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The impact of family structure and sociodemographic characteristics on child health and wellbeing in same-sex parent families: a cross-sectional survey.

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Abstract

Aim: Children with same-sex attracted parents develop well in terms of their health and wellbeing. There are many recognised factors that have an impact on child health, in general, including individual, family and wider social mediators. The aim of this study is to determine the impact of family structure and sociodemographic characteristics on child health and wellbeing in Australian same-sex parent families.

Methods: A cross-sectional survey of self-identified same-sex attracted parents from across Australia was used to collect information on child health and wellbeing between May and December 2012. Mixed effects multiple linear regression models were used to identify associations between family structure/sociodemographic characteristics and child wellbeing. Child health outcomes were measured using the Child Health Questionnaire and the Strengths and Difficulties Questionnaire.

Results: In same-sex parent families biological relationships, parental gender, and parental education were not significantly associated with health and wellbeing. Parental income, rurality and stable parental relationships were associated with health and wellbeing, and living in a single parent household associated with poorer wellbeing.

Conclusions: Stable dual parent families offer good outcomes for children with same-sex attracted parents. Family processes are most important. This study does not support the assertion that children require both male and female parents, nor that biological relationships are essential to health and wellbeing. This study provides scientific data from a cross sectional Australian-based study to describe and understand health determinants for children in family contexts that comprise same-sex parent and all family contexts. It recommends equitable, stigma-free family support.

Key words

Child health; family; same-sex parents; family transitions;

What is already known on this topic

- Children with same-sex attracted parents develop well in terms of their overall health and wellbeing.
- Family stability, education and income are known to contribute to positive child health and wellbeing outcomes in heterosexual families.
- Same-sex parent families are formed in a variety of ways with a more equitable distribution of parenting roles than heterosexual families.

What this paper adds

- Parent gender and biological relationships are not important contributors to child health in same-sex parent families.
- Parental relationships, income and regionality impact child health in same-sex parent families in similar ways to heterosexual families.
- Family stability is important for positive child outcomes in same-sex families, similar to other family contexts.

Background

There is a growing body of evidence to suggest that, overall, children with same-sex attracted parents develop well in terms of their health and wellbeing.¹ Most recently a large study from Australia has confirmed this finding and goes further to suggest that these children might be developing better than the average Australian child in some areas.² At the same time it is recognised that children with same-sex attracted parents experience stigma and that this has an impact on their wellbeing.³

There are many recognised factors that have an impact on child health in general including individual, family and wider social mediators. Research has considered outcomes for children in single parent families, most notably single mother families, suggesting that outcomes are determined by a number of domains: parental resources, parental mental health, parental relationship qualities, parenting quality, and father involvement⁴. There has been remarkably little research on child outcomes in single father families with more focus on how fathers cope, rather than their children, and a suggestion that single fathers are better resourced than single mothers with fewer differences in child outcomes⁵.

In terms of family transitions, post separation co-parenting in a heterosexual context usually involves a lower standard of living, the disruption of distance between parents, and the impact of parental conflict⁶. While early research focuses on absent father figures, more recently work on parent separation has taken a lifecourse approach and sees divorce as a step in a series of family transitions⁷. In this context the adjustment of children prior to divorce and their life after the divorce also play an important role⁷.

When considering family resources, there is evidence to suggest that maternal education in particular is related to improved child health⁸ and that household income and child health outcomes are linked, albeit in a complex manner⁹. Some would argue that it is income that is mediating the association

between maternal education and child health⁸. This has not been examined in same-sex family contexts however.

Same-sex attracted parents are known to construct their families in a variety of ways and face unique challenges in relation to the acceptance of non-biological parents.¹⁰ These families often display functional differences when compared to heterosexual families, particularly in terms of division of labour and parenting roles.¹¹ This paper seeks to examine the findings from the Australian Study of Child Health in Same-Sex Families (ACHESS) to determine the impact of family structure and sociodemographic characteristics on child health and wellbeing in Australian same-sex parent families. It is hypothesised that stable dual parent families, that are well resourced in terms of finances and education, will provide the optimal environment for children with same-sex attracted parents.

Methods

A detailed description of the methodology is presented elsewhere and summarised here.^{12, 13}

Setting and participants

Self-identified same-sex attracted parents of children aged from 2 months to 17 years of age and who resided in any Australian state or territory were recruited. One parent provided data for all children under the age of 18 years in that family. There are no adequate data available to estimate the total population size for all children in Australia with same-sex attracted parents. As such it was not possible to conduct sample size calculation for the purpose of this study.

Recruitment

Recruitment involved convenience sampling and snowball recruitment techniques that have been successful in other survey-based Australian studies of

same-sex attracted populations^{14, 15}. This included advertisements and media releases in gay and lesbian press, flyers and attendance at gay and lesbian community groups and events, and posts to same-sex parent email lists.

Participants were asked to complete a survey. The survey was available online or in paper form. The questionnaire was completed for all children in a family, with appropriate questions based on child age. This survey contained 162 items (for one child aged 5-17 years) and took about 20 minutes to complete for each child.

Measures

A number of measures were used to describe family structure. These included 'who child lives with' (full time or part time with index parent), 'child relationship to index parent' (biological child or non-biological child), 'method of conception' (heterosexual sex, home insemination, ART, surrogacy, unknown donor), 'relationship status at time of conception/adoption' (current relationship, single, previous heterosexual relationship, previous same-sex relationship), 'parent gender', 'parent sexual orientation', and 'parent currently in a relationship'.

To describe the basic sociodemographic characteristics the following measures were used: 'parent's household income', 'parent's highest education level', and parent's 'place of residence (urban/rural)'.

To measure health and wellbeing three gold standard, psychometrically valid questionnaires were used¹⁶⁻¹⁸. The Child Health Questionnaire (CHQ) measured health across 12 scales (described in tables 2 and 3) for children aged 5 years and over, while the companion Infant Toddler Quality of Life Survey (ITQOL) measured health across 12 similar scales (described in tables 2 and 3) for children under 5 years. Both instruments calculate a score out of 100 for each scale with higher scores representing better health. The Strengths and Difficulties Questionnaire (SDQ) was used for all children aged 3 to 17 years describing social and emotional wellbeing across 6 scales (emotional symptoms, conduct problems, hyperactivity, peer problems, prosocial, and total difficulties). Lower scores suggest better health on all SDQ scales with the exception of the prosocial scale.

Statistical analysis

All analyses were conducted in STATA 12.0. To determine how the health and wellbeing of children differ based on family structure, mean scale scores for each of the CHQ, ITQOL and SDQ were used respectively as dependent variables in a mixed effects multiple linear regression model where each of the independent variables for family structure were used as fixed effects predictors and controls, and 'family' was used as a random effects predictor¹⁹. A mixed effects model allows for the random variations seen between different families while recognising that within each family differences between children will be less pronounced. The model provides the average difference for each of the child health and wellbeing measures across the different categories of the dependent variables. For the CHQ, ITQOL and prosocial scale from the SDQ a positive β demonstrates a better score than the comparison group, while for the remaining scales from the SDQ a negative β demonstrates a better score.

To determine whether each independent sociodemographic variable predicted each of the dependent child health variables (CHQ, ITQOL and SDQ scale scores) a second mixed effects multiple linear regression model was constructed. Independent variables from the sociodemographic characteristics were used as the fixed effects predictors and family used as a random effects predictor.

Ethics

All procedures were approved by The University of Melbourne Health Sciences Human Ethics Subcommittee, ethics ID number 1136875.1. All participants gave informed consent before taking part.

Results

Data on 500 children from 315 families were captured. A female same-sex attracted parent completed the survey for 80% of children, while for 18% it was a male same-sex attracted parent. For the other 2% of children parents identified as trans, non-gender specific or did not answer. Further demographic information is reported in table 1.

Family structure

The average difference in scores (β) for each scale from the child health and wellbeing questionnaires are presented along with 95% confidence intervals by family structure variable, in table 2. Statistically significant results are highlighted in bold ($+=<0.05$, $++=<0.01$). Younger children living part time with the parent completing the survey scored worse than children living full time with that parent on measures of temperament and mood, general behaviour, combined behaviour, general health, parent impact-time, and family cohesion.

There was some association between single parent status and worse scores on some mental health and behavioural scales (CHQ: mental health; SDQ: emotional; ITQOL: general behaviour) with stronger negative associations for temperament and mood on the ITQOL.

Of note there were no strong associations between parental gender and scores of health and wellbeing, or for biological relationship to the child and health and wellbeing.

When considering the method of conception the results were less clear-cut. For younger children it appears that there was a relationship between artificial insemination and better scores on a number of scales when compared to children conceived through other methods, with both home insemination and assisted reproductive technologies showing significantly better scores on temperament and mood, parental impact-emotional, and parental impact-time. When considering children conceived with an unknown donor we see that these children score significantly worse on the conduct scale of the SDQ but have a weaker positive score for the overall total difficulties scale, suggesting that there is no definitive impact overall.

For older children it is clear that, on a number of scales, children born in the context of their parents' current same-sex relationship score better than any other relationship status at birth.

Sociodemographic factors

The average difference in scores (β) for each scale from the child health and wellbeing questionnaires are presented along with 95% confidence intervals by sociodemographic variable, in table 3. There is a strong relationship between higher annual household income and improved scores on many of the scales measured in this study for older children.

When considering where families live there was no consistent pattern in terms of health and wellbeing. The most significant associations were in the areas of role social-physical on the CHQ and physical activity on the ITQOL, where children in rural and regional areas respectively scored worse. There were less significant associations for children living in rural areas on the role emotional-behavioural (CHQ) and peer relations scales (SDQ). The combination of these results hint at some minor differences in health and wellbeing in relation to regionality, with less urban areas not scoring as well, but the pattern is inconsistent.

Likewise there was little evidence of a relationship between parent education and health and wellbeing. The only strong association was on the prosocial behaviour (SDQ) scale for children whose parents have a diploma or certificate when compared to those who had completed year 12 only. There were weak associations across all levels of education when compared to year 12 only for the family activities scale of the CHQ. It appears therefore that for this group of children parent education, in terms of the parent completing the survey, had little impact on child health and wellbeing.

Discussion

Overall these results suggest that parental gender, biological vs social parenting, surrogacy and donor status have little impact on the overall health

and wellbeing of children with same-sex attracted parents. Furthermore they suggest that younger children conceived through some form of artificial insemination scored well on measures of health and wellbeing, particularly in the area of temperament and mood, and that this may be linked to parental involvement in terms of time and emotion. Similar findings have been seen in heterosexual families formed through ART.²⁰

Living full time with the parent involved in the study appears to be associated with better scores in a number of areas. Overall children score better across a range of measures, including emotional scales and family cohesion scales, when they are growing up with parents who are living in the context of the same-sex relationship in which they were conceived. The results also indicate that children currently living with a single parent are not scoring as well on some mental health and behavioural scales. Children growing up with single heterosexual parents demonstrate similar outcomes,⁴ however it is important to note that, in both heterosexual and same-sex attracted single parent families, there are important differences between families where parents are single by choice and single through separation.

In terms of sociodemographic characteristics we can see that for the older children with same-sex attracted parents in this sample income appears to play a significant role in health and wellbeing, with families where there is high household income showing better child health outcomes. There is not a strong association between regionality and health overall but there is a suggestion that on a few scales children living in less urban areas may not be scoring as well. These scales include total difficulties and conduct from the SDQ for children living in outer suburbs; physical abilities from the ITQOL for children in regional areas, and physical functioning, and role social-physical from the CHQ, and peer relations from the SDQ for children from rural areas. Surprisingly perhaps, parent education seems to have little impact on child health and wellbeing in this sample.

These findings from the parent survey reflect similar findings from adolescents, reported elsewhere.³ Both emphasise the benefits of a stable family life for child wellbeing. Care must be taken when interpreting these findings however as in much of the research on child wellbeing in families of transition

there is a strong focus on the negative, often small differences in conduct problems, academic achievement, social difficulties and self-concept^{21, 22}. The children from the ACHES are developing well overall² and it is suggested that resilience building plays an important role.³ This is not surprising and reflects work in other family contexts where limited family transitions and two parents, rather than single parents, are beneficial in terms of child development²³.

Previous research is mixed when it comes to parent gender in same-sex families. Some studies have suggested that mothers are more emotionally invested in raising children than fathers are in general²⁴⁻²⁶, while other work indicates that absent fathers may be detrimental to self-rated cognitive and physical competence²⁷. Our study supports the idea that gender is not significantly associated with child health in same-sex parent families per se, however a link between gender assumptions and any impact that stigma may have for these families cannot be excluded.

Previous research has considered biological versus social parenting in the context of lesbian families. In the 1990's Peggy Drexler interviewed both intact lesbian parent families and heterosexual families²⁸. She found that non-biological mothers in lesbian families approached moral teaching (a sense of fairness and justice, or knowing what is wrong from what is right) in similar ways to heterosexual fathers, while biological mothers in both family contexts were similar. Around the same time Charlotte Paterson was exploring the division of labour in lesbian parent families²⁹. Again she notes that non-biological mothers are more likely to be primary earners and biological mothers primary care givers, building on a heteronormative model, however the lesbian families were likely to share roles more than their heterosexual counterparts suggesting a slight shift away from the heteronorm. This has led to the suggestion that families are not made by biological ties but by the processes involved in family life, the idea of "doing family"^{30, 31}. This reflects the "families of choice" that gay and lesbian people have been creating through friendship groups³² and have now relayed into family units that include their children. This study reflects this growing concept of "doing family" and moves beyond previous work to strengthen the idea that family is more than just biological ties.

Socio-demographically, there is evidence to suggest that maternal education in particular is related to improved child health⁸ but it is not clear how this translates to same-sex families. There is minimal quantitative association between parental education and child health outcomes in the ACHES sample, perhaps due to the relatively high baseline level, but reflecting on the more equitable work/care distribution and queering of parent gender roles in same-sex parent families when compared with heterosexual families¹¹, it is not as straightforward as applying more traditional evidence about maternal education in this non-traditional family context. More noticeable however is the clear association between household income and a number of child health measures. Higher relative income in same-sex families is also not surprising, given that there is often a need to engage in costly and complex medical procedures in order to create a family where the parents are same-sex attracted. It has been shown that household income and child health outcomes are linked, albeit in a complex manner⁹, and some would argue that it is income that is mediating the association between maternal education and child health⁸, and in respect of this association at least same-sex parent families follow the expected trend.

The core strength of this study lies in the fact that it has brought together the largest sample of children with same-sex attracted parents to date, from a range of family backgrounds. Every effort was made to recruit a representative sample, however it is not possible to eliminate selection bias. While this has been accounted for in part through inclusion of appropriate control measures in the statistical analysis unknown confounders cannot be removed. In addition, it should be noted that as a cross-sectional study only associations can be identified as opposed to causation pathways.

Implications

In contemporary Australian society debates around the merits of marriage equality abound. Often brought into the marriage equality debate are issues of parental sexual orientation, gender or biological relationships with children. This paper suggests that these factors are not determinant in child

health and wellbeing. This study, and previous research, suggests that the expected sociodemographic characteristics of family transitions, income and rurality play an important role in child health and wellbeing. Future work therefore, should ensure that same-sex families have access to appropriate, equitable, and stigma free supports so that the really important familial factors proven to impact on child health can be targeted.

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Table 1. Child demographic characteristics

Child demographic characteristics	All children (n=500) ^a	Number of children (%)	
		With male parent/s (n=91)	With female parent/s (n=400)
Gender			
Male	264 (53)	49 (54)	214 (54)
Female	230 (46)	40 (44)	182 (46)
Mean age, years	5.12	3.86	5.43
Median age, years	4	2	4
Age range, years	0-17	0-16	0-17
Geographical location			
Inner metropolitan	261 (52)	64 (70)	195 (49)
Outer metropolitan	123 (25)	10 (11)	106 (27)
Regional center	69 (14)	3 (3)	66 (17)
Rural	35 (7)	8 (9)	27 (7)
Remote	1 (<1)	0 (0)	1 (<1)
Other	8 (2)	3 (3)	5 (1)
State			
Victoria	244 (48)	41 (45)	196 (49)
New South Wales	89 (18)	26 (29)	63 (16)
Queensland	74 (15)	3 (3)	71 (18)
Western Australia	30 (6)	6 (7)	24 (6)
South Australia	26 (5)	6 (7)	18 (5)
Australian Capital Territory	23 (5)	6 (7)	17 (4)
Tasmania	14 (3)	3 (3)	11 (3)

Table 1. Child demographic characteristics (continued)

Child demographic characteristics	All children (n=500)	Number of children (%)	
		With male parent/s (n=91)	With female parent/s (n=400)
Country of birth			
Australia	427 (85)	31 (34)	387 (97)
India	36 (7)	36 (40)	0 (0)
USA	21 (4)	20 (22)	1 (<1)
UK	6 (1)	0 (0)	6 (2)
New Zealand	2 (<1)	1 (1)	1 (<1)
Thailand	1 (<1)	1 (1)	0 (0)
Other	7 (1)	2 (2)	5 (1)
Language			
English only	444 (89)	65 (71)	374 (93)
Language other than English	56 (11)	26 (29)	26 (7)
Index parent's highest level of education			
4 years high school	8 (2)	0 (0)	8 (2)
Year 12	28 (6)	7 (8)	21 (5)
Diploma or certificate	77 (15)	11 (12)	61 (15)
Undergraduate degree	133 (27)	33 (36)	98 (25)
Postgraduate degree	232 (46)	36 (40)	194 (49)
Other	19 (4)	4 (4)	15 (4)

Table 1. Child demographic characteristics (continued)

Child demographic characteristics	All children (n=500)	Number of children (%)	
		With male parent/s (n=91)	With female parent/s (n=400)
Household income (AUD)			
\$10,000-\$19,000	13 (3)	0 (0)	13 (3)
\$20,000-\$29,999	25 (5)	4 (4)	16 (4)
\$30,000-\$59,999	56 (11)	4 (4)	50 (13)
\$60,000-\$99,999	112 (22)	11 (12)	101 (25)
\$100,000-\$149,999	129 (26)	23 (25)	106 (27)
\$150,000-\$249,999	95 (19)	22 (24)	71 (18)
\$250,000 or more	70 (14)	27 (30)	43 (10)
Index parent's sexual orientation			
Lesbian	344 (69)	-	337 (84)
Gay	92 (18)	85 (93)	7 (2)
Bisexual	41 (8)	1 (1)	40 (10)
Queer	11 (2)	2 (2)	9 (2)
Heterosexual	3 (1)	0 (0)	3 (1)
Other	9 (2)	3 (3)	4 (1)
Transgender parent	6 (1)	2 (2)	1 (<1)
Child relationship to index parent^b			
Biological child	310 (62)	46 (51)	256 (64)
Non-biological child	123 (24)	18 (20)	104 (26)
Partner's biological child	98 (20)	17 (19)	80 (20)
Fostered	13 (3)	8 (9)	5 (1)
Adopted	2 (<1)	2 (2)	0 (0)

Table 1. Child demographic characteristics (continued)

Child demographic characteristics	All children (n=500)	Number of children (%)	
		With male parent/s (n=91)	With female parent/s (n=400)
Parent relationship status at time of conception, fostering or adoption			
Current relationship	347 (69)	66 (73)	279 (70)
Index parent's previous heterosexual relationship	50 (10)	10 (11)	40 (10)
Index parent's previous same-sex relationship	37 (7)	2 (2)	35 (9)
While index parent single	33 (7)	8 (9)	23 (6)
Partner's previous heterosexual relationship	19 (4)	0 (0)	19 (5)
While partner single	2 (<1)	2 (2)	0 (0)
Other	5 (1)	0 (0)	2 (1)
Where child lives			
With index parent full time	411 (82)	70 (77)	335 (84)
With index parent part time	50 (10)	16 (18)	24 (6)
With another parent full time	12 (2)	3 (3)	9 (2)
Lives independently	1 (<1)	0 (0)	1 (<1)
Other	24 (5)	2 (2)	19 (5)
Index parent currently in a relationship	464 (93)	83 (91)	374 (94)

Table 1. Child demographic characteristics (continued)

Child demographic characteristics	All children (n=500)	Number of children (%)	
		With male parent/s (n=91)	With female parent/s (n=400)
Method of conception^b			
Heterosexual intercourse	102 (20)	18 (20)	79 (20)
Home insemination – known or own gametes	137 (27)	7 (8)	127 (32)
ART ^c – unknown donor	148 (30)	3 (3)	145 (36)
ART – known donor or own gametes	51 (10)	2 (2)	48 (12)
Surrogacy – own gametes	44 (9)	42 (46)	1 (<1)
Surrogacy – unknown donor	23 (5)	23 (25)	0 (0)
Surrogacy – known donor	10 (2)	10 (11)	0 (0)

a. Includes data from 5 children with other gendered parents and 4 children where parent gender was not identified

b. Multiple responses possible

c. Assisted Reproductive Technology

Table 2. Mixed effect linear regression model for the impact of family structure on child health and wellbeing in same-sex parent families

Instrument (n)	Scale	Where child lives ^a				Not in a relationship ^b		Female gender ^c	
		n	Other parent β (95% CI)	n	Part time β (95% CI)	n	β (95% CI)	n	β (95% CI)
CHQ (221)	PF	12	-4.62 (-13.62, 4.38)	47	-1.16 (-7.10, 4.78)	18	-0.91 (-8.46, 6.65)	186	15.91 (1.48, 30.35)*
	REB	12	-5.93 (-15.66, 3.80)	47	-0.33 (-6.76, 6.09)	18	0.37 (-7.79, 8.54)	186	1.18 (-14.41, 16.78)
	RP	12	-8.81 (-17.45, -0.18)*	47	-0.54 (-6.24, 5.15)	18	-2.92 (-10.18, 4.32)	186	7.22 (-6.62, 21.06)
	BP	12	-2.35 (-13.53, 8.83)	47	-5.69 (-13.06, 1.68)	18	-4.05 (-13.37, 5.28)	186	-3.11 (-20.91, 14.70)
	BE	12	1.68 (-8.35, 11.71)	47	8.45 (1.49, 15.42)*	18	2.27 (-6.62, 11.15)	186	-5.00 (-21.58, 11.59)
	MH	12	-3.97 (-13.02, 5.08)	47	0.39 (-5.69, 6.48)	18	-8.39 (-16.12, -0.66)*	186	12.31 (-2.32, 26.93)
	SE	12	1.37 (-12.30, 15.04)	47	-6.13 (-15.15, 2.90)	18	-4.26 (-15.73, 7.21)	186	8.89 (-13.02, 30.80)
	GH	12	-5.51 (-15.93, 4.91)	47	-2.24 (-10.04, 5.56)	18	-8.43 (-18.52, 1.67)	186	6.04 (-12.42, 24.51)
	PE	12	-12.48 (-22.69, -2.26)*	47	-6.54 (-13.66, 0.58)	18	-2.05 (-11.13, 7.03)	186	11.94 (-49.99, 28.88)
	PT	12	-11.16 (-19.65, -2.66)*	47	-4.18 (-11.23, 2.87)	18	-2.24 (-11.23, 2.87)	186	20.74 (3.92, 37.57)*
SDQ (303)	FA	12	-12.24 (-23.10, -1.39)*	47	-0.06 (-8.00, 7.88)	18	-6.00 (-16.22, 4.21)	186	10.96 (-7.82, 29.75)
	FC	12	-0.54 (-4.50, 3.61)	47	5.02 (-0.52, 10.56)	18	-10.85 (-20.54, -1.6)*	186	3.10 (-13.47, 19.68)
	Emotional	12	0.69 (-0.43, 1.81)	54	0.30 (-0.38, 0.99)	20	0.98 (0.07, 1.89)*	262	0.05 (-1.49, 1.59)
	Conduct	12	0.20 (-0.76, 1.16)	54	-0.13 (-0.75, -0.49)	20	-0.41 (-1.24, 3.69)	262	0.09 (-1.27, 1.46)
	Hyperactive	12	-0.09 (-1.59, 1.41)	54	-1.19 (-2.10, -0.29)*	20	0.20 (-1.00, 1.40)	262	0.41 (-1.63, 2.46)
	Peer	12	-0.11 (-1.12, 0.91)	54	0.35 (-0.28, 0.99)	20	0.69 (-0.14, 1.54)	262	-0.74 (-2.15, 0.67)
	Prosocial	12	-1.61 (-2.79, -0.44)**	54	-0.21 (-0.96, 0.53)	20	0.15 (-0.83, 1.14)	262	1.09 (-0.56, 2.73)
	Total diff	12	0.68 (-2.56, 3.92)	54	-0.65 (-2.70, 1.41)	20	1.67 (-1.06, 4.39)	262	-0.24 (-4.78, 4.21)
ITQOL (279)	PA2	<10	-	14	0.96 (-4.52, 6.45)	18	0.29 (-5.44, 4.86)	209	0.47 (-7.53, 8.48)
	GD	<10	-	14	0.18 (-5.77, 6.13)	18	0.27 (-5.30, 5.84)	214	-0.98 (-9.82, 7.85)
	BP	<10	-	14	-0.34 (-14.36, 13.68)	18	-12.86 (-25.94, 0.22)	214	11.07 (-12.93, 35.07)
	TM	<10	-	14	-16.48 (-25.86, -7.10)**	18	-11.60 (-20.35, -2.85)**	214	11.26 (-4.58, 27.09)
	GB	<10	-	14	-12.56 (-27.66, 2.54)	11	-8.57 (-24.02, 6.88)	176	14.41 (-10.38, 39.20)
	GB2	<10	-	14	-7.39 (-22.81, 8.03)	11	-1.16 (-16.95, 14.64)	176	-0.11 (-25.35, 25.14)
	BE	<10	-	14	-17.13 (-25.97, -8.30)**	11	-9.33 (-18.31, -0.36)*	176	14.12 (-0.64, 28.89)
	CBE	<10	-	14	-14.62 (-24.68, -4.55)**	11	-8.42 (-18.69, 1.84)	176	12.81 (-3.83, 29.45)
	GH	<10	-	14	-17.76 (-29.83, -5.68)**	18	-7.09 (-18.34, 4.17)	217	7.54 (-12.84, 27.92)
	PE	<10	-	14	-6.61 (-15.93, 2.70)	18	-8.38 (-17.13, 0.36)	214	7.09 (-9.17, 23.36)
(279)	PT	<10	-	14	-16.14 (-25.13, -7.16)**	18	-15.86 (-24.25, -7.47)**	214	12.57 (-2.39, 27.54)
	FC	<10	-	14	-13.04 (-26.03, -0.04)*	18	-9.78 (-23.06, 3.50)	214	-0.73 (-25.82, 24.36)

Instrument	Scale	Method of conception ^d									
		Hetero		Home insemination		ART		Surrogacy		Unknown donor	
		n	β (95% CI)	n	β (95% CI)	n	β (95% CI)	n	β (95% CI)	n	β (95% CI)
CHQ (221)	PF	85	3.64 (-10.12, 17.41)	57	-7.43 (-21.37, 6.50)	69	0.51 (-14.48, 15.51)	<10	-	63	-6.83 (-16.66, 3.01)
	REB	85	-3.61 (-18.48, 11.27)	57	5.43 (-9.63, 20.49)	69	1.06 (-15.14, 17.26)	<10	-	63	1.74 (-8.88, 12.37)
	RP	85	-0.24 (-13.45, 12.96)	57	2.83 (-10.54, 16.20)	69	7.92 (-6.46, 22.30)	<10	-	63	-3.72 (-13.15, 5.71)
	BP	85	8.31 (-8.68, 25.29)	57	-1.61 (-18.85, 15.62)	69	6.67 (-11.83, 25.17)	<10	-	63	-2.47 (-14.65, 9.72)
	BE	85	11.51 (-4.30, 27.32)	57	15.71 (-0.17, 31.58)	69	9.54 (-7.38, 26.46)	<10	-	63	4.69 (-6.40, 15.78)
	MH	85	-1.14 (-15.09, 12.82)	57	-8.76 (-22.85, 5.33)	69	-14.26 (-29.63, 0.83)	<10	-	63	7.21 (-2.69, 17.11)
	SE	85	4.75 (-16.15, 25.66)	57	2.84 (-18.32, 24.00)	69	3.59 (-19.17, 26.35)	<10	-	63	-2.96 (-17.89, 11.97)
	GH	85	12.56 (-4.93, 30.05)	57	-1.65 (-19.00, 15.71)	69	5.27 (-13.10, 23.64)	<10	-	63	-4.20 (-16.15, 7.76)
	PE	85	0.27 (-15.86, 16.41)	57	-6.47 (-22.66, 9.72)	69	-15.85 (-33.10, 1.41)	<10	-	63	9.70 (-1.60, 21.01)
	PT	85	-1.67 (-17.47, 14.13)	57	2.68 (-12.74, 18.10)	69	-5.49 (-21.71, 14.13)	<10	-	63	8.68 (-1.74, 19.01)
	FA	85	2.51 (-15.32, 20.35)	57	-2.74 (-20.50, 15.03)	69	-15.91 (-34.75, 2.92)	<10	-	63	11.57 (-0.72, 23.87)
	FC	85	10.41 (-4.25, 25.08)	57	6.23 (-7.27, 19.73)	69	5.21 (-8.56, 18.98)	<10	-	63	-0.62 (-6.80, 5.56)
SDQ (303)	Emotional	92	0.39 (-1.16, 1.95)	82	1.60 (0.01, 3.19)*	116	1.65 (-0.02, 3.32)	10	1.97 (0.08, 3.85)	82	-0.30 (-1.07, 0.47)
	Conduct	92	-1.04 (-2.39, 0.31)	82	-1.58 (-2.96, -0.20)*	116	-0.80 (-2.24, 0.64)	10	-0.25 (-1.89, 1.38)	82	0.92 (-1.61, -0.23)**
	Hyperactive	92	-1.05 (-3.11, 1.02)	82	-1.44 (-3.55, 0.68)	116	-0.66 (-2.89, 1.58)	10	-0.48 (-2.99, 2.03)	82	-0.99 (-2.01, 0.04)
	Peer	92	0.17 (-1.25, 1.58)	82	0.04 (-1.40, 1.49)	116	0.47 (-1.06, 1.99)	10	-1.22 (-0.50, 2.93)	82	-0.39 (-1.10, 0.32)
	Prosocial	92	-0.81 (-2.46, 0.83)	82	-0.95 (-2.63, 0.73)	116	-1.65 (-3.42, -0.11)	10	-3.18 (-5.17, -1.18)**	82	0.42 (-0.41, 1.24)
	Total diff	92	-1.36 (-5.90, 3.17)	82	-1.24 (-5.87, 3.38)	116	0.67 (-4.19, 5.52)	10	2.39 (-3.11, 7.88)	82	-2.51 (-4.81, -0.21)*
ITQOL (279)	PA2	17	-2.17 (-11.40, 7.07)	80	-3.29 (-14.43, 7.84)	124	-3.34 (-14.57, 7.88)	51	-2.79 (-15.13, 9.67)	116	0.08 (-1.93, 2.09)
	GD	17	-0.98 (-10.74, 8.79)	82	1.16 (-10.71, 13.03)	127	2.00 (-9.97, 13.97)	53	1.06 (-12.16, 14.31)	119	-0.39 (-2.54, 1.76)
	BP	17	18.39 (-1.84, 38.61)	82	22.74 (-3.17, 48.66)	127	26.00 (-0.16, 52.15)	53	15.66 (-13.56, 44.87)	119	-0.64 (-5.74, 4.47)
	TM	17	24.70 (10.29, 39.11)*	82	32.01 (14.04, 49.98)**	127	35.58 (17.44, 53.71)**	53	22.36 (2.21, 42.50)*	119	-1.21 (-4.63, 11.00)
	GB	15	2.34 (-33.02, 37.70)	65	-1.56 (-40.51, 37.38)	105	0.43 (-38.62, 39.48)	32	-12.21 (-55.66, 31.24)	90	2.05, (-3.98, 8.08)
	GB2	15	5.98 (-30.77, 42.73)	65	-1.79 (-42.11, 38.54)	105	1.66 (-38.77, 42.10)	32	-7.61 (-52.58, 37.36)	90	-1.87 (-8.00, 4.26)
	BE	15	10.08 (-7.48, 27.64)	65	11.07 (-9.02, 31.17)	105	12.48 (-7.69, 32.65)	32	-3.88 (-26.51, 18.76)	90	1.91 (-1.68, 5.49)
	CBE	15	5.38 (-16.99, 27.76)	65	3.47 (-21.45, 28.40)	105	5.45 (-19.55, 30.45)	32	-9.05 (-36.93, 18.82)	90	1.75 (-2.31, 5.80)
	GH	17	2.30 (-16.26, 20.86)	82	10.62 (-12.52, 33.76)	127	16.14 (-7.22, 39.49)	53	5.68 (-20.25, 31.62)	119	-0.26 (-4.65, 4.14)
	PE	17	22.59 (10.49, 34.67)**	82	23.29 (6.99, 39.59)**	127	26.89 (10.44, 43.22)**	53	16.79 (-1.79, 35.37)	119	-0.62 (-3.99, 2.76)
(279)	PT	17	7.58 (-6.93, 22.08)	82	29.25 (11.52, 46.99)**	127	29.49 (11.60, 47.39)**	53	15.76 (-4.04, 35.55)	119	2.35 (-0.91, 5.60)
	FC	17	1.07 (-7.15, 9.28)	82	2.92 (-15.93, 21.77)	127	5.15 (-13.66, 23.96)	53	-3.37 (-25.98, 19.23)	119	-1.88 (-5.73, 1.98)

Instrument	Scale	Relationship at conception ^f									
		Bio child ^e		Single		Previous hetero		Partner's previous heteo		Previous same-sex	
(n)		n	β (95% CI)	n	β (95% CI)	n	β (95% CI)	n	β (95% CI)	n	β (95% CI)
CHQ (221)	PF	142	3.55 (-5.74, 12.84)	13	-14.51 (-25.77, -3.25)⁺	50	-12.34 (-24.47, -0.21)⁺	19	-3.54 (-17.33, 10.24)	27	2.69 (-4.20, 9.58)
	REB	142	2.89 (-7.14, 12.92)	13	0.64 (-11.52, 12.80)	50	-1.83 (-14.93, 11.27)	19	2.20 (-12.70, 17.09)	27	-7.25 (-14.68, 0.18)
	RP	142	0.60 (-8.20, 9.50)	13	-4.59 (-15.38, 6.21)	50	0.40 (-11.23, 12.03)	19	9.76 (-3.46, 22.98)	27	2.25 (-4.34, 8.85)
	BP	142	-3.65 (-15.43, 8.13)	13	-16.24 (-30.15, -2.33)⁺	50	-6.07 (-21.09, 8.95)	19	-0.40 (-17.76, 16.96)	27	4.39 (-4.10, 12.88)
	BE	142	-1.96 (-12.64, 8.72)	13	-7.48 (-19.99, 5.02)	50	-3.04 (-16.54, 10.46)	19	-12.18 (-27.86, 3.50)	27	-6.77 (-14.74, 1.20)
	MH	142	2.62 (-6.81, 12.04)	13	-11.11 (-22.36, 0.14)	50	-11.60 (-23.74, 0.53)	19	-11.98 (-25.91, 1.95)	27	-3.58 (-10.58, 3.42)
	SE	142	-1.70 (-15.80, 12.39)	13	-9.56 (-26.64, 7.52)	50	-11.59 (-29.99, 6.81)	19	-10.52 (-31.45, 10.41)	27	-7.32 (-17.67, 3.12)
	GH	142	5.03 (-6.66, 16.71)	13	-10.86 (-24.22, 2.50)	50	-11.47 (-25.93, 3.00)	19	-0.68 (-17.73, 16.36)	27	2.96 (-5.90, 11.82)
	PE	142	2.95 (-7.95, 13.84)	13	-17.56 (-30.30, -4.83)⁺⁺	50	-7.24 (-20.15, 11.84)	19	-4.16 (-20.15, 11.84)	27	-2.54 (-10.67, 5.60)
	PT	142	-0.34 (-10.57, 9.89)	13	-2.63 (-14.20, 8.95)	50	-0.44 (-13.03, 12.15)	19	4.15 (-10.77, 1.25)	27	-6.76 (-14.77, 1.25)
SDQ (303)	FA	142	4.17 (-7.81, 16.14)	13	-7.35 (-21.11, 6.41)	50	-5.91 (-20.79, 8.98)	19	-0.19 (-17.68, 17.30)	27	-4.69 (-13.72, 4.33)
	FC	142	0.32 (-6.23, 6.86)	13	-13.32 (-21.94, -4.70)⁺⁺	50	-13.32 (-23.26, -4.58)⁺⁺	19	-13.76 (-24.57, -2.95)⁺	27	-11.67 (-19.02, -4.31)⁺⁺
	Emotional	198	-0.60 (-1.60, 0.40)	17	1.63 (0.53, 2.74)⁺⁺	53	1.56 (0.32, 2.80)⁺	19	2.20 (0.72, 3.68)⁺⁺	30	-0.14 (-0.94, 0.66)
	Conduct	198	0.72 (-0.16, 1.61)	17	-0.23 (-1.19, 0.73)	53	-0.07 (-1.14, 1.01)	19	0.43 (-0.89, 1.74)	30	-0.06 (-0.78, 0.67)
	Hyperactive	198	-0.26 (-1.57, 0.82)	17	0.79 (-0.70, 2.27)	53	0.92 (-0.73, 2.58)	19	1.42 (-0.55, 3.38)	30	0.87 (-0.19, 1.92)
	Peer	198	-0.14 (-1.06, 0.77)	17	0.43 (-0.57, 1.44)	53	0.90 (-0.23, 2.03)	19	0.57 (-0.79, 1.93)	30	0.31 (-0.43, 1.05)
	Prosocial	198	0.30 (-0.76, 1.37)	17	-1.22 (-2.39, -0.05)⁺	53	0.19 (-0.12, 1.50)	19	-0.03 (-1.62, 1.56)	30	-0.49 (-0.38, 1.35)
	Total diff	198	-0.15 (-3.10, 2.80)	17	2.08 (-1.14, 5.30)	53	3.11 (-0.49, 6.71)	19	4.68 (0.30, 9.07)⁺	30	1.02 (-1.37, 3.42)
ITQOL (279)	PA2	164	-0.38 (-3.76, 3.00)	20	2.54 (-2.14, 7.23)	<10	-	<10	-	10	0.93 (-5.26, 7.12)
	GD	168	-1.47 (-5.03, 2.08)	20	2.00 (-3.04, 7.03)	<10	-	<10	-	10	2.47 (-4.22, 9.15)
	BP	168	-10.86 (-19.13, -2.59)⁺	20	0.06 (-11.54, 11.65)	<10	-	<10	-	10	10.95 (-4.51, 26.42)
	TM	168	-2.88 (-8.46, 2.70)	20	3.18 (-4.63, 11.11)	<10	-	<10	-	10	15.99 (5.55, 26.42)⁺⁺
	GB	132	-1.04 (-11.64, 9.56)	13	4.52 (-8.28, 17.32)	<10	-	<10	-	10	27.29 (10.25, 44.32)⁺⁺
	GB2	132	0.12 (-10.72, 10.95)	13	-0.23 (-13.36, 12.90)	<10	-	<10	-	10	10.91 (-6.50, 28.31)
	BE	132	-4.26 (-9.77, 1.25)	13	2.49 (-4.82, 9.80)	<10	-	<10	-	10	22.10 (12.18, 21.02)⁺⁺
	CBE	132	-2.53 (-9.58, 4.53)	13	2.92 (-5.53, 11.37)	<10	-	<10	-	10	22.93 (11.60, 34.26)⁺⁺
	GH	168	-1.87 (-9.06, 5.3)	20	6.96 (-3.10, 17.02)	<10	-	<10	-	10	14.42 (0.98, 27.85)⁺
	PE	168	-1.72 (-7.12, 3.67)	20	1.96 (-5.71, 9.63)	<10	-	<10	-	10	9.87 (-0.26, 20.00)
(279)	PT	168	-0.09 (-5.45, 5.28)	20	6.87 (-0.69, 14.44)	<10	-	<10	-	10	17.81 (7.74, 27.87)⁺⁺
	FC	168	-5.73 (-11.38, -0.08) ⁺	20	6.24 (-4.93, 17.41)	<10	-	<10	-	10	6.19 (-6.54, 18.93)

CHQ: physical functioning (PF), role social-emotional/behavioural (REB), role social-physical (RP), bodily pain (BP), behaviour (BE), mental health (MH), self esteem (SE), general health (GH), parental impact-emotional (PE), parental impact-time (PT), family activities (FA), and family cohesion (FC)

ITQOL: physical abilities (PA2), growth and development (GD), bodily pain/discomfort (BP), temperament and moods (TM), general behaviour (GB), global behaviour (GB2), behaviour (BE), general health perceptions (GH), parental impact-emotional (PE), parental impact-time (PT), and family cohesion (FC)

- a. binary variables (no = 0, yes = 1)
 - b. reference group=lives full time with parent completing the survey
 - c. reference group=parent currently in a relationship
 - d. reference group=male parent ('other gender parents' not shown due to low numbers, n=4)
 - e. binary variables (no = 0, yes = 1)
 - f. reference group = current same-sex relationship ('partner's previous same-sex relationship' and 'partner single' not shown due to low numbers)
- + = $p < 0.05$; ++ = $p < 0.01$

Table 3. Mixed effect linear regression model for the impact of sociodemographic characteristics on child health and wellbeing in same-sex parent families

Instrument	Scale	Annual income ^a												
		(n)	20,000-29,999	30,000-59,999	60,000-99,999	100,000-149,999	150,000-249,999	250,000+						
		n	β (95% CI)	n	β (95% CI)	n	β (95% CI)	n	β (95% CI)	n	β (95% CI)	n	β (95% CI)	
CHQ (221)	PF	11	-1.08 (-14.66, 12.50)	25	-3.61 (-15.73, 8.50)	48	2.73 (-8.99, 14.44)	55	-5.25 (-17.26, 6.76)	45	3.78 (-7.95, 15.51)	27	-0.77 (-14.00, 12.47)	
	REB	11	33.34 (19.87, 46.81)**	25	25.28 (13.26, 37.29)**	48	29.52 (17.90, 41.14)**	55	32.58 (20.67, 44.48)**	45	32.42 (20.78, 44.07)**	27	35095 (22.81, 49.08)**	
	RP	11	1.53 (-11.47, 14.53)	25	-7.53 (-19.12, 4.07)	48	2.32 (-8.90, 13.53)	55	-3.38 (-14.87, 8.10)	45	3.92 (-7.31, 15.15)	27	3.66 (-9.01, 16.33)	
	BP	11	6.73 (-10.10, 23.56)	25	12.37 (-2.65, 27.39)	48	8.79 (-5.74, 23.30)	55	5.39 (-9.49, 20.26)	45	12.04 (-2.50, 26.59)	27	13.76 (-2.64, 30.18)	
	BE	11	24.64 (8.59, 40.69)**	25	22.82 (8.11, 37.54)**	48	22.52 (8.19, 36.85)**	55	24.53 (9.97, 39.09)**	45	27.03 (12.71, 41.34)**	27	30.41 (14.59, 46.23)**	
	MH	11	13.05 (-1.60, 27.69)	25	15.39 (1.97, 28.80)*	48	19.30 (6.24, 32.36)**	55	20.45 (7.17, 33.72)**	45	27.39 (14.35, 40.44)**	27	29.18 (14.75, 43.61)**	
	SE	11	28.60 (9.46, 47.74)**	25	26.86 (9.79, 43.93)**	48	34.19 (17.68, 50.70)**	55	34.68 (17.77, 51.58)**	45	30.82 (14.29, 47.36)**	27	39.91 (21.26, 58.57)**	
	GH	11	16.44 (-3.59, 36.48)	25	-1.13 (-20.16, 19.91)	48	15.92 (-2.76, 34.60)	55	13.58 (-5.23, 32.38)	45	24.69 (6.07, 43.30)**	27	28.03 (7.98, 48.09)**	
	PE	11	24.36 (9.30, 39.42)**	25	24.65 (11.14, 38.15)**	48	25.22 (12.13, 38.30)**	55	27.27 (13.89, 40.65)**	45	32.59 (19.49, 45.70)**	27	34.91 (20.22, 49.60)**	
	PT	11	29.04 (8.73, 49.36)**	25	19.51 (-0.04, 39.05)	48	22.65 (3.42, 41.87)*	55	24.48 (5.18, 43.78)*	45	27.25 (8.10, 46.41)**	27	33.97 (13.53, 54.42)**	
	FA	11	25.65 (5.38, 45.91)*	25	21.58 (2.45, 40.71)*	48	19.86 (1.11, 38.62)*	55	22.03 (3.12, 40.94)*	45	29.41 (10.71, 48.10)**	27	22.90 (2.67, 43.12)*	
	FC	11	31.13 (6.19, 56.08)**	25	21.83 (-2.56, 46.22)	48	36.82 (12.75, 60.89)**	55	39.32 (15.25, 63.39)**	45	40.86 (16.84, 64.84)**	27	44.07 (18.83, 69.32)**	
	SDQ (303)	Emotional	15	-1.22 (-2.78, 0.34)	34	-1.63 (-3.02, -0.15)*	69	-2.58 (-3.95, -1.22)**	76	-2.44 (-3.83, -1.05)**	60	-3.06 (-4.43, -1.68)**	39	-3.28 (-4.77, -1.80)**
		Conduct	15	-3.34 (-4.89, -1.80)**	34	-2.45 (-3.87, -1.03)**	69	-3.10 (-4.50, -1.69)**	76	-3.01 (-4.43, -1.60)**	60	-3.31 (-4.71, -1.90)**	39	-3.61 (-5.11, -2.12)**
		Hyperactive	15	-2.03 (-4.09, 0.02)	34	-2.58 (-4.41, -0.76)**	69	-2.60 (-4.40, -0.80)**	76	-3.31 (-5.14, -1.48)**	60	-3.41 (-5.22, -1.60)**	39	-3.49 (-5.45, -1.53)**
Peer		15	-2.89 (-4.25, -1.52)**	34	-2.98 (-4.19, -1.77)**	69	-3.50 (-4.70, -2.31)**	76	-3.40 (-4.61, -2.18)**	60	-3.80 (-5.00, -2.60)**	39	-3.97 (-5.27, -2.67)**	
Prosocial		15	2.83 (0.78, 4.32)**	34	4.28 (1.89, 5.08)**	69	4.76 (2.25, 5.40)**	76	5.2 (2.64, 5.84)**	60	4.82 (2.31, 5.48)**	39	4.61 (2.29, 5.69)**	
	Total diff	15	-9.50 (-13.79, -5.21)**	34	-9.68 (-13.49, -5.87)**	69	-11.75 (-15.50, -8.00)**	76	-12.17 (-15.99, -8.35)**	60	-13.55 (-17.33, -9.77)**	39	-14.35 (-18.44, -10.26)**	
ITQOL (279)	PA2	13	Ref	30	-1.23 (-6.04, 3.58)	63	-2.32 (-6.78, 2.15)	73	-1.11 (-5.62, 3.41)	50	-0.34 (-5.00, 4.31)	40	0.39 (-4.30, 5.08)	
	GD	14	Ref	31	-0.06 (-5.20, 5.08)	64	0.56 (-4.21, 5.33)	74	0.98 (-3.86, 5.82)	50	2.72 (-2.30, 7.74)	43	1.33 (-3.73, 6.39)	
	BP	14	Ref	31	0.55 (-12.33, 13.44)	64	1.85 (-10.08, 13.78)	74	2.35 (-9.77, 14.48)	50	3.55 (-9.03, 16.12)	43	8.65 (-4.09, 21.40)	
	TM	14	Ref	31	0.08 (-8.33, 8.50)	64	4.26 (-3.54, 12.06)	74	1.65 (-6.27, 9.57)	50	-0.04 (-8.25, 8.18)	43	7.07 (-1.23, 15.38)	
	GB	9	Ref	25	-6.21 (-21.71, 9.28)	53	-0.10 (-14.50, 14.30)	53	-5.04 (-19.66, 9.59)	39	3.55 (-11.52, 18.62)	37	5.17 (-9.72, 20.06)	
	GB2	9	Ref	25	-10.94 (-26.47, 4.59)	53	-3.95 (-18.38, 10.48)	53	-5.05 (-19.71, 9.61)	39	-0.94 (-16.05, 14.17)	37	-2.15 (-17.07, 12.78)	
	BE	9	Ref	25	-11.32 (-20.72, -1.92)*	53	-8.41 (-17.04, 0.21)	53	-9.46 (-18.27, -0.66)*	39	-8.57 (-17.65, 0.52)	37	-6.30 (-15.34, 2.73)	
(279)	CBE	9	Ref	25	-9.38 (-20.05, 1.28)	53	-5.01 (-14.85, 4.82)	53	-7.35 (-17.37, 2.66)	39	-3.74 (-14.06, 6.59)	37	-1.99 (-12.23, 8.25)	
	GH	14	Ref	31	-8.00 (-18.95, 2.96)	64	-6.71 (-16.86, 3.43)	74	-7.92 (-18.24, 2.39)	50	-9.70 (-20.40, 0.99)	43	-5.32 (-16.16, 5.52)	
	PE	14	Ref	31	-4.47 (-12.74, 3.79)	64	-0.30 (-7.96, 7.35)	74	0.20 (-7.58, 7.98)	50	-1.52 (-9.58, 6.55)	43	1.57 (-6.62, 9.76)	
	PT	14	Ref	31	-6.87 (-15.34, 1.60)	64	0.37 (-7.48, 8.22)	74	0.37 (-7.61, 8.34)	50	1.94 (-6.33, 10.21)	43	2.33 (-6.03, 10.69)	
	FC	14	Ref	31	0.89 (-12.29, 14.07)	64	3.11 (-9.08, 15.30)	74	1.86 (-10.54, 14.26)	50	4.57 (-8.31, 17.45)	43	9.19 (-3.98, 22.36)	

Instrument (n)	Scale	Region ^b					
		Outer suburbs		Regional centre		Rural	
		n	β (95% CI)	n	β (95% CI)	n	β (95% CI)
CHQ (221)	PF	51	-2.35 (-7.84, 3.14)	39	-0.69 (-6.32, 6.18)	15	-8.99 (-17.37, -0.61)+
	REB	52	-3.37 (-8.82, 2.08)	39	-3.64 (-9.84, 2.56)	15	-3.20 (-11.50, 5.11)
	RP	52	-0.71 (-5.97, 4.55)	39	0.79 (-5.19, 6.78)	15	-11.94 (-19.96, -3.93)++
	BP	52	3.34 (-3.47, 10.16)	39	5.91 (-1.86, 13.67)	15	-2.35 (-12.74, 8.03)
	BE	52	-5.69 (-11.78, 0.39)	39	-6.36 (-13.37, 0.65)	15	-1.28 (-10.51, 7.96)
	MH	52	-0.89 (-6.46, 4.68)	39	1.53 (-4.88, 7.94)	15	5.50 (-2.95, 13.95)
	SE	52	-4.40 (-12.15, 3.34)	39	5.53 (-3.28, 14.35)	15	-2.06 (-13.86, 9.74)
	GH	52	3.02 (-3.80, 9.85)	39	-0.79 (-8.78, 7.20)	15	-1.68 (-11.97, 8.60)
	PE	52	0.92 (-5.03, 6.88)	39	2.47 (-4.31, 9.25)	15	7.37 (-1.71, 16.44)
	PT	52	2.51 (-4.07, 9.09)	39	1.64 (-6.12, 9.39)	15	-1.29 (-11.16, 8.59)
	FA	52	3.86 (-3.17, 10.89)	39	-5.49 (-13.69, 2.71)	15	-4.75 (-15.35, 5.86)
	FC	52	0.40 (-7.01, 7.81)	39	-0.24 (-9.08, 8.60)	15	-5.18 (-16.25, 5.89)
SDQ (303)	Emotional	74	0.21 (-0.35, 0.77)	46	0.85 (0.17, 0.04)	22	0.17 (-0.68, 1.02)
	Conduct	74	0.56 (0.06, 1.05)+	46	0.04 (-0.06, 0.65)	22	-0.10 (-0.85, 0.65)
	Hyperactive	74	0.74 (0.00, 1.48)	46	0.52 (-0.37, 1.40)	22	-0.15 (-1.27, 0.97)
	Peer	74	0.47 (-0.02, 0.97)	46	-0.02 (-0.61, 0.57)	22	0.79 (0.04, 1.53)+
	Prosocial	74	-0.04 (-0.64, 0.57)	46	0.10 (-0.64, 0.57)	22	0.86 (-0.05, 1.78)
ITQOL (279)	Total diff	74	1.99 (0.45, 3.53)+	46	1.36 (-0.49, 3.21)	22	0.69 (-1.65, 3.03)
	PA2	76	0.67 (-1.25, 2.59)	29	-4.09 (-6.77, -1.42)++	23	1.06 (-1.77, 3.89)
	GD	78	-1.19 (-3.32, 0.94)	30	-2.59 (-5.55, 0.38)	23	0.00 (-3.18, 3.17)
	BP	78	1.81 (-3.53, 7.14)	30	2.16 (-5.39, 9.91)	23	5.00 (-3.02, 13.03)
	TM	78	0.61 (-2.88, 4.09)	30	-1.29 (-6.19, 3.61)	23	0.75 (-4.48, 5.97)
	GB	63	6.48 (0.48, 12.49)+	23	6.36 (-2.26, 14.98)	17	7.41 (-2.00, 18.81)
	GB2	63	-0.07 (-6.09, 5.95)	23	6.76 (-1.89, 15.41)	17	-0.72 (-10.15, 8.71)
	BE	63	1.64 (-2.00, 5.29)	23	2.93 (-2.50, 8.37)	17	4.78 (-0.89, 10.45)
	CBE	63	3.17 (-0.97, 7.30)	23	4.54 (-1.53, 10.61)	17	5.14 (-1.31, 11.60)
	GH	78	-1.49 (-6.03, 3.05)	30	-5.82 (-12.24, 0.60)	23	1.19 (-5.63, 8.02)
(279)	PE	78	-2.28 (-5.70, 1.15)	30	0.26 (-4.60, 5.11)	23	2.34 (-2.81, 7.50)
	PT	78	-0.53 (-4.03, 2.98)	30	-0.33 (-5.26, 4.61)	23	1.85 (-3.41, 7.11)
	FC	78	-0.90 (-6.36, 4.57)	30	6.65 (-1.20, 14.50)	23	1.40 (-6.87, 9.67)

Instrument (n)	Scale	Highest level of education ^c					
		Diploma/certificate		Undergraduate		Postgraduate	
		n	β (95% CI)	n	β (95% CI)	n	β (95% CI)
CHQ (221)	PF	46	-0.13 (-12.03, 11.77)	50	-1.13 (-12.88, 20.61)	100	-5.30 (-17.06, 6.47)
	REB	46	2.03 (-9.20, 13.28)	50	-2.06 (-13.44, 9.00)	100	-1.16 (-12.15, 9.92)
	RP	46	-3.13 (-13.98, 7.72)	50	2.09 (-8.58, 12.76)	100	-5.55 (-16.25, 5.14)
	BP	46	0.01 (-14.04, 14.06)	50	2.02 (-11.79, 15.83)	99	0.25 (-13.60, 14.09)
	BE	46	7.92 (-7.81, 20.65)	50	5.24 (-7.34, 17.61)	100	5.00 (-7.61, 17.61)
	MH	46	4.46 (-7.17, 16.10)	50	2.15 (-9.35, 13.64)	100	1.73 (-9.79, 13.26)
	SE	46	0.57 (-15.41, 16.54)	50	-1.57 (-17.27, 14.13)	100	4.75 (-11.00, 20.49)
	GH	46	3.69 (-11.08, 18.46)	50	3.93 (-10.80, 18.67)	100	0.90 (-13.84, 16.65)
	PE	45	-3.09 (-15.38, 9.20)	50	0.21 (-11.87, 12.29)	100	-3.07 (-15.18, 9.05)
	PT	45	-3.95 (-18.47, 10.58)	50	-8.93 (-23.48, 5.62)	100	-10.20 (-24.74, 4.34)
	FA	45	18.84 (3.77, 33.91)⁺	50	17.37 (2.37, 32.37)⁺	100	18.19 (3.17, 33.20)⁺
	FC	45	11.98 (-5.09, 29.05)	50	12.66 (-4.55, 29.88)	100	16.37 (-0.77, 33.51)
SDQ (303)	Emotional	54	-0.36 (-1.45, 0.74)	71	-0.36 (-1.08, 1.01)	141	0.06 (-0.97, 1.09)
	Conduct	54	-0.04 (-1.03, 0.96)	71	0.30 (-0.66, 1.26)	141	0.27 (-0.68, 1.22)
	Hyperactive	54	-0.329 (-1.73, 1.15)	71	0.02 (-1.35, 1.40)	141	-0.41 (-1.77, 0.95)
	Peer	54	0.06 (-0.90, 1.02)	71	0.24 (-0.68, 1.15)	141	0.11 (-0.80, 1.01)
	Prosocial	54	1.79 (0.59, 2.98)⁺⁺	71	0.60 (-0.54, 1.74)	141	0.74 (-0.39, 1.87)
ITQOL (279)	Total diff	54	-0.60 (-3.61, 2.41)	71	0.50 (-2.37, 3.37)	141	0.03 (-2.81, 2.86)
	PA2	29	-1.66 (-5.30, 1.99)	81	-1.85 (-5.14, 1.45)	129	-1.96 (-5.10, 1.19)
	GD	31	-1.95 (-5.97, 2.06)	83	-1.04 (-4.68, 2.59)	132	-2.54 (-6.02, 0.93)
	BP	31	4.21 (-5.82, 14.24)	83	-1.10 (-40.12, 7.92)	132	-1.34 (-9.95, 7.28)
	TM	31	3.22 (-3.34, 9.77)	83	4.35 (-1.56, 10.27)	132	1.73 (-3.92, 7.38)
	GB	26	4.46 (-7.06, 15.99)	63	7.15 (-3.31, 17.62)	103	8.29 (-1.69, 18.57)
	GB2	26	2.05 (-9.51, 13.60)	63	2.13 (-8.36, 12.62)	103	3.79 (-6.21, 13.80)
	BE	26	3.60 (-3.37, 10.57)	63	5.08 (-1.20, 11.36)	103	3.51 (-2.49, 9.51)
	CBE	26	3.72 (-4.19, 11.64)	63	5.49 (-1.67, 12.65)	103	5.37 (-1.47, 12.20)
	GH	31	-5.64 (-14.17, 2.88)	83	-0.10 (-7.76, 7.57)	132	-0.54 (-7.86, 6.79)
(279)	PE	31	1.25 (-5.18, 7.68)	83	3.78 (-1.99, 9.55)	132	3.21 (-2.30, 8.72)
	PT	31	-3.07 (-9.67, 3.53)	83	0.77 (-5.19, 6.73)	132	0.77 (-4.92, 6.46)
	FC	31	7.86 (-2.37, 18.08)	83	5.29 (-3.81, 14.40)	132	3.50 (-5.20, 12.20)

- a. Reference group for CHQ and SDQ income=\$10,000-\$19,999. For the ITQOL income=\$20,000-\$29,000 due to low numbers in \$10,000-\$19,999 group.
- b. reference group=inner suburbs (remote not shown due to low numbers)
- c. reference group=completed year 12 ("primary school" and "4 years high school" excluded due to low numbers)

+ = $p < 0.05$; ++ = $p < 0.01$

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