Abstract

**Background** The aim of the present study was to test if Antonovsky’s theory of sense of coherence can facilitate understanding: (1) individual differences in psychological adaptation in parents of children with intellectual disability (ID); and (2) why parents of children with ID generally experience higher levels of stress and depression than parents of children who develop normally.

**Methods** Sense of coherence (SoC) and depression were assessed using the short SoC scale (13 items) and the Beck Depression Inventory in 216 families of children with ID and/or autism, and in 213 control families.

**Results** It is argued that: (1) parents of children with ID with low SoC are at increased risk for developing depression compared to control parents with low SoC not experiencing this stressor; and (2) the life situation of parenting a child with ID may have a negative impact on parents’ SoC levels that, in turn, will make them more vulnerable to experiencing stress and depression.

**Conclusion** The SoC theory is valuable in understanding individual differences in psychological adaptation in parents of children with ID.

**Keywords** depression, parental adaptation, sense of coherence

Introduction

Several studies have reported that there is a greater risk of high stress levels and depression in parents of children with intellectual disabilities (ID) (i.e. Kazak & Marvin 1984; Bristol et al. 1988; Harris & McHale 1989; Hanson & Hanline 1990; Beckman 1991; Dumas et al. 1991; Carpiniello et al. 1995; Blacher et al. 1997; Dyson 1997; Sanders & Morgan 1997; Hoare et al. 1998; Veisson 1999). This suggests that some parents are in a state of psychological stress because of the demands of raising a child with disabilities, and that this stress can be manifested in poor psychological health. The aim of many studies has been to find general factors which affect the level of stress and depression experienced by parents. Much of this research has provided contradictory results. Some researchers have found the stress of parenting to be most intense in small children with developmental disabilities (Beckman 1991; Dumas et al. 1991; Baxter et al. 1995; Baxter et al. 2000), although others have found stress to increase with the child’s age (Gallagher et al. 1983), while still others have found stress levels to be unrelated to the child’s age (Flynt & Wood 1989). Most of this research is cross-sectional, but the
longitudinal studies which are available show that stress persists over time (Baxter et al. 1995; Dyson 1997; Hanson & Hanline 1990). Specific concerns may change over time, but the stress levels are fairly stable (Baxter et al. 1995). Differences in child characteristics have been shown to be related to the prevalence of parental depression (Gowen et al. 1989; Wolf et al. 1989; Ryde-Brandt 1990; Dumas et al. 1991; Gray & Holden 1992; Ireys & Silver 1996; Sanders & Morgan 1997; Hoare et al. 1998). The most consistent result seems to be that parents of autistic children report higher stress and more adjustment problems than parents of children with Down’s syndrome (DS), probably because there are more behavioural problems in children with autism than in children with DS (Ryde-Brandt 1990; Dumas et al. 1991; Sanders & Morgan 1997; McIntyre et al., in press). It appears that the birth of a child with disabilities, which can be extremely stressful, does not affect every parent in the same way. While having a child with ID increases the probability of stress in the parents, this fact does not assist in predicting how an individual parent will be affected. Several studies have focused on factors which could be associated with parental coping resources and adaptation; for example, the socioeconomic status of the family, the social support available, the care-giving demands and type of diagnosis of the child, and the coping strategies used (Hanson & Hanline 1990; Reddon et al. 1992; Beresford 1996; Hodapp et al. 1997; Sanders & Morgan 1997). The results from these studies are also inconsistent, and it seems clear that neither stressors nor coping resources can be objectively measured or ordered in a general hierarchy of their impact on an individual’s well-being. According to Lazarus (1999):

What makes the stimulus stressful depends to some extent on the characteristics of the person exposed to it, which would account for the ever-present individual differences. It takes both the stressful stimulus condition and a vulnerable person to generate a stress reaction. (Lazarus 1999, p. 53)

Human life is filled with stressors, even more so for the parents of a child with disabilities, and yet most parents of children with disabilities are not depressed. The salutogenetic perspective proposed by Antonovsky (1987) suggests that it is impossible to foresee what consequences a specific stressor has on an individual’s health without knowing something about that person’s view of her/himself and the world. Instead of focusing on the stressors per se, the present study focuses on personality factors which contribute to health. The above author suggested that resistant resources, which are usually treated as discrete variables, all have one thing in common: they contribute to make the stressors understandable to the individual who encounters them. The cumulative experience of coming to an understanding of these stressors will, over time, create a strong sense of coherence (SoC) in the individual. Antonovsky (1987, p. 19) defined this sense of coherence as:

[A] global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that: (1) the stimuli deriving from one’s internal and external environments in the course of living are structured, predictable, and explicable (comprehensibility); (2) the resources are available to meet the demands posed by these stimuli (manageability); and (3) these demands are challenges, worthy of investment and engagement and that life make sense emotionally (meaningfulness).

By and large, Antonovsky (1987) argued, the person with a strong SoC is more likely to define a possible stressful event or situation as a non-stressor, and to assume that she or he can adapt to the demand, than a person with a weak SoC. The person with a strong SoC is likely to appraise a stressor as happier, less contentious or less dangerous than one with a weak SoC. Parents of children with ID with a high SoC may be more likely to perceive their situation as a challenge, while parents with a low SoC are more likely to perceive their situation as a threat. The underlying confidence that things will work out, that one has the resources to cope and that the confusing will become comprehensible is, in and of itself a relevant resource and is linked to the emotions aroused by the stressor. This fits well with the results of Noojin & Wallander (1997), who found that mothers’ confidences in their problem-solving abilities increased the likelihood of selecting more active coping strategies and reporting more positive feelings toward parenting
their child with ID. Mothers who had a low sense of confidence in their problem solving abilities had higher levels of negative affectivity and selected coping strategies which focused on the regulation of emotions rather than on active problem solving.

According to Antonovsky (1987), stressors can be either chronic or acute. Chronic and acute stressors have different relations to the SoC. Acute stressors or major life events are discrete and time limited. The above author gave the examples of a death of a family member, divorce or the birth of a new family member. He argued that individual differences in SoC levels will predict individual differences in health outcomes in these situations. A person with a strong SoC will be better equipped to handle the stressors in a health-preserving way. A person with a weak SoC will be more vulnerable and the event is more likely to have a harmful effect on that individual's health. The birth of a child with disabilities or the realization that the child has ID can be characterized as an acute stressor or major life event, and the SoC level of the parent prior to the birth of the child may determine whether or not this experience will be a threat to the health and well-being of the parent.

In some cases, an acute stressor can alter a person’s life so that it becomes a chronic stressor. A chronic stressor is a generalized and long-lasting life situation, condition or characteristic that is built into the life situation of the person. Antonovsky (1987) gave examples of persisting or increasing scarcity, long-lasting conditions of loss or deprivation, and continuing experiences of inadequate resources or role opportunities. Chronic stressors are thought to have a potentially negative impact on an individual's SoC level. For example, cancer patients and homeless women have been found to have extremely low SoC levels (Antonovsky 1993). It can be argued that the acute stressor of learning of your child’s disability can be transformed with time into the chronic stress of parenting a child with ID. If parenting a child with ID can contribute to experiences of chronic stress, then these parents are at risk of developing low SoC levels. From this theoretical discussion, two things can be hypothesized: (1) the SoC levels of parents prior to the birth of the child with ID are important for the appraisal of the situation, and the experience of stress and distress; and (2) the potentially more stressful situation of parenting a child with ID can have a negative impact on parents’ SoC levels over time, which make them vulnerable to experience stress and distress in turn.

The present authors have found no study that deals explicitly with SoC in parents of children with ID, but the results of some related studies can be interpreted as indicators of the importance of SoC for the well-being of parents of children with ID. Insufficient information about services, and the child’s condition and prognosis is one of the most common unmet needs mentioned by parents of children with ID (Quine & Rutter 1994; Sloper 1999). This demonstrates that the feeling of comprehensibility (i.e. the stimuli deriving from one’s internal and external environments in the course of living are structured, predictable and explicable) is perceived as essential by these parents, but that it is often under threat. The positive results of the psycho-educational intervention offered to mothers of children with autism in the study by Bristol et al. (1993) suggest that increased knowledge about the child’s condition (comprehensibility) will promote well-being in the mothers. In the above study, mothers were also offered advice on how to handle difficult child behaviour, which can be thought to affect manageability (the resources which are available to meet the demands posed by these stimuli). The support offered to parents in Bristol et al.’s (1993) study helped parents in managing to decrease difficult child behaviour. This increased parental well-being in turn, possibly as a consequence of an increased sense of manageability. In a study by Beresford (1996), parents who maintained a positive outlook in life described cognitive strategies which were clearly directed at increasing their feeling of manageability. These parents took one day at a time, did not dwell on difficulties, hoped for improvement and compared themselves to others worse off, which made their situation seem more manageable. The more restricted and unable to pursue personal interests and goals that a mother feels, the more likely she is to experience motherhood as frustrating, unhappy and wearing (Breslau et al. 1982). This shows the importance of meaningfulness (i.e. that life makes sense emotionally and that demands are challenges which are worthy of investment and engagement). Mothers’ abilities to redefine their goals in life to suit the actual circum-
stances and limitations which the child with disabilities imposes on their daily life, so that they do not feel restricted, have been found to have a strong relationship to their sense of well-being (Tunali & Power 1993). The redefinition of personal goals was associated with an increased sense of well-being in mothers of children with disabilities, but not in control mothers.

Further support for the importance of meaningfulness is offered in a study by Beresford (1996). The above author found that the positive aspects of caring for a child with disabilities involved the feelings of rewards and pleasures of parenthood, as well as a wider sense of moral responsibility. Parents who enjoyed their role and found it a satisfying experience viewed caring for their child as a challenge, i.e. something that they enjoyed responding to.

Sense of coherence and depression have consistently been found to correlate (i.e. Flannery et al. 1994; Schnyder et al. 2000), and it would be surprising if low SoC and depression were not related in parents of children with ID. If a child with ID is an acute stressor, and an individual’s SoC level is thought to mediate or accentuate the effects of stressors, then depression should be more common in low-SoC parents with children with ID than in high-SoC parents with such children. Additionally, depression should also be more common in low-SoC parents with a child with ID than in low-SoC control parents not experiencing this stressor.

It has been argued that SoC is mainly a reflection of affective psychopathology (Callahan & Pincus 1993). It is true that a low SoC resembles some of the cognitive features of depression (Büchi et al. 1998); however, it can be argued that SoC and depression are independent measures. First, SoC shows a significant correlation with a much wider range of health status measures than would be expected for depression (Coe et al. 1990; Sensky & Catalan 1992; Gallagher et al. 1994; Pielilä 1998; Schnyder et al. 2000). Secondly, while depression is a state that changes over time (Clarke & Beck 1999), there is some evidence that SoC behaves more like a trait measure (Carmel & Bernstein 1989; Langius et al. 1992; Antonovsky 1993; Schnyder et al. 2000). Thirdly, the match between SoC scores and depression are by no means perfect ($r = -0.49$–$0.60$; Schnyder et al. 2000). In the study by Büchi et al. (1988), 10% of those with high SoC were depressed and 44% of those with low SoC were not depressed. Thus, although low SoC scores and depression appear to be related, high SoC scores seem to represent more than simply the absence of depression. Sense of coherence can be seen as a more stable and general measure of a person’s world view than depression.

The aim of the present study was to test whether Antonovsky’s (1993) theory of sense of coherence can facilitate a better understanding of: (1) the individual differences in psychological adaptation in parents of children with ID; and (2) why parents with children with ID generally experience higher levels of stress and depression than parents of normally developing children. The following theoretical assumptions were tested:

1. Low SoC levels make parents vulnerable to depression, especially in the presence of a child with ID. This will be true if parents of children with ID with low SoC levels are more likely than control parents with low SoC levels to have elevated depression scores.

2. The presence of a child with ID can be a chronic stressor which influences the parent’s SoC level negatively. This is true if parents of children with ID have lower SoC levels than parents of normal children and if parents of older children with ID have lower SoC level than parents of younger children with ID.

**Subjects and methods**

**Participants and procedure**

Families of children with ID, ranging from the newly born to 16 years of age, living in urban and rural communities in the south-west of Sweden participated in the present study. These families were recruited from community-based programmes providing services to the families of children with disabilities. Families are automatically referred to these programmes from the maternity hospital or from well-baby clinics (which serve almost 100% of all infants and toddlers in Sweden) when difficulties/disabilities are discovered. All families with children whose disabilities are evident in the preschool years are registered in these programmes and remain there until they reach the age of 16 years. Children and families are protected by professional confidentiality and cannot be contacted in person.
for research purposes. A total of 693 introductory letters were sent out to all families in the selected area who had children with a primary diagnosis of ID and/or autism enrolled in the programmes described above. In this two-step recruitment procedure, 288 parents mailed back answer cards with their name and address, indicating that they wanted more information about the study. After two reminders, the second together with a new survey, 216 families (206 mothers and 162 fathers) returned completed surveys in prepaid envelopes. Based on the medical provider’s categorization, the children were divided into two diagnostic groups. There were 151 children with a primary diagnosis of ID without autism and 65 children with a primary diagnosis of autism. The children with autism also had ID.

The control group was comprised of the families of 496 randomly selected children living in the same geographical area, and having similar age and gender distribution as the study group. The randomization was done at the Swedish National Office of Statistics. Families in the study and control groups were not matched on an individual level, only on the basis of group characteristics. Surveys were mailed to parents together with introductory letters explaining the selection procedure and the purpose of the study. After two reminders, the second together with a new survey, 213 control families (202 mothers and 185 fathers) returned completed surveys in prepaid envelopes.

The groups had similar demographic characteristics (Table 1), but there was a larger proportion of single parent families in the two ID groups compared to the control families \( \chi^2(2, n=429) = 6.6; P < 0.05 \). Single parenthood was defined as the presence of a single adult in the family regardless of whether the parent was divorced, never married or widowed. If two adults lived in the family, then the family was considered to be a two-parent family, even if the other adult was not the biological parent of the child. The children with ID without autism were younger than the control children who, in turn, were younger than the children with autism \( F_{2,423} = 7.6, P < 0.01 \) (LSD)). To assess the impact of the child’s age, children were divided into younger (0–8 years) and older (≥9 years) groups based on the median age in the total sample (i.e. 8 years).

Families were mailed three differently coloured booklets. One concerned the family characteristics, and was filled in by either one of the parents or both together. The other two concerned the parents’ individual well-being: one was addressed to the mother and one to the father. Parents were instructed to respond to the questions regarding their mental health independently of each other. Completion of the survey took between 30 and 45 min. Data were analysed using the SPSS for Windows, release 8.0.2 (1998), computer program. An alpha level of 0.05 was used for all statistical tests.

| Table 1 Demographic variables in the three groups of families: (1) those with children with intellectual disability, but without autism; (2) those with children with autism; and (3) controls |
|---------|-------|-------|
| Family group | 1 | 2 | 3 |
| Single parents [% (n)]* | 17 (25) | 23% (15) | 11% (23) |
| Male gender of child [% (n)] | 60% (90) | 72% (47) | 63% (134) |
| Mean age (± SD) of child (years) | 7.4 ± 4.2 | 9.8 ± 3.6 | 8.4 ± 4.4 |
| Mean number (± SD) of children in family | 2.3 ± 0.9 | 2.2 ± 0.8 | 2.4 ± 0.9 |
| Mean number (± SD) of rooms | 4.6 ± 1.5 | 4.6 ± 1.5 | 4.9 ± 1.6 |
| Mean socio-economic status (± SD)† | 35.6 ± 14 | 36 ± 12.3 | 37 ± 11.8 |
| Mean number (± SD) of years of schooling: fathers | 11.9 ± 2.5 | 12.0 ± 2.4 | 12.2 ± 2.2 |
| mothers | 11.9 ± 2.4 | 12.1 ± 2.5 | 12.3 ± 2.2 |

* \( \chi^2(2, n=429) = 6.6; P < 0.05 \).
† \( F_{2,423} = 7.6, P < 0.01 \) (LSD).
‡ Hollingshead Four Factor Index of Social Position (Hollingshead 1975; Broberg 1992).
Measures

Sense of coherence

The Swedish version of the short SoC scale (13 items) (SoC-13; Antonovsky 1991) was used to measure sense of coherence. Items are rated on a seven-point Likert scale (e.g. ‘How often do you have feelings that you are not sure you can control?’ ‘How often do you feel that there is no meaning to the things you do every day?’ ‘Has it ever happened that people that you trusted have disappointed you?’)

The SoC-13 was chosen so as to limit the number of questions in an otherwise rather extensive survey. Limiting the number of items was thought to increase the response rate. The SoC-13 has shown good psychometric properties in previous studies, test-retest reliability (0.52–0.97) and an excellent internal consistency (0.74–0.91) (Antonovsky 1993; Schnyder et al. 2000). The mean from five Israeli and US studies using the SoC-13 on adult, normal populations reported by Antonovsky (1993) was 66.0. Internal consistency in the present study ranged from 0.78 to 0.87 (Table 2). For the total sample of 755 individuals (mothers and fathers in the three groups), the mean SoC score was 67, the median was 69, the standard deviation was 13 and the variance was 161.5. Based on the scores of the total sample, two groups were created: (1) the low-SoC group, scoring at or under the median (69); and (2) the high-SoC group, scoring over the median.

Depression

The Swedish version of the Beck Depression Inventory (BDI; Beck & Steer 1996) was used to measure depression. This widely used instrument consists of 21 symptoms or attitudes commonly seen in patients suffering from depression (e.g. sadness, negative self-concept, sleep and appetite disturbances). The symptoms are rated from 0 to 3 in intensity, i.e. (0) ‘I do not feel sad or down’, (1) ‘I feel gloomy and down’, (2) ‘I feel down and sad all the time’ and (3) ‘I am so sad and unhappy that I can’t stand it’, and (0) ‘I don’t feel particularly guilty’, (1) ‘I feel guilty over many things I have done or should have done’, (2) ‘I feel quite guilty most of the time’ and (3) ‘I feel guilty all of the time’.

The BDI has good psychometric properties. The internal consistency for non-psychiatric subjects has yielded a mean coefficient alpha of 0.81, and the mean correlation of BDI with clinical ratings on the Hamilton Psychiatric Rating Scale for Depression has been found to be 0.74 (Beck et al. 1988). Kendall et al. (1987) suggested caution with regard to the use of the term ‘depression’ from a single-administration BDI classification and recommend that the term depression should only be used when individuals score >20 on the BDI. The following cut-off points in the range of scores of depressive symptomatology were used when interpreting the results in the present study (Kendall et al. 1987): (0–9) no depression, (10–20) dysphoria and (>20) depression. Scores >9 are referred to as elevated depression scores. In large samples, the mean BDI score usually falls between 4 and 6, with women usually scoring two points higher than men (Kendall et al. 1987; Beck et al. 1988). Cronbach’s alpha for internal consistency in the present study ranged from 0.84–0.92 (Table 3).

Table 2 Cronbach’s alpha for internal consistency on the short Sense of Coherence scale (13 items) for the three groups of parents: (1) those with children with intellectual disability; (2) those with children with autism; and (3) controls

<table>
<thead>
<tr>
<th>Parental group</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mothers (n = 144)</td>
<td>0.78</td>
<td>0.87</td>
<td>0.87</td>
</tr>
<tr>
<td>Fathers (n = 115)</td>
<td>0.85</td>
<td>0.86</td>
<td>0.82</td>
</tr>
<tr>
<td>Mothers (n = 62)</td>
<td>0.78</td>
<td>0.87</td>
<td>0.87</td>
</tr>
<tr>
<td>Fathers (n = 47)</td>
<td>0.85</td>
<td>0.86</td>
<td>0.82</td>
</tr>
<tr>
<td>Mothers (n = 202)</td>
<td>0.78</td>
<td>0.87</td>
<td>0.87</td>
</tr>
<tr>
<td>Fathers (n = 185)</td>
<td>0.85</td>
<td>0.86</td>
<td>0.82</td>
</tr>
</tbody>
</table>

Results

When corrected for the number of adults in the family, mothers of children with autism had lower SoC levels than mothers of children with ID without autism, who, in turn, had lower SoC level than control mothers \( [F_{2,408} = 11.3, P < 0.01 \text{ (LSD)}] \) (Table 4). Fathers’ SoC scores did not differ significantly among the three groups. Mothers of children with ID had lower SoC levels than fathers of children with ID \( (t_{177} = -3.4). \) When corrected for the number of adults in the family, mothers of children with autism had higher depression scores than mothers of children with ID without autism who, in turn, had higher depression scores than control mothers \( [F_{2,408} = 23.8, P < 0.01 \text{ (LSD)}] \) (Table 5). Fathers of children with autism had higher depression scores than control fathers \( [F_{2,347} = 3.4, P < 0.05 \text{ (LSD)}] \). Mothers of children with ID had higher depression scores than fathers of children with ID \( (t_{179} = 6.1, P < 0.01) \) and the control mothers had higher depression scores then

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**Table 3** Cronbach’s alpha for internal consistency on the Beck Depression Inventory for the three groups of parents: (1) those with children with intellectual disability; (2) those with children with autism; and (3) controls

<table>
<thead>
<tr>
<th>Parental group</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mothers</td>
<td>0.88</td>
<td>0.92</td>
<td>0.89</td>
</tr>
<tr>
<td>Fathers</td>
<td>0.87</td>
<td>0.88</td>
<td>0.84</td>
</tr>
</tbody>
</table>

**Table 4** Mean sense of coherence (SoC) scores (± SD) for the three groups of families: (1) those with children with intellectual disability; (2) those with children with autism; and (3) controls

<table>
<thead>
<tr>
<th>Family group</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mothers</td>
<td>64.4 ± 14.5</td>
<td>59.9 ± 14.4</td>
<td>69.1 ± 11.9</td>
</tr>
<tr>
<td>Fathers</td>
<td>69.1 ± 11.9</td>
<td>65.2 ± 12.0</td>
<td>69.5 ± 10.8</td>
</tr>
</tbody>
</table>

**Table 5** Mean Beck Depression Inventory (BDI) scores (± SD) for the three groups of families: (1) those with children with intellectual disability; (2) those with children with autism; and (3) controls

<table>
<thead>
<tr>
<th>Family group</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mothers</td>
<td>9.2 ± 7.4</td>
<td>11.7 ± 11.9</td>
<td>5.2 ± 5.2</td>
</tr>
<tr>
<td>Fathers</td>
<td>5.1 ± 5.0</td>
<td>6.2 ± 6.2</td>
<td>4.1 ± 4.6</td>
</tr>
</tbody>
</table>
the control fathers ($t_{402} = 2.2, P < 0.05$). There was no relationship between the age of the children and parental SoC levels. Sense of coherence and Hollingshead SES (socioeconomic status) were positively correlated for control mothers ($r = 0.31, P < 0.01$), fathers of children with ID without autism ($r = 0.26, P < 0.01$) and for control fathers ($r = 0.19, P < 0.05$).

The first hypothesis, i.e. that low SoC levels make parents vulnerable to depression, especially in the presence of a child with ID was said to be true if parents of children with ID with low SoC levels were more likely than control parents with low SoC levels to have elevated depression scores (Table 6). Since parents of children with ID had lower SoC levels than control parents, SoC was entered as a covariant in an analysis of covariance. This procedure allowed the present authors to compare whether parents from the three groups differed in their depression scores given the same SoC levels. This hypothesis was supported for mothers ($F_{2,405} = 12.6, P < 0.01$), but not for fathers. The Pearson correlations between SoC and BDI for mothers and fathers of children with ID without autism were $r = -0.72$ and $r = -0.65$, respectively, $r = -0.76$ and $r = -0.59$ for the mothers and fathers of children with autism, and for control mothers and fathers, $r = -0.66$ ($P < 0.01$ for all correlations). When adjusted for SoC, fewer mothers of children with ID with low SoC levels had normal depression scores compared to control mothers (Table 7) ($F_{2,216} = 9.0, P < 0.01$).

Table 6 Depression scores among parents from the three groups of families with low and high sense of coherence (SoC) levels: (1) those with children with intellectual disability; (2) those with children with autism; and (3) controls

<table>
<thead>
<tr>
<th>Family group</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SoC level</td>
<td>Mothers</td>
<td>Fathers</td>
</tr>
<tr>
<td>Low</td>
<td>12.1</td>
<td>7.8</td>
<td>14.9</td>
</tr>
<tr>
<td>High</td>
<td>4.5</td>
<td>2.4</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Table 7 Percentage of parents measured on the Beck Depression Inventory (BDI) with a low ($\leq 69$, median = 69) or high (>69) sense of coherence (SoC) who have normal depression scores (BDI < 10), dysphoria (BDI = 10–20) and depression (BDI < 20)

<table>
<thead>
<tr>
<th>Parental group</th>
<th>No depression</th>
<th>Dysphoria</th>
<th>Depression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low SoC</td>
<td>High SoC</td>
<td>Low SoC</td>
</tr>
<tr>
<td>Those with children with intellectual disability:</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>mothers</td>
<td>31</td>
<td>35.5</td>
<td>48</td>
</tr>
<tr>
<td>fathers</td>
<td>40</td>
<td>67</td>
<td>54</td>
</tr>
<tr>
<td>Those with children with autism:</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>mothers</td>
<td>14</td>
<td>32</td>
<td>17</td>
</tr>
<tr>
<td>fathers</td>
<td>19</td>
<td>66</td>
<td>18</td>
</tr>
<tr>
<td>Controls:</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>mothers</td>
<td>59</td>
<td>66</td>
<td>110</td>
</tr>
<tr>
<td>fathers</td>
<td>61</td>
<td>72</td>
<td>97</td>
</tr>
</tbody>
</table>

Discussion

The present data support the theoretical assumption that parents of children with ID who have low SoC levels are more depressed than control parents with low SoC. Since this is a cross-sectional study, the present authors can only speculate about the causal relationship between SoC and depression. The second assumption, i.e. that the presence of a child with ID is a chronic stressor that influences the parent’s SoC level negatively over time, was only partly supported, since no relation was found between the age of the child and SoC levels in parents of children with ID. More research and especially longitudinal designs are needed to bring clarity to the meaning of SoC over time. The overall lower SoC levels in parents of children with ID may suggest that the acute stressor of learning that your child has a disability can have a negative impact on SoC levels. Mothers of children with ID had lower SoC levels than fathers, which is consistent with findings regarding parental stress (Beckman 1991; Dumas et al. 1991) and depression (Bristol et al. 1988; Fisman et al. 1989; Wolf et al. 1989; Dumas et al. 1991; Gray & Holden 1992; Veisson 1999) in parents of children with ID. It seems as though parenting a child with ID generally has more impact on the life situations and psychological health of mothers. Socio-economic status was not consistently related to SoC levels in families with children with ID. This supports Blacher et al.’s (1997) idea that socio-economic status may not serve as a buffer in the presence of specific stressors such as ID. The fact that free services are available to all families may further decrease the impact of socio-economic status in parents of children with ID in Sweden. Most parents also received a monthly financial grant to compensate for expenses and reduced income caused by the demands of caring, which may decrease extreme stress and financial strain in families from the lowest socio-economic group. In families from high-SES groups, pursuing a career may be an important part of the parent’s life goals that may be threatened by the demands of parenting a child with ID. Parents of children with ID were divided into two groups: (1) parents of children with ID without autism; and (2) parents of children with autism. As in previous studies, parents of children with autism had poorer psychological health (Ryde-Brant 1990; Dumas et al. 1991; Sanders & Morgan 1997). The severe behavioural disturbances and lack of social competence and responsiveness seen in many of these children have been found to increase parental stress (Cameron et al. 1991; Hodapp et al. 1997; McIntyre et al. in press). High stress caused by difficult child behaviour, in combination with restrictions in personal life, may be a factor that contributes to a higher risk of low SoC and depression in mothers of children with autism.

Why would having a child with ID influence the SoC level negatively? It can be argued that parenting a child with ID will increase the risk of experiencing threats to all of the central concepts of SoC, i.e. comprehensibility, manageability and meaningfulness. Support for this proposition is to be found in previous literature. Lack of clear and consistent information as previously reported by many parents (i.e. Quine & Rutter 1994; Sloper 1999) may threaten comprehensibility.

The sense of manageability may be threatened by a child with high caring demands who may stretch the parent’s limits (Sharpley & Bitsika 1997). Not being able to rely on appropriate help and support from one’s spouse (Bristol et al. 1988; Fisman et al. 1989) or receiving services without having to fight for them (Beresford 1996) are other threats to manageability.

The sense of meaningfulness may be threatened by not being able to pursue personal interests and goals in life. It has been found that, the more restricted the mother feels, the more likely she is to experience motherhood as frustrating, unhappy and wearing (Breslau et al. 1982; Wallander & Venters 1994). The ability to redefine what constitutes the fulfilment of personal needs is important in order to increase well-being and meaningfulness in parents whose personal goals have been restricted by their child with ID (Tunali & Power 1993).

Why might high SoC levels protect against depression? According to Antonovsky (1987, p. 132):

[A] person with a strong SoC is more likely to define any one stimuli as a non stressor, and to assume the he or she can adapt automatically to the demand. He or she will not experience tension, with the potential of its transformation into stress.

Nevertheless, there are situations of great significance (e.g. the birth of a child with ID) which cannot possibly be perceived of as non-stressors, but a person with a strong SoC is likely to have confidence that, as in the past, things will work out well by and large. What seems to be a problem will turn out not to be so much of a problem as initially thought. This is supported by the strong relationship between mothers’ confidence in their problemsolving abilities and their well-being (Noojin & Wallander 1997; Sharpley & Bitsika 1997). Having a strong sense of meaningfulness will probably help parents to view parenting their child with ID as an enjoyable challenge. Beresford (1996) found that the love, affection and joy which parents experienced with their children was an important factor for those who continued to care for their children at home.

The present study has several limitations. First, the authors do not know if the parents with children with ID and the control parents had similar SoC levels prior to the birth of their child. It does not seem likely though that the substantially lower SoC level in mothers of children with ID could be attributed to sampling bias alone. The two groups had similar demographic characteristics, except for more single mothers in the ID group, but even when marital status was controlled for in the analyses, the difference between the groups remained. Therefore, it seems appropriate to assume that the two groups had similar SoC levels prior to the birth of the child, but that the stress experienced by many parents has had a negative impact on SoC.

As in other studies, a strong relationship between SoC and depression was found in the present study, but since this was a cross-sectional study, it cannot be concluded that low SoC leads to depression, although it could be the other way around. Previous research on SoC and depression has suggested that SoC is a more stable trait (Carmel & Bernstein 1989; Langius et al. 1992; Antonovsky 1993; Schnyder et al. 2000), while depression is known to be a state-like condition that can change over time (Clarke & Beck 1999). Longitudinal research can help bring clarity to this matter.

Another central question is whether depression and low SoC are really different concepts. If you can have low SoC scores without being depressed, this is one indication that depression and SoC are different entities. The fact that the large majority of the individuals with low SoC had normal BDI scores points to the fact that depression and SoC are really separate constructs. If a person scores high on depression, the chances are few that the same individual will have a high SoC level. Ninety per cent of the individuals with elevated depression scores had low SoC scores. You can have a low SoC level and not be depressed, but it is very unlikely that you will be depressed if you have a high SoC level. An interesting question that, unfortunately, cannot be answered in the present study is whether individuals with high SoC levels are protected from depression over time. This question also calls for longitudinal studies.

Conclusions

The present study empirically explored two theoretical assumptions: (1) that individual differences in SoC levels may explain individual differences in the experience of stress and depression among the parents of children with ID; and (2) that parents of children with ID are generally at risk of developing a lower SoC because of their specific experiences than the normal population. This would explain why previous studies have consistently shown that these parents generally experience higher stress levels and more depression than parents of normally developing children. The results of the present study suggest that the theory of sense of coherence is valuable in understanding individual differences in psychological adaptation in parents of children with ID. It would be interesting to see more studies addressing these issues, preferably ones using longitudinal designs.

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