



10 **ABSTRACT**

11

12 **Study question:** What is the relationship between parent psychological adjustment,  
13 type of gamete donation (donor insemination, egg donation), and parents' disclosure  
14 of their use of donated gametes to their children.

15 **Summary answer:** Disclosure of donor origins to the child was not always associated  
16 with optimal levels of psychological adjustment, especially for fathers in donor  
17 insemination families.

18 **What is known already:** Cross-sectional analyses have found mothers and fathers  
19 who conceived a child using donated sperm or eggs to be psychologically well  
20 adjusted, with few differences emerging between parents in gamete donation  
21 families and parents in families in which parents conceived naturally. The  
22 relationship between mothers' and fathers' psychological well-being, type of gamete  
23 donation (donor insemination, egg donation) and parents' disclosure decisions has  
24 not yet been examined.

25 **Study design, size, duration:** In this follow-up study, data were obtained from  
26 mothers and fathers in donor insemination and egg donation families at five-points,  
27 when the children in the families were aged 1, 2, 3, 7 and 10. In the first phase of the  
28 study, 50 donor insemination families and 51 egg donation families with a 1-year-old  
29 child participated. By age 10, the study included 34 families with a child conceived by  
30 donor insemination and 30 families with a child conceived by egg donation,  
31 representing 68% and 58% of the original sample respectively.

32 **Participants/materials, setting, methods:** Families were recruited through nine  
33 fertility clinics in the United Kingdom. Standardised questionnaires assessing

34 depression, stress and anxiety were administered to mothers and fathers in donor  
35 insemination and egg donation families.

36 **Main results and the role of chance:** Mothers and fathers in both donor  
37 insemination and egg donation families were found to be psychologically well-  
38 adjusted: for the vast majority of parents levels of depression, anxiety and parenting  
39 stress were found to be within the normal range at all five time points. Disclosure of  
40 the child's donor origins to the child was not always associated with optimal levels of  
41 parental psychological adjustment. For example, disclosure was associated with  
42 lower levels of psychological well-being for certain groups in particular (such as  
43 fathers in donor insemination families), at certain times (when children are in middle  
44 childhood and have a more sophisticated understanding of their donor origins).

45 **Limitations, reasons for caution:** Due to small sample sizes, the value of this study  
46 lies not in its generalisability, but in its potential to point future research in new  
47 directions.

48 **Wider implications of the findings:** Donor insemination and egg donation families  
49 are a heterogenous group, and future research should endeavour to obtain data  
50 from fathers as well as mothers. Support and guidance in terms of disclosure and  
51 family functioning might be most beneficial for parents (and especially fathers) in  
52 donor insemination families, particularly as the child grows older. The more that is  
53 known about the process of disclosure over time, from the perspective of the  
54 different members of the family, the better supported parents and their children can  
55 be.

56 **Study funding/competing interest(s):** The project described was supported by grant  
57 number RO1HD051621 from the National Institute of Child Health and Human

58 Development. The content is solely the responsibility of the authors and does not  
59 represent the official views of the National Institute of Child Health and Human  
60 Development or the National Institutes of Health. The authors have no conflict of  
61 interest to declare.

62 **Key words:** donor insemination, egg donation, psychological well-being, disclosure,  
63 gamete donation

64

65

### INTRODUCTION

66

67 Parental psychological adjustment is an important aspect of family functioning. The  
68 psychological adjustment of both mothers and fathers has been found to be  
69 associated with children's psychological development. For example, children living  
70 with a mother who is depressed are at increased risk for behavioural difficulties and  
71 a variety of psychiatric problems, including depression (Lovejoy, Graczyk, O'Hare, &  
72 Neuman, 2000). Likewise, anxiety disorders have been found to cluster within  
73 families (Turner, 2003), with children of anxious parents being seven times more  
74 likely to develop an anxiety disorder themselves than the children of non-anxious  
75 parents (Turner, Beidel, & Epstein, 1991). Similarly, high levels of parenting stress  
76 (i.e. stress that is caused by day-to-day parenting) has been shown to be an  
77 important factor in the development of child psychopathology (Deater-Deckard,  
78 1998) and, in particular, behavioural problems (Barry, Dunlap, Cotten, Lochman, &  
79 Wells, 2005).

80

81 Mothers' and fathers' mental health problems influence their children's  
82 development in a number of different ways (Goodman & Gotlib, 1999). Firstly,  
83 children with a depressed or anxious parent may have a genetic predisposition to  
84 psychopathology. Secondly, mothers with psychopathology may expose their  
85 children to negative cognitions, behaviours, and affect, which then place the child at  
86 an elevated risk for developing psychopathology themselves. For example,  
87 depressed mothers have been found to be more disengaged, hostile, manipulative,  
88 and inconsistent in their discipline than non-depressed mothers (Dix & Meunier,  
89 2009). Likewise, anxious mothers have been found to be less warm and less positive  
90 in their interactions with their children, granting less autonomy to, and being more  
91 critical of, their child in general when compared to non-anxious mothers (Whaley,  
92 Pinto, & Sigman, 1999). It is also important to consider that mental health problems  
93 do not exist in isolation, but within a social and familial context (Cicchetti, Rogosch,  
94 & Toth, 1998). Therefore, children growing up in households in which one or both  
95 parents are experiencing mental health problems may experience increased levels of  
96 marital discord and family conflict, factors that have been identified as having a  
97 detrimental effect on children's psychological adjustment.

98

99 The influence of fathers' psychological adjustment on family functioning and child  
100 outcomes has received less attention by researchers than that of mothers (Phares &  
101 Compas, 1992). A recent meta-analytic review of 28 studies concluded that paternal  
102 depression has a significant, though small, effect on parenting, with depressed  
103 fathers demonstrating fewer positive parenting behaviours and more negative  
104 parenting behaviours (Wilson & Durbin, 2010). The effect size for the relationship

105 between paternal depression and parenting behaviours was found to be comparable  
106 to those found for mothers, indicating that psychological adjustment affects fathers'  
107 parenting behaviours to the same extent as it does for mothers.

108

109 Parents' psychological adjustment may differ between families created by gamete  
110 donation and families in which parents conceived naturally for a number of reasons.  
111 The parenting experience may be different for heterosexual couples who conceive  
112 using donated sperm or eggs compared to those who conceived naturally, as one  
113 parent lacks a genetic relationship with the child (the father in donor insemination  
114 families, and the mother in egg donation families). Parents who conceive using  
115 donated sperm or eggs have also experienced a different route to parenthood,  
116 typically having experienced infertility and undergone fertility treatment, which may  
117 have lasted for many years. These parents have had to accept that they are unable  
118 to experience the pregnancy and birth of a child who is their shared genetic  
119 offspring, which may have involved feelings of grief and loss (Hammer, Burns &  
120 Covington, 2006). Although the stress of infertility has traditionally been thought of  
121 as being more pronounced for women (Greil, 1997), research in the past decade  
122 indicates that men likewise experience feelings of sadness and anxiety and may feel  
123 unable to talk to their friends or family about this experience (Dooley, Nolan, &  
124 Sarma, 2011; Fisher & Hammarberg, 2012). It has been questioned whether parents  
125 who have experienced infertility and conceived using assisted reproductive  
126 technologies will be able to parent effectively having endured a long period of  
127 infertility (van Balen, 1998).

128

129 Another reason why parental psychological well-being may differ in families created  
130 by gamete donation is the issue of disclosure. Parents who have conceived using  
131 donated sperm or eggs have a choice as to whether to tell their child about their  
132 donor origins and if so, how and when to do so. In the UK, parents are generally  
133 encouraged to tell their child that they were conceived using the egg or sperm of a  
134 donor at a young age, with the hope that there will never be a time when this  
135 information is new or shocking (HFEA, 2004; Nuffield Council on Bioethics, 2013). An  
136 increasing number of parents in both donor insemination and egg donation families  
137 are choosing to tell their children about their donor origins, although most two-  
138 parent heterosexual parent families in the UK appear not to do so (Readings *et al.*,  
139 2011). Keeping a secret within the family may cause high levels of anxiety and has  
140 been described as being psychologically “hard work” (Lane & Wegner, 1995), as  
141 individuals or couples may become preoccupied with the secret, and feel anxious  
142 and uncomfortable when topics related to the secret are raised in conversation  
143 (Karpel, 1980). On the other hand, it has been recognised that the disclosure of  
144 secrets may not always be an easy option (Vrij *et al.*, 2003) and may result in a  
145 reaction that is psychologically damaging (Caughlin *et al.*, 2009).

146

147 Despite concerns about the experience of infertility and the issue of disclosure,  
148 mothers and fathers who have conceived a child using donated sperm or eggs have  
149 been found to be psychologically well adjusted, with few differences emerging  
150 between parents in gamete donation families and comparison groups of parents  
151 who conceived naturally (Golombok *et al.*, 1996; Golombok *et al.*, 2002; Murray *et*  
152 *al.*, 2006). Of the small number of cross-sectional studies that have compared family

153 functioning in disclosing and non-disclosing gamete donation families, no differences  
154 have been found in mothers' or fathers' psychological well-being (Golombok *et al.*,  
155 2002; Lycett *et al.*, 2004; Nachtigall *et al.*, 1997).

156

157 The analysis presented in the paper aims to build upon what we know about parent  
158 psychological well-being in donor conception families in relation to disclosure. Due  
159 to the highly sensitive nature of research in this area, the recruitment of families is  
160 challenging and sample sizes are typically small, therefore donor insemination and  
161 egg donation families are often treated as homogenous group. In the exploratory  
162 analysis presented in this paper, mothers' and fathers' psychological adjustment in  
163 relation to disclosure is examined in donor insemination families and egg donation  
164 families over a ten-year period. The more that is known about parent psychological  
165 adjustment in donor insemination and egg donation families over time, in relation to  
166 the disclosure of the child's donor origins, from the perspective of both mothers and  
167 fathers, the better supported parents and their children can be.

168

169

170

## **MATERIALS AND METHODS**

171

### **Participants**

173

174 Data were collected as part of larger study of heterosexual, two-parent families  
175 created by assisted reproduction in the UK. This larger study aimed to examine  
176 family functioning in families created by donor insemination, egg donation,

177 surrogacy and a control group of families in which children were naturally conceived.  
178 Data have obtained from parents at five time-points, when the children were aged  
179 one (Golombok *et al.*, 2004), two (Golombok *et al.*, 2005), three (Golombok *et al.*,  
180 2006), seven (Golombok *et al.*, 2011; Readings *et al.*, 2011) and 10 years (Golombok  
181 *et al.*, 2012).

182

183 The donor insemination and egg donation families were recruited through nine  
184 fertility clinics in the United Kingdom. All two-parent heterosexual families with a  
185 child aged between nine months and one year old were asked to take part in the  
186 research. The exclusion criteria were severe congenital abnormalities and multiple  
187 births (Golombok *et al.*, 2004). At this initial stage, 50% of donor insemination  
188 families (n = 50) and 75% of egg donation families (n = 51) agreed to take part. No  
189 information is available on those families that declined.

190

191 By age 10, the study included 34 families with a child conceived by donor  
192 insemination and 30 families with a child conceived by egg donation, representing  
193 68% and 58% of the original sample respectively (response rates for each phase of  
194 the study are presented in Table I). Rather than having actively withdrawn, the  
195 majority of those families from whom data was not obtained had moved home and  
196 could not be traced. The response rate has been calculated per family rather than for  
197 mothers and fathers separately. At some phases of the study, fathers completed  
198 questionnaire booklets but were unavailable for interview (mostly due to work  
199 commitments). The number of mothers and fathers in each family type from whom  
200 we obtained questionnaire data are presented in Tables II and III.

201

202 Those families who participated when the children were aged 10 (responders) were  
203 compared with those who did not (non-responders). There was no association  
204 between whether families participated at age 10, and mothers' or fathers' intentions  
205 regarding whether to tell their child about the nature of their conception reported at  
206 age one. Likewise, there was no association between maternal or paternal  
207 psychological well-being (levels of depression, anxiety and stress) at age one, and  
208 whether families participated at age 10.

209

## 210 **Procedure**

211

212 Ethical approval for the earlier phases of the study (when children were aged one,  
213 two or three) was obtained from the City University Ethics Committee, and ethical  
214 approval for the latter phases (when children were aged seven and 10) was granted  
215 by the Cambridge Psychology Research Ethics Committee.

216

217 When children were aged one, two, three, seven and 10, a research psychologist  
218 trained in the study techniques visited the families at home. Standardised  
219 questionnaires relating to parents' psychological adjustment were administered to  
220 mothers and fathers individually. Standardised interviews were also conducted with  
221 mothers and fathers, a section of which dealt with disclosure (for more information  
222 see Blake *et al.*, 2010).

223

## 224 **Measures**

225

226 *Disclosure status (age one, two, three, seven and 10 years)*

227

228 Parents' disclosure status was rated using data obtained during interviews with  
229 mothers. When children were aged one, two and three, parents' disclosure status  
230 was categorised according to parents' intentions, given the young age of their  
231 children and their children's inability to understand. At age one, 46% of donor  
232 insemination (n=23) and 56% of egg donation parents (n = 29) reported that they  
233 intended to disclose in the future.

234 When children were aged seven, 29% of mothers in donor insemination families (n =  
235 10) and 47% of mothers in egg donation families (n = 14) reported that they had  
236 started the process of disclosure. At the latter phases of the study, we defined  
237 disclosure status according to actual behaviour (rather than intentions) as most  
238 parents who disclose do so by the time their child is 7 year old (Blake *et al.*, 2010;  
239 Mac Dougall *et al.*, 2007a).

240 To clarify, disclosure status was categorised as follows:

241 *Age one, two and three: "disclosing"* families refers to those in which mothers  
242 planned to tell the child about their donor origins in the future or had already  
243 started doing so; "non-disclosing" refers to those who did not plan to do so or were  
244 uncertain as to how to proceed.

245 *Age seven and 10: "disclosing"* refers to those families in which mothers reported  
246 that they had started the process of telling their children about their donor origins;  
247 all other families were categorised as "non-disclosing".

248

249 *Edinburgh Depression Scale (age one, two, three, seven and 10 years)*

250 To assess parents' level of depression, the Edinburgh Depression Scale [EDS]  
251 (Thorpe, 1993) was administered to both mothers and fathers. This 10-item measure  
252 produces a total score ranging from 0 to 30, with higher scores indicating higher  
253 levels of depression. Scores of 13 or above are indicative of the presence of a  
254 depressive illness for women (Cox, Holden, & Sagovsky, 1987) and scores above 10  
255 have been shown to be indicative of a depressive illness in men (Matthey, Barnett,  
256 Kavanagh, & Howie, 2001). The questionnaire has been found to have satisfactory  
257 validity, split-half reliability and to be sensitive to changes in depression over time  
258 (Cox *et al.*, 1987). Although it was originally devised for use with women in the  
259 postpartum period, the scale has been shown to be applicable to mothers outside of  
260 the postpartum period and to fathers (Matthey *et al.*, 2001).

261

262 *Trait Anxiety Inventory (age one, two, three, seven and 10 years)*

263 The Trait-Anxiety Inventory (Spielberger, 1983), a 20-item questionnaire measuring  
264 the individual's general level of anxiety, was also administered to mothers and  
265 fathers. Scores on this questionnaire range from 20 to 80, with higher scores  
266 indicating greater anxiety. This questionnaire is one of the most well-established  
267 measures of anxiety, used in over 3000 studies (Spielberger, 1989). It has been  
268 shown to have good reliability and to discriminate well between clinical and non-  
269 clinical samples (Spielberger, 1983).

270

271 *Parenting Stress Index (age one, two, three and seven years only)*

272 The short form of the Parenting Stress Index [PSI] (Abidin, 1990) is a standardised  
273 assessment of stress associated with parenting, was completed by mothers and  
274 fathers. This 36-item questionnaire comprises three subscales (Parental Distress,  
275 Parent-Child Dysfunctional Interaction, and Difficult Child) which are summed to  
276 produce a total stress score, with higher scores representing greater levels of stress  
277 experienced in the role of parent. A total stress score above 90 indicates clinically  
278 significant levels of stress. Test-retest reliability for the total score was reported to  
279 be 0.96 over a 1 to 3-month interval and .65 over a year. Concurrent and predictive  
280 validity have been demonstrated for the full-length questionnaire, and the short  
281 form has been reported to correlate very highly with the full-length version (Abidin,  
282 1990). The PSI was not administered at age 10; the battery of tests given to parents  
283 changed at each time-point and some questionnaires were eliminated so that  
284 others, which were more pertinent to families in which children were aged 10, could  
285 be included.

#### 286 **Analytical approach**

287

288 A cross-sectional factorial ANOVA design was utilised, which allowed differences  
289 between family type (donor insemination versus egg donation families), disclosure  
290 (disclosing versus non-disclosing) and the interaction between family type and  
291 disclosure status to be examined at each time-point. An ANOVA approach was taken  
292 as opposed to the more complex MANOVA approach in order to avoid any further  
293 loss of data and to aid the interpretation of findings. Due to relatively small sample  
294 sizes at the latter time-points of the study (especially for data obtained from

295 fathers), a longitudinal analytical approach was not taken, as it would have involved  
296 a considerable loss of data.

297

298 Demographic variables were compared between the different family types at each  
299 phase of the study. Mothers in egg donation families were significantly older than  
300 mothers in donor insemination families at age one, two, seven and 10. In addition,  
301 there was a statistically significant difference in family size at age 1 and 3, with  
302 children in egg donation families being more likely to be only children. There was no  
303 difference between groups in socioeconomic status, as measured by the parent with  
304 the highest ranking occupation according to a modified version of the Registrar  
305 General's Classification (The Population and Census Statistics [OCPS] and  
306 Employment Department Group, 1991). At each time-point, the relationship  
307 between demographic variables that differed between groups and the outcome  
308 variables were examined. No significant relationships were found.

309

310 The statistic eta-squared ( $\eta^2$ ) was calculated and the square root of this value (the  
311 effect size  $r$ ) has been reported. Effect sizes are classified as small ( $r = 0.1 - 0.23$ ),  
312 medium ( $r = 0.24 - 0.36$ ) and large ( $r > 0.37$ ) (Cohen, 1992). Eta-squared has been  
313 criticised for providing an overestimation of the effect size (Field, 2009), but was  
314 considered appropriate due to the unequal sample sizes in each group.

315

316

## **RESULTS**

317

318

### **Age one**

319

320 Mothers' scores on questionnaires assessing depression, stress and anxiety were  
321 entered into factorial ANOVAs (see Table II). The effect of family type (donor  
322 insemination versus egg donation) was non-significant for all three measures of  
323 psychological well-being. The interaction effect between family type and disclosure  
324 was non-significant for all three measures of psychological well-being.

325

326 The effect of disclosure (disclosing versus non-disclosing) approached statistical  
327 significance for mothers' levels of depression ( $F(1) = 3.45, p = .07, r = .19$ ) and was  
328 statistically significant for mothers' levels of parenting stress ( $F(1) = 4.97, p = .03, r =$   
329  $.23$ ). For mothers in both donor insemination and egg donation families, levels of  
330 depression and stress were lowest for mothers who planned to tell their child about  
331 their donor origins.

332

333 Fathers' scores from the Edinburgh Depression Scale, Parenting Stress Index and  
334 Trait Anxiety Inventory were entered into factorial ANOVAs (as shown in Table III).  
335 For all three measures of psychological well-being, the effects of family type,  
336 disclosure status, and interaction effects were not statistically significant.

337

338

339

340

341

**Age two**

342

343 *Mothers*

344

345 At age 2, mothers' scores for depression, parenting stress and anxiety were entered  
346 into a factorial ANOVA. For all three measures of psychological well-being, the  
347 effects of family type, disclosure status, and interaction effects were not statistically  
348 significant.

349

350 Likewise, when fathers' scores on the Edinburgh Depression Scale and Parenting  
351 Stress Index were entered into an ANOVA, the main effects of family type, disclosure  
352 status and interaction effects were not statistically significant.

353

354 However, for fathers' scores on the Trait Anxiety Inventory the effect of disclosure  
355 was statistically significant ( $F(1) = 6.31, p = .02, r = .31$ ). For fathers in both donor  
356 insemination and egg donation families, levels of anxiety were lowest in non-  
357 disclosing families.

358

359 **Age three**

360

361 At age 3, the effects of family type, disclosure status, and interaction effects were  
362 not statistically significant on any of the measures of psychological well-being for  
363 mothers or for fathers.

364

365 **Age seven**

366

367 When children were aged seven, mothers' scores from the Edinburgh Depression  
368 Scale, Parenting Stress Index and Trait Anxiety Inventory were entered into factorial  
369 ANOVAs. The effect of family type was non-significant for all three measures of  
370 psychological well-being. The interaction effect between family type and disclosure  
371 was non-significant for all three measures of psychological well-being.

372

373 The effect of disclosure was statistically significant for mothers' levels of depression  
374 ( $F(1) = 7.45, p = .01, r = .34$ ). For mothers in both donor insemination and egg  
375 donation families, levels of depression were lowest for mothers in families in which  
376 parents had started the process of disclosure.

377

378 For fathers' scores on the Edinburgh Depression Scale, Trait State Anxiety  
379 questionnaire and Parenting Stress Index, the effect of family type was non-  
380 significant for all three measures of psychological well-being.

381

382 The main effect of disclosure was statistically significant for fathers' levels of anxiety  
383 ( $F = 5.38, p = .03, r = .33$ ). Levels of anxiety were lowest for fathers in families in  
384 which parents had not disclosed. The main effect of disclosure was non-significant  
385 for fathers' levels of depression and parenting stress.

386

387 The interaction effect between family type and disclosure for fathers' levels of  
388 anxiety approached statistical significance ( $F(1) = 2.90, p = .1, r = .25$ ), as shown in  
389 Table III. For fathers in donor insemination families, levels of anxiety were lowest for

390 fathers in non-disclosing families. For fathers in egg donation families, levels of  
391 anxiety were more similar between disclosing and non-disclosing families.

392

393 There was also a significant interaction effect for fathers' levels of parenting stress ( $F$   
394 = 5.47,  $p < .02$ ,  $r = .34$ ) as shown in Table III. For fathers in donor insemination  
395 families, levels of stress were lowest for fathers who had not disclosed, whereas for  
396 fathers in egg donation families, levels of parenting stress were lowest for fathers in  
397 families who had started the process of disclosure.

398

399

400

401

402

### Age 10

403

404 Mothers' scores on the Edinburgh Depression Scale and Trait Anxiety Inventory at  
405 age 10 were entered into factorial ANOVAs (see Table II). The effect of family type  
406 and disclosure status were non-significant for both measures of psychological well-  
407 being.

408

409 The interaction effect between family type and disclosure was statistically significant  
410 for mothers' anxiety scores ( $F(1) = 6.77$ ,  $p < .01$ ,  $r = .33$ ) as shown in Table II. For  
411 mothers in donor insemination families, anxiety levels were lowest for those  
412 mothers who had not disclosed. Conversely, for mothers in egg donation families,

413 levels of anxiety were lowest for those mothers who had started the process of  
414 disclosure.

415

416 Fathers' scores on the Edinburgh Depression Scale and Trait Anxiety Inventory at age  
417 10 were entered into factorial ANOVAs. The effect of family type was non-significant  
418 for both measures of psychological adjustment.

419

420 The effect of disclosure was marginally significant for anxiety ( $F(1) = 2.90, p = .1, r =$   
421  $.28$ ), with levels of anxiety being lowest for fathers in non-disclosing families.

422

423 The interaction effect for fathers' levels of depression was statistically significant ( $F$   
424  $(1) = 4.23, p = .05, r = .33$ ) as shown in Table III. For fathers in donor insemination  
425 families, levels of depression were lowest for those fathers who had not told.

426 Conversely, for fathers in the egg donation group, levels of depression were lowest  
427 for fathers in families who had disclosed.

428

429

## **DISCUSSION**

430

431 This study examined the relationship between mothers' and fathers' psychological  
432 adjustment, type of donation (donor insemination, egg donation), and disclosure of  
433 donor origins to the child at ages 1, 2, 3, 7 and 10. Two main findings emerged.

434 Firstly, mothers and fathers in both donor insemination and egg donation families  
435 were found to be psychologically well-adjusted: for the vast majority of parents  
436 levels of depression, anxiety and parenting stress were found to be within the

437 normal range at all five time points. Secondly, disclosure of the child's donor origins  
438 to the child was not always associated with optimal levels of parental psychological  
439 adjustment. For example, for fathers in donor insemination families, it was non-  
440 disclosure that was associated with higher levels of psychological functioning at age  
441 two, seven and 10.

442

443 The majority of mothers and fathers in both donor insemination and egg donation  
444 families were found to be psychologically well-adjusted at all five time-points. These  
445 findings add to the body of literature that has found high levels of parent  
446 psychological well-being in families created using assisted reproductive technologies  
447 (e.g. Golombok, MacCallum, Goodman, & Rutter, 2002; Golombok *et al.*, 1996;  
448 Golombok, Brewaeys, *et al.*, 2002; Murray, MacCallum, & Golombok, 2006). Low  
449 levels of parental psychological disorder have been found to be beneficial to  
450 children's psychological development. In this respect, gamete donation families  
451 therefore appear to provide children with a positive family environment in which to  
452 grow.

453

454 However, in terms of the relationship between disclosure of donor origins to  
455 children and psychological adjustment, different patterns were found for mothers  
456 and fathers. For example, greater levels of psychological adjustment were found for  
457 mothers who planned to tell their child about the nature of their origins from age  
458 one compared to those who did not. Whereas fathers in non-disclosing families at  
459 age two had greater levels of psychological well-being than fathers in disclosing  
460 families. Similarly, at age 7, higher levels of psychological well-being were found for

461 those mothers who had started the process of disclosure, whereas for fathers,  
462 higher levels of psychological well-being were found in non-disclosing families. Also  
463 of note is that interaction effects (examining the relationship between family type  
464 and disclosure) were more prominent for fathers than they were for mothers. For  
465 those families in which parents had disclosed more positive findings emerged for egg  
466 donation families (where fathers have a genetic link with the child) compared to  
467 donor insemination families (where fathers do not).

468

469 Due to its design and analytical approach, this study cannot speak to causation.  
470 Fathers have been found to have little involvement in the process of disclosure,  
471 particularly in egg donation families (Blake *et al.*, 2010). It is possible that disclosure  
472 is less challenging in egg donation families because both parents have a biological  
473 relationship to the child (mothers have a gestational link and fathers have a genetic  
474 link), or it may be the case that infertility holds less stigma for women than for men,  
475 and that disclosure is therefore a less threatening and difficult task (Appleby *et al.*,  
476 2012; Raoul-Duval *et al.*, 1992). Research of an in-depth qualitative nature may be  
477 better suited to unpacking the differences and similarities between men and women  
478 in the disclosure process in both donor insemination and egg donation families.

479

480 It is also important to note that the dichotomy between disclosure and non-  
481 disclosure is not always simple, with some parents engaging in “layers” of disclosure,  
482 telling their family members and children about some aspects of their origins, but  
483 not others (Daniels, 1995; Readings *et al.*, 2011). It is also important to note that  
484 although families in this analysis were categorised as “disclosing”, the children in

485 these families may not have an understanding of what it means to be donor  
486 conceived, and families may have only discussed this topic once or twice (*Blake et*  
487 *al.*, 2010).

488

489 The analyses presented in this paper are limited by small sample sizes (as indicated  
490 in Tables II and III), particularly in terms of data obtained from fathers in the latter  
491 phases of the study. Sample sizes smaller than 30 are often considered to be  
492 acceptable in psychology, yet Rosnow *et al.*, (2000) emphasise that it would be  
493 difficult for significant small or medium effects to be found at the .05 level when the  
494 smaller of the two samples is less than 30. Underpowered analyses have a  
495 substantial risk of missing significant results. As emphasised throughout the paper,  
496 the analyses in this study are exploratory and any generalisations from this dataset  
497 made from this analysis should be made with great caution. However, the data  
498 presented in this analysis are valuable, as they have been obtained from donor  
499 insemination and (lesser-studied) egg donation families over a ten-year span.  
500 Therefore, the value of the findings of this analysis lies in its potential to point  
501 researchers in new directions. Fathers are often neglected in research on families  
502 created by assisted reproductive technologies, and in family research at large,  
503 therefore we echo the call for the greater inclusion of fathers in research in this field  
504 (e.g. Culley *et al.*, 2013), as assuming that the experiences and perceptions of  
505 mothers and fathers are equivalent may be misleading. The findings of this study  
506 also suggest that the process of disclosure may be different in donor insemination  
507 and egg donation families and that they should not be treated as a homogenous  
508 group. Although we are beginning to understand more about the early phases of

509 disclosure when children are young (*e.g. Blake et al., 2010; Mac Dougall et al., 2007*),  
510 it is now crucial to understand what happens next in the disclosure process, in  
511 adolescence and beyond.

512

513 Although early disclosure is generally recommended and encouraged (Nuffield  
514 Council on Bioethics, 2013), the difficulty of carrying out this task has been  
515 recognised by many (Blyth *et al.*, 2010; Golombok, 1997; Grace & Daniels, 2007;  
516 Salter-Ling *et al.*, 2001). The findings of this exploratory analysis suggest that  
517 disclosure might be difficult for certain groups in particular (such as fathers in donor  
518 insemination families), at certain times (when children are in middle childhood). The  
519 reasons for these patterns are unclear, and the cross-sectional analyses presented in  
520 this paper do not allow us to infer causation. Research that begins to explore *which*  
521 aspects of disclosure are particularly challenging and *why*, and what kind of  
522 information or support parents and offspring in these families would find helpful,  
523 would be of great value. Factors that would be worthy of further investigation might  
524 be how parents' disclosure decisions change over time and why, and how this is  
525 dealt with by mothers and fathers. Ultimately, the more that is known about the  
526 process of disclosure over time, from the perspective of the different members of  
527 the family, the better supported parents and their children can be.

## 528 **Acknowledgements**

529 We are grateful to all the participants who took part in this research.

## 530 **Authors' roles**

531 All authors contributed to the acquisition and interpretation of data for this study.

532 L.B drafted this manuscript and all authors have contributed to its revision and

533 approved the final version for publication.

#### 534 **Funding**

535 The first three phases of this study were supported by funding from the Wellcome

536 Trust. The final two phases of this study were supported by grant number

537 RO1HD051621 from the National Institute of Child Health and Human Development.

538 The content is solely the responsibility of the authors and does not represent the

539 official views of the National Institute of Child Health and Human Development or

540 the National Institutes of Health.

#### 541 **Conflict of interest**

542 None declared.

#### 543 **References**

544 Abidin, R. R. (1990). *Parenting stress index. Professional manual.* (Third Edit.).  
545 Odessa, USA: Psychological Assessment Resources, Inc.

546 Appleby, J., Blake, L., & Freeman, T. (2012). Is disclosure in the best interests of  
547 children conceived by donation? In *Reproductive Donation: Practice, Policy and*  
548 *Bioethics* (pp. 231–249). Cambridge: Cambridge University Press.

549 Barry, T. D., Dunlap, S. T., Cotten, S. J., Lochman, J. E., & Wells, K. C. (2005). The  
550 influence of maternal stress and distress on disruptive behavior problems in  
551 boys. *J AM ACAD CHILD PSY, 44*(3), 265–73.

552 Blake, L., Casey, P., Readings, J., Jadva, V., & Golombok, S. (2010a). “Daddy ran out  
553 of tadpoles”: how parents tell their children that they are donor conceived,  
554 and what their 7-year-olds understand. *HUM REPROD, 1*–8.

555 Blake, L., Casey, P., Readings, J., Jadva, V., & Golombok, S. (2010b). “Daddy ran out of  
556 tadpoles”: how parents tell their children that they are donor conceived, and  
557 what their 7-year-olds understand. *HUM REPROD, 25*(10), 2527–2534.  
558 doi:10.1093/humrep/deq208

- 559 Caughlin, J. P., Scott, A. M., Miller, L. E., & Hefner, V. (2009). Putative secrets: When  
560 information is supposedly a secret. *J SOC PERS RELAT*, 26(5), 713–743.
- 561 Cicchetti, D., Rogosch, F., & Toth, S. L. (1998). Maternal depressive disorder and  
562 contextual risk: contributions to the development of attachment insecurity and  
563 behavior problems in toddlerhood. *CHILD Y PSY*, 10(2), 283–300.
- 564 Cohen, J. (1992). Statistical power analysis. *Current Directions in Psychological*  
565 *Science*, 1(3), 98–101.
- 566 Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression.  
567 Development of the 10-item Edinburgh Postnatal Depression Scale. *BRIT J*  
568 *PSYCHIAT*, 150(6), 782–786.
- 569 Culley, L., Hudson, N., & Lohan, M. (2013). Where are all the men? The  
570 marginalization of men in social scientific research on infertility. *REPROD*  
571 *BIOMED ONLINE*, (July). doi:10.1016/j.rbmo.2013.06.009
- 572 Daniels, K. (1995). Information sharing in donor insemination: a conflict of rights and  
573 needs. *CAMB Q HEALTHC ETHIC*, 4, 217–224. Retrieved from  
574 [http://journals.cambridge.org/production/action/cjoGetFulltext?fulltextid=527](http://journals.cambridge.org/production/action/cjoGetFulltext?fulltextid=5270172)  
575 [0172](http://journals.cambridge.org/production/action/cjoGetFulltext?fulltextid=5270172)
- 576 Deater-Deckard, K. (1998). Parenting stress and child adjustment: Some old  
577 hypotheses and new questions. *CLIN PSYCHOL-SCI PR*, 5(3), 314–332.
- 578 Dix, T., & Meunier, L. N. (2009). Depressive symptoms and parenting competence:  
579 An analysis of 13 regulatory processes. *DEV REV*, 29(1), 45–68.  
580 doi:10.1016/j.dr.2008.11.002
- 581 Dooley, M., Nolan, A., & Sarma, K. M. (2011). The psychological impact of male  
582 factor infertility and fertility treatment on men : a qualitative study. *IRISH J*  
583 *PSYCHOL*, 32(1-2), 37–41.
- 584 Field, A. (2009). *Discovering statistics using SPSS*. London, England: Sage  
585 Publications, Inc.
- 586 Fisher, J. R. W., & Hammarberg, K. (2012). Psychological and social aspects of  
587 infertility in men: an overview of the evidence and implications for  
588 psychologically informed clinical care and future research. *ASIAN J ANDROL*,  
589 14(1), 121–9. doi:10.1038/aja.2011.72
- 590 Golombok, S., Blake, L., Casey, P., Roman, G., & Jadva, V. (2012). Children born  
591 through reproductive donation: A longitudinal study of psychological  
592 adjustment. *Journal of Child Psychology and Psychiatry*.

- 593 Golombok, S., Brewaeys, A., Cook, R., Giavazzi, M. T., Guerra, D., Mantovani, A., ...  
 594 Dexeus, S. (1996). The European study of assisted reproduction families: Family  
 595 functioning and child development. *HUM REPROD*, *11*(10), 2324–2331.
- 596 Golombok, S., Brewaeys, A., Giavazzi, M. T., Guerra, D., MacCallum, F., & Rust, J.  
 597 (2002). The European study of assisted reproduction families: the transition to  
 598 adolescence. *HUM REPROD*, *17*(3), 830–840.
- 599 Golombok, S., Jadva, V., Lycett, E., Murray, C., & MacCallum, F. (2005). Families  
 600 created by gamete donation: follow-up at age 2. *HUM REPROD*, *20*(1), 286–293.
- 601 Golombok, S., Lycett, E., MacCallum, F., Jadva, V., Murray, C., Rust, J., ... Margara, R.  
 602 (2004). Parenting infants conceived by gamete donation. *J FAM PSYCHOL*, *18*,  
 603 443–452.
- 604 Golombok, S., MacCallum, F., Goodman, E., & Rutter, M. (2002). Families with  
 605 children conceived by donor insemination: a follow-up at age twelve. *CHILD*  
 606 *DEV*, *73*(3), 952–968.
- 607 Golombok, S., Murray, C., Jadva, V., Lycett, E., MacCallum, F., & Rust, J. (2006). Non-  
 608 genetic and non-gestational parenthood: consequences for parent-child  
 609 relationships and the psychological well-being of mothers, fathers and children  
 610 at age 3. *HUM REPROD*, *21*(7), 1918–1924.
- 611 Golombok, S., Readings, J., Blake, L., Casey, P., Mellish, L., Marks, A., & Jadva, V.  
 612 (2011). Children conceived by gamete donation: psychological adjustment and  
 613 mother-child relationships at age 7. *J FAM PSYCHOL*, *25*(2), 230–239.  
 614 doi:10.1037/a0022769
- 615 Goodman, S. H., & Gotlib, I. H. (1999). Risk for psychopathology in the children of  
 616 depressed mothers: a developmental model for understanding mechanisms of  
 617 transmission. *PSYCHOL REV*, *106*(3), 458–90. Retrieved from  
 618 <http://www.ncbi.nlm.nih.gov/pubmed/10467895>
- 619 Greil, A. . (1997). Infertility and psychological distress: a critical review of the  
 620 literature. *SOC SCI MED*, *45*(11), 1679–1704.
- 621 Hammer Burns, L., & Covington, S. N. (2006). Psychology of Infertility. In S. N.  
 622 Covington & L. Hammer Burns (Eds.), *Infertility Counseling. A Comprehensive*  
 623 *Handbook for Clinicians*. (Second Edi.). New York: Cambridge University press.
- 624 HFEA. Human Fertilisation and Embryology Authority (Disclosure of Donor  
 625 Insemination Regulations) (2004). Retrieved from  
 626 <http://www.opsi.gov.uk/SI/si2004/20041511.htm>
- 627 Karpel, M. A. (1980). Family secrets: I. Conceptual and ethical issues in the relational  
 628 context. II. Ethical and practical considerations in therapeutic management.  
 629 *FAM PROCESS*, *19*(3), 295–306.

- 630 Klock, S. C., Jacob, M. C., & Maier, D. (1994). A prospective study of donor  
631 insemination recipients: secrecy, privacy, and disclosure. *FERTIL STERIL*, 62(3),  
632 477 – 484.
- 633 Lane, J. D., & Wegner, D. M. (1995). The cognitive consequences of secrecy. *J PERS*  
634 *SOC PSYCHOL*, 69(2), 237–253.
- 635 Lovejoy, M. C., Graczyk, P. A., O’Hare, E., & Neuman, G. (2000). Maternal depression  
636 and parenting behavior: a meta-analytic review. *CLIN PSYCHOL REV*, 20(5), 561–  
637 592.
- 638 Lycett, E., Daniels, K., Curson, R., Chir, B., & Golombok, S. (2004). Offspring created  
639 as a result of donor insemination: a study of family relationships, child  
640 adjustment, and disclosure. *FERTIL STERIL*, 82(1), 172–179.
- 641 Mac Dougall, K., Becker, G., Scheib, J. E., & Nachtigall, R. D. (2007a). Strategies for  
642 disclosure: how parents approach telling their children that they were  
643 conceived with donor gametes. *FERTIL STERIL*, 87(3), 524–33.
- 644 Mac Dougall, K., Becker, G., Scheib, J. E., & Nachtigall, R. D. (2007b). Strategies for  
645 disclosure: how parents approach telling their children that they were  
646 conceived with donor gametes. *FERTIL STERIL*, 87(3), 524–533.
- 647 Matthey, S., Barnett, B., Kavanagh, D. J., & Howie, P. (2001). Validation of the  
648 Edinburgh Postnatal Depression Scale for men, and comparison of item  
649 endorsement with their partners. *Journal of Affective Disorders*, 64(2-3), 175–  
650 84.
- 651 Murray, C., MacCallum, F., & Golombok, S. (2006). Egg donation parents and their  
652 children: follow-up at age 12 years. *FERTIL STERIL*, 85(3), 610–618.
- 653 Nachtigall, R. D., Tschann, J. M., Szkupinski Quiroga, S., Pitcher, L., & Becker, G.  
654 (1997). Stigma, disclosure, and family functioning among parents of children  
655 conceived through donor insemination. *FERTIL STERIL*, 68(1), 83–89.
- 656 Nuffield Council on Bioethics. (2013). *Donor conception : ethical aspects of*  
657 *information sharing*. London.
- 658 Phares, V., & Compas, B. E. (1992). The role of fathers in child and adolescent  
659 psychopathology: make room for daddy. *PSYCHOL BULL*, 111(3), 387–412.
- 660 Raoul-Duval, A., Letur-Konirsch, H., & Frydman, R. (1992). Anonymous oocyte  
661 donation: a psychological study of recipients, donors and children. *HUM*  
662 *REPROD*, 7(1), 51–54.
- 663 Readings, J., Blake, L., Casey, P., Jadv, V., & Golombok, S. (2011). Secrecy, disclosure  
664 and everything in-between: decisions of parents of children conceived by donor

- 665 insemination, egg donation and surrogacy. *REPROD BIOMED ONLINE*, 22, 485–  
666 495. doi:10.1016/j.rbmo.2011.01.014
- 667 Rosnow, R. L., Rosenthal, R., & Rubin, D. B. (2000). Contrasts and correlations in  
668 effect-size estimation. *PSYCHOL SCI*, 11(6), 446.
- 669 Spielberger, C. D. (1983). *The handbook of the state-trait anxiety inventory*. Palo  
670 Alto, CA: Consulting University Press.
- 671 Spielberger, C. D. (1989). *State-trait anxiety inventory: A comprehensive*  
672 *bibliography*. Palo Alto, CA: Consulting Psychologists Press.
- 673 The Population and Census Statistics [OCPS] and Employment Department Group.  
674 (1991). *Standard classification of occupations*. London, England: Her Majesty's  
675 Stationary Office.
- 676 Thorpe, K. (1993). A study of the use of the Edinburgh Postnatal Depression Scale  
677 with parent groups outside the postpartum period. *J REPROD INFANT PSYC*,  
678 11(2), 119–125.
- 679 Turner, S. (2003). Parenting behaviors in parents with anxiety disorders. *Behaviour*  
680 *and Research Therapy*, 41(5), 541–554.
- 681 Turner, S. M., Beidel, D. C., & Epstein, L. H. (1991). Vulnerability And Risk For Anxiety  
682 Disorders. *Journal of Anxiety Disorders*, 5, 151–166.
- 683 Van Balen, F. (1998). Development of IVF children. *DEV REV*, 18, 30–46.
- 684 Vrij, A., Paterson, B., Nunkoosing, K., Soukara, S., & Oosterwegel, A. (2003).  
685 Perceived advantages and disadvantages of secrets disclosure. *PERS INDIV*  
686 *DIFFER*, 35(3), 593–602.
- 687 Whaley, S. E., Pinto, A., & Sigman, M. (1999). Characterizing interactions between  
688 anxious mothers and their children. *J CONSULT CLIN PSYCH*, 67(6), 826–836.
- 689 Wilson, S., & Durbin, C. E. (2010). Effects of paternal depression on fathers'  
690 parenting behaviors: a meta-analytic review. *CLIN PSYCHOL REV*, 30(2), 167–80.  
691 doi:10.1016/j.cpr.2009.10.007

692

693

694

695 **Table I: Response Rates for all Family Types at each Phase of the Study**

696

Child's age (y)	Donor insemination	Egg donation
1	50	51
2	46	48
% original sample	92%	94%
3	41	41
% original sample	82%	80%
7	36	32
% original sample	72%	67%
10	34	30
% original sample	68%	59%

697

698 *N.B. Sample sizes need not always decrease over time, as in some cases families*699 *were unable to participate during one phase of the study (e.g. a family event, moving*700 *house) but were then able to participate at a later phase.*

701

702

703

704

705

706

**Table II: Mothers' Psychological Wellbeing**

Family	Disclosure	N	Mean	SD	Statistically significant effects*
<b>Age 1</b>					
<b>Parenting Stress</b>					Disclosure $F=4.97, p=.03$
DI	Non-disclosing	26	62.88	15.16	
	Disclosing	21	58.38	11.83	
ED	Non-disclosing	19	65.84	11.68	
	Disclosing	26	57.23	15.73	
<b>Depression</b>					Disclosure $F=3.45, p=.07$
DI	Non-disclosing	26	6.42	3.35	

	Disclosing	21	4.67	4.47	
ED	Non-disclosing	19	6.58	4.71	
	Disclosing	27	5.11	4.15	
<b>Anxiety</b>					None
DI	Non-disclosing	26	35.50	8.42	
	Disclosing	21	36.52	9.88	
ED	Non-disclosing	19	37.68	8.59	
	Disclosing	27	37.22	10.11	
<b>Age 2</b>					
<b>Parenting Stress</b>					None
DI	Non-disclosing	21	65.81	20.48	
	Disclosing	21	65.43	15.50	
ED	Non-disclosing	15	71.07	11.96	
	Disclosing	21	66.05	19.33	
<b>Depression</b>					None
DI	Non-disclosing	21	6.14	3.72	
	Disclosing	21	4.19	3.47	
ED	Non-disclosing	15	6.07	3.20	
	Disclosing	21	5.62	4.73	
<b>Anxiety</b>					None
DI	Non-disclosing	21	37.38	8.63	
	Disclosing	21	34.76	8.13	
ED	Non-disclosing	15	36.80	8.36	
	Disclosing	21	36.05	9.51	
<b>Age 3</b>					
<b>Parenting Stress</b>					None
DI	Non-disclosing	20	64.05	16.24	
	Disclosing	18	63.83	17.25	
ED	Non-disclosing	8	61.75	9.45	
	Disclosing	25	64.96	17.95	
<b>Depression</b>					None
DI	Non-disclosing	20	6.25	4.04	
	Disclosing	18	4.83	4.85	

ED	Non-disclosing	8	5.63	4.78	None
	Disclosing	25	5.44	4.38	
<b>Anxiety</b>					
DI	Non-disclosing	19	34.58	7.86	
	Disclosing	18	34.11	10.47	
ED	Non-disclosing	7	34.86	8.19	
	Disclosing	25	35.60	9.76	
<b>Age 7</b>					
<b>Parenting Stress</b>					None
DI	Non-disclosing	23	57.83	12.40	
	Disclosing	10	60.20	13.03	
ED	Non-disclosing	19	61.95	12.70	
	Disclosing	12	61.58	15.64	
<b>Depression</b>					Disclosure $F=7.45, p=.01$
DI	Not disclosed	25	4.88	3.03	
	Disclosed	9	3.78	3.19	
ED	Not disclosed	17	7.18	4.33	
	Disclosed	11	3.27	2.15	
<b>Anxiety</b>					None
DI	Not disclosed	23	28.13	9.24	
	Disclosed	9	24.78	10.90	
ED	Not disclosed	19	26.47	12.59	
	Disclosed	11	29.27	18.47	
<b>Age 10</b>					
<b>Depression</b>					None
DI	Not disclosed	24	5.08	3.92	
	Disclosed	9	5.67	4.18	
ED	Not disclosed	16	7.25	4.04	
	Disclosed	13	4.92	3.64	
<b>Anxiety</b>					Interaction $F=6.77, p=.01$
DI	Not disclosed	23	33.57	7.51	
	Disclosed	9	35.67	9.63	
ED	Not	16	39.81	7.31	

	disclosed				
	Disclosed	13	31.08	6.95	

707 \*Factorial ANOVA for differences between family type, disclosure status and

708 interaction between them.

709

710

711

712

713

714

715

**Table III: Fathers' Psychological Wellbeing**

Family	Disclosure	N	Mean	SD	Family	Disclosure	Interaction
<b>Age 1</b>							
<b><i>Parenting Stress</i></b>							
DI	Non-disclosing	23	57.35	10.53			
	Disclosing	18	61.89	17.68			
ED	Non-disclosing	17	61.88	11.67			
	Disclosing	23	63.00	14.06			
<b><i>Depression</i></b>							
DI	Non-disclosing	24	3.25	3.23			
	Disclosing	18	5.22	4.60			
ED	Non-disclosing	17	3.53	2.65			
	Disclosing	23	4.09	3.26			
<b><i>Anxiety</i></b>							
DI	Non-disclosing	24	32.79	7.74			
	Disclosing	17	33.41	9.84			
ED	Non-disclosing	17	32.18	6.47			
	Disclosing	23	37.22	7.19			
<b>Age 2</b>							
<b><i>Parenting Stress</i></b>							
DI	Non-disclosing	20	59.25	12.09			
	Disclosing	14	67.93	19.49			
ED	Non-disclosing	13	64.85	13.23			
	Disclosing	16	62.25	11.10			
<b><i>Depression</i></b>							
DI	Non-disclosing	20	3.40	2.96			
	Disclosing	14	5.21	5.51			

ED	Non-disclosing	13	4.46	3.78			
	Disclosing	16	6.13	4.11			
<b>Anxiety</b>						$F=6.31, p = .02$	
DI	Non-disclosing	20	30.45	7.40			
	Disclosing	14	36.14	9.83			
ED	Non-disclosing	13	32.77	7.41			
	Disclosing	16	37.25	7.10			
<b>Age 3</b>							
<b>Parenting Stress</b>							
DI	Non-disclosing	15	65.93	18.17			
	Disclosing	14	63.14	14.41			
ED	Non-disclosing	6	67.83	17.22			
	Disclosing	20	68.35	12.53			
<b>Depression</b>							
DI	Non-disclosing	17	4.94	4.78			
	Disclosing	13	5.08	4.82			
ED	Non-disclosing	6	4.67	4.63			
	Disclosing	20	4.15	2.85			
<b>Anxiety</b>							
DI	Non-disclosing	17	44.82	5.56			
	Disclosing	13	43.46	3.18			
ED	Non-disclosing	6	45.17	4.26			
	Disclosing	20	42.70	2.89			
<b>Age 7</b>							
<b>Parenting Stress</b>							$F=5.47, p=.02$
DI	Non-disclosing	15	50.53	11.24			
	Disclosing	7	63.71	8.98			
ED	Non-disclosing	14	65.14	17.25			
	Disclosing	9	59.67	8.20			
<b>Depression</b>							
DI	Not disclosed	17	3.71	2.73			
	Disclosed	5	4.40	2.07			
ED	Not disclosed	14	3.64	3.23			
	Disclosed	8	2.00	1.31			
<b>Anxiety</b>						$F=5.38, p=.03$	$F=2.90, p=.1$
DI	Not disclosed	17	30.12	6.37			
	Disclosed	7	38.43	9.03			
ED	Not disclosed	14	34.50	6.35			
	Disclosed	9	35.78	5.59			
<b>Age 10</b>							
<b>Depression</b>							$F=4.23, p=.05$
DI	Not disclosed	14	3.57	2.62			
	Disclosed	7	5.86	2.97			
ED	Not disclosed	9	4.67	2.78			
	Disclosed	9	3.33	2.35			
<b>Anxiety</b>						$F=2.90, p=.1$	

DI	Not disclosed	14	29.50	6.78			
	Disclosed	7	36.57	7.72			
ED	Not disclosed	9	32.33	5.52			
	Disclosed	8	32.63	5.48			

716

717

718

719

720

721

722

723