="http://www.ons.gov.uk/about-statistics/classifications/current/ns-sec/index.html">http://www.ons.gov.uk/about-statistics/classifications/current/ns-sec/index.html</a>
- Oppenheim, A. N. (1992). Questionnaire design, interviewing and attitude measurement. *Journal of Community & Applied Social Psychology*, 4(5). 371–372. https://doi.org/10.1002/casp.2450040506

- Organisation for Economic Co-operation and Development. (2018). *OECD family database: SF2.5. childlessness*. Retrieved from. <a href="https://www.oecd.org/els/family/SF2-5-Childlessness.pdf">https://www.oecd.org/els/family/SF2-5-Childlessness.pdf</a>
- Public Health England. (2015). Health promotion for sexual and reproductive health and HIV. Strategic action plan, 2016 to 2019. Retrieved from <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_data/file/488090/SRHandHIVStrategicPlan\_211215.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_data/file/488090/SRHandHIVStrategicPlan\_211215.pdf</a>
- Punch, K. F. (2003). Survey research: The basics. Sage.
- Punch, K. F. (2005). Introduction to social research: Quantitative and aualitative approaches (2nd ed.). Sage.
- Purewal, S., & van Den Akker, O. (2007). The socio-cultural and biological meaning of parenthood. Journal of Psychosomatic Obstetrics & Gynaecology, 28(2), 79–86. https://doi.org/10.1080/01674820701409918
- Rennie, L. D. (2006). The grounded theory bethod. In C. T. Fischer (Ed.), *Qualitative research methods for psychologists* (pp. 59–78). Academic Press. <a href="https://doi.org/10.1016/b978-012088470-4/50006-5">https://doi.org/10.1016/b978-012088470-4/50006-5</a>
- Rennie, L. D., Phillips, J. R., & Quartaro, G. K. (1988). Grounded Theory: A promising approach to Conceptualisation in Psychology? *Canadian Psychology/Psychologie Canadienne*, 29(2), 139–150. https://doi.org/10.1037/h0079765
- Riskind, R. G., & Patterson, C. J. (2010). Parenting intentions and desires among childless lesbian, gay, and heterosexual individuals. *Journal of Family Psychology*, 24(1), 78–81. https://doi.org/10.1037/a0017941
- Ritchie, H. (2019). How many people die and how many are born each year? Retrieved from <a href="https://ourworldindata.org/births-and-deaths">https://ourworldindata.org/births-and-deaths</a>
- Robson, C. (2002). *Real world research: A resource for social scientists and practitioner-researchers* (2nd ed.). Blackwell Publishing.
- Rooij, v. F. B., Balen, v. B., & Hermanns, J. M. A. (2006). Migrants and the meaning of parenthood: involuntary childless Turkish migrants in the Netherlands. *Human Reproduction*, 21(7), 1832–1838. https://doi.org/10.1093/humrep/del046
- Rorty, R. (2000). Pragmatism. *International Journal of Psychoanalysis*, 81(4), 819–823. https://doi.org/10.1516/0020757001600057
- Roser, M. (2014). Fertility rate. Retrieved from <a href="https://ourworldindata.org/fertility-rate">https://ourworldindata.org/fertility-rate</a>
- Schoen, R., Astone, N. M., Kim, Y. J., Nathanson, C. A., & Jason, M. F. (1999). Do fertility intentions affect fertility behavior? *Journal of Marriage and Family*, 61(3), 790. <a href="https://doi.org/10.2307/353578">https://doi.org/10.2307/353578</a>
- Schoen, R., Kim, Y. J., Nathanson, C. A., Jason, F., & Astone, N. M. (1997). Why do Americans want children? *Population and Development Review*, 23(2), 333–358. https://doi.org/10.2307/2137548
- Smith, I., Knight, T., Fletcher, R., & Macdonald, J. (2019). When men choose to be childless: An interpretative phenomenological analysis. *Journal of Social and Personal Relationships*, 37(1). 325-344. https://doi.org/10.1177/0265407519864444
- Sylvest, R., Koert, E., Petersen, K., Malling, G. M. H., Hald, F., Nyboe Andersen, A., & Schmidt, L. (2018). Attitudes towards family formation among men attending fertility counselling. *Reproductive Biomedicine & Society Online*, 6.1-9. https://doi.org/10.1016/j.rbms.2018.06.001

- Teddlie, T., & Tashakkori, A. (2003). Major issues and controversies in the use of mixed methods in the social and behavioral sciences. In A. Tashakkori & T. Teddlie (Eds.), *Handbook of mixed methods in social & behavioral research* (pp. 3–50). Sage.
- Thompson, R., & Lee, C. (2008, September). 399 men and a baby: Young Australian men's reproductive attitudes [Paper presentation]. Society for Reproductive and Infant Psychology. London, United Kingdom
- Thompson, R., & Lee, C. (2011). Fertile imaginations: young men's reproductive attitudes and preference. *Journal of Reproductive and Infant Psychology*, *29*(1), 43–55. https://doi.org/10.1080/02646838.2010.544295
- Throsby, K., & Gill, R. (2004). It's different for men. *Men and Masculinities*, *6*(4), 330-348. https://doi.org/10.1177/1097184x03260958
- van Balen, F., & Trimbos-Kemper, T. C. M. (1995). Involuntarily childless couples: Their desire to have children and their motives. *Journal of Psychosomatic Obstetrics & Gynecology*, 16(3), 137–144. https://doi.org/10.3109/01674829509024462
- Weitoft, G., Burström, B., & Rosén, M. (2004). Premature mortality among lone fathers and childless men. *Social Science & Medicine*, *59*(7), 1449-1459. https://doi.org/10.1016/j.socscimed.2004.01.026
- Zhang, Z., & Hayward, M. D. (2001). Childlessness and the psychological well-being of older persons. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 56(5), S311–S320. https://doi.org/10.1093/geronb/56.5.s311