

## Using Multinomial Logistic Regression Analysis to Develop a Model of Australian Gay and Heterosexual Sperm Donors' Motivations and Beliefs

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### Abstract

Within Australia, a diverse range of social and legislative contexts may be seen to either widen or narrow the reproductive and parenting options available to differing groups of people. For lesbians and gay men, restrictions upon access to reproductive health services, and the perceived or actual challenges in starting a family, often result in these groups of people negotiating alternate ways of meeting their reproductive or parenting needs. One such alternate approach to conception involves the use of donor sperm by lesbian recipients. Such an approach brings with it a range of issues, dependent upon the beliefs and motivations of each party. Drawing upon quantified qualitative data collected through interviews with 30 Australian sperm donors, this paper explores how the sexuality and parent status of men, and the context in which they donate, are potentially associated with three variables: motivations to donate, understandings of the meanings of biology or genetic material, and the determination of children's best interests. The study found that gay men were less likely to be parents and more likely to donate in private arrangements. This was associated with being more likely overall to talk of being motivated by their relationship to the recipients; to have an interest in biology as a genetic legacy; and to believe that children should determine their own best interests. Heterosexual men were more likely to be parents and to donate anonymously to clinics. This was associated with being more likely overall to speak of their donation as an altruistic gift; and to see children's best interests as appropriately determined by adults. The paper concludes by outlining a model for understanding the differences between gay and heterosexual sperm donors that takes into account the impact of social contexts upon individual motivations and beliefs.

**Keywords:** Australian sperm donors – motivations – biology - reproductive desires – children's best interests – sexual orientation – multinomial logistic regression analysis – heteronormativity

# Using Multinomial Logistic Regression Analysis to Develop a Model of Australian Gay and Heterosexual Sperm Donors' Motivations and Beliefs

## Introduction

As a steadily growing body of international research continues to demonstrate, the motivations that lead men to act as sperm donors are often complex, and require continued attention in light of the fact of ongoing changes to both the legislative and social contexts in which men donate (e.g., Cook & Golombok 1995; Daniels 1989; Daniels, Curson & Lewis 1996; Godman, Sanders, Kirkman 2004; Rosenberg & Burton 2006; Schover, Rothmann & Collins 1992). In Australia, current legislation regulating access to donor sperm and the rights of donor-conceived children varies between differing states and territories. Some jurisdictions only provide access to donor sperm through clinics to heterosexually-married or defacto recipients, whilst other states allow all women access to donor sperm through clinics. Some states now mandate that sperm donated to clinics must be identity-release, meaning that donor-conceived children can access information about the donor should they choose to, whilst other states continue to legislate for sperm donated to clinics to be anonymous. Finally, clinics variously mandate for the acceptance or rejection of gay men as sperm donors. Whilst this is the choice of individual clinics, it nonetheless provides a regulative context wherein some men may not be accepted as sperm donors.

In regard to social contexts, and whilst public opinion in Australia continues to shift in relation to lesbian- and gay-headed families, heteronormativity (the assumption that heterosexuality is the normal sexuality from which all other sexualities deviate) continues to result in gay men being depicted at best as unable to become parents, and at worst as not worthy of becoming parents (Riggs 2007). Lesbian mothers also experience the effects of heteronormativity, not only in relation to the assumptions that would appear to inform the aforementioned laws (i.e., that lesbian women should not have access to donors sperm through clinics), but also in relation to normative assumptions about what are seen to be the most appropriate outcomes for lesbian headed-households in relation to the raising of children (Short 2007).

The lack of a uniform set of laws governing access to reproductive services (or at the very least laws that legislate for access to reproductive health clinics for all people), combined with the aforementioned heteronormative social context in which a range of individuals and families experience discrimination, results in negative consequences for both those women not in heterosexual relationships looking to access donor sperm, and those men who may consider their reproductive capacities or desires curtailed. Yet despite this, those groups - primarily lesbians and gay men - who experience the multiple forms of legislative and social exclusion outlined above, continue to engage in practices that allow them opportunities to create families (Stacey 2006). Primary amongst these practices, and whilst there are of course other ways in which lesbians and gay men negotiate family making (such as fostering or international adoption for both lesbians and gay men; international surrogacy for gay men; and accessing donor sperm from states that legislative for lesbian access to donor sperm within Australia), are the negotiations that lesbian women undertake to access donor sperm via private arrangements, and the negotiations that some gay men undertake with women to play a role either in the conception of a child or in the raising of a child. However, whilst for many lesbians and gay men this results in a broad range of family forms that are productive for all parties, it can also result in contestations over access and custody of children.

In Australia, and whilst acting as a sperm donor technically extinguishes parental rights, heteronormativity within the law has at times resulted in sperm donors who have sought access to children conceived of their donation to lesbian women being granted visitation rights (Dempsey 2004; Kelly 2002). Outcomes such as these, whilst potentially positive for men who believe that access is both their right and in the best interests of children conceived from their donation, may also be detrimental to lesbian recipients and their families. In this respect, and whilst lesbians and gay men are often successful in negotiating shared parenting arrangements that meet their reproductive needs, it is nonetheless the case that all parties involved may have conflicting intentions and desires that do not become apparent until after the conception or birth of a child.

Due to the fact that legislative and social change cannot be relied upon to ameliorate the discrimination and subsequent challenges this presents to lesbians and gay men and their families, it is important to understand the current ways in which sperm donation is understood both by (heterosexual and gay) men who act as donors, and by lesbian recipients of donor sperm. To date, the experiences of lesbian women who have used donor sperm, both through clinics and through private arrangements, have been given considerable attention (Haimes & Weiner 2000; Ripper 2007; Vanfraussen, Ponjaert-Kristoffersen & Brewaays 2003). What has been given less attention are the experiences of men who donate sperm, and more specifically, the beliefs that such men may hold about children conceived of their genetic material (Ripper 2008 being a notable exception). Additionally, previous research has paid little attention to the role that factors such as men's sexuality, parent status (i.e., whether or not they are already involved in raising children prior to sperm donation), and the context in which they donate (either to a clinic or through private arrangements), may impact upon their motivations to, and beliefs about, sperm donation. To this end, the present study sought to explore some of these factors, and to develop from this exploration a model for understanding the complex relationships between social contexts, individual motivations and beliefs, and the social identities of individual men.

## **Methods**

### **Participants**

Ethics approval was granted by The University of Adelaide's Human Research and Ethics Committee. Thirty semi-structured interviews were conducted by the author with Australian gay and heterosexual men who have acted as known sperm donors. Of the sample, 21 men self-identified as gay (70%) and 9 self-identified as heterosexual (30%). Participants were gathered from across four Australian states: South Australia, Victoria, New South Wales and Tasmania. The average age of participants was 45 years, the range being 25 to 65. Fourteen (46.7%) of the sample self-identified as parents (i.e., they were currently involved in raising children on a custodial basis), whilst 16 (53.3%) of the sample did not. Although eight (88.9%) of the heterosexual men identified as parents, only six (28.6%) of the gay men identified as parents. Thirteen participants had donated anonymously to clinics in states where the identification of donors was not mandatory (eight of these men were heterosexual), and the remaining 17 men had donated through private arrangements to friends or acquaintances who were identified by the participants as lesbians (16 of these men were gay). Of the 17 men who had donated in the context of private arrangements, 12 had donated to a lesbian couple, and four had donated to a single lesbian woman. Four of the men who donated to known lesbian recipients negotiated with the women to donate via clinics so that the sperm could be screened and reproductive technologies employed to ensure fertilisation. The majority of the men identified as white Australians (90%).

## Procedure

The sample was sourced via advertisements in national media outlets and through postings to online discussion groups. Participants received a nominal reimbursement for their time. The interviews followed a semi-structured schedule, with ten prompt questions focusing primarily on motivations to donate ('Could we start by you telling me a little bit about how you first came to consider acting as a known sperm donor?'), beliefs about family and children ('What have been (or continue to be) your thoughts around donating and family?'), and the emotional aspects of acting as a known donor ('Could you share with me some of the emotional aspects of sperm donation that you have experienced, particularly those that may have been unexpected?'). Approximately half of the interviews were conducted in person, with the remainder conducted via telephone. All participants were allocated pseudonyms and identifying information was removed to ensure anonymity.

## Analytic Approach

As the data were qualitative in nature, the first stage of analysis involved a hand-coded thematic analysis of the transcribed data conducted by the author (Braun & Clarke 2006). This analysis found several key themes and sub-themes, some of which were expected due to the interview schedule (i.e., a focus on both the 'emotion work' of sperm donation and the factors that motivate men to donate), and others which arose from the data itself (i.e., representations of lesbian recipients, accounts of the meanings of biology or genetic material, and understandings of who should determine children's best interests). The findings from the thematic analyses already published, which have focused on the data pertaining to gay male sperm donors, would suggest that the majority of gay men reported less than positive views of lesbian recipients (Riggs 2008a), but that this may largely have arisen from the 'emotion work' that sperm donation appears to entail for gay donors, and the fact that the majority of the gay male donors had entered into private arrangements to act as donors, rather than donating to clinics (Riggs in-press). These findings suggested the importance of comparing and contrasting the experiences of gay and heterosexual sperm donors, to examine how the differing social locations and situations in which men donate may impact upon their motivations and beliefs.

Subsequent to the thematic analysis, a content analysis was conducted on the data focusing on references by participants to motivations, accounts of the meaning of biology or genetic material, and understandings of who should determine children's best interests. Using these three foci as dependent variables, text search and word frequency searches were used to identify subtle differences within each theme, and to construct from these viable categories for each variable. Within the variable of motivations, three categories were constructed on the basis of their prevalence across a number of participants and/or the distinctiveness of each of the categories. These were 1) donating for altruistic reasons (24 references across 11 participants), 2) donating for self-motivated reasons (6 references across 3 participants), and 3) donating in a relational context, such as for friends (24 references across 16 participants). Within the variable of accounts of the meaning of biological relations or genetic material, three categories were identified: 1) biology as genetic legacy (27 references across 7 participants), 2) biology (or more precisely, genetic material) as a gift given to recipients (22 references across 17 participants), and 3) biology producing a responsibility to donor-conceived children, where sperm donors must be accountable to children wishing to know their genetic history (12 references across 6 participants). Finally, within the variable of understandings of who should determine children's best interests, two mutually exclusive categories were identified: 1) best interests as most appropriately determined by adults (21 references across 16 participants) and 2) best interests as most appropriately determined by

children (15 references across 8 participants). A third category was also constructed in this variable to account for the fact that the remaining six participants equally spoke of best interests as both child and adult determined within their interviews (a total of 12 references).

Using the participants' sexuality (gay or heterosexual), parenting status (whether they currently cared for children on a custodial basis or not), and the context in which they donated (either anonymously to a clinic or through private arrangements) as independent variables, tests of association were then conducted to assess their impact upon the three dependent variables and their categories. Initial chi square tests performed on the coded data utilising SPSS suggested that despite the small sample size, the findings were statistically significant. However, as the use of chi square tests is not indicated for data where more than 10% of the cells have expected frequencies less than five (Read & Cressie 1988), log-likelihood ratio tests were performed. Log-likelihood ratio tests are appropriate for use with small sample sizes that result in cells with expected frequencies less than 5, and where there are more than two levels on the dependent variable. The findings presented from these tests indicated that the independent variables may in combination be associated with each of the dependent variables, rather than solely as individual isolated variables.

On the basis of these initial analyses (reported in Riggs 2008b), the findings presented in this paper employ multinomial regression analysis to examine the associations between the dependent and independent variables. This form of analysis is amenable not only to small sample sizes, but also to samples where the dependent variables have more than 2 categories. Multinomial regression analyses and the pseudo explanations of variance that they provide are useful for the analysis of data generated in the fashion described above as they examine specific contrasts between the categories of each dependent variable and their association with the independent variables (Pampel 2000). In so doing they minimise the redundancy of repeated tests thus increasing the likelihood of demonstrating that the associations between the categories of the dependent variables and the independent variables arise from significant differences between the actual data set in comparison to a hypothetical data generated on the basis of a null hypothesis (i.e., in the instance of the present research, that difference between donors in relation to motivations and beliefs are equally distributed amongst participants regardless of parent status, sexuality or the context in which they donated).

Whilst it has been suggested that multinomial regression analyses are best conducted on larger data sets (Peduzzi et al 1996), it is nonetheless possible to assess the validity of findings derived using such analyses with small sample sizes. First, Garson (2008) suggests that small sample sizes should primarily become of concern for multinomial regression analyses when the standard error presented in the parameter estimates is exceptionally high. An examination of the standard error values presented in the parameter estimate tables for each variable in the analysis section below would indicate that this was not the case in the present study. Second, Garson suggests using the Hosmer and Lemeshow Chi Square test, rather than the standard Chi Square test (in order to mitigate against false rejection of the null hypothesis), as this is more appropriate for use with small samples. All Chi Square tests utilised in this study were thus the Hosmer and Lemeshow method. Finally, Garson suggests that the validity of multinomial regression analyses with small sample sizes can be assessed by the log ratio values themselves, where exceptionally high log ratio values would indicate questionable validity of the findings. The findings presented below display relatively average (though statistically significant) log ratio values when compared with those that would be expected from a normal distribution. It is thus suggested that despite the small sample size, close examination of test results along with visual inspection of the observed frequencies can result in an accurate assessment of the validity of the findings (i.e., that the statistical

outcomes approximate what is observed in the frequency tables presented).

For each of the dependent variables, SPSS was used to calculate Log-Likelihood Ratio tests assessing whether or not the amount of difference accounted for within the sample by each of the independent variables and the combined independent variables was the same as that which would be expected from a hypothetical sample where the independent variables had no association with the dependent variables. These differences between the hypothetical and actual data were then assessed through Chi Square tests to determine whether the association between the independent variables (both in combination and individually) and the dependent variables was significant. For each of the dependent variables the effect of the three independent variables together was tested using Multinomial Logistic Regression analyses to assess the amount of pseudo variation amongst participants that could be explained by the combined independent variables.

SPSS also produces parameter estimate tables that allow for comparison of individual independent variables with the levels of each dependent variable. This is achieved by calculating the hypothetical grand mean (the 'constant') of the cell frequencies for each of the dependent variables categories, which is compared with the actual data in order to examine in what way the independent variables are associated with the dependent variable categories (with one level of the dependent variable used as a reference category, against which the other two levels are compared). The parameter estimates report both the differences between the expected and actual data, and the significance of the relationship between individual levels of the dependent variables and the independent variables in the actual data. It should be noted here that the results provided in the parameter estimates are a comparison between the two levels of the independent variable in relation to the constant.

## Results

### Motivations

Table 1 presents the distribution of the data in relation to the first dependent variable of motivations to donate sperm in relation to the three independent variables.

Table 1. Frequencies for motivation variable

Sexuality	Parent Status	Donor Location	Motivation			Total
			Altruistic	Self	Relational	
gay	Parent	Clinic	0	0	0	0
		Private	0	0	6	6
	Not	Clinic	2	0	2	4
		Private	0	3	8	11
het	Parent	Clinic	8	0	0	8
		Private	0	0	0	0
	Not	Clinic	0	0	0	0
		Private	1	0	0	1

As Table 2 indicates, testing of the relationship between the combined independent variables and the dependent variable of donor motivation demonstrated considerable probability that the association between all of the independent variables as a whole and the dependent variable was the product of the data set:  $\chi^2(6, n = 30) = 37.57, p < .001$ , and that the combined effect of the variables accounted for a considerable proportion of the variance between participants,  $R^2 = .845$ . Furthermore, tests conducted upon each of the independent variables individually determined that sexuality and parent status were significantly associated with the changes in the categories of the dependent variable, whilst the association with the location at which the participant donated was not significant on its own.

Table 2. Model fit for motivation variable

	<i>A</i>	$\chi^2$	df	<i>p</i>
Hypothetical	42.21			
Combined IVs	4.64	37.57	6	< .001
Sexuality	16.46	11.82	2	< .001
Donor Location	7.59	2.95	2	.228
Parent Status	12.03	7.39	2	.025

The findings presented in Table 3 highlight the specific direction of the association between the independent variables and the levels of the dependent variable (see over page).

Overall, participants were less likely to talk primarily of self motivations than they were to report altruistic motivations (the reference category). Within the self motivated response category, and in relation to the expected distribution (reported as the constant), gay men were significantly more likely than heterosexual men to speak primarily of being motivated by reasons that emphasised their own needs (such as a desire to reproduce); those who donated to clinics were less likely than those who donated privately to speak primarily of being motivated by their own needs (though this finding was not significant); and parents were significantly less likely than those who were not parents to report that they were motivated by reasons that emphasised their own needs.

Again in relation to the reference category of altruistic motivations, participants overall were more likely to talk primarily of relational motivations. Within the relational motivation response category, and in relation to the expected distribution, gay men were significantly more likely than heterosexual to talk primarily of a relational motivation; those who donated to clinics were significantly less likely than those who donated privately to report relational motivations; and parents were significantly less likely than those who were not parents to talk primarily of a relational motivation.

Table 3. Parameter estimates for motivation variable

Motivation	Independent Variable and Levels	Estimate	Std. Error	Wald	df	<i>p</i>
1 Self	Constant	-17.87	0.81	484.39	1	< .001
	Sexuality Gay cf. Het	35.06	0.14	314.88	1	.001
	Location Clinic cf. Private	-3.55	4.05	0.77	1	.380
	Parent Yes cf. No	35.63	2.33	233.98	1	< .001
2 Relational	Constant	17.63	0.81	471.59	1	< .001
	Sexuality Gay cf. Het	35.80	0.23	276.89	1	.001
	Location Clinic cf. Private	15.16	3.29	21.17	1	< .001
	Parent Yes cf. No	-18.17	0.81	501.18	1	< .001

When the independent variables are compared to the levels of the dependent variable of motivation overall, we can see that participants overall were most likely to speak of being motivated to donate for relational reasons (i.e., in the context of a friendship). More specifically, gay men were significantly more likely overall to talk primarily of relational motivations than any other form of motivation, whilst heterosexual men were significantly more likely overall to talk primarily of altruistic motivations. Men who donated to clinics were significantly more likely overall to talk primarily of altruistic motivations than any other form of motivation, whilst those who donated privately were significantly more likely overall to talk primarily of relational motivations. Men who were parents were significantly more likely overall to talk of altruistic motivations than any other form of motivation, whilst men who were not parents were significantly more likely overall to talk of relational motivations.

### The Meaning of Biology or Genetic Material

Table 4 presents the distribution of the data in relation to the second dependent variable of meaning of biology or genetic material in relation to the three independent variables (see over page).

As Table 5 indicates, testing of the relationship between the independent variables and the dependent variable of meanings attributed to biological relations or genetic material demonstrated considerable probability that the association between all of the independent variables as a whole and the dependent variable was the product of the data set  $X^2(6, n = 30) = 24.57, p < .001$ , and that the combined effect of the variables accounted for a considerable proportion of the variance between participants,  $R^2 = .650$ . Furthermore, tests



Table 4. Frequencies for meaning of biology or genetic material variable

Sexuality	Parent Status	Donor Location	Meaning of Biology/Genetic Material			Total
			Legacy	Gift	Responsibility	
gay	Parent	Clinic	0	0	0	0
		Private	0	3	3	6
	Not	Clinic	2	0	2	4
		Private	5	5	1	11
het	Parent	Clinic	0	8	0	8
		Private	0	0	0	0
	Not	Clinic	0	0	0	0
		Private	0	1	0	1

conducted upon each of the independent variables individually determined that sexuality and parent status were significantly associated with the changes in the categories of the dependent variable, whilst the association with the location at which the participant donated was not significant on its own.

Table 5. Model fit for meaning of biology or genetic material variable

	<i>l</i>	$\chi^2$	df	<i>p</i>
Hypothetical	32.38			
Combined IVs	9.00 <sup>a</sup>	24.57	6	< .001
Sexuality	22.26	13.27	2	.001
Donor Location	14.20	5.20	2	.074
Parent Status	15.99	6.99	2	.030

The findings presented in Table 6 highlight the specific direction of the association between the independent variables and the levels of the dependent variable (see over page).

Table 6. Parameter estimates for meaning of biology or genetic material variable

Meanings of Biology	Independent Variable and Levels	Estimate	Std. Error	Wald	df	<i>p</i>
1 Legacy	Constant	21.91	< 0.01	9.66	1	< .001
	Sexuality Gay cf. Het	25.30	0.97	43.89	1	.001
	Location Clinic cf. Private	-1.61	1.43	2.845	1	.001
	Parent Yes cf. No	-20.53	1.16	314.42	1	< .001
2 Gift to others	Constant	41.31	<0.01	3.43	1	< .001
	Sexuality Gay cf. Het	-39.70	<0.01	312.89	1	< .001
	Location Clinic cf. Private	50.01	0.89	502.19	1	< .001
	Parent Yes cf. No	46.61	0.77	335.18	1	< .001

Participants were overall more likely to talk primarily of an understanding of biological relations or genetic material as a legacy than they were to talk primarily of biology or genetics as a responsibility to donor-conceived children (the reference category). Within the biology as genetic legacy response category, and in relation to the expected distribution (reported as the constant), gay men were significantly more likely than heterosexual men to talk primarily of an understanding of biology as a genetic legacy; those who donated to clinics were significantly less likely than those who donated privately to talk primarily of an understanding of biology as a genetic legacy; and parents were significantly less likely than those who were not parents to talk primarily of biology as a genetic legacy.

Overall, participants were more likely to talk primarily of genetic material as a gift to others than they were to talk primarily of biology or genetics as a responsibility to donor-conceived children (i.e. that sperm donors must be accountable to children wishing to know their genetic history). Within the biology or genetic material as a gift to others response category, in relation to the expected distribution, gay men were significantly less likely than heterosexual men to talk primarily of biology as a gift to others; those who donated to clinics were significantly more likely than those who donated privately to speak primarily of biology as a gift to others; and parents were significantly more likely than those who were not parents to talk primarily of biology as a gift to others.

Read together, these findings suggest that participants overall were least likely to speak of biology as a responsibility to donor-conceived children. More specifically, gay men were significantly more likely overall to talk primarily of biology as genetic legacy than any other understanding of biology, whilst heterosexual men were significantly more likely overall to

talk primarily of genetic material as a gift to others. Men who donated to clinics were significantly more likely overall to talk about genetic material as a gift to others than any other understanding of biology, whilst those who donated privately were significantly more likely overall to talk about biology as genetic legacy. Men who were parents were significantly more likely overall to talk about genetic material as a gift to others than any other understanding of biology, whilst men who were not parents were significantly more likely overall to talk of biology as genetic legacy.

**The Determination of Children’s Best Interests**

Table 7 presents the distribution of the data in relation to the third dependent variable of the determination of children’s best interests in relation to the three independent variables.

Table 7. Frequencies for best interests variable

Sexuality	Parent Status	Donor Location	Who Should Determine Best Interests			Total
			Adult	Children	Both	
gay	Parent	Clinic	0	0	0	0
		Private	0	5	1	6
	Not	Clinic	2	3	0	4
		Private	7	1	3	11
het	Parent	Clinic	6	0	2	8
		Private	0	0	0	0
	Not	Clinic	0	0	0	0
		Private	1	0	0	1

As Table 8 indicates, testing of the relationship between the independent variables and the dependent variable of the determination of children’s best interests demonstrated considerable probability that the association between all of the independent variables as a whole and the dependent variable was the product of the data set  $X^2(6, n = 30) = 21.71, p < .001$ , and that the combined effect of the variables accounted for a considerable proportion of the variance between participants,  $R^2 = .594$ . Furthermore, tests conducted upon each of the independent variables individually determined that sexuality and parent status were significantly associated with the changes in the categories of the dependent variable, whilst the association with the location at which the participant donated was not significant on its own.

Table 8. Model fit for best interests variable

	<i>λ</i>	$\chi^2$	df	<i>p</i>
Hypothetical	32.38			
Combined IVs	10.67	21.71	6	.001
Sexuality	27.73	17.06	2	< .001
Donor Location	14.71	4.04	2	.132
Parent Status	24.69	14.03	2	.001

The findings presented in Table 9 highlight the specific direction of the association between the independent variables and the levels of the dependent variable:

Table 9. Parameter estimates for best interests variable

Who Determines Best Interests	Independent Variable and Levels	Estimate	Std. Error	Wald	df	<i>p</i>
1 Adult	Constant	17.95	1.23	212.69	1	< .001
	Sexuality Gay cf. Het	-17.10	1.23	193.08	1	< .001
	Location Clinic cf. Private	19.63	0.86	416.11	1	< .001
	Parent Yes cf. No	-34.47	1.50	525.66	1	< .001
2 Child	Constant	41.08	< 0.01	5.20	1	< .001
	Sexuality Gay cf. Het	49.98	< 0.01	111.09	1	< .001
	Location Clinic cf. Private	-19.57	0.864	513.06	1	< .001
	Parent Yes cf. No	2.71	< 0.01	1.18	1	< .001

Overall, participants were more likely to talk primarily of an adult orientation than they were to talk primarily of both adult and child determined orientations (the reference category). Within the adult orientated response category, and in relation to the expected distribution (reported as the constant), gay men were significantly less likely than heterosexual men to talk primarily of an adult orientation to determining children's best interests; those who donated to

clinics were significantly more likely than those who donated privately to report an adult orientation; and parents were significantly less likely than those who were not parents to report an adult orientation.

In relation to the reference category of both adult- and child-determined orientations, participants overall were more likely to talk primarily of a child orientation. Within the child orientated response category, and in relation to the expected distribution, gay men were significantly more likely than heterosexual men to talk primarily of best interests as child-determined; those who donated to clinics were significantly less likely than those who donated to privately to speak primarily of a child orientation to best interests; and parents were significantly less likely than those who were not parents to talk primarily of an adult orientation.

If these two sets of findings are combined, we see that participants overall were least likely to talk of both adult- and child-determined understandings of children's best interest. More specifically, gay men overall were significantly more likely to talk primarily of the need for children to determine their own best interests than any other understanding of children's best interests, whilst heterosexual men overall were more likely to talk primarily of the need for adults to determine children's best interests. Men who donated to clinics were significantly more likely overall to talk primarily of an adult-determined approach to understanding children's best interests than any other understanding of children's best interest, whilst those who donated privately were significantly more likely overall to talk primarily of an understanding of a child-determined approach to understanding children's best interests. Relatively equal numbers of men who were parents and men who were not parents were significantly likely to talk primarily of an adult-orientated approach to determining children's best interests than any other way of talking about such determinations.

## **Discussion**

The findings presented in this paper provide an interesting picture of the role that donor sexuality, parent status and the context in which donation occurs play in determining sperm donors' motivations to donate, their beliefs about the meanings of biological relations or genetic material, and their understandings of who should determine children's best interests. It is of course important to note again here the small sample size, and the effect this may have had on overestimating the significance of the test outcomes and thus the rejection of the null hypothesis. Following Garson (2008), however, it is possible to assess the relative degree of concern that should be granted to this likelihood of the null hypothesis being incorrectly rejected, by examining the size of the standard error in each of the parameter estimates, the size of the log ratio values, and by the use of statistical tests designed to counter the effects of a small sample size. Visual inspection of the standard errors and the log ratio values would indicate that none of the results indicated exceptionally high standard errors and that the log ratio values were average (though statistically significant).

In relation to all dependent variables, multinomial logistic regression coefficients found that the combined effect of the three independent variables accounted for a large and significant proportion of the differences between participants. The independent variable of sexuality was seen to contribute the most significant proportion of the explanation of differences between men in relation to each of the dependent variables, with the parent status of participants (i.e., whether or not they were involved in raising children prior to acting as sperm donors) also accounting for a significant proportion of the differences between men. Whilst the context in which men donated did not play a significant role on its own in relation to each of the dependent variables, it nonetheless, when combined with the other two independent

variables, contributed to the explanatory power of the combined model of the independent variables analysed in this paper.

Findings relating to the specific iterations of the relationship between levels of the dependent variables and the individual independent variables require careful examination. In relation to sexuality, it was found that gay men overall were more likely to talk primarily about relational motivations, to understand biology as a genetic legacy, and to suggest that children should determine their own best interests. Heterosexual men overall were more likely to talk primarily about altruistic motivations, to understand genetic material as a gift to others, and to suggest that children's best interests should be determined by adults. One explanation for these findings in relation to gay men relates to the social context of heteronormativity outlined in the introduction, in which gay men may be more likely to consider sperm donation as an act of reproduction if their reproductive options appear otherwise curtailed (Ripper 2008). Nonetheless, the gay men in this study appeared overall committed to supporting lesbian women with whom they were friends in achieving their own reproductive desires (i.e., it was only gay men who reported relational motivations). The fact that heterosexual men, the majority of whom had donated anonymously to clinics, spoke primarily of genetic material as an altruistic gift to others, supports previous research findings (e.g., Cook & Golombok 1995; Daniels 1989; Daniels, Curson & Lewis 1996). The interesting finding that more gay men than heterosexual men talked primarily of children determining their own best interests may partly be explained by the fact that more heterosexual men were parents than were gay men (in that men who are parents, on the basis of their experiences of parenting, may be more likely to consider themselves best suited to determining children's best interests), but may also indicate a different approach to engaging with children amongst gay men (Hicks 2006; Riggs 2007).

Looking at the parent status of the participants, it can be seen that men who were parents were more likely overall to talk of altruistic motivations and of genetic material as a gift. Men who were not parents were more likely overall to talk of relational motivations and to understand biology as genetic legacy. All men overall, regardless of parent status, were more likely to talk about an adult orientation to determining children's best interests. These findings, similar to those in relation to sexuality, may be explained by the fact that fewer gay men were parents, and that all but one of the heterosexual men were parents. Understanding sperm donation as an altruistic gift may be understood as the benefit of experiencing relatively straightforward access to reproductive opportunities for many heterosexual men in a social context whereby biological relatedness is valued (Stacey 2006), and where the denial of this to gay men on many levels may result in an increased investment in the genetic meanings of sperm donation (Ripper 2008). The finding that all men overall were more likely to talk about an adult orientation to determining children's best interests would affirm the suggestion from previous research that heteronormative social contexts not only privilege certain family forms over others (i.e., heterosexual biological families), but also privilege the desires of adults over those of children (Burman 1994).

Finally, in relation to the context in which men donated sperm, men who donated to clinics were more likely to talk primarily of altruistic motivations, of genetic material as a gift to others, and of an adult orientation to children's best interests. Men who donated in the context of private arrangements were more likely overall to talk of relational motivations, of biology as a genetic legacy, and of children determining their own best interests. Again this must be related to the fact that most gay men donated in the context of private arrangements, whereas most heterosexual men donated anonymously to clinics. Having to spend considerable time discussing contracts with lesbian recipients, whilst not preventing gay men from later developing a desire to parent (as was alleged in the legal cases referred

to in the introduction), may translate into gay men giving more thought to what children conceived of their donations may want, and stemming from this, that children must therefore be recognised as having rights to determine their own best interests.

By reading the relationships between the independent and dependent variables alongside aspect of the demographic information, it is possible to see a pattern emerging from the data. This pattern is affirmed by the findings from the regressions, which would appear to suggest an order in which the independent variables may influence the dependent variables on the basis of the degree of pseudo variance that each individual independent variable on its own was shown to account for. To increase the explanatory power of this model, other variables may be entered into the equation to further understand the variability amongst gay and heterosexual sperm donors in relation to their motivations and beliefs. This extended model may be represented as in Figure 1:

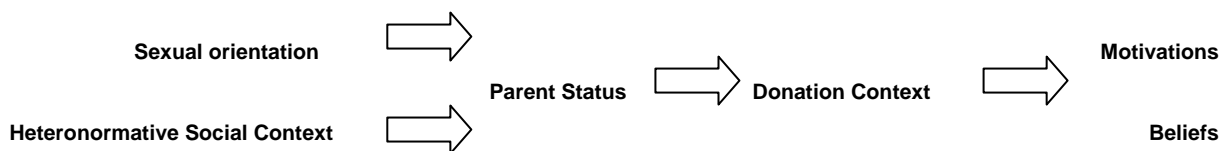


Figure 1. Flow chart model of IV influence upon Dependent Variables

In other words, in a heteronormative social context, gay men are less likely to be aware of, or have access to, a wide range of options for becoming parents. This potentially leads to a significant number of gay men who would otherwise choose to become parents not having children (Stacey 2006). As a result, and to meet their potential desires to be involved in raising children or to fulfil an investment in reproduction (an investment that is an aspect of the heteronormative social context, as previously mentioned), greater numbers of gay men than heterosexual men may choose to donate in circumstances more likely to lead to them being known to children conceived of their donation (Ripper 2008). As a result, the combination of these four factors results in a particular set of motivations and beliefs that cannot be read outside of these context.

Yet we may postulate a number of further conditions that may shape the different motivations and beliefs reported amongst gay and heterosexual sperm donors in Australia. Firstly, the impact that parent status will have is likely to be highly dependent upon a desire to parent or reproduce. If a gay man, for example, who lives in a heteronormative social context believes that he cannot raise children, this is likely only to result in him considering acting as a sperm donor to meet a desire to parent if he is interested in parenting. A second and related aspect of the social context that is likely to influence parent status, is the communities in which gay men live. In other words, even if gay men are aware of the options available to them to raise children, this does not necessarily mean they will do so: previous research has suggested that many gay men see parenting itself as a heteronormative practice, or as incompatible with membership in lifestyle cultures in which some gay men enjoy living (Mallon 2004). Recognising how these two further factors may contribute to differing outcomes amongst gay and heterosexual men is important for increasing our ability to explain not only the restrictive social contexts that may result in gay men choosing to act as sperm donors and the beliefs and motivations that may arise from this, but also the alternate understandings of parenting and community that circulate amongst gay and heterosexual men.

It is of course important to recognise that whilst the findings presented in this paper have a lot to tell us about the potential motivations and beliefs of gay and heterosexual sperm donors, and some of the possible reasons behind these, the study is nonetheless limited in several ways. First, the sample is relatively small, though in many ways comparable in size to previous exploratory studies conducted in Australia and internationally with heterosexual men who have donated to clinics (Daniels 1989; 1991; Kirkman 2004). Future research would benefit from larger sample sizes, but also samples with more equitable number of gay and heterosexual men, and more equitable numbers of gay and heterosexual parents and non-parents. The findings are also limited by the fact that the analyses were run on quantitative data that were extrapolated from qualitative data. Data such as these are highly contingent upon the researcher's interpretation of participants' talk, and thus future research would benefit from applying the findings presented here to develop quantitative measures to assess the variables examined here, in addition to conducting further qualitative research to understand other aspects of gay and heterosexual sperm donors' experiences, such as the potential further factors outlined above. Finally, the findings are limited by the tests that were utilised. As the data were small in number and categorical in nature, only certain tests could be run. Whilst these produced interesting findings that would appear both valid and explanatory, future research that collects quantitative data may be able to more closely explore the interactions of particular independent variables and thus more clearly explain the amount of variance explained by the proposed model above, and provide findings on the interactions of individual independent variables upon the dependent variables, something that could only be approximated in the present study through a comparison of demographic variables with the relationship between each independent variable and specific levels of the dependent variables.

Despite these limitations, the findings presented here, along with those previously published from this data set (Riggs 2008a; 2008b; in-press) highlight the diversity amongst gay and heterosexual sperm donors, and the utility in taking an approach to data analysis that values the contribution of both qualitative data and quantified analyses. The combination of these two allows for a nuanced explanation of the data that is, by its very nature, required to account for both the context in which individual participants live, and the impact of this upon the findings. Whilst it is obviously desirable that the social and legislative contexts in which sperm donors live continue to change so as to provide more equitable access to all people to options around parenting, it would seem important in the interim that we better understand why particular groups of men choose to donate, and how this potentially impacts upon their beliefs that may at times accord with, and other times conflict with, both recipients of their donations and donor conceived children.

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