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Child behavior problems and parental well-being in families of children with autism: the mediating role of mindfulness and acceptance

Abstract

Few research studies have explored how the level of their child's behavior problems leads to psychological distress in parents of children with autism. We explored whether psychological acceptance and mindfulness mediated this child behavior-parental distress relationship. Seventy-one mothers and 39 fathers of children with autism participated, by reporting on their own positive and negative psychological well-being, and their child's behavior problems. Psychological acceptance was found to act as a mediator variable for maternal anxiety, depression, and stress, and paternal depression. General mindfulness and mindful parenting had significant mediation effects for maternal anxiety, depression, and stress. These results contribute to evidence that mindfulness and acceptance may be important parental psychological processes, with implications for parent support.

Keywords: Autism Spectrum Disorder, parents, mindfulness, mindful parenting, psychological acceptance

Parents, especially mothers, of children with an Autism Spectrum Disorder (ASD) often report elevated psychological distress profiles compared to parents of typically developing children (Eisenhower, Baker & Blacher, 2005; Schieve, Blumberg, Rice, Visser, & Boyle, 2007; Totsika, Hastings, Emerson, Berridge & Lancaster 2011), and compared to parents of children with other disabilities, including Down syndrome (Dabrowska & Pisula, 2010; Griffith, Hastings, Nash & Hill, 2010; Olsson & Hwang, 2003), Fragile X syndrome (Abbeduto et al., 2004), cerebral palsy (Eisenhower et al., 2005), and intellectual disability (ID) alone (Blacher & McIntyre, 2006; Totsika et al., 2011). Within samples of parents of children with ASD, child behavior problems have regularly been associated with negative outcomes, in cross-sectional and longitudinal designs (Hastings et al., 2005; Herring et al., 2006; Lecavalier, Leone & Wiltz, 2006; Lounds, Seltzer, Greenberg & Shattuck, 2007; Totsika et al., 2011). Given the longitudinal design of some studies (e.g. Herring et al., 2006; Lecavalier et al., 2006), there is evidence to indicate that child behavior problems function as a risk factor for parental negative outcomes.

With both theoretical and practical considerations in mind, it is important to ask how the behavior problems of children with ASD come to have an impact on parental well-being. 'How' questions in this context relate to the identification of mediator variables, defined as the processes that intervene between a risk factor (e.g., child behavior problems) and outcomes (such as parental psychological distress) (c.f Baron & Kenny, 1986). Identification of mediator variables is theoretically important because we develop a better understanding of psychological distress in parents. At the practical level, mediator variables represent processes that might be targeted via intervention.

Researchers have explored a range of psychological process variables that may be related to well-being in parents of children with ASD. For example, negative correlations with parental negative outcomes (i.e., increased reporting of the process variable

associated with lower levels of psychological distress) have been identified for optimism (Greenberg, Seltzer, Kruass, Chou & Hong, 2004), attributions of control (Weiss, 2002), and self-efficacy (Hastings & Brown, 2002). Only rarely have psychological process variables been examined statistically as potential mediators of the relationship between child behavior problems and parental well-being (Hastings & Brown, 2002; Weiss, Cappadocia, MacMullin, Viecili, & Lunsky, 2012). Therefore, more research is needed specifically with a focus on mediation processes.

A particular problem in the search for relevant psychological process variables is the starting point of which processes to examine. Our rationale for selection was to look to an emerging trend in intervention research with parents and other carers of children and adults with ASD and/or ID. Increasingly, the "third wave" therapies such as Acceptance and Commitment Therapy (ACT; Hayes, Strosahl & Wilson, 1999) and mindfulness-based therapies (Chiesa & Serretti, 2011; Grossman, Mieman, Schmidt & Walach, 2004) have been evaluated as intervention models to reduce psychological distress in carers of individuals with developmental disabilities. The results of these evaluations of acceptance-based (e.g., Blackledge & Hayes, 2006; Noone & Hastings, 2009; 2010) and mindfulness-based (e.g., Benn, Akiva, Arel & Roeser, 2012; Ferraioli & Harris, 2012; Singh et al., 2006; 2007) interventions are encouraging in terms of stress reduction outcomes. However, theory building research, such as evidence for the mediating role of acceptance and mindfulness processes in understanding carer well-being generally post-dates these intervention evaluation research developments.

In the first research to explore mindfulness and acceptance in parents of children with developmental disabilities, Lloyd and Hastings (2008) found evidence that increased psychological acceptance was associated both cross-sectionally and longitudinally with psychological distress in mothers of children with ID. Mindfulness was also measured in this research as a dispositional (trait) variable, but no significant

associations with maternal well-being were found. The authors suggested using a situational measure of mindfulness in the parenting context in future research. MacDonald, Hastings and Fitzsimons (2010) found evidence, in a cross-sectional design, that acceptance measured in relation to parenting acted as a mediator of the relationship between child behavior problems and paternal well-being (stress, anxiety and depression). In a partial replication study, Weiss et al. (2012) also found cross-sectional evidence of acceptance acting as a mediator variable for the well-being (non-specific psychological distress) of mothers of children with ASD.

The main aims of the current research were to: (a) Replicate the finding that psychological acceptance may act as a mediator of the association between child behavior problems and psychological distress in mothers of children with ASD, (b) Extend this exploration of acceptance to fathers of children with ASD, (c) Explore the putative role of general mindfulness and mindfulness in the parenting context (using a new measure designed for the current study) as a mediator for both mothers and fathers, and (d) Explore any mediated relationships for parental positive perceptions as opposed to psychological distress. In terms of the final aim, existing family research findings indicate that positive well-being is distinct from an absence of psychological distress, and that positive and negative outcomes are associated with different variables (Hastings & Taunt, 2002). No associations between mindfulness or acceptance and parental positive perceptions have been found in previous research with parents of children with ID (Lloyd & Hastings, 2008; MacDonald et al., 2010). However, we are not aware of existing research addressing this question with both mothers and fathers of children with ASD.

Based on previous research findings, we hypothesized that psychological acceptance would mediate the relationship between the behavior problems of children with ASD and their parents' psychological distress, but not their parents' positive

perceptions. Although we also explored the putative mediating role of mindfulness, we had no directional hypotheses, given the lack of previous empirical findings.

A secondary aim of the research was to report initial psychometric data on a mindful parenting scale suitable for use with parents of children with disabilities. There is a lack of measures of mindful parenting, and our research on psychological acceptance suggested that it is important to measure these psychological processes in the context of the relationship with the child with disability.

Method

Participants

Seventy-one mothers and 39 fathers (who were partners of the mothers) participated in the research. The majority of parents were biological parents - one adoptive mother and one foster mother, one adoptive father, one foster father and one stepfather also participated. All fathers, and 59 of the mothers were either married or co-habiting, and 12 mothers were divorced, single, or widowed. Mothers were on average 45 years of age (*SD* = 4.64) and fathers 46 years (*SD* = 4.01). Thirty-eight mothers (54%) and 25 fathers (64%) were educated to university degree level or higher, with 23 mothers (32%) and 35 fathers (90%) in employment at the time of the research. Modal household income for the current sample of 71 families was £25,000-£35,000 per year (British pounds sterling; approximately $40,000-$55,000 US dollars; median household income was £35,000-£45,000, approximately $55,000-$70,000 US dollars). Most participants (94%) described themselves as being of White British ethnicity, and the majority of families had two children living in the family home.

Participants' socio-economic position (SEP) was computed by categorizing families in to one of four possible groups, depending on whether at least one parent in the family was currently employed (if so, scoring one), whether total annual household income was above the modal value for the sample (£35,000; if so, scoring one), and

whether the mother in the family was educated to university degree level (if so, scoring one). Seven families (10% of 71 families) comprised the lowest possible group (neither parent employed, family income below £35,000 annually, mother educated below university level); 19 families (27%) comprised the second lowest group; 17 families (24%) comprised the second highest group; and the highest possible group comprised 28 families (39%).

Parents reported on their children's characteristics, including what diagnostic label their children had received, when the diagnosis was received, and who provided the diagnosis. Twenty-nine of the families' children (41%) had a diagnosis of high functioning autism or Asperger syndrome, 27 children (38%) had a diagnosis of autism, and 15 children (21%) had a diagnosis of Autism Spectrum Disorder. Seventy one percent of the children scored within the range typical of children with ID on a measure of global adaptive functioning. Fifty-nine of the children were male (83%) and 12 were female (17%). Children were on average 13 years of age (*SD* = 2.29, range 7 to 16) and had received their diagnosis on average 7 years previously (*SD* = 2.68).

Measures

Participants completed a demographics questionnaire designed specifically for the current study to gather the information described above, and questionnaires measuring child behavior problems, parental positive and negative well-being, and mindfulness and acceptance. A telephone interview was also conducted with the child's primary carer, to complete a measure of the child's adaptive functioning.

Child measures

The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) was used as a measure of children's behavioral and emotional adjustment. Both mothers and fathers completed the measure independently of each other. The SDQ comprises 25 items measuring five domains: a prosocial behavior domain and four problem behavior

domains (emotional symptoms, conduct problems, hyperactivity, and peer problems). Respondents rate statements about their child, as either *not true, somewhat true,* or *certainly true.* Example items include "Often downhearted and tearful" (emotional symptoms); "Often has temper tantrums or a hot temper" (conduct problems); "Easily distracted, concentration wanders" (hyperactivity); "Has at least one good friend" (reverse scored for peer problems); "Considerate of other people's feelings" (prosocial behavior). A total difficulties score is generated by summing the four problem domains, giving a scale with a range of scores from 0 to 40. The total difficulties score was used in the present study, with maternal ratings used in maternal analyses and paternal ratings used in paternal models. The SDQ is a well-validated instrument proven to be effective in identifying clinically significant levels of behavioral disturbance in children (Goodman, 1997), with good levels of reliability maintained in research with children with autism (Iizuka et al., 2010). Internal consistency (Cronbach's α) for the total behavior problems score in the current study was .78 for mothers and .80 for fathers.

The Social Communication Questionnaire (SCQ ; Rutter, Bailey, Lord & Berument, 2003) was completed by the child's primary carer to measure the severity of the child's autism symptoms. The SCQ is an autism-screening instrument and outcome measurement tool, based on international diagnostic criteria (DSM-IV: American Psychiatric Association, 2000; ICD-10: World Health Organization, 1992), designed to measure communication skills and social functioning. The Current Form of the measure was used in the present research, to assess the extent of the child's autistic behavior during the preceding three-month period (i.e., not as a diagnostic screening tool, but to assess current severity of symptoms). The measure consists of 40 items, and respondents answer *yes/no* to statements such as "Does she/he play any pretend or make-believe games?" and "Does she/he usually look at you directly in the face when doing things with you or talking with you?". Severity of autism symptoms has previously

been shown to be independently associated with parental well-being (Tobing & Glenwick, 2002). The SCQ was included as a control variable, and to avoid unnecessary measurement we asked only that the child's primary caregiver completed the measure. The SCQ displayed high internal consistency (Kuder-Richardson coefficient for the present sample = .81).

The Vineland Adaptive Behavior Scales - 2nd Edition (VABS II; Sparrow, Cicchetti & Balla, 2005) was used as a measure of the child's adaptive functioning, and was also included as a potential control variable. The VABS II is administered as a semi-structured interview, and was conducted over the telephone, with parents who identified themselves as the child's primary caregiver. The VABS II consists of items arranged in developmental sequence, measuring behaviors across four domains: socialization, communication, daily living skills and motor skills (motor skills domain only administered to children below the age of 7). An overall adaptive behavior composite score was used in the current analyses.

Parental well-being measures

The Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) was used to measure parental distress. The 14-item instrument was originally constructed to allow quick measurement of anxiety and depression in hospital settings, but has since been used widely in community research, including with parents of children with autism (Ryderbrandt, 1991; Hastings, 2003). Seven items measure anxiety and seven items measure depression, providing subscale scores, which were used in the current research. Respondents rate statements on a four-point scale; for example "I have lost interest in my appearance" is rated as either *definitely, I don't take as much care as I should, sometimes,* or *not at all;* and "I can sit at ease and feel relaxed" is rated as either *definitely, usually, not often,* or *not at all.* Internal consistency (Cronbach's α) in the

current study was .85 for maternal anxiety, .78 for maternal depression, .86 for paternal anxiety, and .71 for paternal depression.

The Parent and Family Problems Subscale of The Questionnaire on Resources and Stress-Short Form (QRS-F; Friedrich, Greenberg & Crnic, 1983) was used to measure general parenting stress associated with the child with ASD. This 20-item measure includes five items relating to depression (Gidden & Floyd, 1997), which were excluded from analysis in the current study to avoid measurement overlap, as depression was measured separately with the HADS. Respondents rated the remaining 15 items as *true* or *false*. Example items include "There is a lot of anger and resentment in our family" and "In the future, our family's social life will suffer because of increased responsibilities and financial stress". The QRS-F has previously been used in research with parents of children with ASD, with good reliability obtained (Honey, Hastings & McConachie, 2005). Internal consistency (Kuder-Richardson coefficient) for the 15 item QRS-F scale in the current sample was .89 for mothers and .92 for fathers.

The Positive Gain Scale (PGS; Pit-ten Cate, 2003) is a seven-item instrument measuring positive perceptions related to parenting a child with disability. Parents' perceived benefits to themselves personally and as a family are measured, with respondents choosing whether they *strongly agree, agree, not sure, disagree,* or *strongly disagree* with statements such as "Since having this child I have a greater understanding of other people" and "Since having this child, my family has become closer to one another". Previous research has indicated good levels of internal consistency for the PGS with mothers and fathers of children with developmental disabilities (Griffith et al., 2011; MacDonald et al., 2010). A total positive gain score was used in the current study (lower scores indicate higher levels of positive gain), with good internal consistency (Cronbach's α) at .86 for mothers and .87 for fathers.

Mindfulness and acceptance measures

In the present research, we explored two different measures of mindfulness. We developed a mindful parenting scale (situational measure of mindfulness) for this research. We also included a well-established general mindfulness measure for two main reasons: (a) To provide some validity data on the new mindful parenting scale, and (2) To allow mindfulness to be tested as a mediator using an established scale as well as the new scale.

The Five Facets Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer & Toney, 2006) is a well-established 39-item instrument, measuring a general tendency to be mindful in day-to-day life (i.e., a dispositional measure of mindfulness). The FFMQ measures five underlying constructs of mindfulness, identified by Baer et al. (2006): observing (noticing experiences), describing (labeling experiences with words), acting with awareness (deliberately attending to moment-to-moment behaviors and activities), non-reactivity (to inner experience), and accepting without judgment (taking a non-evaluative stance towards inner experience). Respondents rate statements as either *never or very rarely true, rarely true, sometimes true, often true,* or *very often or always true.* Example items include: "When I'm walking, I deliberately notice the sensations of my body moving" (observe); "I can easily put my beliefs, opinions, and expectations into words" (describe); "When I do things, my mind wanders off and I'm easily distracted" (acting with awareness); "In difficult situations, I can pause without immediately reacting" (non-reactivity); "I tell myself I shouldn't be feeling the way I'm feeling" (non-judging). The FFMQ has shown good psychometric properties when used with a variety of populations, including meditating and non-meditating samples (Baer et al., 2008). Five subscale scores can be derived from the scale, and a total score, which was used in the current study. Internal consistency (Cronbach's α) of the total score in the current sample was high for mothers (.93) and fathers (.92).

The Bangor Mindful Parenting Scale (BMPS) is a 15-item instrument first tested within the current study, to measure mindfulness explicitly in the parenting role. The BMPS is based on the FFMQ, with three items representing each of the five underlying constructs encompassing mindfulness identified by Baer et al (2006). Each items has been modified to relate specifically to parenting. We did not intend for the measure to be scored at a subscale level at this stage. Rather, we used a total score representing a general tendency to be mindful in the parenting context. A full copy of the scale is available in the Appendix. Internal consistency (Cronbach's α) for a total mindfulness in parenting score obtained in the current study was .79 for mothers and .78 for fathers. We also found encouraging results for the construct validity of the scale, with strong correlations between the BMPS and FFMQ for fathers (r = .75) and mothers (r = .77). The BMPS was also highly correlated with the acceptance measure for mothers (r = .70) and fathers (r = 71), as were the FFMQ and acceptance measure (r = .65 for mothers, r = .72 for fathers).

The Acceptance and Action Questionnaire-Intellectual Disability Parent version (AAQ-ID; MacDonald et al., 2010) was used in the current study to measure psychological acceptance in relation to parenting a child with ASD. The AAQ-ID is an eight-item tool adapted from the 'Acceptance and Action Questionnaire-II' (Bond et al., 2011), with items re-worded to refer specifically to children with disability. For the current study, items were re-worded to refer to children with ASD but otherwise the measure was unchanged. Respondents rate statements on a 7-point scale, ranging from *never true* to *always true*. Example items include "It's OK if I remember some of the difficult times I've had parenting my child with ASD" and "It seems like most people who have children with ASD are handling their lives better than I am". Good levels of internal consistency for a total acceptance score were obtained in the current study for mothers (.91) and fathers (.92).

Procedure

The Research Ethics and Governance Committee at Bangor University approved the study protocol. Invitations to participate were sent to families who had previously taken part in an ASD family research study focused on sibling well-being (Petalas et al., 2012). Potential participants were contacted once, by surface mail, and were asked to return a reply-slip if they were interested in participating in the current study. When reply slips were returned, a Participant Information Sheet, Research Consent and Contact Form, and Questionnaire Pack were mailed to participants, to be returned in a prepaid envelope. Of the 215 invitations that were distributed, 71 families (including 39 mother-father couples) provided written informed consent and returned the completed questionnaires (overall response rate of 33%). Participants were then contacted by telephone to complete the VABS II. In families where both parents participated, parents who identified themselves as being the child's primary caregiver completed the VABS. In those 39 families where both parents participated, two VABS interviews were conducted with a father and 37 with mothers.

Results

Data analysis approach

Initial analysis involved examining Pearson correlations (and *t* tests for dichotomous variables such as marital status, whether or not the mother's partner participated in the research, and child gender) between all demographic and child variables (current severity of autism symptoms, and adaptive behavior) and parental outcome measures, for mothers and fathers separately. This step was used primarily to identify control variables for the regression models. For model parsimony, and to accommodate the sample size, it was not possible to include all background variables potentially related to the outcome measures in the analyses. The inclusion in all analyses of child behavior problems and psychological variables was guided by theory and

consistent with our research questions. However, other variables were selected for inclusion using empirical criteria only. Missing data were omitted on a pairwise basis for the correlation analyses.

The main analyses employed hierarchical linear regression, allowing initial examination of the mediation hypothesis according to the causal steps criterion (Baron & Kenny, 1986). In the first step of each regression model, the background variables identified in the univariate analysis were added to the models. Where a background variable did not have a significant association with a parental outcome variable as identified in the initial univariate analyses, it was not included in the regression models. In the second step of each regression model, parental well-being was regressed on child behavior problems (SDQ total difficulties score, as rated by the mothers in maternal regression models, and rated by fathers in paternal models), accounting for the control variables included at Step 1. Eight models were fitted, one for each parental outcome (anxiety, stress, depression, and positive gain), separately for mothers and fathers. In the third step of the regression analyses, process variables were added as predictors (separate models for each potential mediator/process variable).

Evidence of a mediated effect was considered present if child behavior problems was a significant predictor of the outcome at Step 2 of the regression analysis, and became a non-significant predictor (or had a lower beta weight) at Step 3 with the potential mediator variable becoming a significant predictor of the well-being outcome. Where these criteria were satisfied, further analysis was needed to assess whether any mediating effects were statistically significant. The Aroian version of the Sobel test was used in the current analysis, as recommended by Baron and Kenny (1986), to test whether the indirect (mediation) effect of the process variable on the outcome variable was significantly different from zero. A listwise deletion approach to the mediation analysis was adopted.

Regression models and analysis of mediation effects

Bivariate correlations between parental outcome measures and demographic and child variables are shown in Table 1. Statistically significant associations, or those with a correlation coefficient equal to or above .25 were selected for inclusion at Step 1 of the regression analyses. We chose to select variables based on statistical significance or the strength of the correlation because of the difference in sample size of mothers and fathers and because the size of a correlation coefficient is more meaningful than statistical significance. Child gender was explored using independent samples *t*-test, and was only significantly associated with paternal depression (t (35) = -2.153, p = .038), with fathers of sons scoring significantly higher than fathers of daughters on the depression measure. No demographic or child variables were significantly associated with maternal anxiety and so no control variables were included in the analysis of those data.

A summary of the regression models for each parental well-being measure is displayed in Table 2 for mothers, and Table 3 for fathers. Following the inclusion of control variables at Step 1, the addition of behavior problems as predictor at Step 2 improved the proportion of variance explained for each dependent variable, except for paternal positive gain. Child behavior problems emerged as a significant independent predictor of maternal anxiety, depression, and stress; and of paternal depression and stress. Child behavior problems was not significantly associated with paternal or maternal positive gain, nor with paternal anxiety.

The addition of the process variables improved the proportion of variance explained in each model, except in relation to general mindfulness and paternal stress. For maternal models, general mindfulness, mindful parenting, and psychological acceptance significantly predicted anxiety and depression; and mindful parenting and acceptance significantly predicted stress. For paternal outcomes, mindful parenting and

acceptance significantly predicted depression; and acceptance significantly predicted stress. At this final stage of the regression analyses, child behavior problems became a non-significant predictor of depression and anxiety for mothers, for all process variable cases. Child behavior problems remained a significant predictor of mothers' stress, even though regression coefficients and significance values had reduced. For fathers, child behavior problems became a non-significant predictor in each depression model, but remained significant in each stress model (with reduction in regression coefficients in all three cases).

The regression models suggest that dispositional general mindfulness, situational mindfulness whilst parenting, and psychological acceptance in the parenting role, mediate the relationship between child behavior problems and depression, anxiety and stress (expect for general mindfulness and stress) in mothers. For fathers, mindful parenting and acceptance appear to mediate the relationship between child behavior problems and depression, and acceptance alone appears to mediate the relationship with stress. To assess whether these mediating effects were statistically significant, the Aroian version of the Sobel test was administered. For mothers, dispositional general mindfulness had significant mediation effects in relation to depression ($z = 2.03$, $p = .04$) and anxiety ($z = 2.49$, $p = .01$); mindful parenting also had significant mediating effects in relation to depression ($z = 2.34$, $p = .02$) and anxiety ($z = 2.49$, $p = .01$); acceptance had mediating effects in relation to depression ($z = 2.55$, $p = .01$), anxiety ($z = 2.91$, $p < .001$), and stress ($z = 2.69$, $p < .001$). For fathers, the only significant mediation effect was found in relation to acceptance and depression ($z = 2.10$, $p = .04$). These statistical tests of mediation effects were only conducted when there was a prime face case for the presence of a mediated effect based on Baron and Kenny's (1986) criteria.

There was no evidence that acceptance or mindfulness mediated the relationship between child behavior problems and positive gain scores (in either parent). Child

behavior problems were unrelated to parental positive gain in the initial stages of analyses. However, there were main effect relationships in that general mindfulness and mindful parenting were significantly independently associated with positive gain in fathers, and general mindfulness and psychological acceptance were significantly 2independently associated with positive gain in mothers.

Discussion

As hypothesized, and consistent with previous research (MacDonald et al., 2010, Weiss et al., 2012), we found psychological acceptance mediated the relationship between child behavior problems and parental well-being. Significant mediation effects were found in relation to maternal anxiety, depression, and stress, as well as paternal depression. To our knowledge, this is the first study to investigate the potential mediating effects of both dispositional general mindfulness, and situational mindfulness when parenting, in mothers and fathers of children with ASD. We found general mindfulness and mindful parenting had significant mediation effects in relation to maternal anxiety, depression, and stress. Results were less robust in relation to paternal well-being. The sample size was small for fathers, and caution is needed when drawing inferences from these data. However, previous research has also suggested different patterns of associations for maternal and paternal well-being (e.g., Davis & Carter, 2008; Jones, Totsika, Hastings & Petalas, 2012). More research is needed to address whether different mediation processes are characteristic for mothers and fathers.

Consistent with previous research, the level of the child's behavior problems was a significant predictor of psychological distress for both mothers and fathers, whilst being unrelated to mothers' and fathers' positive perceptions (Hastings & Taunt, 2002; Hastings et al., 2005; Jones et al., 2012). For both mothers and fathers, child behavior problems remained a significant predictor of parental stress after the inclusion of all potential mediator variables.

Although not performing a mediation function, mindfulness and acceptance were significantly associated with positive gains for mothers and fathers, with parents who reported increased mindfulness and acceptance also reporting greater levels of positivity in relation to their child with ASD. A potential mechanism for this association is that parents who are more mindful (i.e. less judgmental of experiences, less reactive, and more aware of internal processes) and more accepting of distressing thoughts and feelings, may be more able to positively embrace their circumstances. A recent intervention study by Benn et al. (2012) found parents (and teachers) of children with developmental disabilities who participated in mindfulness training showed greater self-compassion and greater empathic concern and forgiveness for others, which the authors describe as "an enhancement of positive psychological functioning" and "enhanced relational competence" (p.7).

Previous research had highlighted the importance of measuring psychological process variables specifically in relation to parenting the child with a disability (Lloyd & Hastings, 2008). A measure of psychological acceptance in this context was already available (MacDonald etr al., 2010). However, to measure mindfulness specifically in the parenting role, a new measure was developed and used for the first time in the current study (BMPS; see Appendix). Initial pilot data for the new measure are promising, with good levels of reliability and some evidence of validity obtained for mothers and fathers. Further research with this scale is needed to examine additional psychometric properties, especially test-retest reliability and further aspects of validity.

In the current study, the measurement of mindfulness both dispositionally and situationally in the parenting context yielded similar results: both constructs mediated the impact of child behavior problems on maternal negative outcomes, whilst neither construct mediated the impact on paternal outcomes. One explanation for this is that both mindfulness measures were highly correlated for mothers and fathers, indicating

that parents who are generally mindful also seem to be mindful in the parenting context. A reasonable question is whether measurement at both the situational and general level is needed. In research relating to parenting, a situational measure alone may be sufficient, and the measure developed in the current study is quick to administer and has displayed good psychometric properties. However, further theoretical development and research is needed to more fully understand the relationship between dispositional and situational mindfulness, and whether the processes measured in the current study are part of a latent mindfulness construct. Most significantly, the present study was cross-sectional and so we had no data on the stability or otherwise of mindful parenting. Longitudinal research designs are also needed to properly establish whether mindfulness or acceptance process act as mediators of parent psychological distress over time.

The current data have both theoretical and practical implications. That mindfulness and acceptance processes may act as mediator variables for parental (perhaps especially maternal) psychological distress contributes to an understanding of how and why some parents adjust more effectively than others. Coupled with the results of previous research on acceptance and mindfulness processes, these results support the potential utility of mindfulness-based and acceptance-based interventions for parents, particularly mothers, of children with ASD. Evidence supporting such interventions is already emerging (e.g. Benn et al., 2012; Blackledge & Hayes, 2006; Ferraioli & Harris, 2012; Singh et al., 2006; 2007). However, research on mindfulness and acceptance interventions is in its infancy, and further, controlled studies are needed. In addition, researchers need to explore whether the process variables targeted by these interventions do in fact mediate intervention outcomes for parents. The measures used in the current study may be useful is this endeavor.

There are a number of limitations to the current study. The sample size was modest, particularly for fathers. Therefore, caution is needed when interpreting these results, and replication is needed with a larger sample size. The response rate was low at 33%, and it is questionable whether the sample was representative of families caring for a child with an ASD living in the UK given that parents were originally recruited via an autism charity. Therefore the generalizability of the results may be limited. ASD status was also not confirmed with a diagnostic screening tool. Instead, parents were asked to provide their child's diagnostic label and details regarding who made the diagnosis and when the diagnosis was given. That mothers alone completed measures of the child's autism symptoms and level of adaptive functioning is a further weakness, because maternal ratings may not accurately represent fathers' experiences of their child's behaviors. Finally, the study design was cross-sectional and causality cannot be inferred. At present, it is unclear whether higher levels of mindfulness and acceptance lead to greater adjustment, or whether better adjusted parents have a greater tendency to be more mindful and accepting (or both).

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Table 1

Correlations Between Demographic and Child Variables and Parental Well-Being Measures

	Mothers								Fathers							
Variable	Anxiety		Depression		Stress		Positive Gain		Anxiety		Depression		Stress		Positive Gain	
	r	n	r	n	r	n	r	n	r	n	r	n	r	n	r	n
Socio-economic profile	-.18	70	-.31**	71	-.27*	65	-.05	71	-.26	38	-.15	37	-.14	37	.04	39
Child age	-.01	70	-.02	71	-.05	65	-.02	71	-.07	38	.19	37	.05	37	.08	39
Carer age	.05	70	.17	71	.20	65	.09	71	-.01	37	.30	36	.27	36	.09	38
Total N of children in the family	.16	70	-.03	71	.03	65	-.15	71	.01	38	-.39*	37	-.14	37	.01	39
Length of time since diagnosed	-.13	68	-.12	69	-.15	64	-.39**	69	-.17	38	-.04	37	-.20	37	-.30	39
Autism symptoms (SCQ)	-.02	70	.01	71	.16	65	-.18	71	.21	34	.06	33	.07	34	-.14	35
Adaptive functioning (VABS)	.16	60	.13	61	-.14	56	.07	61	.31	34	.23	33	.06	33	.13	35

*p<.05.**p<.01.

Table 2
Summary of Regression Results for Maternal Outcomes

	Anxiety			Depression			Stress			Positive Gain		
Predictor	β	p	R^2 (N in analysis)	β	p	R^2 (N in analysis)	β	p	R^2 (N in analysis)	β	p	R^2 (N in analysis)
Step 1			-			.081 (N = 71)			.058 (N = 65)			.135 (N = 69)
Socioeconomic profile	-	-		-.307	.009		-.270	.030		-	-	
Length diagnosed	-	-		-	-		-	-		-.385	.001	
Step 2			.069 (N = 70)			.137 (N = 71)			.234 (N = 65)			.142 (N = 69)
Behavior problems	.288	.016		.269	.022		.446	<.001		.141	.226	
Step 3 (a)			.313 (N = 65)			.348 (N = 66)			.253 (N = 61)			.257 (N = 65)
Behavior problems	.078	.485		.108	.321		.405	.001		.067	.568	
Mindfulness	-.546	<.001		-.498	<.001		-.187	.136		-.362	.003	
Step 3 (b)			.190 (N = 66)			.227 (N = 67)			.309 (N = 61)			.186 (N = 65)
Behavior problems	.078	.553		.109	.395		.349	.009		.078	.564	
Mindful parenting	-.418	.002		-.376	.006		-.275	.041		-.245	.074	
Step 3 (c)			.295 (N = 69)			.305 (N = 70)			.441 (N = 64)			.233 (N = 68)
Behavior problems	.085	.450		.095	.401		.256	.018		.006	.961	
Acceptance	-.522	<.001		-.467	<.001		-.502	<.001		-.365	.005	

Note: Control variables entered at Step 1 were retained in all stages of analyses.

Table 3
Summary of Regression Results for Paternal Outcomes

	Anxiety			Depression			Stress			Positive Gain		
Predictor	*b*	*p*	R^2 (N in analysis)	*b*	*p*	R^2 (N in analysis)	*b*	*p*	R^2 (N in analysis)	*b*	*p*	R^2 (N in analysis)
Step 1			.073 (N = 34)			.238 (N = 36)			.043 (N = 36)	-	-	.037 (N = 36)
Child gender	-	-		.357	.022		-	-		-	-	
Total children	-	-		-.311	.065		-	-		-	-	
Father age	-	-		.169	.308		.265	.119		-	-	
Length diagnosed	-	-		-	-		-	-		-.254	.135	
Adaptive behavior		.068		-	-		-	-		-	-	
Socioeconomic profile	-.178	.298		-	-		-	-		-	-	
Step 2			.149 (N = 34)			.317 (N = 36)			.434 (N = 36)			.016 (N = 36)
Behavior problems	.340	.062		.311	.038		.630	<.001		.093	.596	
Step 3 (a)			.172 (N = 31)			.362 (N = 34)			.377 (N = 32)			.191 (N = 33)
Behavior problems	.368	.049		.293	.058		.583	<.001		.105	.533	
Mindfulness	-.272	.124		-.274	.088		-.095	.535		-.436	.012	
Step 3 (b)			.170 (N = 33)			.434 (N = 35)			.453 (N = 35)			.208 (N = 35)
Behavior problems	.340	.073		.199	.174		.565	<.001		-.020	.906	
Mindful parenting	-.097	.591		-.360	.017		-.182	.204		-.483	.008	
Step 3 (c)			.210 (N = 33)			.428 (N = 32)			.467 (N = 34)			.112 (N = 34)
Behavior problems	.217	.304		.073	.648		.422	.010		-.012	.952	
Acceptance	-.271	.203		-.459	.007		-.333	.038		-.400	.064	

Note: Control variables entered at Step 1 were retained in all stages of analyses.

Appendix

Bangor Mindful Parenting Scale

The following statements describe different ways parents may interact with their children. Please circle the response that describes what is generally true for you when parenting your child with an ASD. Remember, there are no right or wrong answers, and please answer according to what *really reflects your experience*, not what you think you should be experiencing.

	never true	sometimes true	often true	always true
1. I rush through activities with my child without being really attentive to him/her.	0	1	2	3
2. In difficult situations with my child I can pause without reacting straight away.	0	1	2	3
3. I tend to make judgments about whether I am being a good or a bad parent.	0	1	2	3
4. I pay attention to how my emotions affect the way I act towards my child.	0	1	2	3
5. I have trouble thinking of the right words to express how I feel about my child.	0	1	2	3
6. It seems I am "running on automatic" without really being aware of what I'm doing with my child.	0	1	2	3
7. When I have upsetting thoughts about my child, I am able to just notice them and let them go.	0	1	2	3
8. I think some of my emotions towards my child are bad and I shouldn't be feeling them.	0	1	2	3
9. I stay aware of my feelings towards my child.	0	1	2	3
10. Even when I'm feeling terribly upset with my child, I can find a way to put it into words.	0	1	2	3
11. I don't pay attention to what I'm doing with my child because I'm daydreaming, worrying or distracted.	0	1	2	3
12. When I get upset with my child I am able to keep calm.	0	1	2	3
13. Some of the thoughts I have about my child are negative and I say to myself that I shouldn't be thinking that way.	0	1	2	3
14. I am aware of how my moods affect the way I treat my child.	0	1	2	3
15. I'm good at finding the words to describe my feelings about my child.	0	1	2	3

Reverse score items: 1, 3, 5, 6, 8, 11, 13.

Items in five domains as reflected in the Five Facet Mindfulness Questionnaire (not yet established as potential sub-scales):

Acting with awareness: items 1, 6, 11
Non-reactivity: items 2, 7, 12
Non-judgment: items 3, 8, 13
Observing: items 4, 9, 14
Describing: items 5, 10, 15