

Sibling constellations and wellbeing in intact and non-intact families

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ABSTRACT

Background: There is little research on the impact of sibling relations on the development of resilience in families experiencing break up.

Methods: The role of sex of siblings in family structures was explored in relation to mental health in young adults in a sample of 927 participants (460 males and 467 females), aged 18–21 years old. In addition the potential mediating relationship of family relations, self-efficacy, optimism and social support were added to the mix in order to provide some explanatory mechanism for any relationship that might exist. **Results:** Multivariate analysis of variance and path analysis were used and findings suggest that the presence of a female sibling may be a protective factor and may operate through improving family relationships and increasing self-efficacy, optimism, and perceived social support.

Conclusions: It is suggested that the sex structure of siblings should be considered in any family focused intervention to improve mental health.

Key words: Sibling sex, family relations, self-efficacy, optimism; social support, mental health

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INTRODUCTION

A major limitation of the literature on single parent families is the focus on the negative impact on children's psychosocial and emotional development (Shek, 2007; Videon, 2002). The current development of a positive paradigm in psychology enables researchers to counteract the traditional deficit model with a more resource based approach (Cassidy, 2011; Cassidy, Giles, & McLaughlin, 2013). Indeed some young adults who experienced parental divorce during childhood and adolescence do continue to have poorer outcomes than young adults in continuously intact two parent families (Shek & Leung, 2013). However only a small percentage of children suffer negative effects of marriage break up (Hetherington & Kelly, 2002), and the negative impact of the absence of father on their offspring's attainment seems to disappear when other factors, such as socioeconomic status of the family following break up, are taken into account (Biblarz & Raftery, 1999). Similarly the impact of non-intact family on psychosocial and emotional development and health generally is subject to a range of factors including parenting style (Shek, 2007, Shek & Leung, 2013). One of the best predictors of well-being in children in both intact and non-intact families is the quality of parenting (Dunn, 2005; Mooney, Oliver & Smith, 2009). Simply knowing a child's living arrangements tells us little about the family environment in which they reside and comparing outcomes of children in intact and single-parent homes neglects the complexities of family life (Videon, 2002). It has been argued that the parental conflict associated with divorce rather than divorce per se may cause children to be worse off (Poortman & Voorpostel, 2009). Indeed when marital conflict is intense, separation removes children from this high conflict environment, improving their well-being (Morrison & Coiro, 1999). In fact in Biblarz and Raftery's (1999) review there is evidence that in many cases children can benefit from being raised in a single-sex maternal family rather than any other combination.

What seems consistently clear from these studies is that the negative impact of family break up is related more to the negative relations than the break up per se (Shek, 2007, Shek & Leung, 2013), and any positive effect following break up is due to a restoration of positive relations within the new unit (Biblarz & Raftery, 1999).

Research on familial environments after marital dissolution tends to focus on parent child interaction and often ignores the importance of inter-sibling relationships. Sibling relationships are important in the positive development of adolescents and adults (Voorpostel, Van der Lippe, Dykstra, & Flap, 2007) as well as in the development of problems (Defoe, Keijsers, Hawk, Branje, Dubas, et al, 2013). One aspect of sibling relationships is the sex of siblings. There is evidence that males are associated with more conflict and lower levels of cohesion in sibling relations (Weiss, Schitaffino & Ilowite, 2001). Similarly, there is some evidence that families with female siblings tend to be related to more expressive family environments and that this may, in turn, impact on coping and health (Cassidy, Wright & Noon, 2014). It is well recognised that the combination of high levels of conflict and less cohesive family emotional environments are associated with more negativity in sibling relationships (Milevsky, 2004). Emotion expression is an important feature of healthy child development and has been shown to be gender related with girls exhibiting more open expression and more healthy emotion processing (Chaplin, & Aldao, 2013). It would seem reasonable then to hypothesise that girl siblings might provide a protective family environment following break up through the generation of more open emotional expression. In their review Feinberg, Solmeyer and McHale (2012) identify the importance of sibling relationships as a target for preventive intervention in relation to adolescent mental health.

Research has shown that positive mental health is underpinned by a range of protective factors including perceived social support, self-efficacy and optimism, which have been widely established in the literature (Cassidy, 2011; Cassidy, Giles, & McLaughlin, 2013). The positive role of social support in mediating and moderating the impact of life stress on health outcomes has been universally established (Taylor, 2011). Positive perceptions of support correlate with positive mental health and factors that promote social support will also promote positive mental health. Optimism and self-efficacy have been identified as two of the key elements of Psychological Capital (Luthans, Youssef, & Avolio, 2007). They have been identified as protective factors against life stress and key to the promotion of positive health and wellbeing (Newman, Ucbasaran, Zhu, & Hirst, 2014). The combined effects of social support, self-efficacy and optimism have also been demonstrated in the development of positive health and well-being (Karademas, 2006).

The aim of the current study was to explore the role of sex of siblings in relation to positive mental health, and some of the key variables (family relations, self-efficacy, optimism, social support) through which any potential effects might be mediated.

METHODS

Design

This study used a survey design with questionnaire data collection methods, to explore the effect of the sex structure of siblings in intact and non-intact families, on family relations, social support, self-efficacy, optimism, and psychological health.

Participants

The final sample consisted of 927 participants (460 males and 467 females), aged 18-21 years old, selected from random groups of social science and humanities undergraduate students. Quota sampling was used to try to access approximately equal numbers of males and females and intact (n=506) versus non-intact (n=421) home backgrounds. In the sample 212 were singletons, 217 had at least one brother and one sister, 238 had at least one brother and no sister, and 260 had at least one sister and no brother. When sibling constellation was broken down by sex there were 101 female singletons, 111 male singletons, 116 females who had at least one brother and one sister, 101 males who had at least one brother and one sister, 123 females who had at least one brother and no sister, 115 males who had at least one brother and no sister, 146 females who had at least one sister and no brother and 114 males who had at least one sister and no brother. No one had more than 2 brothers or 2 sisters thus the sibling size ranged from 1 to 5 in any constellation.

Materials

Demographic information was gathered from participants including age, gender, parents occupation (as a measure of socioeconomic status (SES)), and whether their childhood home was intact or if parents had split up. In addition participants were assessed on the following measures:

Positive and negative mental health were measured using the General Health Questionnaire (*GHQ-12*: Goldberg, 1972, 1978) which is comprised of 12 questions, each of which is rated on a four-point scale. At the time of completing the GHQ-12 the participants were asked to consider how they had been feeling over the past month. To provide an example, headed with the words 'In the last month have you' the participants would answer questions

such as 'Been able to concentrate on what you are doing?' by indicating one of the following 'better than usual', 'same as usual', 'less than usual' or 'much less than usual'. In terms of scoring the GHQ-12, there are two methods. Likert scoring assigns a score (0-1-2-3) in response to each of the 12 questions, which makes for a maximum total score of thirty-six. More recently attention has focused on whether it can be used to measure positive mental health as an independent dimension (Hu, Stewart-Brown, Twigg & Weich, 2007). As in the Hu et al (2007) study, we found in our current data set that a two factor solution was produced with the 6 positive items loading on one dimension ($\alpha = 0.83$) while the 6 negative items loaded on a separate one ($\alpha = 0.81$). The factors were used to measure separate dimensions of positive and negative mental health in the current study. An example of a positive item is, 'Been able to enjoy your normal day to day activities' and an example of a negative item is, 'Feeling unhappy and depressed'.

Self-efficacy was measured using the Generalized Self-Efficacy Scale (GSES) (Schwarzer, 1992) which is a 10 item measure of the self-efficacy concept. It reflects an optimistic self-belief in various domains of human functioning. Each item refers to successful coping and implies an internal-stable attribution of success. Cronbach Alpha in this study was .88.

Optimism / Pessimism was measured using the Life Orientation Test-Revised (LOT-R; Scheier, Carver, & Bridges, 1994) which is a 10-item scale, with 4 filler items and 6 scale items. LOT-R Total scores are calculated by summing the three positively worded and three negatively worded items (these are reverse coded). Respondents are asked to indicate their level of agreement with each of the items on a 4-point scale, ranging from *strongly agree* to *strongly disagree*. This gives a possible score range of 6 to 24, with higher scores indicating more optimism. Scheier, Carver, and Bridges report an internal reliability coefficient of .78 for an undergraduate sample.

Social Support was measured using The Social Support Scale (Cassidy & Burnside, 1996). This is a 12-item measure of perceived social support. A higher score indicates more support. The scale has a Cronbach Alpha of 0.89 in this study.

Family environment was measured using the Family Environment Scale (Moos & Moos, 1986). This is a 90 item scale which measures 10 first order factors of family environment, *cohesion*, *expressiveness*, *conflict*, *independence*, *achievement orientation*, *intellectual-cultural orientation*, *active-recreational orientation*, *moral-religious orientation*, *organisation* and *control*. The scales are scored so that a higher score indicates more experience of the specific factor within the family and Cronbach Alphas for scales ranged from .79 to .91.

Procedure

Participants were selected from groups of social science and humanities undergraduate students using quota sampling based on an age range of 18-21, equal numbers of males and females, and equal numbers from intact versus non-intact home backgrounds. All participants were assured of anonymity and that participation was voluntary.

RESULTS

The primary purpose of the current study was to test the hypothesised relationship between the gendered structure of siblings in intact and non-intact families, in terms of cohesion, conflict, expressiveness, social support, self-efficacy, optimism, and psychological health. Previous research showed an interaction between gender and sibling structure, therefore in order to explore this, a gender by sibling structure variable was computed. This gender by sibling structure variable had 8 levels, boy with no sibling, girl with no sibling, boy with brother (s) only, girl with brother (s) only, boy with sister (s) only, girl with sister (s) only, boy with both brother (s) and sister (s), and girl with both brother (s) and sister (s). The first stage of analysis used a two by eight multivariate analysis of variance (Manova) with intact versus non-intact homes (2 levels), and gender by sibling structure (8 levels) as independent variables and positive and negative mental health, family environment dimensions, self-efficacy, optimism, and social support as the dependant variables. The means and standard deviations for this analysis are shown in Table 1. The scores for conflict are reversed so that a higher score means less conflict.

Table 1. Means and standard deviations by sibling sex structure by intact versus non-intact home

		Cohesion		Conflict		Expressiveness		Self-efficacy		Support		Optimism		Negative Mental Health		Positive Mental Health		
		N	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
female only	not broken	47	3.36	.85	2.23	.43	3.34	.89	2.77	1.18	3.85	.55	3.94	.67	3.45	.88	2.96	.20
	broken	54	2.52	.50	2.83	.75	2.19	.62	2.13	.67	2.09	.52	2.09	.52	3.61	.63	2.31	.47
	Total	101	2.91	.80	2.55	.69	2.72	.95	2.43	.99	2.91	1.03	2.95	1.09	3.53	.76	2.61	.49
male only	not broken	71	3.34	1.34	3.28	.89	3.61	1.13	3.28	1.30	3.73	.68	3.56	.92	3.11	.95	2.73	.81
	broken	40	2.35	.74	1.80	1.56	2.30	.72	1.25	.63	1.55	1.13	2.25	.54	3.98	.66	2.18	.38
	Total	111	2.98	1.25	2.75	1.36	3.14	1.18	2.55	1.48	2.94	1.36	3.09	1.02	3.42	.95	2.53	.74
female plus sis	not broken	61	4.38	.99	3.11	1.05	4.38	.84	3.90	1.18	4.39	.80	4.05	.86	1.97	.31	3.57	.69
	broken	85	4.04	1.29	2.98	.99	4.20	1.32	3.55	1.53	3.36	1.76	3.08	1.23	2.00	.67	2.99	1.46
	Total	146	4.18	1.18	3.03	1.01	4.27	1.14	3.69	1.40	3.79	1.52	3.49	1.18	1.99	.55	3.23	1.23
male plus sis	not broken	67	4.22	.85	2.96	1.26	4.16	1.18	4.21	1.11	4.04	.79	4.27	.98	1.78	.57	3.85	.89
	broken	47	4.00	1.23	3.85	1.53	4.15	.93	3.53	1.36	3.53	1.33	3.94	.92	1.81	.65	3.96	.83
	Total	114	4.13	1.03	3.32	1.44	4.16	1.08	3.93	1.26	3.83	1.07	4.13	.96	1.79	.60	3.89	.87
female plus bro	not broken	61	2.62	.88	3.07	1.01	2.20	1.01	1.62	.95	2.52	.59	3.87	.85	3.25	.59	2.19	.40
	broken	62	1.84	1.10	2.82	1.85	1.66	.97	1.55	.92	1.74	.94	1.97	1.27	4.21	.85	1.69	.76
	Total	123	2.23	1.07	2.94	1.51	1.93	1.03	1.59	.93	2.13	.88	2.91	1.44	3.73	.88	1.94	.66
male plus bro	not broken	77	2.53	1.02	2.84	.84	1.73	.91	1.79	.98	2.97	1.06	3.51	1.03	3.48	1.03	2.64	.67
	broken	38	1.53	1.06	2.05	1.54	1.74	1.31	2.68	1.04	2.68	.66	2.74	.72	3.50	.56	2.63	.67
	Total	115	2.20	1.13	2.58	1.18	1.73	1.05	2.09	1.08	2.88	.96	3.25	1.01	3.49	.90	2.63	.67
female plus both	not broken	60	3.03	1.06	2.25	1.36	2.07	1.09	1.58	.62	3.05	.91	3.47	.93	2.30	.46	3.25	.65
	broken	56	2.36	.96	1.13	.43	4.48	1.21	1.59	.49	1.82	.74	2.11	1.04	2.54	.76	3.50	.66
	Total	116	2.71	1.06	1.71	1.16	3.23	1.66	1.59	.56	2.46	1.03	2.81	1.19	2.41	.63	3.37	.67
male plus both	not broken	62	3.42	1.26	2.81	1.63	3.15	1.30	2.82	.98	3.08	.93	3.48	.82	2.35	.58	3.10	.78
	broken	39	3.64	1.09	2.44	1.64	3.59	1.14	2.97	.96	3.05	.97	3.38	.71	2.54	.55	3.00	.51
	Total	101	3.51	1.19	2.66	1.63	3.32	1.26	2.88	.97	3.07	.94	3.45	.78	2.43	.57	3.06	.69

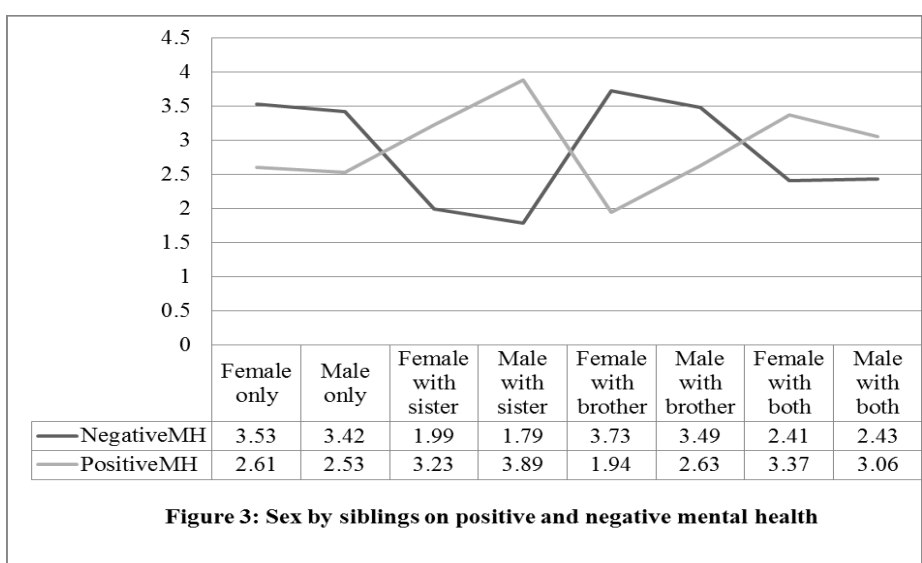
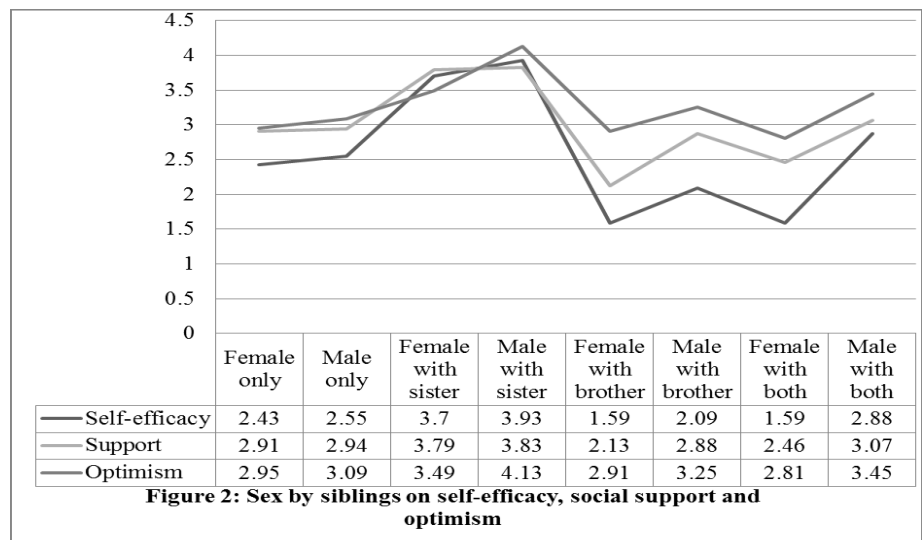
There were main effects for gender by sibling structure on cohesion ($F_{(7,926)} = 70.01$, $p < .001$, $\eta_p^2 = .35$), conflict ($F_{(7,926)} = 20.22$, $p < .05$, $\eta_p^2 = .13$), expressiveness ($F_{(7,926)} = 88.99$, $p < .001$, $\eta_p^2 = .41$), self-efficacy ($F_{(7,926)} = 81.80$, $p < .001$, $\eta_p^2 = .39$), social support ($F_{(7,926)} = 48.23$, $p < .001$, $\eta_p^2 = .27$), optimism ($F_{(7,926)} = 25.58$, $p < .001$, $\eta_p^2 = .16$), negative mental health ($F_{(7,926)} = 142.45$, $p < .001$, $\eta_p^2 = .52$), and positive mental health ($F_{(7,926)} = 72.59$, $p < .001$, $\eta_p^2 = .36$). These are all large effect sizes.

Post hoc analysis shows that females and males who have a sister do not differ significantly from each other on any of the variables but both differ significantly from all other categories on all variables. Those with a sister score higher on cohesion, conflict, expressiveness, self-efficacy, social support, optimism and positive mental health and lower of negative mental health than all other categories. Conversely while females with a brother did score significantly lower than males with a brother on self-efficacy and optimism, their scores were quite similar on the other variables, and both scored significantly lower than all other categories on cohesion, conflict, expressiveness, self-efficacy, optimism, social support, and positive mental health and significantly higher on negative mental health. Both male and female singletons scored around the middle on all variables and did not differ significantly from each other on any variable. Boys with both a brother and sister scored significantly higher on cohesion, conflict, self-efficacy, social support, and optimism than females with both brother and sister. In fact females with both had scores that were not significantly different from those of females with a brother on self-efficacy and their scores on other variables showed only small differences. This effect is not observed among boys with both brother and sister.

These differences are illustrated in Figure 1-3 which help to capture the pattern of scoring across the sex by sibling structure category. It would appear that the presence of a brother only depresses scores on cohesion, conflict, expressiveness, self-efficacy, optimism and positive mental health for both males and females, while the presence of a sister seems to elevate scores on the same variables for both sexes. The reverse is true for negative mental health. The different pattern of scoring between males and females who have both brother and sister would suggest that the presence of a brother depresses scores for females and while the presence of a sister elevates scores for males.

There were main effects for intact versus non-intact homes on cohesion ($F_{(1,926)} = 73.95$, $p < .001$, $\eta_p^2 = .07$), conflict ($F_{(1,926)} = 24.19$, $p < .001$, $\eta_p^2 = .02$), self-efficacy ($F_{(1,926)} = 22.69$, $p < .001$, $\eta_p^2 = .02$), social support ($F_{(1,926)} = 216.99$, $p < .001$, $\eta_p^2 = .19$), optimism ($F_{(1,926)} = 253.01$, $p < .001$, $\eta_p^2 = .24$), negative mental health ($F_{(1,926)} = 21.36$, $p < .001$, $\eta_p^2 = .05$), and positive mental health ($F_{(1,926)} = 14.19$, $p < .001$, $\eta_p^2 = .03$). Participants from intact homes scored higher on cohesion, conflict, self-efficacy, social support, optimism, and positive mental health, but lower on negative mental health. However apart from social support the effect sizes were small.

There were interaction effects for gender by sibling structure by broken home on cohesion ($F_{(7,926)} = 4.27$, $p < .001$, $\eta_p^2 = .03$), conflict ($F_{(7,926)} = 11.83$, $p < .08$, $\eta_p^2 = .13$), expressiveness ($F_{(7,926)} = 32.81$, $p < .001$, $\eta_p^2 = .20$), self-efficacy ($F_{(7,926)} = 16.44$, $p < .001$, $\eta_p^2 = .11$), social support ($F_{(7,926)} = 13.99$, $p < .001$, $\eta_p^2 = .10$), optimism ($F_{(7,926)} = 13.24$, $p < .001$, $\eta_p^2 = .09$), negative mental health ($F_{(7,926)} = 8.28$, $p < .001$, $\eta_p^2 = .06$), and positive mental health ($F_{(7,926)} = 5.93$, $p < .001$, $\eta_p^2 = .04$).



The final analysis employed hierarchical multiple regression analysis using 4 steps in which positive mental health was the dependent variable on step 1, family relations was the dependent variable on step 2, social support was the dependent variable on step 3, and psychological resources was the dependent variable on step 4. For this analysis cohesion, conflict and expressiveness were summed to form a family relations variable, and self-efficacy and optimism were summed to form a psychological resources variable.

Table 2. Hierarchical Multiple Regression Analysis based Path Model

DV = Positive Mental Health	Model 1 (r ² =.02 ^{***})			Model 2 (r ² =.27 ^{***})			Model 3 (r ² =.31 ^{***})			Model 4 (r ² =.38 ^{***})			Model 5 (r ² =.44 ^{***})		
	B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β
Broken home	-.251	.064	-.127 ^{***}	-.307	.055	-.156 ^{***}	-.254	.055	-.129 ^{***}	-.020	.056	-.010	.100	.055	.051
Sister				1.131	.065	.518 ^{***}	.814	.081	.373 ^{***}	.552	.080	.253 ^{***}	.529	.076	.242 ^{***}
Both				.812	.069	.351 ^{***}	.682	.070	.295 ^{***}	.732	.066	.316 ^{***}	.760	.064	.328 ^{***}
Family relations							.090	.014	.222 ^{***}	.042	.014	.104 ^{**}	.020	.014	.048
Psychological resources										.173	.016	.376 ^{***}	.091	.017	.199 ^{***}
Social support													.256	.028	.331 ^{***}
DV = Family Relations	Model 1 (r ² =.01 [*])			Model 2 (r ² =.38 ^{***})											
	B	SE	β	B	SE	β									
Broken home	-.394	.158	-.082 ^{**}	-.061	.130	-.013									
Sister				3.512	.148	.656 ^{***}									
Both				1.441	.156	.254 ^{***}									
DV = Social Support	Model 1 (r ² =.13 ^{***})			Model 2 (r ² =.30 ^{***})			Model 3 (r ² =.37 ^{***})			Model 3 (r ² =.54 ^{***})					
	B	SE	β	B	SE	β	B	SE	β	B	SE	β			
Broken home	-.928	.078	-.365 ^{***}	-.999	.070	-.393 ^{***}	-.896	.067	-.352 ^{***}	-.465	.062	-.183 ^{***}			
Sister				1.192	.082	.423 ^{***}	.570	.099	.202 ^{***}	.089	.089	.032			
Both				.053	.087	.018	-.202	.087	-.068 [*]	-.111	.075	-.037			
Family Relations							.177	.017	.337 ^{***}	.089	.016	.169 ^{***}			
Psychological resources										.317	.018	.535 ^{***}			
DV = Psychological Resources	Model 1 (r ² =.10 ^{***})			Model 2 (r ² =.36 ^{***})			Model 3 (r ² =.42 ^{***})			Model 3 (r ² =.58 ^{***})					
	B	SE	β	B	SE	β	B	SE	β	B	SE	β			
Broken home	-1.369	.134	-.319 ^{***}	-1.518	.112	-.354 ^{***}	-	.108	-.316 ^{***}	-.616	.102	-.144 ^{***}			
Sister							1.355								
Both				2.494	.133	.525 ^{***}	1.516	.160	.319 ^{***}	1.045	.140	.220 ^{***}			
Family Relations				.114	.140	.023	-.287	.140	-.057 [*]	-.121	.120	-.024			
Social support							.279	.028	.314 ^{***}	.132	.025	.149 ^{***}			
										.825	.046	.490 ^{***}			

*=p<.05 **=p<.01 ***=p<.001

Between them, coming from a broken home, having at least one sister and no brother, having both sister and brother, family relations, psychological resources and social support accounted for 44% of the variance in positive mental health. However when all variables were added to the model only having a sister, having both, psychological resources and social support remained significant predictors. The impact of broken home and family relations had been reduced to non-significant. It would appear that having a sister, having both, and family relations totally mediate the effect of broken home. When psychological resources and social support are added to the model they mediate the impact of family relations. When family relations is entered as the dependent variable the impact of broken home is mediated by having at least one sister and no brother, and having both sister and brother. The latter variables accounted for 38% of the variance in family relations. When social support and psychological resources are entered as dependent variable in separate HMRA we can see that broken home continues to have a significant relationship with both.

In order to clarify the picture it was felt useful to construct and test a path model of the relationships. We used AMOS 22 software to test a number of path models based on the

data reported above and the only one which provides a good fit for the data is shown in Figure 4 ($\chi^2_{(df=4)} = 9.719, p < .05$ (CMIN/DF=2.43); IFI=.998; CFI=.998; RMSEA=.039).

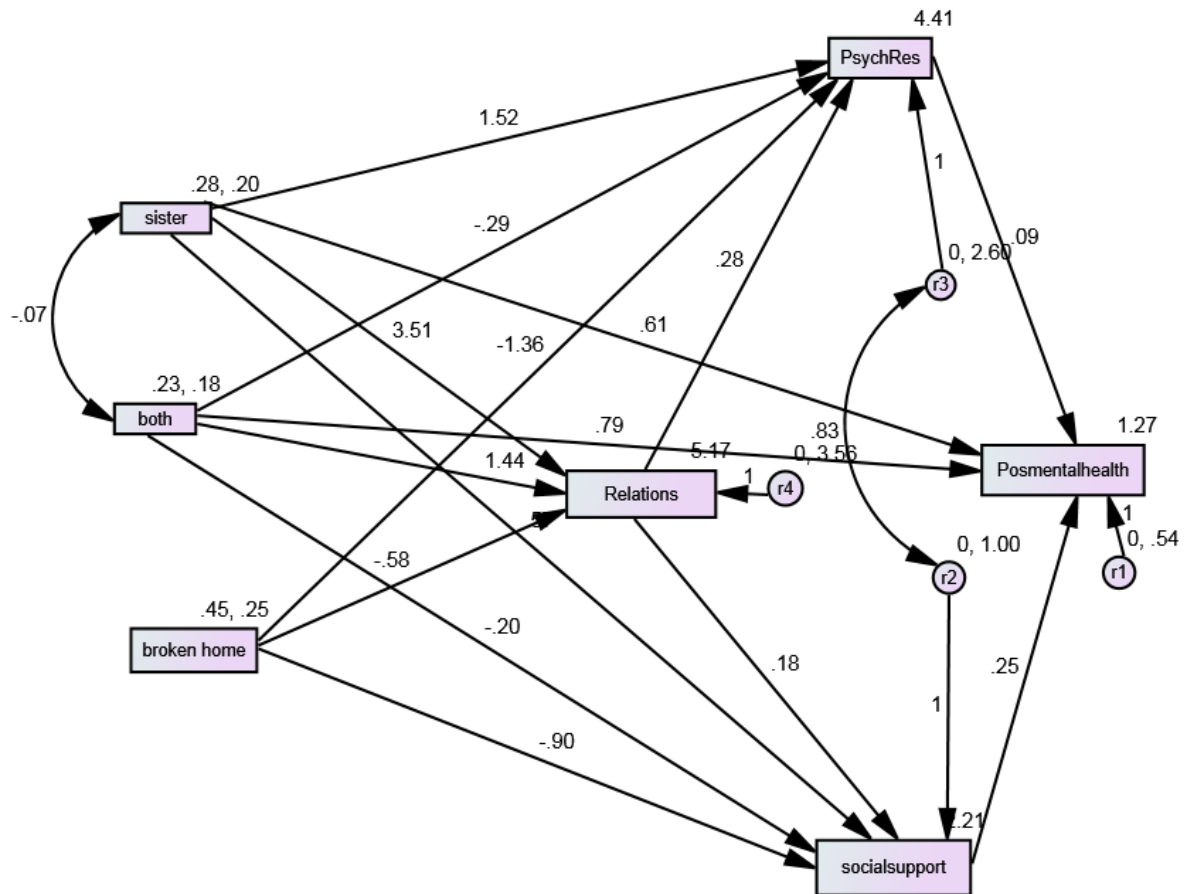


Figure 4: Path Model of Positive Mental Health using AMOS

DISCUSSION

The aim of the study was to explore the role of sex of siblings in relation to positive mental health, and some of the key variables (family relations, self-efficacy, optimism, social support) through which any potential effects might be mediated. In essence the findings support the suggestion that the presence of a female sibling in the family is related to more positive outcomes in terms of mental health (Cassidy, Wright & Noon, 2014). The direction of main effects from Anova analysis shows that participants of both sexes who had a female sibling had better mental health than those who did not whether this was in a situation of having only a sister or having both a sister and brother. Conversely participants of both sexes who only had male siblings had the poorest mental health. Only children appeared to score somewhere in the middle. Main effects for intact versus non-intact home background were in line with the bulk of previous findings which show that on average children from non-intact homes experience poorer mental health. However the interaction effects between sex of siblings and intact versus non-intact homes shows that the effect of non-intact homes on mental health is moderated by the sex structure of siblings. Again the protective factor here would seem to be the presence of a female sibling.

The question begged is why such an effect might occur and the findings on the other study variables point to a possible explanation. Again there were main effects for sex of siblings on cohesion, expressiveness and conflict (the family relations dimensions of the Family Environment Scale), and on optimism, self-efficacy and social support. These main effects were again in the direction that participants with a female sibling scored significantly more positively on these variables than those with a male sibling only. This points to a possible explanatory mechanism whereby female siblings engender a more expressive, cohesive and less conflicted family environment, and ultimately to some advantage in terms of self-efficacy, optimism and social support. The HMRA further supports this showing that the relationship between intact versus non-intact home on positive mental health is mediated by having a sister only or having both a brother and sister and family relations. In turn the impact of intact versus non-intact home on family relations is mediated by having a sister only and having both a brother and sister. This again suggests that the presence of a female sibling is a protective factor. The path model (Figure 4) provides a summary of the proposed relationships. It suggests that the presence of a female sibling correlates with better family relations which in turn nurture more self-efficacy, optimism, and perceived social support and provide a mechanism through which mental health is improved.

Clearly this is cross-sectional data and the family relations data is retrospective. However the effect sizes are impressive and coincide with an intuitively sound analysis of family relations. There are of course other variables which are likely to play a part and may interact with sex structure of siblings. For example birth order and the age gap between siblings are structural factors that probably interact with parent-sibling relations and parenting practices in the process. However, while acknowledging these weaknesses, the current study points to the potential importance of considering the sex of siblings in family interventions (Feinberg, Solmeyer & McHale, 2012). Following family break up, bereavement or other trauma the potential psychological protection provided by female siblings could be enhanced through support. Perhaps even more importantly the potential risk posed through failure to express and deal with emotions in male siblings should not be ignored.

Research in this area has tended to pay lip service to the impact of inter-sibling relationships. This research suggests that these relationships are of equal importance to parental relationships. The fact that this area is under researched is perhaps due to the complex na-

ture of family environments and family structure and while this study by no means addresses all the issues it does highlight a number of interesting relationships. Clearly the addition of some qualitative methods such as semi-structured interviews would allow a more in depth understanding of the complex environment and relationships previously mentioned.

Some of the debate regarding the impact of non-intact homes has lacked the understanding that can be provided by this type of research. The simplistic stereotypes that still exist are damaging to individuals from a non-traditional family backgrounds. Unfortunately these stereotypes have in the past informed policy and practice in social services thereby reinforcing the same stereotypes. The purpose of this area of research is therefore to inform both the debate concerning the social and psychological consequences of changes in family situations and the programmes and techniques designed to improve parenting and family support services.

Implications for Practice

The findings suggest that the presence of female siblings enhance expressiveness and increase cohesion in families and that following divorce or other family trauma may be protective against risk of psychological distress. It may be useful for family therapists or counselors to consider the constellation of siblings in at risk families in relation to communication processes. Early childhood workers may find it beneficial to facilitate and encourage male-female interaction among children.

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