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Social support is associated with blood pressure responses in parents caring for children with developmental disabilities

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ABSTRACT

The present study tested whether parents caring for children with developmental disabilities would have higher blood pressure compared to parents of typically developing children (controls). It also examined the psychosocial factors underlying this observation. Thirty-five parents of children with developmental disability and thirty controls completed standard measures of perceived stress, child challenging behaviours and social support and wore an ambulatory blood pressure (BP) monitor throughout the day, for one day. Relative to controls, parents caring for children with developmental disabilities reported poorer psychosocial functioning and had a higher mean systolic BP. Of the psychosocial predictors, only social support was found to be predictive. Moreover, variations in social support accounted for some of the between group differences with the β for parental group attenuated from .42 to .34 in regression analyses. It appears that social support may influence blood pressure responses in parental caregivers. Finally, our findings underscore the importance of providing psychosocial interventions to improve the health of family caregivers.

1. Introduction

Recent research has found parents caring for a child with a developmental disability (e.g. Autism, ADHD) to have poor immune and neuroendocrine functioning (Lovell, Moss, & Wetherell, 2012a; Lovell, Moss, & Wetherell, 2012b). Compared to parents of children without disabilities, parents caring for children with developmental disabilities (e.g. Autism, Down syndrome) have been found to have lower antibody responses to medical vaccinations (Gallagher, Phillips, Drayson, & Carroll, 2009a; Gallagher, Phillips, Drayson, & Carroll, 2009b), higher levels of proinflamatory cytokines (Lovell et al., 2012a), and greater disruptions of cortisol patterns (Seltzer et al., 2010). In fact, perturbations in these immune and neuroendocrine systems are perhaps some of the likely mechanisms underlying the poor health seen in these parents (Lach et al., 2009; Miodrag & Hodapp, 2010).

Although some parents of children with developmental disabilities cope very well and derive great benefit from their caring role others struggle physically, psychologically and socially (Lach et al., 2009; Lovell et al., 2012a; Lovell et al., 2012b), and, usually, it is along these dimensions where they differ from control parents (Dunn, Burbine, Bowers, & Tantleff-Dunn, 2001; Gallagher, Phillips, Oliver, & Carroll, 2008; Lovell et al., 2012b; Raina et al., 2005). Further, research in these families has identified a number of key factors which include child challenging behaviours and perceived stress, to be negatively associated with psychological well-being and poor physiological functioning in parents (Brehaut et al., 2004; Dunn et al.,

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2001; Eisenhower, Baker, & Blacher, 2005; Floyd & Gallagher, 1997; Gallagher et al., 2009a; Raina et al., 2005; Seltzer et al., 2010; White & Hastings, 2004).

In contrast, greater social support has been found to be a strong predictor of better psychological adjustment (Brehaut et al., 2004; Dunn et al., 2001) and neuroendocrine functioning (Lovell et al., 2012b) in these parents. Moreover, the beneficial effect of social support on cardiovascular health is also well-established (for review see Uchino, Cacioppo, & Kiecolt-Glaser, 1996). Thus, given the nature of association that already exists between these psychosocial factors and the psychological and physiological health of these parents, they are likely candidates to examine in this context. To date, we know of no study that has objectively examined the blood pressure responses, or its psychosocial antecedents, in these particular parents.

Given the consensus that poor physiological functioning is associated with parental caregiving of a child with a developmental disability, it is perhaps surprising that indices of cardiovascular system functioning (e.g. blood pressure and heart rate) have not been studied in this context. This becomes more pertinent when one considers that older caregivers of dementia patients are at risk for increased coronary heart disease and stroke (Haley, Roth, Howard, & Safford, 2010; Lee, Colditz, Berkman, & Kawachi, 2003; Schulz & Beach, 1999), with increases in blood pressure one of the likely underlying mechanisms (Chobanian et al., 2003; von Kanel et al., 2008). Moreover, like older caregivers, parents providing extraordinary care to children with developmental disabilities may also be at increased risk of elevated blood pressure. In fact, one recent study found high blood pressure to be more prevalent in women caring for adults with developmental disabilities compared to women in the general population (Yamaki, Hsieh, & Heller, 2009), albeit this was self-report blood pressure. Indeed, ambulatory monitoring of blood pressure is regarded as the gold standard for the prediction of risk related to high blood pressure and it predicts clinical outcome better than conventional blood-pressure measurements (for review see Pickering, Shimbo, & Hass, 2006).

Consequently, we compared the ambulatory blood pressure responses in parents of children with developmental disabilities to a control group, i.e. parents caring for typically developing children. The psychosocial antecedents of perceived stress, child challenging behaviours and social support that may underlie these observations were also explored. Based on the above evidence, it was predicted that parents caring for children with developmental disabilities would (a) report great levels of perceived stress and lower social support and (b) have higher blood pressure responses relative to control parents, and (c) that this difference in blood pressure would be explained by group differences in levels of stress and social support.

2. Methods

2.1. Participants and procedure

Thirty-five parents of children with developmental disabilities and thirty parents of typically developing children (controls) participated. All parents were healthy and were excluded if they had medical conditions (e.g. diabetes) or were taking medication known to influence blood pressure (e.g. anti-hypertensives). Parents of children with developmental disabilities were recruited via adverts placed in syndrome specific newsletters, special need schools and through word of mouth. In total, 50 parents expressed interest in participating and of these, 35 participated. Those who did not participate cited time-pressures and intrusion of blood pressure monitor on daily life as their reasons. Inclusion criteria for these parents were: providing home care for a child with autism, Down syndrome or other types of developmental disability (e.g. Cornelia de Lange, Smith-Magenis syndromes). Thirteen of these parents self-reported caring for a child with autism, with the remaining reporting caring for a child with other syndromes types. Controls were parents caring for typically developing children recruited via local schools, word of mouth and university advertisements. Forty responded to our call for volunteers and thirty actually participated; again, intrusion of monitor was cited for non-participation. The study was approved by the relevant Research Ethics Committee and all participants gave informed consent.

2.2. Design and procedure

This was a between groups design involving multiple blood pressure measurements taken across a 24-h period: cardiovascular readings, pulse rate (PR), systolic (SBP) and diastolic blood pressure (DBP) were taken every hour from 8:00 AM to 22:00 PM and then every two hours thereafter until 6:00 AM. An average of 15 readings was obtained from parents over the course of the day which was a week day (Monday morning to Thursday night). On the morning of participation, parents were fitted with an ambulatory blood pressure monitoring device, which was pre-programmed for set time periods beforehand, and given a pack of psychosocial questionnaires to complete; questionnaires and monitors were collected the following morning. The choice of measurement times was dictated by wishing to capture both the day and night time variation in blood pressure with reduced measurement at night to limit sleep interruptions.

2.3. Demographic and psychosocial assessment

Participants' socio-demographics were assessed by standard questions. Participants were asked to specify the occupation of the head of household, which was scored, 1, professional (e.g. physician), 2, managerial (e.g. director), 3, non-manual/clerical (e.g. secretary), 4, manual (e.g. carpenter), 5, semi-skilled manual, (e.g. bus driver), 6, unskilled manual (e.g. labourer)