Appraisal, coping and social support as predictors of psychological distress and
parenting efficacy in parents of premature infants.

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RUNNING HEAD: Predictors of adjustment in parents of premature infants

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Abstract

This study examined the relationship between how parents appraised the premature birth of their infant, their coping strategies, social support and psychological well-being and parental efficacy pre- and post-discharge of their low-risk premature infant from hospital. 25 couples completed a survey immediately prior to the discharge of their infant and approximately three months later. The strongest relationships were among appraisal and both psychological distress and parental efficacy with post-discharge psychological distress and parental efficacy related most strongly to appraising the situation as challenging with potential for growth pre-discharge. The results suggest identifying the way parents appraise the situation may be useful for identifying at risk families and informing interventions to assist families experiencing difficulties.

Keywords: Stress, appraisal, coping, parents, premature infants

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The experience of having a premature infant is highly stressful (Affleck & Tennen, 1991; Eriksson & Pehrsson, 2005; Griffin, Wishba, & Kavanaugh, 1998; Kaaresen, Ronning, Ulvund, & Dahl, 2006) and has been described by many parents as “the worst major life event they have experienced” (Whitfield, 2003, p.186). The strain experienced by parents of premature infants is significantly higher than those of full-term infants (Affleck, Tennen, Allen, & Gershman, 1986; Carter, Mulder, Bartram, & Darlow, 2005; Taylor, Kelin, Minich, & Hack, 2001), as the experience of birth is often not prepared for adequately, is contrary to parents’ expectations regarding the birth of their child (Whitfield, 2003) and requires that parents cope with the stress of their infant’s medical condition and the technologically intensive clinical environment. Mothers of premature infants have been found to be at greater risk of psychological distress than mothers of full-term infants one month after the birth of their child (Davis, Edwards, Mohay & Wollin, 2003), with ten percent of mothers of premature infants in one study experiencing severe symptoms of psychological distress neonatally and one third experiencing clinically meaningful levels of depression and anxiety at this point in time (Singer et al., 1999). Psychological distress in parents more generally in turn predicts parental self-efficacy (a strong predictor of positive parenting) (Freeman, 2007).

The transition between hospital and home care of the premature infant has been suggested as a further avenue for research to determine the extent to which the stress of premature birth continues once the infant is discharged (Miles, Carlson & Funk, 1996; Miles & Holditch-Davis, 1997; Shields-Poe & Pinelli, 1997). Most research focuses on stress and coping during the acute phase of the neonatal intensive

care experience (Shields-Poe & Pinelli, 1997) with later times in the experience, such as immediately prior to discharge and the initial period at home, often overlooked in research. Preliminary research suggests, however, that this is another critical time in the experience of having a premature infant, as parents finally assume complete responsibility for their child without the assistance of nursing staff and move from a highly controlled environment to one that is substantially less controlled (Affleck et al., 1986; Kenner & Lott, 1990; Miles & Holditch-Davis, 1997). Parents experience a mix of both positive and negative emotions at the prospect of taking their infant home, particularly in relation to their perceived ability to care for the infant (Kenner & Lott, 1990; Redshaw, 1997; Shellabarger & Thompson, 1993), judgements which are central to parental efficacy (de Montigny & Lacharite, 2005). Feelings of fear, anxiety, low self-esteem, failure and an inability to cope have been described by parents as accompanying the happiness in taking their child home (Broedsgaard & Wagner, 2005; Kenner & Lott, 1990; Shellabarger & Thompson, 1993). Moreover, premature infants are perceived as more difficult to parent than full-term infants, at least for the first year of life (Gennaro, Tulma, & Fawcett, 1990; Gottwald & Thurman, 1990). Thus, the birth and subsequent care of a premature infant may challenge and negatively affect both the psychological health of parents and their emerging sense of efficacy as a parent. To date there has been little focus on the latter.

While some studies have included a cross section of families with premature infants from higher to lower risk, most research in this field has focused upon the experiences of parents of infants who are considered high risk. By this we mean very low birth weight (<1500gms) or extremely low birth weight, <1,000gs (World Health Organization, 1992). In these groups there is higher morbidity in both the short and

long-term (Gennaro et al., 1990; Affleck, 1991) although more generally low birthweight (<2,500 gs) is a risk factor (Laws, Grayson, & Sullivan, 2006). Lower risk premature infants are those who are low birthweight (1500g – 2,500) and have no significant respiratory illness and no congenital abnormalities or neonatal infections. Premature infants in this group are most likely to have a gestational age of >30 weeks. Such families have rarely been the focus of longitudinal research (Carter et al, 2005) yet these parents have also experienced stress and disruption to the early stages of parenting. It is not known how quickly the effects of this disruption dissipate for these parents, nor what factors help these parents adjust. The aim of this study was to examine predictors of psychological distress and parenting efficacy for parents of low risk premature infants during the transition home, as well as identifying the level of psychological distress and parenting efficacy of these parents prior to and subsequent to the discharge of their infant. Psychological distress and parenting efficacy have both been found to predict parental competence (Jones & Prinz, 2005) and thus were selected as the outcome measures in the current study. Psychological distress and parenting efficacy are themselves related for parents of infants, although the direction of influence is unclear (Jones & Prinz, 2005).

The transactional model of stress and coping (Lazarus & Folkman, 1984) was used as the basis for this study, as it outlines key factors that mediate between a stressor and the outcomes for individuals and it has been widely used in the context of stress and coping of parents of premature infants (Lau & Morese, 2001). According to Lazarus and Folkman (1984, p.10), psychological stress is “a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being”. The relationship involves connections between cognitive appraisal and coping strategies,

as well as the moderating effect of social support. Although appraisal is commonly seen to precede coping strategies, these factors regularly overlap in a feedback loop and are often indistinguishable from each other (Lazarus, 1999). To date research on parents of premature infants has focused on psychological distress as the main outcome. We argue that as parental efficacy and psychological distress are related then this model should also identify predictors of parental efficacy.

The birth of a premature infant is a stressful event that parents then make an appraisal of. Cognitive appraisal is “an evaluative process that determines why and to what extent a particular transaction or series of transactions between the person and the environment is stressful” (Lazarus & Folkman, 1984, p.19). Primary appraisal involves the individual establishing if there is a goal at stake and the relevance of the transaction to one’s values, goals and beliefs and what the outcome of the encounter may be (Lazarus, 1999). Such appraisal may take one of three forms: irrelevant, benign-positive or stressful, and these appraisals are theorised to predict the person’s level of distress (Lazarus & Folkman, 1984). Stressful primary appraisals are of particular relevance to the current study and may be appraisals of harm/loss, threat or challenge. Harm/loss appraisals occur when physical or psychological damage has been sustained by the person, threat when harm or loss is anticipated and negative implications expected, and challenge where the individual focuses on the potential for positive gain or growth. At the time of discharge from the hospital both Affleck, Tennen and Rowe (1991) and Tracey (2000) suggest that an appraisal of threat is most likely as parents become more fearful of losing their infant as they assume complete responsibility without the assistance of medical staff. This assertion is, however, based on anecdotal evidence and will be tested in the current study. Secondary appraisal is a cognitive-evaluative process to determine what can be done about a

stressful situation. Secondary appraisal includes beliefs about the controllability of the situation (Peacock & Wong, 1990). Feldman Reichman, Miller, Gordon, and Hendricks-Munoz (2000) found that appraisals of threat and uncontrollability were associated with increased distress in mothers of VLBW infants post discharge, highlighting the potential importance of appraisals in this situation.

Following the appraisal of a situation as stressful the individual then begins to implement various ways of coping with this event (Lazarus & Folkman, 1984). There have been conflicting findings about the relationship between coping strategies and outcomes for parents of premature infants, in part due to the different ways in which coping has been operationalised. Affleck et al. (1991) examined the coping strategies used by parents of premature infants whilst their child was hospitalized in the Neonatal Intensive Care Unit and found that the most common coping strategies used by parents were seeking meaning and mobilizing support. Greater use of escapist strategies was associated with less positive mood at discharge whilst greater use of minimizing strategies was associated with more positive mood when taking the child home. Davis et al., (2003), on the other hand, found no relationship between coping and depressive symptoms in mothers of very premature infants, one month after birth. Seideman et al., (1997) reported that while parents found problem-based coping the most helpful coping strategy in the NICU environment this was to a lesser extent than parents with a child in a pediatric intensive care unit, although they don't explain this difference. Less research has examined coping post discharge, although Feldman Reichman et al. (2000) found that escape-avoidant coping had the strongest relationship with psychological distress for parents of VLBW infants. Coping strategies have also been suggested to predict parental efficacy, although only study has examined this and not in the context of a premature infant (see Barnett, Hall, &

Bramlett, 1990). The present study examined whether coping strategies pre-discharge were associated with psychological distress and parental efficacy pre- and post-discharge of the infant.

In addition to cognitive appraisal and coping, social support plays an important role in the experience of psychological stress and affects both appraisal and coping (Lazarus & Folkman, 1984). Social support is the “emotional, psychological, physical, informational, instrumental and material aid and assistance provided by others that directly or indirectly influences the behaviour of the recipient of these various kinds of resources” (Dunst, Trivette, & Hamby 1994, p.152). Weiss and Chen (2002) found that for mothers of premature infants perceived emotional support from family and friends was significantly related to her mental health and Pinelli (2000) found there was a stronger relationship between social support from family and friends and stress than between coping or being a first-time parent and stress for parents of premature infants. Social support has also been found to be more critical for mothers of premature infants than for mothers of full-term infants, with a lack of both general and spousal social support found to predict maternal distress only for mothers of premature infants (Singer et al., 1996). Feldman Reichman et al. (2000) found that satisfaction with support from their child’s physician was correlated with better psychological functioning for mothers of VLBW infants twelve months post discharge. Further research examining social support following discharge is particularly warranted (Miles et al., 1996), as May (1997) found that mothers expressed a strong desire for more support after discharge and Pinelli (2000) established that social support is available more often during the acute phase of having a premature infant than at any other time during the experience. The present study specifically focuses on the helpfulness of social support as Affleck et al. (1991)

found that it was satisfaction with support rather than the amount of support that predicted wellbeing. We also examined a range of sources of social support to determine if different sources of support had a stronger relationship with psychological distress and parental efficacy pre- and post-discharge of their infant.

In summary, the aim of this study was to examine how parents' appraisals of having a premature infant, their coping strategies and the helpfulness of different sources of social support predicted their psychological distress and their parental efficacy both immediately prior to discharge and 3 months after the discharge of their infant. The present study hypothesised that both primary and secondary appraisals would predict parental psychological distress and appraisals would also predict parental efficacy given its relationship with psychological distress (e.g., Freeman, 2007; Jones & Prinz, 2005). We also hypothesised that higher levels of support and use of coping strategies would predict lower psychological stress and higher parental efficacy. To date research has focused more on the role of social support and coping in adjustment for parents of premature infants than on appraisal. The present study also examines whether social support, coping strategies or appraisal are stronger predictors of psychological distress and parental efficacy in parents as their infant is discharged home.

Method

Participants

Participants were 25 couples who had a premature infant. The mean age of mothers was 30.96 years ($SD=6.39$) and the mean age of fathers was 33.84 years ($SD=7.35$). The average length of current relationship at the time of the infant's birth was 7.37 years and 17 couples were married, with the remainder in de facto relationships. Seventeen couples experienced a single birth and 8 couples had twins.

The mean weight of infants was 2002g (SD=475g). This was the first pregnancy for 15 mothers, and 8 couples had other children. Eleven mothers had had previous obstetric problems. The 25 couples were part of a sample of 31 couples and four mothers who were recruited in to the study. Only couples who completed both the pre-discharge and post-discharge questionnaires were included in the current study. There were no significant differences between couples who completed questionnaires both before and after discharge and participants who only completed the questionnaire pre-discharge on any of the measures described below.

Participants were recruited from the Special Care Nurseries of two major metropolitan hospitals and one regional hospital in Queensland Australia. Several exclusion criteria were applied to identify a sample of low risk premature babies, based on documented research evidence (Laws, Grayson, & Sullivan, 2006). Couples were excluded from the study if the mother was aged less than 20 years, there was demonstrable evidence of maternal drug or alcohol dependence or there was ongoing maternal illness, as each is a potentially confounding variable bringing its own risk to parents. Couples were also excluded if they had babies with a birth-weight of less than 1500grams, if gestational age was less than 30 weeks and if there was likelihood of ongoing illness for the infant. The percentage of eligible couples who participated in the study was 65%, 45% and 85% across the three different hospitals.

Materials

Participants provided a range of demographic information, including age, number of children, length of current relationship, history of serious physical or mental illness and previous maternal obstetric history.

Cognitive appraisal was measured using the Stress Appraisal Measure (Peacock & Wong, 1990). The measure has 6 sub-scales: threat, challenge, centrality,

controllable by self, controllable by others and uncontrollable by anyone. Each subscale is comprised of 4 items which participants respond to using a 5-point likert scale (1 = strongly disagree to 5 = strongly agree). The measure has acceptable internal consistency with alphas ranging from .65 to .90 and sound construct validity (Peacock & Wong, 1990). The measure also includes a scale measuring overall perceptions of the stressfulness of the situation.

Coping strategies were measured using the Coping Health Inventory for Parents (McCubbin et al., 1983), which consists of 44 coping strategies measuring three subscales: “maintaining family integration, cooperation and an optimistic definition of the situation”, “maintaining social support, self-esteem and psychological stability” and “understanding the medical situation through communication with other parents and consultation with the medical staff”. Participants indicated the degree of helpfulness of each strategy using a 4-point scale from zero (not helpful at all) to three (extremely helpful), or not applicable if the strategy was not used. The inventory has acceptable reliability (Cronbach’s alphas between .71 and .79 for the three subscales) and acceptable construct, discriminant and predictive validity (McCubbin et al., 1983). The scale measures strategies particularly associated with the hospitalization of a child, as well as more generic coping strategies.

The helpfulness of different sources of *social support* was measured using the 20-item Family Support Scale (Dunst et al., 1994). Participants indicated the helpfulness of various sources of social support on a 5-point likert scale, from zero (not helpful at all) to five (extremely helpful). Participants indicated “not available” if the source was not available to them. The 20 items form five subscales: ‘informal kinship’, ‘spouse/partner support’, ‘social organizations’, ‘formal kinship’, and

‘professional services’. This measure has good reliability, with an alpha of .79, and test-retest correlation of .91 for the total score and .75 for individual items (Dunst et al., 1994). The measure also has demonstrable content, convergent, discriminant and criterion validity. The Family Support Scale was designed specifically for use with families with young children experiencing difficulties (Dunst et al., 1994) and has been used with mothers of infants currently hospitalized in neonatal intensive care units (Feldman Reichman et al., 2000).

Partner parental support was measured more specifically using the spouse support sub-scale from the Parent Satisfaction Scale (Guildubaldi & Cleminshaw, 1985). The sub-scale asks about respondents’ satisfaction with the degree of assistance their partner provided for child rearing (e.g., “I feel good about the amount of time my partner can give to my child/children”). The items are responded to on a 4 point-scale 1= strongly disagree to 4 = strongly agree. The 10 item sub-scale has high internal reliability (alpha= .92) and sound construct validity (Guildubaldi & Cleminshaw, 1985).

Parental efficacy was measured using the Parent Expectations Survey (Reece, 1992). The scale asks parents how much they agree that they can perform a range of parenting tasks e.g., feeding of the baby, dealing with baby crying, meeting demands placed on me now baby is here. Participants responded to each item using a 4 point scale 1 = strongly disagree to 4 = strongly agree. The scale also included a not applicable response as parents may not have been undertaking some tasks while their infant was still hospitalised. The 20 item scale has good internal reliability (alpha .86-.91) and good concurrent and predictive validity (correlating moderately with “What being the parent of a baby is like” and maternal confidence in parenting respectively) (Reece, 1992).

Psychological distress was measured using the 12 item General Health Questionnaire (GHQ, Goldberg & Williams, 1988) that is used extensively in research on stress and coping. Participants were asked to describe how often they experienced 12 different psychological health symptoms on a 4-point scale (e.g., “Felt constantly under strain” 1 = not at all to 4 = much more than usual). The measure has good reliability and concurrent validity, although there is debate about whether it measures 1 or more factors (Kalliath, O’Driscoll, & Brough, 2004).

Procedure

Data were collected by two researchers at two separate time points. The first data collection point occurred in the week prior to the participant’s baby being discharged from hospital. The second data collection point occurred approximately 3 months post discharge.

Pre-discharge

The researcher was introduced to potential participants who met the inclusion criteria by a member of the medical staff, at which time the researcher briefly explained the project and provided the parent with an information brochure. After a couple indicated that they were interested in participating a meeting was scheduled between the researcher and the couple during the week prior to the baby’s discharge from hospital. The survey was completed individually either in a room close to the Neonatal Special Care Nursery. Three couples completed the questionnaire in the days immediately following discharge due to the baby being discharged with little prior warning. Those participants who completed the questionnaires after discharge were reminded to answer the question in reference to how they were feeling in the week prior to taking their baby home and their responses were not significantly different to the remaining parents on any measure. Additionally, participants

completed a short semi-structured interview individually with the researcher, after completing the survey, which focused on their experiences as parents, and their couple relationship. This interview was not used in the current study.

Post-discharge

Participants were contacted by the research team approximately three months following their baby's discharge from hospital to complete the second component of the study. A time was arranged to meet with participants to conduct a second semi-structured interview and to complete the second survey. Participants were mailed a survey to complete prior to the interview and this was returned to the researcher either during the interview or via reply paid post if a telephone interview was conducted (for geographically distant participants, n= 8 couples) .

Ethics

Ethical clearance for the project was provided by the Human Research Ethics Committee (HREC) for each hospital and also by Griffith University HREC.

Results

Prior to data analysis all scales were examined for outliers, normality and missing data. Cronbachs alpha, means and stand deviations were calculated for all scales. T-tests were conducted to examine whether scores for the GHQ and Parenting efficacy scale changed from pre-discharge to post-discharge. Correlations and multiple regressions were then conducted to test our predictions.

For the Family Support Scale parents rated many sources of social support as “not available”. For the Social organizations sub-scale over 80% of parents reported that none of the sources (parent groups, social groups/clubs and places of worship) were available. Thus the sub-scale was not included in the analyses. For the Professional services sub-scale the majority of parents reported that professional

helpers, professional agencies, school/day-care centres and early intervention programs were not available, thus only the family or child's doctor was included in the analyses. Partner as a source of support could also not be used in the analyses as at pre-discharge 46 out of 50 people reported their partner as an extremely helpful source of support. There was only a small decline in these numbers post-discharge. This highlights the very important role that partners play at this time. Only the Formal kinship and Informal kinship sub-scales and family or child's doctor were, therefore, used in the analyses.

Cronbach's alpha for all scales is presented in Table 1. We calculated Cronbach's alpha and ran all analyses with both a 2 factor (Kalliath et al., 2004) and 3 factor (Graetz, 1991) solution for the GHQ but found the one factor solution had higher reliability and the results of subsequent analyses were similar for 1, 2, or 3 factors solutions. Thus we report the 1 factor solution for simplicity. Means for all measures are also presented in Table 1. Overall, pre-discharge parents appraised the situation more as challenging and controllable by self and others rather than as a threat and uncontrollable. Parents appraised the situation as moderately stressful. As mentioned, partner support was rated as most helpful, followed by support from kinship, informal kinship and then doctor. Coping by "maintaining family integration, cooperation and an optimistic definition of the situation" was rated as most helpful followed by "understanding the medical situation through communication with other parents and consultation with the medical staff".

T-tests were conducted comparing parents for whom this was a first pregnancy compared to those for who it was a second or subsequent pregnancy on all of our variables. There were a small number of differences. Parents for whom this was a first pregnancy were significantly more likely to appraise the situation as challenging

($t=2.45$ (48), $p=.018$) than parents for whom this was a subsequent pregnancy ($M=4.46$ and 4.08 respectively). First time pregnancy parents also appraised the situation as more under the control of others ($t=2.29$ (48), $p=.026$) than did parents for whom this was a subsequent pregnancy ($M=4.13$ and 3.76 respectively). We then conducted t-tests comparing those parents who had a single birth with those who had twins or triplets on the same variables. There were no differences between these groups of parents. Overall, pre-discharge 17 /50 (34%) parents were experiencing some psychological distress (as measured by the GHQ) but only 6/50 (12%) parents were experiencing severe distress. Post-discharge this had decreased to 6 parents (12%) experiencing some psychological distress and only 2 (4%) parents reporting severe distress. A t-test comparing parents' psychological distress pre- and post-discharge was significant ($t(49)=3.51$, $p=.001$). Parental efficacy was reasonable both pre- and post-discharge with the means showing parents agreeing with the statements rather than strongly agreeing. There was a significant increase in parental efficacy from pre-discharge to post-discharge ($t(49)=3.37$, $p=.001$).

The correlations between all the independent variables (appraisals, coping and support pre-discharge) and the dependent variables (GHQ and parental efficacy pre- and post-discharge) are presented in Table 1. Due to the number of independent variables those with a correlation significant at $p<.01$ are emphasised, with correlations significant at $p<.05$ reported as weak. There were strong correlations between appraisals of the situation as threatening, uncontrollable and stressful and psychological distress pre-discharge and these three appraisals were also highly correlated with each other. Psychological distress pre-discharge also had moderate correlations with appraisals of the situation as controllable by self and others and a weak correlation with the coping strategy of "understanding the medical situation

through communication with other parents and consultation with the medical staff". Post-discharge psychological distress had a moderate correlation with pre-discharge appraisal of the situation as challenging and a weak correlation with pre-discharge appraisal of the situation as threatening.

Parental efficacy pre-discharge had a moderate correlation with both appraising the situation as controllable by self and informal kinship support, as well as weak correlations with appraisals of the situation as threatening and challenging and partner parenting support. Post-discharge parental efficacy was only correlated with pre-discharge appraisal of the situation as challenging.

All independent variables that were significant at an alpha level of .05 or better were then included in the subsequent multiple regression analyses to test for the strongest predictors of GHQ and parental efficacy. The one exception was that stress appraisal was not included in the regression analysis predicting pre-discharge psychological distress, due to its high correlations with two other more specific predictor variables, appraising the situation as threatening and uncontrollable. Due to the small sample size these regression analyses should be treated with caution.

The multiple regression analysis for GHQ pre-discharge was significant ($F(5,49) = 15.68, p < .001$) and explained 64% of the variance in GHQ. The variable most strongly related to GHQ pre-discharge was appraising the situation as uncontrollable ($\beta = .43, p < .001$) followed by appraising the situation as threatening ($\beta = .27, p < .05$). The multiple regression for GHQ post-discharge was also significant ($F(4,49) = 2.94, p = .03$) and explained 21% of the variance in GHQ. The variable most strongly related to GHQ post-discharge was appraising the situation pre-discharge as challenging ($\beta = -.33, p < .05$).

The multiple regression for parental efficacy pre-discharge was significant ($F(5,47) = 4.36, p=.003$) and explained 34% of the variance. The variable most strongly related to parental efficacy was informal kin support ($\beta = .34, p<.05$), followed by appraising the situation as controllable by self ($\beta = .29, p<.05$). A regression was not conducted for post-discharge parental efficacy as there was only one significant predictor (appraising situation as a challenge).

Discussion

This study examined how parent appraisal, social support and coping were associated with psychological distress and parental efficacy pre and post- infant discharge for parents of low risk premature infants. Overall, parents in this study did not exhibit high rates of psychological distress, which is consistent with Davis et al. (2003) and Singer et al. (1999). Moreover, there was a significant decrease in psychological distress and increase in parental efficacy from pre-discharge to 3 months later, supporting Bissell and Long's (2003) argument that the majority of parents' concerns about caring for their infant dissipated quickly. However, surprisingly, there was no relationship between psychological distress and parenting efficacy. Previous research has found such a relationship (e.g., Freeman, 2007; Jones, 2007; Jones & Prinz, 2005) although these studies were conducted with term infants or older children.

Although pre-discharge parents reported that the situation was moderately stressful, they also reported that the situation was controllable by both themselves and others, and also viewed it as more challenging than threatening. This is a particularly important result as it disconfirmed the anecdotal hypothesis previously proposed by researchers (Affleck et al., 1991; Tracey, 2000), who suggested that an appraisal of threat was most likely prior to the discharge of the infant. This appraisal of challenge

is consistent with the principle of optimism in the health psychology literature and has important consequences, as it is likely to result in better morale, quality of functioning and general health than if the prospect of taking the infant home was appraised as threatening (Lazarus & Folkman, 1984).

Consistent with our prediction, prior to discharge psychological distress was positively related to appraisals of the situation as threatening, uncontrollable and stressful and negatively related to appraising the situation as controllable by self and others. These findings are to some extent consistent with Feldman Reichman et al.'s (2000) findings with mothers of VLBW infants, although we found a greater number of appraisals associated with psychological distress. There was also a weak positive correlation between psychological distress and "understanding the medical situation through communication with other parents and consultation with the medical staff". The results suggest that appraisals of the situation pre-discharge may play an important role in the distress experienced by parents of low risk premature infants. Moreover, as both threat and stress appraisals were correlated with "understanding the medical situation through communication with other parents and consultation with the medical staff" it seems that parents who appraise the situation more negatively may use communication as a way to try to cope with the situation.

However, the correlations with and the multiple regression for post-discharge psychological distress and parental efficacy showed that it was those parents who appraised the situation pre-discharge as challenging (rather than threatening) who subsequently experienced lower psychological distress and higher parental efficacy. Affleck, Allen, Tennen, McGrade, and Ratzan (1985), in a cross-sectional study, found that mothers who could construe benefits from having an infant who required neonatal intensive care also experienced more positive mood. Further, they found that

the mothers who didn't benefit from a parent intervention were those who already had more optimistic appraisals of the situation "things would turn out all right" or "focused on the positive". We have extended these findings to show that such appraisals predict less psychological distress and higher parental efficacy over time.

There was partial support for our predictions regarding coping strategies and social support being related to psychological distress and parental efficacy. In particular, there were some relationships between coping and support and pre-discharge GHQ and parental efficacy, with informal kinship support predicting parental efficacy in the regression analysis. This is consistent with Patteson and Barnard (1990) finding that higher levels of social support from friends and family was associated with lower levels of parenting stress and warmer accepting attitudes toward infant. However, informal kinship support was only associated with pre-discharge efficacy not post-discharge. This provides further evidence for the argument of Crnic and Greenberg (1987) that support is more critical at key times. More particularly, discharge may be a key time, whereas after 3 months parents of low risk premature infants have adjusted and social support may be less critical (the correlation between post-discharge informal kinship support and post-discharge parental efficacy, not reported here, was not significant).

Partner support has been demonstrated as important to parents of premature infants (e.g., Singer et al., 1996). The results of this study reiterate the importance of partner support in this situation, with a moderate correlation between partner parenting support and parental efficacy and the consistent rating of partners as a highly helpful source of support. At the same time, the number of sources of support that parents stated were not available/applicable emphasizes that parents in our study were relying on a narrow range of sources of support at their infant's discharge. Yet,

Affleck and Tannen (1991) discussed how their research challenged their assumptions about the necessity of professional support in particular. Future research needs to identify whether parents do require professional support during discharge or whether informal support is sufficient.

It was not surprising that there was a stronger relationship between appraisal, coping and support and psychological distress than with parental efficacy. While there has been extensive research and theorising on the role of appraisal, coping and social support in predicting psychological distress there has been more limited research on predictors of parental efficacy. Given concerns raised in the literature (Gennaro et al., 1990; Gottwald & Thurman, 1993) about the additional challenges of parenting a premature infant it is important to consider more the factors that develop efficacy in these parents.

Overall, the role of appraisal in the stress experience of parents of premature infants has not been widely researched, yet the results of the current study showed that appraisal was generally more important than coping or social support in explaining psychological distress and parenting efficacy, particularly over time, for parents of low risk premature infants. The study needs to be replicated with parents of higher risk premature infants to determine if appraisals are also important for these parents. Consideration also needs to be given to the effects of how each partner is responding to the situation.

Interventions for parents of premature infants tend to focus on parenting education, based on the developmental and any clinical care needs of their infants rather than on parental wellbeing (Bakewell-Sachs & Gennaro, 2004; Broedsgaard & Wagner, 2005). The results of our study suggest that, at least for parents of lower risk premature infants, it may be beneficial to also focus on identifying the way parents are

appraising the situation of a premature birth prior to the infant's discharge from hospital. Examining how parents are appraising the situation may help health care professionals to identify parents who may be more at risk of negative outcomes, particularly regarding psychological wellbeing, that potentially affect family health and adjustment more broadly. Identifying such parents could then enable more targeting of early interventions. Moreover, our findings suggest the potential efficacy of strategies that encourage parents to reframe the experience of a premature infant as one that is an opportunity for gain or growth.

Limitations

Several limitations are evident in this study. First, the sample size is quite small, which is a problem encountered by many other studies conducted in the field (Casteel, 1990; Feldman Reichman et al., 2000; Hughes, McCollum, Sheftel, & Sanchez, 1994) due to both the relatively small number of families experiencing this situation at any one time who meet study criteria, and the reluctance of families to commit to activities that take time away from their infants (Broedsgaard & Wagner, 2005). Additionally, some families who expressed interest in the study could not be followed up due to unexpected early discharge or transfer to another hospital without either confirming interest in the study or providing contact details.

A puzzling result was that the majority of parents indicated that professional helpers were not an available source of support, despite almost all parents indicating in the interviews that the nursing staff were a source of support that helped them. It appears that because nurses were not listed as an example of a professional helper, many parents overlooked this support, which was not captured by any other question in the measure. Indeed both the measure of social support and of coping had high

rates of not applicable/not available. This suggests that more work needs to be done developing appropriate measures for use with parents of premature infants.

Implications for practice

The results of this study highlight the important role that appraisals may make in the adaptation of parents to the birth and subsequent care of a low risk premature infant, in addition to the role of social support. Developing ways for health professionals to simply ascertain how parents are appraising the situation prior to discharge would be useful to identify more at risk parents. Those who appraise the situation as threatening, uncontrollable and stressful and those who do not see the situation as a challenge may encounter problems with their psychological well-being and the development of their parental efficacy. This could then contribute to targeted discharge planning and coordination of community services, and encouraging challenge appraisals could potentially form part of specific interventions for at-risk parents.

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Table 1.

Means, SD, scale reliability and correlations for appraisal, coping, support, psychological distress and parental efficacy.

Scale	Scale Mean & (SD)	Threat	Challenge	Centrality	Self control	Other control	Uncontrollable	Stress	Integrate	Support & stability	Consult	Partner Parenting support	Kinship	Informal	Doctor	GHQ
Threat appraisal	2.09 (.69)	.69 ^b														
Challenge appraisal	4.28 (.52)	-.336*	.73													
Centrality appraisal	4.00 (.74)	.348*	-.085	.78												
Self control appraisal	4.19 (.49)	.347*	.582***	.036	.74											
Other control appraisal	3.99 (.55)	-.318*	.449**	-.099	.426***	.80										
Uncontrollable Appraisal	1.93 (.76)	.582***	-.269 ^a	-.002	-.448**	-.443**	.76									
Stress appraisal	2.77 (.91)	.734***	-.230	.260 ^a	-.370**	-.207	.707***	.73								
Coping by integrating	2.30 (.32)	.093	.109	.015	-.107	.249	-.106	.071	.88							
Coping by support & stability	1.54 (.33)	.255	-.153	-.050	-.274 ^a	.160	.163	.348*	.568***	.80						
Coping by Consultation	2.14 (.52)	.351*	.019	-.117	-.174	.128	.180	.371**	.648***	.644***	.82					
Partner parenting support	2.69 (	-.247 ^a	.127	-.080	.256 ^a	.091	-.387**	.280*	.174	.898	.047	.85				
Kinship support	3.63 (.81)	-.107	.198	-.266 ^a	.185	.255	.023	.043	.426**	.357*	.439**	.264 ^a	.79			
Informal support	3.18 (.95)	-.162	.264 ^a	-.153	.170	.008	.001	.076	.344*	.316*	.238	.220	.589***	.87		
Doctor support	3.00 (1.03)	.070	.104	.065	.068	.408*	.023	-.104	.266	.231	.267	.032	.543**	.382*		
GHQ Pre-discharge	24.04 (4.55)	.653***	-.195	.037	-.441**	-.435***	.716***	.766***	.031	.228	.335*	.268 ^a	-.049	.062	-.068	.840
GHQ Post-	21.86	.281*	-.378**	-.116	-.260 ^a	-.222	.110	.186	.196	.265 ^a	.234	-.032	.200	.069	-.063	.770

discharge	(3.52)															
Efficacy Pre-	3.11	-.330*	.293*	.081	.412**	-.051	-.176	-.246 ^a	.149	.112	.041	.286*	.232	.432**	-.230	.059
discharge	(.51)															
Efficacy Post-	3.30	-.176	.406**	-.174	-.233	.108	-.203	-.158	.025	.036	.020	.069	.064	-.205	-.120	-.010
discharge	(.39)															

* p<.05 ** p < .01 *** p<.001
^a p<.08 ^b Scale alpha