

Use of the Questionnaire on Resources and Stress (QRS-F) with parents of young children with autism

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ABSTRACT The Questionnaire on Resources and Stress (Friedrich, short form: QRS-F) has been used widely with parents of children with disabilities. However, its psychometric properties in parents of young children with autism have not been established. Here, 174 mothers and 43 fathers of children under 6 years with autism spectrum disorder were studied by two independent research teams. Each parent completed a 31-item version of the QRS-F. Factor analysis of the mothers' scores on these items failed to identify an expected two- or three-factor structure. Thus, the properties of a total stress score were explored. Analyses revealed evidence of good reliability, and expected associations with social support, coping and autism severity. These analyses lend preliminary support to the convergent validity of the scale. Overall, the data support the use of a total stress score from the 31-item version of the QRS-F in research with parents of young children with autism.

KEYWORDS
autism;
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Raising a child who has autism is undoubtedly stressful. A number of studies has reported raised levels of stress in comparison with parents of normally developing children, or children with other disabilities (Dumas et al., 1991; Koegel et al., 1992; Konstantareas et al., 1992; Sanders and Morgan, 1997). Several variables have been consistently related to stress in parents of children with autism, typically of school age. First, studies have found that fathers report less stress than mothers of children with

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autism (Bristol et al., 1988; Gray and Holden, 1992; Konstantareas et al., 1992; Moes et al., 1992). Second, stress in parents of children with autism has been associated with measures of social support and coping. Specifically, those parents with more helpful or available support tend to report less stress (e.g. Factor et al., 1990; Gill and Harris, 1991; Konstantareas and Homatidis, 1989; Weiss, 2002). In terms of coping strategies, parents who adopt escape-avoidance strategies to cope with the stresses of raising children with autism have been found to report more stress and mental health problems; in contrast, those using positive reframing strategies report less stress (e.g. Dunn et al., 2001; Hastings and Johnson, 2001). Finally, the severity of their child's autistic symptoms, including behaviour problems, has been found to be a strong predictor of parental stress (Bebko et al., 1987; Hastings, 2003; Hastings and Brown, 2002; Hastings and Johnson, 2001; Koegel et al., 1992; Konstantareas and Homatidis, 1989).

The Friedrich short form of the Questionnaire on Resources and Stress (QRS-F) (Friedrich et al., 1983) is frequently used to study stress in families of children with disabilities (Glidden and Floyd, 1997). However, its properties in relation to parents of young children with autism have yet to be examined.

The original Questionnaire on Resources and Stress (QRS) (Holroyd, 1974) had 285 items and has been subject to a number of revisions that are shorter but maintain generally good reliability. For example, the Clarke version of the QRS (QRS-C, from the Clarke Institute of Psychiatry, Toronto) attempts to retain clinical comprehensiveness while targeting severe developmental psychopathology (Konstantareas et al., 1992). In an examination of its validity and reliability Konstantareas et al. (1992) conclude that the QRS-C is clinically informative when used with parents of children with autism and mental retardation. While recommendations have been made for the use of different versions of the QRS with specific populations, the QRS-F is the most widely used short form (Glidden and Floyd, 1997). The QRS-F has 52 items assessing four subcomponents of parental perceptions: parent and family problems (stressful aspects of the impact of the child with disability on parents and the wider family), pessimism (parents' pessimistic beliefs about the child's future), child characteristics (features of the child that are associated with increased demands on parents), and physical incapacity (the extent to which the child is able to perform a range of typical activities). Despite the advantages of a shorter measure, some ambiguity as to the conceptual structure of the QRS-F remains. For example, Glidden and Floyd (1997) identified a further five-item subscale within the QRS-F that seemed to be a robust measure of parental depression.

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Hastings and colleagues (Hastings, 2003; Hastings and Brown, 2002; Hastings and Johnson, 2001) have used the QRS-F presented without the subcomponents of physical incapacity and child characteristics in their research on stress in families of children with autism. These subcomponents were excluded because they seemed to assess the child's abilities/disabilities rather than being a measure of the child's impact on the parents. The remaining scales of parent and family problems, pessimism, and depression all focus on dimensions of parental wellbeing. Although these three scales have been found to be reliable with both mothers and fathers of children with autism (Hastings and Brown, 2002), further analysis of the psychometric properties of the QRS-F is needed.

In particular there is no previous study of the factor structure of the QRS-F for parents of children with autism. Furthermore, the psychometric properties of the scale for parents of young/preschool children with autism have not previously been reported.

The present research aims to:

- 1 Examine the factor structure of the QRS-F for use with parents of children with autism.
- 2 Assess the reliability of the extracted factor structure.
- 3 Establish the construct validity of the QRS-F with parents of young children with autism. Convergent validity of the QRS-F will be explored with reference to other measures of parental stress, coping strategies, social support and the severity of the child's autistic symptoms.

Method

Participants

A total of 174 mothers with a child with autism spectrum disorder aged between 2 and 6 years of age (26 and 82 months), and 43 fathers, completed 31 items from the QRS-F. Participants were recruited through two research projects undertaken by independent research teams. In Study 1, mothers were recruited from a support group whose members are carrying out Applied Behaviour Analysis programmes with their child with autism (Hastings and Johnson, 2001). In Study 2, children were recruited to an evaluation of the More Than Words (Sussman, 1999) course for parents, in which 54 mothers and 43 fathers participated. Clinical diagnosis was confirmed in Study 2 by the use of specific diagnostic tools: the Autism Diagnostic Interview-Revised (ADI-R: Lord et al., 1994) and the Autism Diagnostic Observation Schedule (ADOS: Lord et al., 1999). Table 1 reports descriptive statistics for parents in each sample.

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Table 1 Characteristics of parents in the two studies

Study	Parent age (years)		Marital status (%)		Education (%)	
	Range	Mean (SD)	Married	Single	Up to and inc. A-levels	Above A-levels
1 (N = 120)	26–48	36.30 (4.18)	95	5	40.8	59.5
2 (N = 54) Mothers	24–46	34.90 (5.38)	87	13	64.8	35.2
2 (N = 43) Fathers	27–61	36.05 (6.23)	92.5	7.5	50	50

Measures

Parental stress All 31 items from the parent and family problems and pessimism scales of the QRS-F were used. QRS-F items are statements which deal with parents' feelings about their child, to which an answer of true or false is given (e.g. 'Our family agrees on important matters'; 'I worry what will happen to N when I can no longer take care of him/her').

Parental adaptation Adaptation to the child for mothers and fathers in Study 2 was measured with the Judson Scale (Judson and Burden, 1980). This is a 22-item maternal self-rating scale (e.g. 'Confident in asking questions about my child/Afraid to ask questions about my child'; 'Comfortable with my child/Ill at ease with my child'). Each item is rated on a scale ranging from 1 to 7, and a total score (range 22–154) is calculated by summing scores on all items. Internal consistency is high (Cronbach's alpha 0.88).

Social support Dunst et al.'s (1984) 18-item Family Support Scale (FSS) was used in Study 1 to measure social support for the respondent's family. Two scores were derived from this measure: (1) a weighted score for the helpfulness of informal sources (spouse, family, friends, other informal supports) of support available to the family; and (2) a weighted score for the helpfulness of support from professionals and services available to the family. These two measures are from McConachie and Waring's (1997) revised scoring procedures for the FSS. They represent the mean helpfulness ratings for the support sources available to the family. Dunst et al. (1984) describe good reliability for the FSS in families of children with disabilities (internal consistency 0.77, and test-retest reliability 0.91).

Coping strategies The coping strategies used by mothers in Study 1 in times of stress were measured using the Family Crisis Orientated Personal

HONEY ET AL.: QUESTIONNAIRE ON RESOURCES AND STRESS Evaluation Scales (F-COPEs: McCubbin et al., 1991). This scale contains 30 coping behaviour items and has five subscales: reframing (positively reframing events to make them more manageable, e.g. 'Knowing we have the strength within our own family to solve problems', 'Showing that we are strong'); passive appraisal (minimization of response to problematic issues, e.g. 'Believing if we wait long enough, the problem will go away'); acquiring social support (from relatives, friends, extended family and neighbours); seeking spiritual support; and mobilizing the family (mobilizing the family to acquire and accept help from community resources). As this scale has been rarely used with parents of children with autism, we explored the internal consistency of these five subscale scores. These were: reframing (0.82), passive appraisal (0.48), acquiring social support (0.81), seeking spiritual support (0.88), and mobilizing the family (0.59). Given the low reliabilities for passive appraisal and mobilizing the family, these scales should be used with caution with parents of children with autism.

Autism severity measures In Study 1, the Autism Behaviour Checklist (ABC: Krug et al., 1980) was completed by the mothers to generate an overall index of the level of autism symptomatology ('severity' of autism) in the child with autism. The ABC was presented to mothers in the simple yes/no format (Volkmar et al., 1988), and the total score only, calculated using the weightings suggested by Krug et al. (1980), was used in the analyses reported below. For Study 2 severity was measured using two scales: (1) a total of the Autism Diagnosis Observation Schedule (ADOS: Lord et al., 1999) algorithm scores for each child; and (2) the Vineland Adaptive Behavior Scales (VABS: Sparrow et al., 1984) composite score for each child.

Results

Statistical analysis

Factor analysis Factor analysis was used to examine the structure of the QRS-F. The sample of mothers available in this study exceeded the minimum cases:items ratio of 5:1 advocated by Floyd and Widaman (1995). Therefore, principal components factor analysis of mothers' scores was conducted using orthogonal (varimax) rotation and also oblique (direct oblimin) rotation. Fathers were not included in these analyses because they were from the same families as the mothers, and thus the independence of their data was not clear.

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Reliability of the 31-item QRS-F Reliability of the QRS-F 31-item scale total score was established using the Kuder–Richardson coefficient (a measure of internal consistency similar to Cronbach’s alpha, but for scales containing dichotomous items).

Convergent validity Three sets of analyses were conducted in order to explore the convergent validity of the 31-item total score for the QRS-F. First, scores of mothers and fathers from Study 2 were compared using a paired samples *t*-test. Second, correlations were explored between QRS-F scores and parental adaptation in Study 2 and between social support and coping scores of mothers in Study 1. The final set of validity analyses focused on the associations between the severity measures and parental stress.

Findings

Factor analysis Given the use of two subscales from the QRS-F, and noting the presence of a short depression measure from items on the Parent and Family Problems subscale (Glidden and Floyd, 1997), it was expected that the QRS-F would comprise two or three distinct factors.

Regardless of whether the number of factors extracted was decided by the Kaiser–Guttman criterion (eigenvalues over 1) or the Scree Test (Cattell, 1978), and regardless of the rotation method used, we could not derive a two- or three-factor structure that had any resemblance to the existing QRS-F scales. Rather, the majority of the items loaded significantly onto the first factor extracted in most analyses. Thus, a total QRS-F score based on all 31 items was explored in the remainder of the analyses.

Reliability of the 31-item QRS-F The Kuder–Richardson coefficients for mothers in Study 1 (0.85), and for both mothers (0.93) and fathers (0.88) in Study 2, indicate that the total score based on the 31 QRS-F items has a good level of internal consistency for parents of young children with autism.

Convergent validity The results of the paired samples *t*-test for mothers and fathers in study 2 showed no significant difference between the mothers’ (mean = 10.67, SD = 7.08) and fathers’ (mean = 9.91, SD = 5.95) scores ($t(42) = 1.34, p = 0.19$). The analyses between QRS-F scores and parental adaptation in study 2 revealed that adaptation (Judson scale) was significantly correlated with maternal stress ($r(54) = -0.70, p < 0.001$) and paternal stress ($r(43) = -0.46, p < 0.01$). Those with a more positive adaptation to their child reported less stress. There were also

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significant correlations between mothers' stress in Study 1 and the helpfulness of informal social support (from the FSS) ($r(120) = -0.32, p < 0.001$), acquiring social support coping (from the F-COPES) ($r(120) = -0.22, p < 0.05$), and positive reframing coping ($r(120) = -0.40, p < 0.001$). In each case, more helpful social support sources and more use of the coping strategy were associated with lower stress scores on the QRS-F.

Analyses of the associations between severity measures and paternal stress found all of the relevant associations to be statistically significant. In Study 1, maternal stress was correlated with the ABC total score ($r(120) = 0.47, p < 0.001$). In Study 2, ADOS scores were correlated with both fathers' ($r(43) = 0.39, p < 0.01$) and mothers' stress ($r(54) = 0.42, p < 0.01$), and the Vineland composite score was correlated with both fathers' ($r(43) = -0.36, p < 0.05$) and mothers' stress ($r(54) = -0.47, p < 0.001$). All of these associations were in the expected direction: those parents with children with more severe symptoms of autism reported more stress, and those whose children had higher VABS scores (i.e. were more able) reported less stress.

Discussion

Exploratory factor analyses failed to support the expected two- or three-factor solution for the 31 QRS-F items included in the present research. In view of this, we explored the psychometric properties of a total stress score based on the 31-item QRS-F. Data from two independent samples of parents of young children with autism showed a high level of internal consistency for this total score. Thus, we recommend that researchers use a total score on the 31-item QRS-F in future research with parents of young (preschool) children with autism. Further psychometric analyses should be conducted on new samples of preschool children with autism in order to confirm or refute this recommendation.

Furthermore, there was substantial evidence in support of the convergent validity of the scale. Specifically, negative correlations were found between the total stress score and the social support and coping scales and a measure of parents' adaptation to their child. Furthermore, parents of children with the most severe autistic symptoms and fewer adaptive skills reported higher levels of stress. We did not find the expected difference between mothers' and fathers' stress scores in Study 2. However, this gender difference has not always been found reliably in studies of parents of children with autism (e.g. Bebko et al., 1987; Factor et al., 1990; Wolf et al., 1989). It might also be the case that a mother-father difference in reported stress is not evident in the preschool years but may emerge as children with autism reach middle childhood and beyond. This is a

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speculative proposition, but it could be tested in future cross-sectional and longitudinal research.

Although the data presented here are remarkably consistent, the study does have limitations that may have affected the outcome. First, the parents were on average an advantaged group and are therefore not representative of all parents of young children with autism spectrum disorder. In particular, two-thirds are conducting intensive interventions at home with their child, an undertaking that requires high motivation and significant financial resources. Second, all of these parents were living in the UK. It is possible that the structure of the QRS-F for parents of young children with autism varies between cultures. Finally, we did not assess other sources of stress that may have affected parents' responses on the QRS-F. For example, significant life events are likely to raise stress and conflicts between work and home may have a strong influence on parents' wellbeing. Moreover, the participation of parents in an intensive intervention programme could either cause additional stress or provide parents with skills and resources that help to ameliorate stress.

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