

1                    **Marital Stability and Quality in Families Created by Assisted Reproductive**  
2                                            **Technologies: A Follow-up Study**

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10  
11                                            **Abstract**

12  
13                    An increasing number of children are being born with the use of assisted reproductive  
14                    techniques (ARTs) such as donor insemination, egg donation and surrogacy. There have  
15                    been concerns that the use of these third-party reproductive techniques may have a  
16                    negative effect the quality of the relationship between the mother and father. Marital  
17                    stability and quality was examined in a UK sample of donor insemination, egg donation,  
18                    and surrogacy families and families in which children were naturally conceived.

19                    Interview and questionnaire assessments of marital stability and quality were collected  
20                    from mothers and fathers over five time-points, when the children in the families were  
21                    aged 1, 2, 3, 7 and 10. Of those families who participated when children were 10 years  
22                    old, a minority of couples in each family type had divorced/separated and few  
23                    differences emerged between the different family types in terms of mothers' or fathers'  
24                    marital quality. Despite concerns, couples in families created by donor insemination,  
25                    egg donation and surrogacy were found to be functioning well.

26  
27                    **Key words:** donor insemination; egg donation; surrogacy; family functioning; marital  
28                    stability; marital quality.

30

## Summary

31

32 An increasing number of children are being born with the use of assisted reproductive  
33 technologies (ARTs) such as donor insemination, egg donation and surrogacy. There  
34 have been concerns that the use of these ARTs may have a negative effect the quality of  
35 the relationship between the mother and father. Marital stability and quality was  
36 examined in UK a sample of donor insemination, egg donation, and surrogacy families  
37 and families in which children were naturally conceived. Interview and questionnaire  
38 assessments of marital stability and quality were collected from mothers and fathers  
39 over five time-points, when the children in the families were aged 1, 2, 3, 7 and 10. Of  
40 those families who participated when children were 10 years old, a minority of couples  
41 in each family type had divorced/separated and few differences emerged between the  
42 different family types in terms of mothers' or fathers' marital quality. Despite concerns,  
43 couples in families created by donor insemination, egg donation and surrogacy were  
44 found to be functioning well.

45

## Introduction

46

47

48 Couples who are unable to conceive naturally and who wish to experience pregnancy,  
49 birth and raising their child from birth may turn to assisted reproductive techniques  
50 (ARTs). In cases where techniques such as *in vitro* fertilization (IVF) and intracytoplasmic  
51 sperm injection (ICSI) are inappropriate or unsuccessful, couples may use third-party  
52 reproductive techniques, such as donor insemination, egg donation and surrogacy. The  
53 involvement of a third-party in reproduction has raised a number of concerns.  
54 Historically, this has been seen as undesirable due to fears that this would disturb the  
55 relationship between the mother and the father (Warnock, 1984). Additionally, there  
56 have been concerns that the imbalance in parents' genetic relatedness to the child may  
57 have a negative effect on the marital relationship (Edelmann 1989). Unlike couples who  
58 conceive naturally, couples who have used third-party reproduction have had to accept

59 that they are unable to experience the pregnancy and birth of a child who is their shared  
60 genetic offspring, which may have involved feelings of grief and loss (Hammer Burns &  
61 Covington 2006).

62

63 The quality of the marital relationship has important implications for family functioning  
64 in general. Studies utilising observational measures have found that higher levels of  
65 affection in the marital relationship are associated with higher levels of affection in the  
66 parent-child relationship (Fauchier & Margolin 2004). These findings provide evidence  
67 for the “spillover hypothesis”, in which mood, affect or behaviour are considered to be  
68 transferred from one setting to another (Erel & Burman., 1995). Marital quality has also  
69 been found to be related to child adjustment. For example, the frequency of marital  
70 conflict has been shown to affect children’s short-term coping skills as well as long-term  
71 adjustment (Cummings & Davies, 2002; Parke & Buriel, 2006). More specifically, high  
72 levels of marital conflict have been found to predict both internalising and externalising  
73 problems for girls, and externalising problems for boys (El-Sheikh & Whitson 2006).

74

75 An early study of donor insemination families conducted in the United States found the  
76 rate of parental separation to be low compared to population norms (Amuzu et al.,  
77 1990). In a similar vein, early studies found the marriages of parents in donor  
78 insemination families to be stable and to be functioning within the normal range (Klock  
79 & Maier 1991; Klock et al. 1994). In studies of both donor insemination and egg  
80 donation families conducted in the 1980s and 1990s, couples reported that the  
81 experience of infertility and undergoing fertility treatment had brought them closer  
82 together and had improved the quality of their relationships (Applegarth et al. 1995;  
83 Leeton & Backwell 1982). The finding that fertility treatment results in an improvement  
84 in marital quality has also emerged in studies of couples who have undergone successful  
85 fertility treatment using their own gametes (Schmidt et al. 2005; Repokari et al. 2007).  
86 Cross-sectional studies can only reveal a snapshot of family functioning at a given time-  
87 point (often when the long-awaited child has arrived). In order to examine marital

88 stability over time, follow-up studies are required. In the European Study of Assisted  
89 Reproduction families, donor insemination, IVF, adoptive and natural conception  
90 families were recruited in the United Kingdom, the Netherlands, Italy and Spain. Family  
91 functioning was assessed when the children were aged between 4 and 8 years  
92 (Golombok et al. 1996), 12 years (Golombok et al. 2002) and 18 years (Owen &  
93 Golombok 2009). By the time the offspring were 18 years old, 12% of couples had  
94 separated or divorced, with similar proportions of parents having separated or divorced  
95 in the different family types. In terms of the quality of the parents' relationship, few  
96 differences were identified for mothers or fathers according to family type throughout  
97 the course of the study.

98  
99 In contrast, evidence of instability was found in a follow-up study of donor insemination  
100 families in New Zealand: of a sample of 44 families who were revisited 14 years after  
101 undergoing fertility treatment with donor sperm, 46% of couples had either divorced or  
102 separated (Daniels et al., 2009). Although the rate of separation was not compared to  
103 population norms in New Zealand, the authors suggested that this high rate of  
104 separation may be related to the degree to which participants had been prepared for  
105 their donor insemination treatment.

106  
107 The present study explored marital stability, state and quality in a UK sample of families  
108 created through third-party donation (donor insemination, egg donation and surrogacy)  
109 and families in which parents conceived naturally over five time-points, when the  
110 children in the families were aged 1, 2, 3, 7 and 10.

111

## 112 **Materials and Methods**

113

### 114 **Participants**

115

116 In the first phase of the study, 50 donor insemination families, 51 egg donation families,  
117 42 surrogacy families and a comparison group of 80 natural conception families with a  
118 1-year-old child participated. The egg donation and donor insemination families were  
119 recruited through 9 fertility clinics in the United Kingdom. All two-parent heterosexual  
120 families with a child aged between 9 months and 1 year old were asked to take part in  
121 the research. The exclusion criteria were severe congenital abnormalities and multiple  
122 births. The natural conception families were selected through maternity ward records  
123 on the basis of stratification to maximise comparability with the assisted reproduction  
124 samples. The selection criteria were that the child resulted from a singleton birth with a  
125 minimum of 30 weeks gestation, the child had no congenital abnormalities, the mother  
126 was at least 30 years of age, the child was the mother's first or second child, the mother  
127 was married to, or cohabiting with, the child's father, and the pregnancy had been  
128 planned (Golombok et al., 2004a). A representative sample of surrogacy families was  
129 recruited through the UK Office of National Statistics and the surrogacy agency COTS  
130 (Golombok et al., 2004b).

131

132 These families were assessed when the children were aged 1, 2, 3, 7 and 10 years old  
133 (response rates for each phase of the study are presented in Table 1). By age 10, the  
134 study included 34 families with a child conceived by donor insemination, 30 families  
135 with a child conceived by egg donation, 33 families with a child born through surrogacy,  
136 and 55 families with a naturally conceived child, representing 68% of the original  
137 sample, with no significant difference in retention rates between family types. Rather  
138 than actively withdrawing, the majority of those families lost to follow-up had moved  
139 home and could not be traced.

140

141 The demographic variables of those families who participated when the children were  
142 aged 10 (responders) were compared with those who did not participate at this phase of  
143 the study (non-responders). There was no association between whether families  
144 participated at age 10 and the following variables: method of conception (assisted

145 reproduction vs. non-assisted reproduction), mothers' intention regarding whether to  
146 tell their child about the nature of their conception reported at age 1 (plan to disclose,  
147 uncertain, plan not to disclose), mothers' age, and whether the couple had male or  
148 female infertility. However, there was a significant association between socioeconomic  
149 status measured at age 1 and whether or not families took part at age 10:  $\chi^2(2) = 6.76, p$   
150  $< .05$ . Families were categorised as: 1) professional/managerial; 2) skilled non-manual;  
151 or 3) skilled manual. Those families classified as professional/managerial were more  
152 likely to take part at age 10 (73%), and the families least likely to take part at age 10  
153 were those classified as skilled non-manual (56%) and skilled manual (53%).

154

155 Demographic variables were compared between the different family types at each  
156 phase of the study. Mothers' age differed between groups, with Helmert contrasts  
157 revealing mothers in assisted reproduction families as being significantly older than  
158 mothers in natural conception families. Helmert contrasts also revealed that mothers in  
159 egg donation families were significantly older than mothers in donor insemination  
160 families. In addition, there was a significant difference in family size, with a greater  
161 number of siblings in natural conception families as compared to assisted reproduction  
162 families. Socioeconomic status was also found to differ between family types. The  
163 majority of parents in natural conception families were categorised as  
164 professional/managerial, whereas socioeconomic status was more evenly spread in the  
165 donor insemination families.

166

### 167 Procedure

168

169 Ethical approval for the earlier phases of the study (when children were aged 1, 2 and 3)  
170 was obtained from the City University Ethics Committee, and ethical approval for the  
171 latter phases (when children were aged 7 and 10) was gained from the Cambridge  
172 Psychology Research Ethics Committee. When children were aged 1, 2, 3, 7 and 10, a  
173 research psychologist trained in the study techniques visited the families at home. A

174 standardised interview and questionnaire relating to the quality of the marital  
175 relationship were administered to mothers and fathers individually.

176

177 Measures

178

179 Mothers and fathers were administered both interview and questionnaire measures to  
180 assess marital quality. Questionnaires were administered to mothers and fathers at  
181 each phase of the study, whereas interview ratings of mothers' and fathers' marital  
182 quality were only collected when children were aged 1, 7 and 10. Interview ratings of  
183 marital quality were not obtained when children were aged 2 because a more concise  
184 interview schedule was administered to parents that excluded some questions related  
185 to marital quality, and when children were aged 3, interviews were only conducted with  
186 mothers.

187

188 *Questionnaire measure of marital quality:* Mothers and fathers completed the  
189 Golombok-Rust Inventory of Marital State (Rust et al. 1990), a 36-item questionnaire  
190 assessment of the overall quality of the relationship between couples who are either  
191 married or cohabiting. Scores range from 0 to 84, with higher scores indicating poorer  
192 marital quality. A score of 34 or more indicates marital dissatisfaction. Split-half  
193 reliability for this measure is 0.91 for men and 0.87 for women, and the questionnaire  
194 has been shown to discriminate between couples who are about to separate and those  
195 who are not.

196

197 *Interview measures of marital stability and quality:* As part of a more general  
198 assessment of family functioning, a standardised interview designed to measure the  
199 quality of the marital relationship was administered to mothers and fathers separately.  
200 Information obtained during the interview was rated according to a standardised coding  
201 scheme (Quinton & Rutter, 1988). The following ratings were made:

202

203 **Marital stability:** A rating was made of the family structure (married/cohabiting,  
204 divorced/separated).  
205  
206 **Marital quality:** *Enjoyment of shared activities* ranged from: 1 (a great deal), 2 (quite a  
207 lot), to 3 (some). *Confiding* ranged from: 1 (all important matters discussed adequately),  
208 2 (the majority of important matters discussed adequately), to 3 (some/ a minority of  
209 important matters adequately discussed). *Quality of marriage* was rated on a 3-point  
210 scale, ranging from: 1 (marriage/cohabitation positive source of support and  
211 enjoyment), 2 (good marital/cohabitation history), to 3 (overall satisfactory history but  
212 some problems, or worse). At each time-point, these three variables yielded a single  
213 factor and all factor loadings were moderate to substantial (ranging from .68 to .91).  
214 The scores from these three variables were combined to create an index of marital  
215 quality.

216

217

## Results

218

### **Marital stability**

220

221 At phase 1 of the study all couples were married/cohabiting. Of those couples who  
222 were still participating in the study when the children were 10 years old, 19 (15%)  
223 couples had divorced/separated (15% DI, 13% ED, 15% SU, 9% NC). At age 10, there was  
224 no difference in marital stability between family types (donor insemination vs. egg  
225 donation vs. surrogacy vs. natural conception):  $\chi^2(3) = 1.37, ns$ . Those parents who  
226 conceived a child using donated sperm, donor eggs or a surrogate were just as likely to  
227 remain married/cohabiting after 10 years as those couples who conceived naturally.  
228 Likewise, marital status was not associated with the couples' method of conception  
229 (ART vs. natural conception): Fisher's Exact test = *ns*. Parents who conceived using ARTs  
230 were just as likely to be married after 10 years as those couples who conceived  
231 naturally.



232

233 **Marital quality**

234

235 *Questionnaire measure*

236

237 Mothers' and fathers' marital quality was compared between the different family types  
238 at each time-point (see Table 2). In terms of mothers' marital quality, the only  
239 difference to emerge was when the children in the families were 2 years old ( $F(3) =$   
240  $2.67, p < .05$ ). Helmert contrasts revealed that mothers in natural conception families  
241 had higher levels of marital satisfaction (indicated by a lower mean score on the GRIMS)  
242 than mothers in ART families.

243

244 Fathers' marital satisfaction was compared between the different family types at each  
245 time-point. No differences were found.

246

247 *Interview measure*

248

249 Mothers' marital quality was compared between the different family types at three time-  
250 points, when children were aged 1, 7 and 10 (see Table 3). A significant difference  
251 between groups was found for mothers when the children were aged 7 years old:  $F(3) =$   
252  $2.62, p = .05$ . Helmert contrasts were not statistically significant. Mothers in the  
253 surrogacy families had the lowest levels of marital quality, and those in egg donation  
254 families had the highest levels.

255

256 Fathers' marital quality was compared between family types at each phase of the study.  
257 Once again, no differences were found between the different family types.

258

259 The relationship between the demographic variables that differed between groups  
260 (mothers' age, family size and socioeconomic status) and the outcome variables that

261 differed significantly different between groups were examined. No significant  
262 relationships were found.

263

264

### Discussion

265

266 Marital stability and marital quality was examined in a longitudinal study of families  
267 created by donor insemination, egg donation, surrogacy and families in which parents  
268 conceived naturally. Comparisons were conducted at five time-points, when the  
269 children in the families were aged 1, 2, 3, 7 and 10. Few differences emerged between  
270 the different family types in terms of mothers' or fathers' marital quality as assessed by  
271 self-report questionnaire and investigator-based interviews. The couples in all of the  
272 different family types appeared to be functioning well.

273

274 Of the families who were participating when children were 10 years old, a minority of  
275 couples in each family type had divorced/separated. This appears to be marginally  
276 lower than the average rate of divorce in the UK: statistics from 2005 indicate that  
277 approximately 45 per cent of marriages will end in divorce and that almost half these  
278 divorces will occur before couples reach their tenth anniversary (Wilson & Smallwood  
279 2008). The findings in this study are contrary to the findings of Daniels et al (2009), in  
280 which approximately 45% of donor insemination couples had separated when assessed  
281 14 years after their original assessment. This disparity could be explained by the  
282 differences in sampling techniques, the time that had lapsed between follow-up studies  
283 (10 years in the present compared to 14 years in the New Zealand study), or the cultural  
284 and social contexts in which the studies were conducted. In addition to the relatively  
285 low rate of separation/divorce, mothers' and fathers' scores on the standardised  
286 questionnaire of marital state indicated that their levels of marital satisfaction were  
287 typically above average.

288

289 Of interest to future researchers in this field will be the relationship between marital  
290 quality and parents decision was to whether to tell the child about their donor  
291 conception. In adoption research, fathers who are committed to maintaining a good  
292 relationship with their partner have been found to be more likely to be involved in  
293 communication about the adoption (Freeark et al, 2008). Mothers' and fathers' level of  
294 involvement in adoption communication were also found to be significantly correlated:  
295 couples either engaged collaboratively in communication about adoption with their  
296 children, or both parents avoided the topic.

297

298 The findings presented in this paper have a number of limitations. Firstly, those families  
299 in which couples were experiencing many difficulties may have been the most likely to  
300 have dropped out over the ten year span of the study. It is likely that a selection effect  
301 has been in play from the time couples started their fertility treatment, as those couples  
302 who did not have a strong relationship may have been the least likely to last the course  
303 of fertility treatment and go on to have a child. However, it should be noted that in the  
304 present study, mothers and fathers' marital quality at age 1 was found to be unrelated  
305 to whether or not families participated at age 10. Secondly, this study under-represents  
306 families of a lower economic status, as these families were the most likely to drop-out  
307 over time. Thirdly, in order to examine marital stability and quality over time and make  
308 comparisons between the different family types, a longitudinal statistical approach is  
309 desirable. Due to small and diminishing sample sizes, this was not considered to be an  
310 appropriate statistical approach in the present study. Although the difficulties of  
311 recruiting a sample of this nature cannot be underestimated, future studies would  
312 benefit from larger sample sizes. The two differences that did emerge in the analysis (in  
313 mothers' marital quality at age 2 as assessed by questionnaire, and age 7 as assessed by  
314 interview), may be chance effects resulting from multiple comparisons being conducted.  
315 Larger samples would allow for more stringent statistical comparisons to be conducted,  
316 and for small differences between groups to be detected over time, were they to exist.

317

318 Despite its limitations, this study is unique in presenting data from donor insemination,  
319 egg donation and surrogacy families over five time-points. That few differences  
320 emerged between groups contributes to the growing body of research in this field which  
321 demonstrates that families created by donor insemination, egg donation and surrogacy  
322 are functioning well.

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**Table 1: Response Rates for all Family Types at each Phase of the Study**

|                   | <b>DI</b> | <b>ED</b> | <b>SU</b> | <b>NC</b> |
|-------------------|-----------|-----------|-----------|-----------|
| Phase 1           | 50        | 51        | 42        | 80        |
| Phase 2           | 46        | 48        | 37        | 68        |
| % original sample | 92%       | 94%       | 88%       | 85%       |
| Phase 3           | 41        | 41        | 34        | 67        |
| % original sample | 82%       | 80%       | 81%       | 84%       |
| Phase 4           | 36        | 32        | 32        | 54        |
| % original sample | 72%       | 67%       | 76%       | 68%       |
| Phase 5           | 34        | 30        | 33        | 55        |
| % original sample | 68%       | 59%       | 79%       | 69%       |

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

**Table 2: CROSS-SECTIONAL ANALYSIS: Mothers' and Fathers' Questionnaire Ratings of Marital Quality**

| <b>Mothers' Marital Quality</b> |           |          |           |           |          |           |           |          |           |           |          |           |          |          |
|---------------------------------|-----------|----------|-----------|-----------|----------|-----------|-----------|----------|-----------|-----------|----------|-----------|----------|----------|
|                                 | <b>DI</b> |          |           | <b>ED</b> |          |           | <b>SU</b> |          |           | <b>NC</b> |          |           | <b>F</b> | <b>p</b> |
|                                 | <i>n</i>  | <i>M</i> | <i>SD</i> | <i>n</i>  | <i>M</i> | <i>SD</i> | <i>n</i>  | <i>M</i> | <i>SD</i> | <i>n</i>  | <i>M</i> | <i>SD</i> |          |          |
| Age 1                           | 46        | 24.07    | 9.71      | 45        | 23.44    | 10.44     | 37        | 21.62    | 10.55     | 75        | 23.25    | 10.88     | .39      |          |
| Age 2                           | 42        | 27.43    | 9.61      | 36        | 25.19    | 11.80     | 29        | 23.59    | 9.89      | 50        | 21.42    | 10.29     | 2.67     | <.05     |
| Age 3                           | 36        | 25.50    | 10.12     | 32        | 26.16    | 12.11     | 28        | 27.43    | 10.11     | 56        | 23.82    | 10.51     | .80      | -        |
| Age 7                           | 30        | 25.73    | 9.62      | 26        | 23.54    | 11.55     | 23        | 24.78    | 2.39      | 48        | 22.85    | 10.74     | .49      | -        |
| Age 10                          | 26        | 25.12    | 11.54     | 25        | 23.56    | 12.23     | 22        | 21.50    | 7.81      | 45        | 22.04    | 11.81     | .57      | -        |
| <b>Fathers' Marital Quality</b> |           |          |           |           |          |           |           |          |           |           |          |           |          |          |
|                                 | <b>DI</b> |          |           | <b>ED</b> |          |           | <b>SU</b> |          |           | <b>NC</b> |          |           | <b>F</b> | <b>p</b> |
|                                 | <i>n</i>  | <i>M</i> | <i>SD</i> | <i>n</i>  | <i>M</i> | <i>SD</i> | <i>n</i>  | <i>M</i> | <i>SD</i> | <i>n</i>  | <i>M</i> | <i>SD</i> |          |          |
| Age 1                           | 41        | 21.68    | 9.11      | 40        | 23.67    | 11.87     | 34        | 22.15    | 10.37     | 60        | 22.33    | 9.70      | .28      | -        |
| Age 2                           | 34        | 21.47    | 9.10      | 29        | 24.41    | 11.17     | 22        | 23.50    | 11.50     | 40        | 25.05    | 8.05      | .91      | -        |
| Age 3                           | 30        | 23.00    | 10.01     | 26        | 25.73    | 8.96      | 22        | 22.91    | 9.81      | 42        | 23.31    | 9.57      | .51      | -        |
| Age 7                           | 25        | 21.80    | 10.20     | 22        | 23.23    | 9.87      | 18        | 21.61    | 11.65     | 37        | 24.16    | 9.46      | .39      | -        |
| Age 10                          | 20        | 23.10    | 11.89     | 17        | 25.35    | 10.37     | 18        | 19.67    | 9.95      | 35        | 24.86    | 10.44     | 1.14     | -        |



**Table 3: CROSS-SECTIONAL ANALYSIS: Mothers' and Fathers' Interview Ratings of Marital Quality**

| <b>Mothers' Marital Quality</b> |           |          |           |           |          |           |           |          |           |           |          |           |          |          |
|---------------------------------|-----------|----------|-----------|-----------|----------|-----------|-----------|----------|-----------|-----------|----------|-----------|----------|----------|
|                                 | <b>DI</b> |          |           | <b>ED</b> |          |           | <b>SU</b> |          |           | <b>NC</b> |          |           | <b>F</b> | <b>p</b> |
|                                 | <i>n</i>  | <i>M</i> | <i>SD</i> | <i>n</i>  | <i>M</i> | <i>SD</i> | <i>n</i>  | <i>M</i> | <i>SD</i> | <i>n</i>  | <i>M</i> | <i>SD</i> |          |          |
| Age 1                           | 49        | 5.43     | 1.38      | 50        | 4.92     | 1.48      | 39        | 5.18     | 1.59      | 78        | 5.29     | 1.64      | 1.01     | -        |
| Age 7                           | 31        | 5.81     | 1.60      | 27        | 5.11     | 1.60      | 26        | 6.04     | 1.61      | 50        | 5.18     | 1.34      | 2.62     | <.05     |
| Age 10                          | 26        | 5.69     | 1.72      | 23        | 5.65     | 1.75      | 24        | 5.67     | 1.40      | 48        | 5.33     | 1.99      | .35      | -        |
| <b>Fathers' Marital Quality</b> |           |          |           |           |          |           |           |          |           |           |          |           |          |          |
|                                 | <b>DI</b> |          |           | <b>ED</b> |          |           | <b>SU</b> |          |           | <b>NC</b> |          |           | <b>F</b> | <b>p</b> |
|                                 | <i>n</i>  | <i>M</i> | <i>SD</i> | <i>n</i>  | <i>M</i> | <i>SD</i> | <i>n</i>  | <i>M</i> | <i>SD</i> | <i>n</i>  | <i>M</i> | <i>SD</i> |          |          |
| Age 1                           | 38        | 5.61     | 1.55      | 36        | 5.03     | 1.23      | 27        | 5.44     | 1.58      | 49        | 5.22     | 1.40      | 1.14     | -        |
| Age 7                           | 24        | 5.38     | 1.53      | 22        | 5.50     | 1.71      | 22        | 5.82     | 1.82      | 32        | 5.59     | 1.37      | .32      | -        |
| Age 10                          | 18        | 6.17     | 1.47      | 19        | 5.47     | 2.04      | 18        | 5.50     | 1.43      | 27        | 5.70     | 2.04      | .58      | -        |