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Beyond Coping: Stress-Related Growth Among Siblings of Children with Special Needs

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This article reports a study on the experiences of positive changes after stressful events described by siblings of children with special needs. These positive changes are referred to as *stress-related growth*. While much of the research on siblings of children with special needs has focused on understanding the adjustment difficulties they experience, growing evidence suggests that families of children with special needs can experience positive changes. Twenty-five adolescents were asked to describe an event associated with their brother/sister with special needs and to provide ratings on a series of measures of stress, coping and stress-related growth. Five families were interviewed to gain insights into their world. Their stories suggest the possibility of thriving in a family with a child with special needs, and the role of positive family factors in fostering stress-related growth. The study also indicates the need for families and professionals to acknowledge the needs of siblings of children with special needs and to promote productive coping and effective communication and problem-solving skills.

■ **Keywords:** stress-related growth, coping, siblings, adolescents, family, special needs

The *2007–08 National Health Survey* reported that 37% or 1.5 million Australian children aged 0–14 years had at least one long-term condition such as cancer and diabetes, and over a third of them also had a disability (Australian Bureau of Statistics [ABS], 2009). Accordingly, growing up alongside a sibling with special needs will be the experience of a significant number of people.

Sibling relationship experiences are altered in significant ways when children grow up with a brother or sister with special needs. During adolescence, there is pressure to conform and the search for self-identity is complicated by the growing awareness of the differences between the self and the sibling with special needs, the caregiving responsibilities and even the guilt about thoughts of separating from the family (McHugh, 2003; Strohm, 2002). These challenges and fears confronting siblings of children with special needs may be overlooked or misapprehended. However, these challenges also present as unusual opportunities for growth. Contrary to beliefs that they would be at risk of psychopathology, some researchers have found that siblings of children with special needs are reasonably well-adjusted and do maintain strong sibling ties across the life course (Kaminsky & Dewey, 2002; Seltzer, Greenberg, Orsmond, & Lounds, 2005). Some adult siblings have also anecdotally reported benefiting from their sibling experiences with their brothers/sisters with a disability (McHugh, 2003; Strohm, 2002).

Stress-Related Growth

There is emergent evidence indicating that people can 'grow' or experience positive changes after experiencing various stressful events (Armeli, Gunthert, & Cohen, 2001; Milam, Ritt-Olson, & Unger, 2004). While different terms have been put forth (e.g., posttraumatic growth, thriving, benefit-finding, etc.) to refer to the experience of positive changes following stressful events, the term, *stress-related growth* (SRG), is used in this study because it encompasses changes that result from stressors of varying levels of severity and not only from highly traumatic events. This view acknowledges that while some people may experience sudden transformational insights into one's self, others may experience more gradual qualitative changes in 'mastery and coping skills, or even empathy, compassion, and wisdom' (Aldwin, 2007, p. 307). As an outcome of coping with stress, SRG denotes a significant beneficial change in

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one's cognitive and social-emotional life (Park, Cohen & Murch, 1996). It is thought to be an outcome of the processes employed to adapt to the stressful event and can coexist alongside with stress and related symptoms for some time (Park et al., 1996; Tedeschi & Calhoun, 1996). Hence, it is not equivalent to an increase in wellbeing or decrease in distress, but thriving and moving beyond one's original level of functioning (O'Leary & Ickovics, 1995; Tedeschi & Calhoun, 2004). The present study aims to examine SRG among siblings of children with special needs.

Existing literature supports the notion that growth occurs in some form among young people following specific traumatic events such as natural disasters, traffic accidents and other negative life events (Cryder, Kilmer, Tedeschi, & Calhoun, 2006; Salter & Stallard, 2004; Milam et al., 2004). Although this affords specificity in focus, it does not allow examination of the diverse types of stress experienced in vivo (i.e., occurring in the context of daily living). Adolescent siblings of children with special needs (Sibs[1]) are an important group when examining stress-related growth because they differ substantially from the samples investigated in past research where experiences of traumatic events such as diagnosis of a life-threatening illness, death or terrorism were reported. To date, only one study has been identified to specifically examine positive changes among Sibs. Findler, Vardi and Taylor (2009) investigated psychological growth among siblings of children with intellectual disabilities and siblings of children with normal development in Israel. They found that siblings of children with intellectual disabilities reported higher levels of psychological growth than the comparison group. Specifically, the ability to manage one's individuality and connections with others (i.e., self-differentiation) appeared to contribute to siblings' personal growth, while perceived maternal preference for the child with disability contributed to social growth.

PRESENT STUDY

Adopting a conceptual model of the positive outcomes of stress (Schaefer & Moos, 1992), the present study aimed to identify the personal and contextual determinants of positive outcomes for Sibs. The following summarises the relevant literature on the variables that will be investigated in the study.

Sibling and Child Characteristics

Researchers have considered the impact of variables such as severity and type of disability (Lobato, 1983; Rivers & Stoneman, 2003), birth order and gender (Findler et al., 2009; McHale & Gamble, 1989) and socioeconomic factors (Grossman, 1972) on sibling relationships and adjustment outcomes. While the effect of age on SRG has been inconclusive (Park & Fenster, 2004; Platinsky & Esprey, 2000), to the extent that a certain level of cognitive maturity is necessary for individuals to find meaningful changes from negative experiences, it is expected that older Sibs are more likely to experience SRG than younger Sibs. Simeonsson and Bailey (1986) proposed that poorer adjustment found in siblings who are younger or closer in age may be attributable to identity problems. If stress is a condition for growth, siblings who are younger or closer in age to the child with special needs might also experience SRG, despite the adjustment difficulties. The closeness in terms of the same gender may also provide more opportunities for both positive and negative interactions and emotions among siblings (Cuskelly & Gunn, 1993; Powell & Gallagher, 1993). More generally, findings of gender differences in studies of SRG have been inconclusive (Milam et al., 2004; Park et al., 1996; Platinsky & Esprey, 2000; Tedeschi & Calhoun, 1996).

The literature further suggests that siblings who have a diagnosed disability themselves are significantly more likely to exhibit social, emotional and behavioural difficulties (Benson & Karlof, 2008), and that attendance at a sibling support group was strongly predictive of adjustment difficulties (Giallo & Gavidia-Payne, 2006). Given the relationships between various sibling sociodemographic characteristics and adjustment outcomes and the association between adjustment and SRG (Helgeson, Reynolds & Tomich, 2006), one of the aims of the present study was to investigate whether SRG is associated with certain sociodemographics of the sibling and child with special needs.

Family and Social Factors

In addition to individual characteristics, the present study aimed to explore the family factors associated with SRG. Studies have shown that family characteristics such as effective communication and problem-solving serve to protect both the individuals and the family against adjustment problems in times of significant stress (Mackay, 2003; Patterson, 2002). Relational patterns between parents, and between parents and their children, are also thought to shape interactions between sisters and brothers and to account for differences between siblings (Stocker & Dunn, 1994).

Drawing on the literature on family stress and coping, Berger and Weiss (2009) recently proposed an expansion of the individual posttraumatic growth (PTG) model to the family system. The model delineated the roles of family relational processes, meaning-making, problem-solving, social support/constraints and societal themes in facilitating growth in families. Preliminary evidence for the presence of SRG in families could be seen in studies in which parents of children with special needs reported positive transformations that included developing new roles, new personal traits or developing existing traits, and having improved familial and social relationships (Hastings & Taunt, 2002). An Australian study also found that parent and family factors such as parent stress, family time and routines, family problem-solving and communication predicted sibling adjustment difficulties over sibling factors (Giallo & Gavidia-Payne, 2006). Therefore, an understanding of family adaptations to disabilities that takes into account the family's relational processes,

problem-solving abilities and coping resources could potentially enhance our understanding of SRG in siblings of children with special needs.

Stressor/Event Characteristics

Most of the studies that have examined the stressfulness of an event and SRG reported a positive linear relationship (Armeli et al., 2001; Park et al., 1996; Tedeschi & Calhoun, 1996). Given that certain life events are likely to be more stressful than others, it is also predicted in the current study that reports of SRG will depend on the stressfulness of the event. As it is unlikely that all Sibs will find the same experiences to be stressful (Pit-Ten Cate & Loots, 2000), there is a need to find out from siblings themselves about the type of event/situation associated with their brother/sister with special needs that they perceive to be the most stressful. However, studies that compared SRG by event types did not find differences across the types of stressor (e.g., illness or death, relationship problems, academic problems, and so on; Milam et al., 2004; Park et al., 1996). Thus, it is expected that the level of SRG among Sibs will not depend on the type of events reported to be stressful.

In addition, the length of time since the event occurred is thought to be associated with SRG in that cognitive processing and mastery over the stressor takes place over time (Park et al., 1996). However, a recent meta-analysis by Helgeson et al. (2006) indicated that recency of the event was not a significant predictor of growth.

Coping Strategies

Coping strategies have typically been found to be positively related to growth (Armeli et al., 2001; Park et al., 1996). Generally, the literature suggests that growth is positively related to problem-focused coping strategies (e.g., Aldwin, Sutton, & Lachman, 1996; Sears, Stanton, & Danoff-Burg, 2003), as well as emotion-focused coping strategies (e.g.,Thornton & Perez, 2006).

Frydenberg (1997) posited that coping strategies are best categorised into three coping styles according to their adaptive functioning — Productive Coping, Nonproductive Coping and Reference to Others. Productive Coping involves strategies that work on solving a problem, focusing on the positive, keeping fit, relaxed and socially connected. Nonproductive Coping is so named because they mainly consist of strategies that avoid the problem and often fail to lead to a resolution or amelioration of the problem. Examples of these strategies include Self-blame, Worrying and Wishful Thinking. The third style, Reference to Others, includes strategies in which individuals turn to others for help. While recognising that no ideal specific type of coping exists for all age groups or across stressful situations, the empirical literature generally supports *productive* or *active* coping (i.e., changing the person–environment relationship that is causing distress) as most effective in managing stress, protecting against negative health outcomes and promoting positive psychological outcomes. However, passive or nonproductive coping may not be consistently maladaptive. For instance, avoiding a dangerous situation may be the best option at certain times. Hence Nonproductive Coping is so named to the extent that it fails to resolve the problem (Frydenberg, 1997).

In a study that utilised the Adolescent Coping Scale (Frydenberg & Lewis, 1993), Lewis and Frydenberg (2004) reported that most Productive Coping strategies are related to thriving for both genders. However, Nonproductive Coping strategies appear to relate only to dysfunction for boys and lesser use of the strategies is not associated with thriving. In contrast, Nonproductive Coping strategies appear to be associated with both dysfunction and wellbeing for girls. Gender differences were also highlighted in other studies where females reported use of higher levels of active coping and support-seeking when dealing with stress as compared to males (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001; Frydenberg, 1997), and also experienced higher levels of posttraumatic growth than males (Vishnevsky, Cann, Calhoun, Tedeschi, & Demakis, 2010).

RESEARCH AIMS

This article reports on a study that explored the relationship between stress, coping and stress-related growth among Sibs. A multimethod design comprising quantitative and qualitative components was employed where each component was planned and conducted sequentially to answer particular questions. The methodologies and results will be presented sequentially to reflect this design and the order of the data collection phases.

The following summarises the research questions reported in this article:

1. To what extent do Sibs report stress-related growth?
2. What are the sociodemographics and stressor characteristics associated with stress-related growth in Sibs?
3. What are the family factors associated with stress-related growth in Sibs?

The first two questions will be addressed in the quantitative study while the third question will be explored in the qualitative study.

Quantitative Study

METHOD

Participants

The sample consisted of 25 families that met the following criteria: (a) had a child with a diagnosed disability or chronic illness and (b) the child's sibling was between 9 to 18 years of age. Where there was more than one Sib in the family, one was randomly selected for the study so as to avoid demographical overrepresentation in the sample. The mean age of the Sibs was 13.84 (SD = 2.41) and the mean age of the children with special needs was 12.16 (SD = 3.53). Regarding the children with special needs, a range of

disabilities or illnesses was reported by parents. Tables 1 and 2 show the characteristics of the study sample.

Measures

Separate questionnaires for parents and adolescent siblings were developed for the study. Participants could complete the questionnaires either electronically on the internet or on paper at home.

The parent questionnaire consists of questions regarding the sociodemographic characteristics of siblings and children with special needs and parent demographics. In the adolescent questionnaire, Sibs were asked to describe an event associated with their brother/sister with special needs that they found most stressful and to provide ratings on a series of measures on stress, coping and stress-related growth (SRG).

Stressor characteristics. The questionnaire for Sibs included the following items in order of presentation. Participants were first asked to describe the most stressful/upsetting event they had experienced in the past 2 years that was *related to their brother/sister with special needs.* They were then asked to report how long ago the event occurred and to rate the degree to which the event was stressful *at the time it occurred* as well as the degree that the event was *currently stressful* on a scale from 1 (*Not at all stressful*) to 7 (*Extremely stressful*) (Armeli et al., 2001; Park et al., 1996). In addition, each participant was asked to rate his/her appraisal of the controllability of the stressful event with a single item, 'To what extent was this situation one that you could change or do something about?' on a 5-point scale ranging from 0 *(Not at all)* to 4 *(Very much so)*. Subsequently, the siblings completed the items on stress-related growth and coping with reference to the reported event.

Stress-related growth scale (SRGS). The original 50-item SRGS measures positive changes that the respondent has experienced because of, or following, a particular stressor identified by the respondent (Park et al., 1996). A modified version of the SRGS was developed by Armeli et al. (2001) to address the concern that the original response scale may unnecessarily limit the respondent with all the items being positively worded and distort the factor structure. This modified version contains 43 items and respondents are required to rate how much they have changed as a result of the stressor on a 7-point scale (1 = *Greatly decreased* to 7 = *Greatly increased).* Some of these items are 'Respect for others' feelings and beliefs'; 'Being myself and not what others want me to be' and 'Taking responsibility for what I do'. Scores above 4 indicate positive change, while scores equal or below 4 indicate no change or negative change respectively. The scale was internally consistent (Cronbach = .97).

Adolescent coping scale (ACS). The ACS (Frydenberg & Lewis, 1993) specific short-form containing 18 items assesses adolescents' situation-specific coping behaviour. Three coping styles of Productive Coping, Reference to Others and Nonproductive Coping are represented in these items or coping strategies. Sibling participants were asked to indicate how frequently they used each of the coping strategies in dealing with the reported stressful event on a 5-point Likert scale where 1 = *Doesn't apply* or *Don't do it* and 5 = *Used a great deal.* The authors reported the alpha coefficients for the three coping styles to range

TABLE 1

Characteristics of Siblings and Children with Special Needs in Quantitative Study (*N* = 25)

Participating siblings		Child with special needs	
Mean age in years (*SD*)	13.84 (2.41)	Mean age in years (*SD*)	12.16 (3.53)
Age gap between sibling and child with special needs (*SD*)	1.60 (3.75)	Gender, *n* (%)	
Gender, *n* (%)		Female	7 (28)
Female	16 (64)	Male	18 (72)
Male	9 (36)		
Same gender as child with special needs	14 (56)	Level of support needed by child, *n* (%)	
Different gender to child with special needs	11 (44)	Occasional support in two or more areas of daily living	2 (8)
		Limited support	3 (12)
		Support in most areas of living	11 (44)
		Support in all areas of living	9 (36)
Position relative to child with special needs, n (%)		Child's primary diagnosis, n (%)	
Older	17 (68)	Autism spectrum disorders	12 (48)
Younger	8 (32)	Attention deficit/hyperactivity disorder	1 (4)
Presence of a diagnosis, n (%)		Cerebral palsy	1 (4)
Yes	4 (16)	Diabetes	1 (4)
No	21 (84)	Down syndrome	2 (8)
Participation in sibling support activities, n (%)		Epilepsy	1 (4)
Yes	8 (32)	Intellectual disability/developmental delay	5 (20)
No	17 (68)	Sensory impairment	2 (8)

TABLE 2

Characteristics of Parents in Quantitative Study (*N* = 25)

Parent/Family	
Parent relationship to sibling, *n* (%)	
Mother	22 (88)
Father	3 (12)
Parent's age in years (*SD*)	43.25 (5.49)
Parent's country of origin, *n* (%)	
Australia	20 (80)
Born overseas	5 (20)
Parent's marital status, *n* (%)	
Now married	19 (76)
Divorced	2 (8)
De Facto	1 (4)
Never married (including annulments)	1 (4)
Widowed	1 (4)
Separated	1 (4)
Household type, *n* (%)	
Couple with dependent children	20 (80)
One parent with dependent children	5 (20)
Parent education, *n* (%)	
Year 10	9 (36)
Year 11	2 (8)
Year 12	2 (8)
TAFE	6 (24)
University	6 (24)
Parent's occupation, *n* (%)	
Manager	2 (8)
Professionals and associate professionals	7 (28)
Community and personal service workers	8 (32)
Clerical and administrative workers	2 (8)
Sales workers	1 (4)
Machinery operators and drivers	2 (8)
Labourers	2 (8)
Never employed	1 (4)

from .66 to .69. In this study, the Cronbach's alpha reliability coefficients for the three coping subscales ranged from .52 to .74. This indicates low-moderate to moderate internal consistency and may be a reflection of the dynamic nature of coping (Frydenberg & Lewis, 1993).

Procedure

Nine disability service providers and seven special/special developmental schools in the state of Victoria advertised the research project. In situations where specific families were identified to meet the research criteria, research packages were sent to the families by the schools/providers on behalf of the researchers. Where families contacted the researchers directly, the research package or web link to the online questionnaire was mailed to them by the researchers. Sibs were encouraged to contact the researcher if they needed assistance in completing the questionnaires. Parents were encouraged to provide assistance, but not to influence their children's responses unduly. Where possible, the principal researcher communicated with the participants via e-mail or telephone to find out if there were any queries arising from working through the research package. Paper questionnaires were returned by reply-paid envelopes to the researchers at the university, while electronic questionnaires were temporarily stored in the server hosted by SurveyMonkey®.

The average response rates were 40% from service providers and 22.4% from schools. These response rates were slightly lower than those reported by other sibling researchers in Victoria. For instance, Giallo and Gavidia-Payne (2006), who recruited participants from service providers in Victoria, reported a response rate of 49%.

Results

As there were concerns with the small sample size and distributions, nonparametric tests were also conducted and revealed similar results to the parametric tests. Consequently, parametric test results are reported in this article for ease of comparisons with other studies in the literature.

Descriptive Statistical Analyses

The descriptive and correlation statistics of the stressor, coping and stress-related growth variables are shown in Table 3.

Type of stressor. A content analysis of the most stressful events reported by Sibs revealed the most frequently experienced stressors were when their brothers/sisters were unwell or upset (24%), their brother/sister had a meltdown or temper tantrum in public (20%), their brother/sister was verbally or physically aggressive to family members (12%) and when they had to take over caregiving responsibilities (12%). The events fell under one of two general categories: (1) direct threats to own wellbeing (e.g., 'every time her needs have made us late for things that I want to go to') and (2) indirect or no threats to own wellbeing (48%) (e.g., 'seeing her getting really upset when she has to go[to] respite'). The

TABLE 3

Descriptive and Correlation Statistics for Stressor Characteristics, Coping and Stress-Related Growth (*N* = 25)

	M	*SD*	PRCOP	ROCOP	NPCOP	SRG
Time in months	7.00	7.57				
Stress level at event occurrence	5.24	1.59				
Stress level now	3.00	1.68				
Controllability	1.60	1.47				
Productive Coping (PRCOP)	3.37[a]	0.77[a]	(.66)			
Reference to Others (ROCOP)	2.10[a]	0.75[a]	.27	(.52)		
Nonproductive Coping (NPCOP)	2.47[a]	0.81[a]	.10	.44*	(.74)	
Stress-related Growth (SRG)	4.60	0.88	.36†	-.05	-.13	(.97)

Note. Reliabilities coefficients (Cronbach's alphas) are reported in brackets.

*$p < .05$, two-tailed, †$p < .05$, one-tailed.

[a] Means and standard deviations derived from $N = 24$. The varied sample sizes are due to the failure of one participant to complete the particular subscales in the questionnaire.

stressful events were combined into two categories for two reasons. Firstly, this categorisation allowed a comparison between two major sources of stressors, that is, stress arising from direct threat to self versus stress resulting from indirect or minimal threat to self. Secondly, the sample size limited the number of reliable and meaningful categories that could be employed in subsequent analyses. Using percentage of agreement, an independent coder resulted in an interrater reliability estimate of 88% (Miles & Huberman, 1994).

Time since event and stressfulness of event. On average, the stressful events reported by Sibs occurred 7 months prior to data collection. The mean stressfulness rating for the event when it occurred was 5.24 out of 7, indicating that, on average, Sibs experienced above moderate level of stress when the event happened. The event was also perceived to be less stressful now with the mean rating at 3.00, $t(24) = 7.43$, $p = .00$.

Coping style. On a scale of five (1 = *Doesn't apply* or *Don't do it* and 5 = *Used a great deal),* Sibs reported use of more Productive Coping than Nonproductive coping strategies. Use of Reference to Others coping was the least reported by siblings.

Productive Coping was the only coping style found to be correlated with SRG. There was a significant positive relationship between Productive Coping and SRG $r(24) = .36$, $p = .04$, indicating that SRG increases as the level of Productive Coping increases or vice versa .

Stress-related growth. The mean score of SRG was 4.60 on a 7-point scale (1 = *Greatly decreased* to 7 = *Greatly increased* where 4 = *No change*). This indicates that, on average, Sibs in this sample reported change in the positive direction.

SRG did not vary across the types of events reported by Sibs, $t(23) = -0.08$, $p = .94$. There were also no group differences in SRG based on Sib's gender, dyad gender-commonality, birth order, sibling-support participation and diagnosis.

A negative correlation was found between SRG and the age-spacing in the sibling dyad, $r(25) = -.36$, $p = .04$, indicating that a higher SRG is associated with a smaller age gap between the siblings. SRG correlated positively with the age of the child with special needs, $r(25) = .54$, $p = .01$, where a higher level of SRG reported by Sibs was associated with older children with special needs. However, there was no relationship between Sib's age and SRG, $r(25) = .23$, $p = .13$. No significant correlation was detected between SRG and the stressfulness of the event when it occurred, $r(25) = .08$, $p = .36$ and the stressfulness of the event now, $r(25) = .06$, $p = .38$. There was also no significant correlation between time since the event and SRG, $r(25) = -.08$, $p = .70$.

In sum, Sibs in this sample experienced positive SRG. SRG was associated with (1) Productive Coping, (2) the age of the child with special needs and (3) age-spacing in the sibling dyad.

Qualitative Study

METHOD

Participants

Following the quantitative data collection phase, five families were randomly selected from a numbered list of participants who took part in the earlier phase of quantitative study (questionnaire). The families were invited to participate in an interview with the principal researcher. The participants were contacted by the researcher based on the contact details previously provided by them. The participating families consisted of two families with father-mother-Sib triads, one mother-Sib dyad and two families with parents-only as the Sibs in those two families did not feel ready to talk to the researcher.

To explore the factors associated with SRG, the SRG mean scores of the Sibs whose families participated in the interviews were retrieved for cross-analysis with the interview data. In line with the SRG rating scale, Sibs with SRG mean score above 4 are referred to as Sibs who have experienced positive change (positive SRG), whereas Sibs with SRG mean scores under 4 are referred to as Sibs who have experienced negative change (negative SRG). Table 4 shows the sociodemographic characteristics and SRG mean scores of the Sibs in this interview sample. For analysis purposes, the results of the interview are reported with reference to the Sibs' SRG profiles.

Measures

Drawing selected components from the posttraumatic growth model (Berger & Weiss, 2009), five questions were designed for the parent interview to gather information on parent–child relationships, interaction processes, family coping characteristics and parents' perceptions of Sib experiences. For Sibs, the interview questions were developed to obtain information about their perception of the stress and benefits of having a brother/sister with special needs as well as their coping responses.

Procedure

Interviews were either held at the participants' homes or over the telephone. Separate semistructured interviews were conducted with the parents and Sibs so as to encourage free expression and maintain confidentiality. Each parent interview lasted between 30 and 45 minutes while the sibling interview took 15 minutes on average. Each family was remunerated with a $15 voucher for their participation. All interviews were audio-recorded and transcribed by the researcher.

Data Coding and Analysis

A hybrid process of inductive and deductive thematic analysis was used to encode and interpret the interview data (Boyatzis, 1998; Crabtree & Miller, 1992). Prior to the interviews, a preliminary codebook of themes surrounding Sibs and families of children with special needs was developed based on the literature to guide the analysis of the text. On

TABLE 4

Sociodemographics and SRG of Participants in Qualitative Study (Interview)

	Positive SRG (positive change)			Negative SRG (negative change)	
	Case 1	Case 3	Case 5	Case 2	Case 4
SRG mean score	6.05	5.98	5.23	3.53	3.53
Sib's age	15	9	12	13	12
Sib's gender	Male	Female	Female	Male	Female
Child's age	16	13	11	11	9
Child's gender	Male	Male	Female	Male	Male
Child's diagnosis	ASD	ASD	Developmental delay	ASD	ASD
Sibling-support participation	None	Yes	None	None	None
Sibling's diagnosis	None	Mild hearing impairment	None	None	None

Note: ASD refers to autism spectrum disorders.

completion of the interviews, the researcher coded two sets of transcribed interview data using the codebook. Additional codes were added if they differentiated individuals based on their responses in the interviews and provided a better understanding of the social context of the participants in this study. Subsequently, the researcher applied the revised codebook to four new sets of transcribed interview data. To test the reliability of the codes, a research colleague applied the same codes to the transcribed data independently. Using percentage of agreement (Miles & Huberman, 1994), the interrater reliability was estimated at 75%. After a further examination of the codes, some themes were clustered and others were deleted. The last step involved applying the revised themes to the rest of the data in a consistent manner, which in turn served as a test of the validation of the code.

Results

Similarity Between Parents' and Siblings' Appraisal of Stress

In sharing what they found most difficult about having a sibling with special needs, the Sibs mentioned dealing with fluctuating or aggressive behaviour from the child, managing reactions from the public and having relatively less attention from parents as most difficult. Interestingly, these events were also reported by their parents when they were asked for their views on the difficulties confronted by the Sibs.

In the rest of the article, characteristics associated with stress-related growth in Sibs and their families are presented to facilitate an understanding of the interview and questionnaire data.

Productive Coping

Among the Sibs with positive SRG, two of their coping responses suggested that positive reframing was used. The following illustrates how a Sib perceived and interpreted the more limited attention he received from his parents relative to that given to his brother with autism/intellectual disability (Case 1):

> Sometimes it's understandable that he gets more. He has needs so … If I need to talk to mum, I can talk to her and she'll answer me.

The above quote also suggests that the Sib has assumed an identity through which he has learnt to balance his personal needs with the demands of the special needs associated with his brother's disability on the family's resources (e.g., parental attention). Another Sib (Case 5) with positive SRG mentioned seeking intervention from parents in dealing with aggressive behaviours. In contrast, a Sib with negative SRG (Case 4) reported using distraction (e.g., listening to iPod) to cope with the difficulties related to her brother with autism. The parent of another Sib with negative SRG (Case 2) reported that she would talk things through with him when he displays having difficulties with the child with special needs.

Good Parent–Sibling Relationship

Parents from four families (except Case 4) reported a good bond with their adolescents (i.e., the Sibs). They described their relationships with their children as 'loving', 'easygoing' and 'pretty close'. Mrs C (Case 3) gave an account of how her parenting experience has been enriched by being broadminded and flexible when relating to her children:

> [we are] loving on both sides. Very loyal and just very very understanding … and you've got to be very broadminded and ready for many different situations. … The children are my teachers.

As noted in Table 2, Sibs from these families obtained relatively high mean SRG scores except for Case 2.

Good Sibling Relationship

Parents of Sibs with positive SRG described the sibling relationship as 'loving' and the well sibling playing a nurturing or 'protective' role to the child with special needs. In contrast, parents of Sibs with negative SRG described the sibling relationship as somewhat ambivalent. For example, parents of a 13-year-old female sibling commented (Case 4):

> They just coexist. They have nothing in common except they're living in the same house. He [child with autism] never gets her to get him anything. So she's not helpful to him at all really. But she's helpful to him in the fact that she looks out for him'.

Meaning-Making Communication in the Family

All parents mentioned how the family has had to adapt and accommodate the needs of the child with disability. The parents made frequent references to how they engage with the siblings in open communication to make sense of the child's disability and the family's situation by sharing information and answering questions they have, and to acknowledge the challenges they face and their feelings towards the child with special needs. As a parent shared:

> I've explained everything to Don [Sib] since he was little. That he [brother with autism] doesn't speak, doesn't understand. And when he [Sib] asks me questions, I've always told him the truth.

In addition, parents of the Sibs with positive SRG mentioned how they create positive meanings for the siblings' experiences, especially with regards to public reactions to the child with special needs. These parents also reported explaining to the Sibs that 'everybody is different', and that 'people have needs'. Mrs C (Case 3), conveyed to the sibling the understanding that 'if people are not used to this behaviour, of course they are going to look and stare'. Notably, some of the responses from parents of these Sibs with positive SRG suggest that they themselves had engaged in some form of reframing that helped them to adapt to the stress associated with the disability in the family.

Problem-Solving in the Family

Parents from four families stated that they try to address issues and solve problems openly as a family. The common problems reported by these families revolved around dealing with the challenging behaviour from the child with special needs and the perceived unequal attention or treatment from parents. The following extract illustrates the problem-solving process reported by a parent (Case 3):

> If one of them was to think that there was more attention, I will go back and say, 'Ok, what can we do together to make this right? What special days can we do to try and make it as equal?'

Parents of two Sibs with positive SRG also expressed that they acknowledge siblings' feelings and needs with consideration of their development. Mrs D, mother of a 13-year-old female Sib shared:

> We accept her that she's a teen and she's able to deal with it. … that's part of the teenage thing as well … they want to be seen as grown-up adults. They want to be involved. Sometimes I asked her, 'what do you think about that?' I always like her to express her how she feels … And also this need for her to have her own space. With the difficulties at home with the other two [twins-siblings with autism], I think we're even more aware of that.

On the other hand, parents of Sibs with negative SRG reported difficulties with either communicating with their Sib or that the Sib had difficulty understanding the situation. The following is an extract from the conversation with Mrs H (Case 2):

> He does talk about it. And I try to talk through with him what and why it happened. But like all kids, he's a bit more egocentric, thinks about themselves. Sometimes it's hard for him to understand it.

Access to Social Support

During the interviews, the families commented on the availability of social networks and the ability of these networks to provide support for them. Three out of five families (Case 1, 3 & 5) reported being able to access social support from either their extended families and/or friends for assistance with temporary childcare and emotional support. The Sibs from these families were also participants with positive SRG. Two of these families indicated that their close friends were also parents of children with disability who 'understand the difficulties' and 'the procedures of some things'. In the families where the Sibs had negative SRG (Case 2, 4), none or inconsistent social support was reported by the parents.

Growth Experienced by Parents

Responses of parents also indicated that they themselves had experienced growth, particularly with reference to development of clearer priorities and closer relationships, personal strength and treatment of others. Distinctly, the Sibs in these families had positive SRG scores. For example, a parent (Case 5) suggested that she has gained personal strength over the years to deal with the challenges at home and feels like she has a lot to offer other people:

> I've got over the grieving part … I'm more … erm [pause]. How can I say, there's a bit more of the fighting thing in me. I'm going ahead in this. I'm going to keep going. You know. I'm going to find something here. … I became involved in the council because I felt you know, "What can we do to help not just my kids but the other kids as well?"

Qualitative Difference in Sibs' Growth

There seemed to be some qualitative differences in gains between Sibs with positive SRG and those with negative SRG in this interview sample. For example, Sibs with negative SRG reported having learnt 'not to stare at people' or were referred to by their parents as having learnt 'tolerance'. In contrast, Sibs with positive SRG reported an understanding and acceptance of people with disabilities, gains in perspective-taking, seeing the positives and being considerate of others' needs as the good things that have come about for being a Sib.

Overall, the interviews highlighted themes associated with family relational and communication processes, family coping resources and SRG in Sibs and their parents. The responses from Sibs and their parents further suggest that there were both quantitative and qualitative differences in their adaptation and SRG. These differences could be linked to the Sibs' SRG scores on the questionnaire they had previously completed.

Discussion

The present study aimed to examine stress, coping and stress-related growth (SRG) in siblings of children with special needs (Sibs). Results showed that stress-related growth among Sibs seemed to be associated with certain characteristics (e.g., age, coping styles). In particular, Sibs who reported use of more productive coping strategies reported positive SRG. These strategies are related to working to solve the problem, focusing on the positive, keeping fit, relaxed and socially connected. This finding lends support to Lewis and Frydenberg's (2004) study that found most productive coping strategies on the Adolescent Coping scale were related to thriving.

As predicted, SRG was found to be negatively correlated with the age difference in the sibling dyad, indicating that Sibs who were closer in age with the child with special needs reported higher levels of SRG. This appears to be inconsistent with research that suggests poorer adjustment found in siblings who are closer in age (Schreiber & Feeley, 1965; Simeonsson & Bailey, 1986). This may be a reflection of the difference between adjustment and SRG — that the presence of adjustment difficulties does not necessarily preclude the development of SRG. For instance, SRG has been found to be related to higher self-esteem (McMillen, Zuravin, & Rideout, 1995) and less depressive symptoms (Park & Fenster, 2004), but may also be related to more intrusive thoughts about the event (Helgeson et al., 2006). Further support for the hypothesised difference between adjustment and SRG could be seen from the findings of null group differences in SRG based on Sib's gender, dyad gender-commonality, birth order, sibling-support participation and diagnosis status — those characteristics that were commonly considered in adjustment studies. Hence, it appears that the characteristics associated with adjustment outcomes are not necessarily the same as those that related to SRG. In contrast, there was no significant correlation between Sib's age and SRG. This finding is, however, consistent with other studies that reported no relationship between SRG and the age of the Sib (Park & Fenster, 2004; Platinsky & Esprey, 2000). While there is a relatively wide age range in this sample of participants (9–18 years of age), future research with a wider age range and larger size sample is needed to explore whether age-related cognitive development has any impact on SRG.

Although it was not hypothesised, SRG was positively correlated with the age of the child with special needs, suggesting that the level of SRG reported by Sibs increases with the age of their brother/sister with special needs. One possible explanation to account for the mixed findings is that as the child with special needs grow older, he/she acquires better communication and self-management skills associated with developmental maturity and these strategies have positive impact on the Sib. In support of this point, it is noteworthy that the level of stressfulness rating decreased as the age of the child with special needs increased. Longitudinal research is needed to explore the impact of such age and developmental effects on Sibs' stress-related growth and wellbeing.

Consistent with the hypothesis, SRG did not differ across the types of event stressor. This lends further support to previous studies that found that SRG or post-traumatic growth did not differ across types of life events or trauma (Milam et al., 2004; Park et al., 1996). However, the temporal nature of the SRG process and whether an optimal level of stress is necessary for SRG to occur remain unclear. In this study, SRG was not correlated with the severity of event stressor and the time since the event occurred. Although this finding is consistent with the research by Tedeschi and Calhoun (1996), other researchers have reported a positive relationship between time and SRG (Park et al., 1996). In future, a different time period for research among Sibs could help researchers to understand the role of time in the SRG process.

Two general patterns could be interpreted from the themes arising from the interviews. Responses from Sibs with positive SRG (experienced positive change) in this interview sample suggest that these Sibs have good relationships with both their parents and their brothers/sisters with special needs. The parents of these Sibs also reported having good relationships and open communication with their children, engage in creating shared meaning and collaborative problem-solving processes with the Sibs and the family as a whole. These families seemed to have more social support from extended families and/or friends and there were also indications of SRG among parents themselves. In contrast, responses from parents of Sibs with negative SRG (experienced negative change) indicated that there were some communication difficulties with their adolescents (Sibs) and that the sibling relationships were somewhat ambivalent. Generally, the results lend support to the proposition by Berger and Weiss (2009) that growth can occur in the family unit and that SRG could be assessed at both the individual and the family levels.

Limitations and Issues for Future Research

The main limitation of the present study is that it is based on a small sample (25 respondents for questionnaires and 5 families for interviews). The sample size also limited the number of reliable statistical analyses that could be employed to examine the relationships of the variables. Siblings and their brothers/sisters with special needs were studied as a heterogenous group as comparisons between siblings of children with different disabilities/illnesses could not be made with the limited sample size. Furthermore, as the sample consisted of families who volunteered to participate, systematic differences may exist between families who participated in the study and those who did not. Therefore, the findings of the study have to be interpreted within these limitations.

Future research could benefit from taking into consideration the role of time and the temporal nature of the SRG processes, which are best achieved through a longitudinal study. Innovative ways of recruitment are also needed to encourage participation in research.

Another limitation concerns the measurement of SRG in this study. The factor structure of SRGS was not examined in this study as the small size would not allow a meaningful factor analysis to be performed. Findler et al. (2009) found variation in the aspects of growth reported by siblings of children with intellectual disabilities. On the other hand, Park and Helgeson (2006) suggested that SRG factors are 'usually fairly highly correlated and may be best considered a single primary factor' (p. 795). Thus, further testing on the dimensionality of the SRGS is needed.

The small qualitative subset study highlighted the potential applicability of extending the posttraumatic growth model (Berger & Weiss, 2009) to the family system. While the family factors reported are not new to the literature, the study of SRG in Sibs could be advanced by empirically exploring SRG in the context of family dynamics, social networks and history of experience with stress.

Conclusion

The present findings suggest that it is possible for siblings of children with special needs to experience positive changes from their experiences of having a brother/sister with special needs. That stress-related growth can occur in the context of living with a family member with special needs is consistent with Aldwin's (2007) view that transformational insights do not have to follow highly traumatic events, but can also occur in a more graduated manner as one experiences qualitative changes in 'mastery and coping skills, or even empathy, compassion, and wisdom' (p. 307). Stress-related growth does not reflect the absence of negative effects but can be a contributing factor to Sibs' positive wellbeing.

While it is premature to apply findings from this study to clinical intervention, there are implications for research and practice. The experience of living with a family member with special needs produces varying degrees of stress and stress-related growth. Knowing that growth is possible with productive coping, effective communication and problem-solving skills might give Sibs and parents the strength and motivation to persevere in the face of current difficulties. Support workers and health practitioners are in a key position to assess Sibs' coping skills and resources, and to offer understanding, knowledge and resources to assist siblings and families to move in the direction of psychological health and growth.

Endnote

1. 'Sibs' has been used by some researchers (e.g., Don Meyer, Patricia Vadasy, Kate Strohm) and service providers in Australia (e.g., http://www.acd.org.au/siblings/index.htm; http://www.siblingsaustralia.org.au/), the United Kingdom (e.g., http://www.sibs.org.uk/about-sibs) and the United States (e.g., http://www.siblingsupport.org/) to refer to siblings of children with special needs.

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References

Australian Bureau of Statistics. (2009). *National health survey: Summary of results, 2007–2008* (Reissue; Cat. no. 4364.0). Canberra, Australia: Author.

Aldwin, C.M. (2007). *Stress, coping, and development: An integrative perspective* (2nd ed.). New York: Guilford.

Aldwin, C.M., Sutton, K.J., & Lachman, M. (1996). The development of coping resources in adulthood. *Journal of Personality, 64,* 837–871.

Armeli, S., Gunthert, K.C., & Cohen, L.H. (2001). Stressor appraisals, coping, and post-event outcomes: The dimensionality and antecedents of stress-related growth. *Journal of Social and Clinical Psychology, 20,* 366–395.

Benson, P.R., & Karlof, K.L. (2008). Child, parent, and family predictors of latter adjustment in siblings of children with autism. *Research in Autism Spectrum Disorders, 2,* 583–600.

Berger, R., & Weiss, T. (2009). The posttraumatic growth model: An expansion to the family system. *Traumatology, 15,* 63–74.

Boyatzis, R. (1998). *Transforming qualitative information: Thematic analysis and code development.* Thousand Oaks, CA: Sage.

Compas, B.E., Connor-Smith, J.K., Saltzman, H., Thomsen, A.H., & Wadsworth, M. (2001). Coping with stress during childhood and adolescence: Progress, problems, and potential. *Psychological Bulletin, 127,* 87–127.

Crabtree, B.F., & Miller, W.L. (1992). Using codes and code manuals: A template organizing style of interpretation. In B.F. Crabtree & W.L. Miller, (Eds.), *Doing qualitative research* (pp. 93–109). Newbury Park, CA: Sage.

Cryder, C.H., Kilmer, R.P., Tedeschi, R.G., & Calhoun, L.G. (2006). An exploratory study of posttraumatic growth in children following a natural disaster. *American Journal of Orthopsychiatry, 76,* 65–69.

Cuskelly, M., & Gunn, P. (1993). Maternal reports of behavior of siblings of children with Down syndrome. *American Journal on Mental Retardation, 97,* 521–529.

Findler, L., Vardi, A., & Taylor, S.J. (2009). Psychological growth among siblings of children with and without intellectual disabilities. *Intellectual and Developmental Disabilities, 47,* 1–12.

Frydenberg, E. (1997). *Adolescent coping: Research and theoretical perspectives.* London: Routledge.

Frydenberg, E., & Lewis, R. (1993). *The adolescent coping scale: Practitioners manual*: Melbourne, Australia: Australian Council for Educational Research.

Giallo, R., & Gavidia-Payne, S. (2006). Child, parent and family factors as predictors of adjustment for siblings of

children with a disability. *Journal of Intellectual Disability Research, 50*, 937–948.

Grossman, F.K. (1972). *Brothers and sisters of retarded children: An exploratory study*. Syracuse, NY: Syracuse University Press.

Hastings, R.P., & Taunt, H.M. (2002). Positive perceptions in families of children with developmental disabilities. *American Journal on Mental Retardation, 107*, 116–127.

Helgeson, V., Reynolds, K., & Tomich, P. (2006). A meta-analytic review of benefit finding and growth. *Journal of Consulting and Clinical Psychology, 74*, 797−816.

Kaminsky, L., & Dewey, D. (2002). Psychosocial adjustment in siblings of children with autism. *Journal of Child Psychology and Psychiatry, 43*, 225–232.

Lewis, R., & Frydenberg, E. (2004). Thriving, surviving or going under, which coping strategies relate to which outcomes? In E. Frydenberg (Ed.), *Thriving surviving or going under: Coping with everyday lives (*Research on Stress and Coping in Education Series, pp. 3–24). Greenwich, CT: Information Age Publishing.

Lobato, D. (1983). Siblings of handicapped children: A review. *Journal of Autism and Developmental Disorders, 13*, 347–364.

Mackay, R. (2003). Family resilience and good child outcomes: An overview of the research literature. *Social Policy Journal of New Zealand, 20,* 98–118.

McHale, S.M., & Gamble, W.C. (1989). Sibling relationships of children with disabled and non-disabled brothers and sisters. *Developmental Psychology, 25,* 421–429.

McHugh, M. (2003). *Special siblings: Growing up with someone with a disability.* Baltimore, MD: Paul H. Brookes.

McMillen, J.C., Zuravin, S., & Rideout, G. (1995). Perceived benefit from child sexual abuse. *Journal of Consulting and Clinical Psychology, 63,* 1037–1043.

Milam, J.E., Ritt-Olson, A., & Unger, J. (2004). Posttraumatic growth among adolescents. *Journal of Adolescent Research, 19*, 192–204.

Miles, M.B., & Huberman, A.M. (1994). *Qualitative data analysis* (2nd ed.). Thousand Oaks, CA: Sage.

O'Leary, V.E., & Ickovics, J.R. (1995). Resilience and thriving in response to challenge: An opportunity for a paradigm shift in women's health. *Women's Health*: *Research on Gender, Behavior, and Policy, 1*, 121–142.

Park, C.L., Cohen, L.H., & Murch, R.L. (1996). Assessment and prediction of stress-related growth. *Journal of Personality, 64*, 71−105.

Park, C.L., & Fenster, J.R. (2004). Stress-related growth: Predictors of occurrence and correlates with psychological adjustment. *Journal of Social and Clinical Psychology, 23,* 195–215.

Park, C.L., & Helgeson, V.S. (2006). Growth following highly stressful life events: Current status and future directions. *Journal of Consulting and Clinical Psychology, 74,* 791–796.

Patterson, J.M. (2002). Integrating family resilience and family stress theory. *Journal of Marriage and the Family*, *64*, 349–361.

Pit-Ten Cate, I., & Loots, G. (2000). Experiences of siblings of children with physical disabilities: An empirical investigation. *Disability and Rehabilitation, 22*, 399–408.

Platinsky, S., & Esprey, Y. (2000). An assessment of gender differences in perception of benefit resulting from the loss of a child. *Journal of Traumatic Stress, 13*, 709–718.

Powell, T., & Gallagher, P. (1993). *Brothers and sisters: A special part of exceptional families.* (2nd ed.) Baltimore, MD: Paul H. Brookes.

Rivers, J.W., & Stoneman, Z. (2003). Sibling relationships when a child has autism: Marital stress and support coping. *Journal of Autism and Developmental Disorders, 33,* 383–393.

Salter, E., & Stallard, P. (2004). Posttraumatic growth in child survivors of a road traffic accident. *Journal of Traumatic Stress, 17*, 335–340.

Schreiber, M., & Feeley, M. (1965). Siblings of the retarded: A guided group experience. *Children, 12*, 221–225

Sears, S.R., Stanton, A.L., & Danoff-Burg, S. (2003). The Yellow Brick Road and the Emerald City: Benefit finding, positive reappraisal coping, and posttraumatic growth in women with early-stage breast cancer. *Health Psychology, 22,* 487–497.

Schaefer, J.A., & Moos, R.H. (1992). Life crises and personal growth. In B.N. Carpenter (Ed.), *Personal coping: Theory, research, and application* (pp. 149−170). Westport, CT: Praeger.

Seltzer, M.M., Greenberg, J.S., Orsmond, G.I., & Lounds, J. (2005). Life course studies of siblings of individuals with developmental disabilities. *Mental Retardation, 43*, 354–359.

Simeonsson, R.J., & Bailey, D.B. (1986). Siblings of handicapped children. In J.J. Gallagher & P. Vietze (Eds.), *Families of handicapped persons* (pp. 67–77). Baltimore: Paul Brooks.

Stocker, C., & Dunn, J. (1994). Sibling relationships in childhood and adolescence. In J.C. DeFries, R. Plomin, & D.W. Fulker (Eds.), *Nature and nurture during middle childhood* (pp. 214–232). Oxford, UK: Blackwell.

Strohm, K. (2002). *Coming unstuck and putting back the pieces.* Adelaide, Australia: Wakefield Press.

Tedeschi, R.G., & Calhoun, L.G. (1996). The posttraumatic growth inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress*, *9*, 455–471.

Tedeschi, R.G., & Calhoun, L.G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry*, *15*, 1–18.

Thornton, A.A., & Perez, M.A. (2006). Posttraumatic growth in prostate cancer survivors and their partners. *Psycho-Oncology, 15*, 285–296.

Vishnevsky, T., Cann, A., Calhoun, L.G., Tedeschi, R.G., & Demakis, G.J. (2010). Gender differences in self-reported posttraumatic growth: A meta-analysis. *Psychology of Women Quarterly, 34,* 110–120.