

MATERNAL APPRAISAL, SOCIAL SUPPORT AND PARENTING STRESS AMONG MOTHERS OF CHILDREN WITH CEREBRAL PALSY

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ABSTRACT

Caring for individuals with disabilities can be a heavy responsibility that may evoke stress among caregivers. Hence, the main purpose of this study was to determine the relationships between maternal appraisal, social support and parenting stress among mothers of children with cerebral palsy in Selangor, Malaysia. The data were collected through self-administered questionnaire with the participation of a total of 42 mothers of children with cerebral palsy. Family Impact of Child Disability Scale (Trute, Hiebert-Murphy, Benzies, & Levine, 2009) was used to determine maternal appraisal, while perceived social support among the respondents was measured with Multidimensional Scale of Perceived Social Support (Zimet et al., 1988). Maternal parenting stress was determined using Parental Stress Scale (Berry & Jones, 1995). The findings of this study demonstrated the significant relationships between maternal appraisal and parenting stress, whereby negative appraisal and parenting stress were positively correlated, while mothers' positive appraisal correlated negatively with parenting stress. Similar negative correlation was also identified between perceived social support and parenting stress. Apparently, the findings imply that maternal appraisal plays a significant role in determining parenting stress among mothers of children with cerebral palsy. In specific, negative appraisal was found to be the strongest predictor of maternal parenting stress. Findings of this study suggest of the importance of boosting positive appraisal and preventing negative appraisal as measures in reducing the maternal parenting stress among these mothers. It is recommended for future research to take into account the caregiving role of fathers for children with cerebral palsy in attempt to better understand the parenting well-being of such parents.

Keywords: Cerebral palsy, maternal appraisal, mothers, parenting stress, social support.

Introduction

In general, parenthood presents individuals with one of the most psychologically challenging enterprises, encompassing emotions and challenges that can push parents to both extremities of joys and anxieties (Walton, 2012). Caregiving is one of the major roles in parenting young children, yet this role is significantly altered in the presence of child experiencing functional limitations and possible long term dependence (Olawale, Deih, & Yaadar, 2013). Such alterations in the caregiving role is seen in the challenges that parents face to manage their child's chronic health problems effectively in addition to the coping of daily living requirements and demands (Krstic & Oros, 2012; Olawale et al., 2013; Raina et al., 2005). Hence, past studies have generally identified higher levels of stress among parents of children with disabilities as compared with the parents of typically developing children (Parkes, Caravale, Marcelli, Franco, & Colver, 2011; Wang & Jong, 2004).

With specific reference to cerebral palsy (CP) as a common motor disability in childhood that affects movement and posture, sources of parenting stress can be better understood from the features and challenges of CP that affects individuals and their parents as primary caregivers (Ribeiro, Sousa, Vandenberghe, & Porto, 2014). Besides impaired motor functions, it is also common for children with such disorder to experience impairments in their sensory, communicative and intellectual abilities, resulting in complex limitations in self-care functions (Krstic & Oros, 2012; Olawale et al., 2013). The intellectual and communication impairments among children have been found to correlate significantly with high levels of parenting stress (Parkes et al., 2011). Moreover, the various classification systems of CP, severity of disabilities and the comorbidities present may provide indicators of the factors leading to elevated levels of parenting stress among caregivers. As hypothesized, caregiver strain was found to be relatively higher among mothers whose CP children have limited self-mobility as compared with their counterparts whose children were able to walk (Prakash, Patel, Hariohm, & Palisano, 2016). The study by Vijesh and Sukumaran (2007), however, failed to indicate significant differences in the maternal stress level across types of CP, and only found multiple disability alongside CP as a significant predictor of stress levels among mothers. Correspondingly, the study by Sajedi, Alizad, Malekkhosravi, Karimlou and Vameghi (2010) also found no statistical significance in differences of depression scores across the types of CP and the severity of disability. In addition, the severity of CP condition and child's dependency on others in daily

activities are commonly found to correlate significantly parenting distress among these families (Muñoz-Marrón et al., 2013; Olawale et al., 2013; Wang & Jong, 2004). Furthermore, the CP children's behaviors, especially maladaptive behaviors, were also found to contribute significantly to parental stress (Ketelaar, Volman, Gorter, & Vermeer, 2008) and predicts the psychological well-being of caregivers (Raina et al., 2005). The study by Sipal, Schuengel, Voorman, Van Eck and Becher (2010) further elaborated on the total behavior problems of CP children, specifically externalizing behaviors and internalizing behaviors, as being correlated with situational stress for parents.

Thus, the heavy burden and responsibility to care for children with complex disabilities may result in compromised physical and psychological well-being of parents (Olawale et al., 2013; Raina et al., 2005). Mothers, who are generally considered the primary caregiver of children, are naturally subjects of concern with regards to their personal health and well-being. The recent study by Garip et al. (2016) found that mothers of CP children having higher fatigue levels, which was closely related with depression and decline in quality of life. Moreover, the high family needs and low family adaptability in addition to the child's condition further exacerbate the stress of these mothers (Glenn, Cunningham, Poole, Reeves, & Weindling, 2009). Hence, it is reasonable for the descriptive study by Kumar, Lakhari and Lakhari (2016) to find a high percentage of mothers having depression, regardless of its severity. Similarly, Sajedi et al. (2010) also supported the finding where the study found that having a CP child increased the risk of mothers developing depression by 2.26 times. Therefore, coping strategies that mothers employ in face of the challenges of caring for CP children is of great importance, considering how coping influences the emotional and psychological outcomes of a stressful event (Cheshire, Barlow, & Powell, 2010).

Although negative effects of childhood disability in family life is often given emphasis, it is important to note that past studies also supported the positive transformational outcomes of childhood developmental disability (Trute, Hiebert-Murphy, & Levine, 2007). This suggests the importance of cognitive appraisal or the meaning credited to the childhood disability by the caregivers, of which is termed as maternal appraisal in this study (Thompson, Hiebert-Murphy, & Trute, 2013). In other words, maternal appraisal also refers to the overall indicator of mothers' attitude and perceptions of the impacts brought about by their child's disability on the well-being of the family (Benzies et al., 2011). According to Trute et al. (2007), the family effect arising from childhood disability can be appraised by parents both positively and negatively, whereby both extremes of appraisals can be co-occurring despite being mutually exclusive. Positive appraisal involves positive reinterpretation by reappraising stressful situations to be viewed under a positive light (Cheshire et al., 2010). With reference to the positive meaning assigned to childhood disability in family context, positive appraisal is able to serve as a kind of cognitive coping in parental adjustment to childhood disability (Trute et al., 2007), and is also further found to mediate the association between parenting stress and family adjustment (Thompson et al., 2013). Consequently, positive parental appraisal in response to childhood disability may lead to transformational outcomes for parents, of which includes personal, relational and perspectival transformations (Scorgie & Sobsey, 2000). On the other hand, the study by Plant and Sanders (2007) reported direct influence of parents' appraised level of childhood disability on the experienced parenting stress. Caring for children with more severe disabilities increases likelihood of parents to negatively perceive their caregiving responsibilities (negative appraisal), which results in elevated stress level. Such was demonstrated by the findings of Vijesh and Sukumaran (2007) whereby pessimism with child's ability was found to be the most stress producing factors among mothers. Thus, cognitive appraisal among mothers of children with CP is included as an important study variable in relation with parenting stress.

Perceived support received in facing the parenting challenges is also of importance in buffering the stress that arises from coping with childhood disabilities. In general, social support is a term encompassing interpersonal relationship transaction between individuals over a variety of methods with the intention of enhancing the well-being of the recipient (Zimet, Dahlem, Zimet, & Farley, 1988). Polita and Tacla (2014) further categorized the dimensions of social support received into three dimensions, namely emotional support, informational and cognitive instrumental. In the context of parenting, good social support system can serve as a catalyst or buffer that will reduce parenting stress and enhance the parenting well-being among parents, much more among those of children with disabilities (Jeong, Jeong, & Bang, 2013; Kissel & Nelson, 2014; Suzuki, 2010). The study by Glenn, Cunningham, Poole, Reeves and Weindling (2009) also identified similar findings where poor spousal support was listed as one of the high stress items for mothers of young child with cerebral palsy. In addition, Jeong et al. (2013) also highlighted the perceptible influence of informal support, rather than formal support, in the reduction of parenting stress among mothers of children with disabilities. Besides, institutional support among mothers of children with severe form of disorder is also identified as a form of social support that is essential to the successful implementation of the parental caregiving for children with CP (Krstic & Oros, 2012). The plausible impact of social support on parenting stress, as suggested in past studies, suggests the importance of studying the association between the variables.

In general, past researches pointed out the roles of maternal appraisal and social support in aiding mothers to cope with the stress and challenges of parenting children with CP. Nevertheless, the combination of both internal and external aspects of coping strategies as an integrated whole had been given less emphasis in previous studies. Hence, this study attempted to address this gap by studying both variables of maternal appraisal and social support in the same study for mothers with CP children. Besides, this study was warranted in response to the increasing numbers of CP individuals in Malaysia. According to the national statistics released by Social Welfare Department Malaysia (JKMM), there were 2890 newly registered CP cases in year 2008, of which rose to a total of 4068 CP cases registered in the next year. Despite CP being merged under the heading of "physical disability" in the following years, the high numbers of registered persons under the category could infer a rise in the registration of CP cases as well. In addition, the reported figure, which may still be under-reported as implied by Child Rights Coalition Malaysia (2013), also inferred a rise in the number of caregivers of CP individuals as well. In short, the rising figure of registered CP individuals in Selangor and well-being of mothers caring for such children being at stake clearly indicates the urgency of reviewing of parenting well-being of mothers comprehensively.

Therefore, the aim of this paper was to determine the relationships between maternal appraisal and social support with maternal parenting stress among mothers of children with CP in Selangor, Malaysia. In addition, this study would also explore the associations between background variables of mothers and their CP children, and maternal parenting stress. Finally, this study carried the objective of determining factors that would uniquely predict maternal parenting stress. Across the sample of mothers with CP children, the following four null hypotheses were tested: (1) There is no significant relationship between positive maternal appraisal (positive family impact) and maternal parenting stress among respondents; (2) There is no significant relationship between negative maternal appraisal (negative family impact) and maternal parenting stress among respondents; (3) There is no significant relationship between social support and maternal parenting stress among respondents; and (4) There is no likelihood of all the selected independent variables to significantly predict maternal parenting stress among respondents.

The next section of this paper will present the method used in this study. The following section will cover the results and discussions, before summing up with conclusion, implications, limitations and recommendations in the last section.

Method

Respondents

The respondents of this study were mothers of CP children in the state of Selangor, Malaysia. The mothers were carefully recruited based on the following selection criteria: (1) having a child diagnosed with CP condition, (2) the CP child is of age twenty-one and below, and (3) the CP child is currently receiving intervention or rehabilitative measures in centres around Selangor, Malaysia. This study employed purposive sampling technique in enlisting mothers that fitted the selection criteria. Hence, the visits to the governmental and non-governmental care centres yielded in 48 mothers who were eligible for the study. After obtaining the necessary approval from relevant authorities, arrangements were made to meet the mothers and their CP children in the various centres. The questionnaires were distributed to the respondents and collected upon completion. The final collection resulted in a total of 42 complete responses from the selected respondents, after accounting for 6 incomplete responses.

Measures

Demographic variables. Among the demographic variables collected were the mother's age, education level, employment status, marital status and satisfaction, number of children, the child's age, sex, CP condition and functionality, and presence of in-house helper. The CP condition of the child was classified by the sub-type according to brain damages which results in different effects on movements among individuals. The four sub-types of CP included spastic (damage at motor cortex), dyskinetic (damage at basal ganglia), ataxic (damage at the cerebellum) and mixed type (combination of damages) respectively (Cerebral Palsy Alliance, 2016). The functionality of the child was further measured using the Child Engagement in Daily Life Measure (Chiarello et al., 2014) to assess the level of participation of the child in daily life activities.

Maternal appraisal. Maternal appraisal was captured with the Family Impact of Child Disability Scale (FICD) (Trute, Hiebert-Murphy, Benzie, & Levine, 2009). This scale consisted of 20 items, of which 10 of them are positive items and 10 negative items. All items are divided into two subscales, namely FICD Positive and FICD Negative. Sample items for FICD are such as "There have been extraordinary time demands created in looking after the needs of the disabled child", "The experience has made us more spiritual" and "Having a disabled child has led to an improved relationship with spouse". Item responses are made on a 4-point scale that range from responses range from 1 (not at all) to 4 (substantial degree). The scores for Positive Family Impact (PFI) and Negative Subscale Impact (NFI) will be obtained by summing the 10 items in each subscale. Though there is no formal scoring and standard protocol for the interpretation of this measure, the response obtained from mothers could either indicate a balance in the perceived impact, or inclination towards both extremes (positive and negative) when considering the family impact brought about by the child's disability. FICD was found to be a reliable measure of maternal appraisal, with internal consistency of $\alpha = .866$ for the positive subscale (PFI) and $\alpha = .876$ for the negative subscale (NFI).

Social support. Social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet et al., 1988). This 12-item scale addressed the relationships of respondents in three subscales, which are significant other subscale, family subscale and friends subscale. Each of these subscales consists of four items that may serve as means for perceived social support. Sample items include "There is a special person who is around when I am in need", "My family really tries to help me" and "I can talk about my problems with my friends". Item responses are made on a 7-point scale, ranging from *very strongly disagree* (1) to *very strongly agree* (7). All items will be scored accordingly to the rating for each response and the mean score for this scale is then calculated by summing across all 12 items then dividing the total score by 12. Similarly, mean score for each subscale can be obtained by dividing the total score for the subscale by 4. A scale response descriptor is provided alongside this scale to guide the scoring, where any mean score ranging from 1 to 2.9 will be considered as low support, while moderate support is indicated by a mean score of 3 to 5, and high support is purported by a mean score from 5.1 to 7. Overall, MSPSS indicated high reliability, of which the internal consistency was $\alpha = .921$, while the Cronbach alpha values for the subscales of Significant Other, Family and Friends were found to be .878, .955 and .963 respectively.

Parenting stress. Parenting stress was measured with the Parental Stress Scale (PSS) (Berry & Jones, 1995), where the 18-item scale consisted of 8 positive items and 10 negative items in relation with themes of parenthood. Sample items in PSS are "I am happy in my role as a parent", "Caring for my child(ren) sometimes takes more time and energy than I have to give" and "I feel close to my child(ren)". Each item response was rated on a 5-point scale, ranging from *strongly disagree* (1) to *strongly agree* (5). To compute the scoring for parental stress, all negative items were scored accordingly as rated, whereas the scoring for positive items were reversed. The item scores was then summed and the possible scores range from 18 to 90. Higher total item

scores indicate a higher measured level of parental stress and vice versa. Overall, the 18-item version of PSS has proven adequate reliability with $\alpha = .861$ for the total sample.

Statistical Analysis

Descriptive statistics were calculated for all the variables in the study. Spearman Rank Order Correlation was employed in correlational analyses of the independent and dependent variables. Besides, mean rank comparisons in this study were analyzed with Mann-Whitney U Test and Kruskal-Wallis Test. Finally, the simultaneous relationship among multiple independent variables in predicting the membership for two dependent variable categories were determined with logistic multiple regression.

Results And Discussions

The sample of 42 mothers who participated in this study ranged from 27 years to 61 years of age, with the mean age reported as 41.17 years, implying the mothers as mostly being in their middle adulthood years. Eighty-one percent of mothers reported their highest level of education as 'high school and below', while the others received education beyond high school. In the aspect of employment, two-thirds of them were employed while the other one-third were not working. Besides, only one of them has been divorced or separated, whereas the remaining respondents were married. Correspondingly, thirty-two respondents (76.2%) reported of non-distressed marital relationship while the other ten mothers (23.8%) reported of marital distress to certain extent based on their response towards the Kansas Marital Satisfaction Scale. Hence, the scores could infer that the respondents of this sample are generally satisfied with their marital relationship and experience lesser marital distress. Also reported was more than half of the mothers (54.7%) had 1 to 3 children, while 17 others (40.5%) had 4 to 6 children and only a small minority (4.8%) had 7 to 9 children.

As for the children with CP condition, there were a total of 29 males (69.0%) and 13 females (31.0%) involved in the study sample. Their ages ranged from 2 to 21 years, with the majority of them (42.8%) aged between 8 to 14 years. Among the children, 13 of them (31.0%) were reported to have spastic condition while 11 others (26.2%) had mixed type of clinical condition. There were 18 missing data (42.9%) for the clinical condition of child as many parents reported to not have been aware or alerted on such specific clinical condition. In measuring the variable on functionality of child, in the aspect of participation in self-care domain, it can be observed that most of them (59.5%) were categorized in low functionality while 13 of them (31.0%) were categorized as having moderate functionality, and only a handful of 4 children (9.5%) were observed to have high functionality. This finding can infer that the respondents of this study are generally mothers who care for low to moderate functioning CP children in the aspect of self-care. The presence of in-house helper was also a variable of interest in this study, due to the assumption that in-house helpers may ease the caregiving burden of mothers. A large majority of respondents (85.7%) reported to not have in-house helper while only a few (11.9%) had in-house helper to help with their daily chores.

Among the 42 respondents in the study, only a few (7.2%) reported on low positive family impact appraisal, while the majority reported on moderate (47.6%) and high levels (45.2%) of positive appraisal in regards to impact brought about by childhood disability. In comparing the mean score from the current sample ($M = 32.76$, $SD = 5.95$) with those of the Canadian sample of mothers of child with disabilities ($M = 29.9$, $SD = 5.90$) in the study by Benzies et al. (2011), it can be inferred that the mothers in this sample are generally more certain in their outlook towards the positive impact brought about by their child's disability. On the other hand, in the subscale of negative family impact, a large majority of respondents reported on low (40.5%) and moderate levels (38.1%), as compared with high levels of negative appraisal (21.4%). The mean score for negative appraisal in this sample was 24.10 with a standard deviation of 6.99, of which was found to be slightly lower when compared to those of the Canadian sample of mothers of child with disabilities ($M = 26.5$, $SD = 7.0$) in the study by Benzies et al. (2011). Such scoring may again imply a generally more positive outlook in the current sample of mothers towards impact of their child's disability. The discrepancies in the mean scores for both positive and negative appraisals (family impact) between the Canadian sample and this study, may be explained by the differences in the diagnostic characteristics of the children involved, where the sample in Benzies et al. (2011) consisted of children across multiple disabilities or conditions, whereas the current sample in this study were only consisting of children with the diagnosis of CP.

In the aspect of social support, majority of respondents (64.3%) perceived high level of social support from their family, friends and significant others, while the remaining 35.7% of mothers perceived social support in moderate or low levels. The mean score of this sample ($M = 64.92$, $SD = 14.09$) was relatively higher as compared to the of the sample of primary caregivers of children with developmental disabilities ($M = 60.17$, $SD = 15.97$) in the study by Peer and Hillman (2012). Samples from the study of Peer and Hillman (2012) and this study were compared on the basis where mothers from both samples were caring for their children with disability, who were recipients of intervention measures or case management services in community centres providing services of such. Hence, the compared means may provide inference on the higher perceived level of social support among the mothers of this study sample, as compared with their counterparts in the study in Southeastern Michigan.

For the variable of maternal parenting stress recorded almost half of the respondents (47.6%) reported on having lower stress level, whereas 17 respondents (40.5%) ranked moderate and 5 respondents (11.9%) ranked high in their level of parenting stress. The mean score of stress experienced by the respondents was found to be 36.29 and a standard deviation of 9.50, which was found to be lower when compared with the sample of mothers of children with developmental disabilities ($M = 40.1$, $SD = 9.30$) in the study by Berry and Jones (1995). Besides that, the parenting stress level of mothers in this study was still found to be slightly lower in comparison with a sample of Malaysian mothers with children having Down syndrome ($M = 37.6$, $SD = 8.10$) (Norizan & Shamsuddin, 2010). Hence, it can be inferred that the different types of disabilities among children may present distinct challenges that may influence the parenting stress among mothers in their caregiving roles.

Table 1: Spearman Rank Order Correlation of Independent Variables and Maternal Parenting Stress

Variable	Maternal Parenting Stress	
	r_s	p
Number of children	-0.461**	0.002
Maternal appraisal		
Positive Family Impact	-0.355*	0.021
Negative Family Impact	0.591**	0.000
Sense of coherence	-0.556**	0.000
Social support	-0.424**	0.005

Note. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The exploratory correlational analysis between background variables and maternal parenting stress was determined through a series of statistical tests. Interestingly, among the demographic variables, only the number of children was indicated by the Spearman rank order correlation as of having a significant negative relationship with maternal parenting stress ($r_s = -.46, p < 0.01$) [Table 1]. This result implied that the higher the number of children, the lower the maternal parenting stress experienced by the mothers. Such result has been similarly found to be supported in the study by Zablotsky, Bradshaw and Stuart (2013), where three or more children was found to be a protective factor against negative mental health and high stress level among mothers of children with autism spectrum disorder. Such findings may be possibly explained by the help and support of other children, which aids in relieving certain caregiving burden that the mothers face in daily parenting, thus, allowing mothers to better cope with caring for their child with disability.

In addition, Spearman correlation tests also found significant associations for the relationships between maternal appraisal, social support and parenting stress [Table 1]. Maternal appraisal in both the positive appraisal and negative appraisal of childhood disability correlated significantly with maternal parenting stress that the mothers experienced. The two-tailed test of significance indicated that there was a significant negative relationship between positive family impact and maternal parenting stress ($r_s = -.36, p < 0.05$). This result indicated that the higher the level of positive maternal appraisal, the lower the maternal parenting stress experienced by the mothers, and therefore, rejecting the first null hypothesis of the study. Such result is consistent with the previous finding that positive appraisal of childhood disability serves as a mediating variable between parenting stress and family adjustment, and mothers' positive reframing was found as a coping strategy in managing parenting stress (Thompson et al., 2013). Such finding was also in accord with that reported by Cheshire et al. (2010) where a positive association was established between the positive reinterpretation and psychosocial well-being of mothers caring for their CP child, along two major themes of 'focusing on positive aspects of situation' and 'finding meaning'. On the contrary, a significant positive relationship was identified between negative family impact and maternal parenting stress ($r_s = .59, p < 0.01$). This result indicated that the higher the level of negative maternal appraisal, the higher the maternal parenting stress experienced by the mothers. Thus, the second hypothesis is then rejected. The negative association established in this study was found to be consistent with the previous findings where the higher the severity of child disabilities will result in the increase in likelihood for parents to negatively perceive their caregiving responsibilities, which in turn leads to heightened parental stress levels (Plant & Sanders, 2007). This finding is also supportive of the suggestion of the study done by Benzies et al. (2011), which suggested negative appraisal as a brief indicator of the maternal parenting stress level over a longer term.

As for the variable of perceived social support, the two-tailed test of significance also indicated it as having a significant negative relationship with maternal parenting stress ($r_s = -.42, p < 0.01$), hence the third hypothesis being rejected. This result indicated that the higher the level of perceived social support, the lower the maternal parenting stress experienced by the mothers. Therefore, this finding is consistent with that of the previous findings, which demonstrated negative correlation between social support and parenting stress among mothers (Jeong et al., 2013). The significance of perceived support from significant others, such as spouse, may also have played a role in the maternal stress level, as the study by Glenn et al. (2009) found low spousal support as significantly associated with higher levels of parenting stress.

Table 2: Logistic Regression Analysis of Unique Predictor for Maternal Parenting Stress

	B	S.E.	Wald	df	Sig.	Exp (B)	95% C.I. for Exp (B)	
							Lower	Upper
Step 1								
Number of Children	-0.632	0.362	3.051	1	0.081	0.532	0.262	1.080
Positive Appraisal	-0.369	0.159	5.336	1	0.021	0.691	0.506	0.945
Negative Appraisal	0.456	0.183	6.174	1	0.013	1.577	1.101	2.259
Social Support	-0.096	0.055	2.969	1	0.085	0.909	0.815	1.013
Constant	9.805	5.814	2.845	1	0.092	18126.342		

Note. $R^2 = 0.558$ (Cox & Snell), 0.744 (Nagelkerke). Model $X^2(4) = 34.31$

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

A logistic regression analysis was conducted to predict maternal parenting stress among mothers of children with CP, using number of children, maternal appraisal (positive appraisal and negative appraisal) and social support as predictors [Table 2]. The fourth hypothesis of this study was rejected, where the test of the full model against a constant only model was found to be

statistically significant, indicating the variables involved as a set of reliably distinguished predictors (chi-square = 34.31, $p < .001$ with $df = 4$). Besides, Nagelkerke's R square value of .744 indicated a moderately strong relationship between prediction and grouping. Prediction of overall maternal parenting stress was 85.7% (81.0% for low maternal parenting stress and 90.5% for high maternal parenting stress). The Wald criterion demonstrated that positive appraisal ($p = .021$) and negative appraisal ($p = .013$) significantly contributed to prediction. Exp(B) value indicates that when negative appraisal of family impact is raised by one unit, the odds ratio is 1.58 times as large and therefore mothers are 1.577 times more likely to experience high level of parenting stress. On the other hand, Exp(B) value for positive appraisal of family impact indicates that for every extra unit of positive family impact, the odds of mothers reporting of high maternal parenting stress decreased by a factor of 0.69, with all other factors held constant. Hence, the results obtained indicated that negative appraisal of family impact is the most significant predictor of maternal parenting stress, while positive appraisal of family impact followed closely behind as the next predictor in line. The results are supported by the stress analysis done by Vijesh and Sukumaran (2007) that found pessimism regarding child's ability as the most stress producing factor among the mothers of CP children. In addition, a recent study by Minnes, Perry and Weiss (2015) also found reframing strategy, using reappraisal as a coping strategy, to be a predictor of positive gain in boosting well-being among parents with young children with special needs.

In this model, the number of children and social support were not identified as significant predictors of maternal parenting stress. Social support may have been limited in its predictability of parenting stress in the present study, due to its unspecificity in tapping into the support received that is specific pertaining to the caregiving responsibility for the CP child. This may be explained by the suggestion of Cohen and Wills (1985) that the relation between social support and adjustment is established only if the needs arising from the stressor are responded appropriately by social support. Hence, future studies may consider looking into the different types of social support and their effectiveness in meeting the demands of parenting children with CP condition.

Conclusions

In general, the mothers in this sample displayed a fairly positive level of maternal appraisal and perceived moderate to relatively high level of social support. Correspondingly, the maternal parenting stress level was reported to be at a moderately low level, which may be credited to the relatively positive level of appraisal and perceived social support received by these mothers in the care centres. Both variables of maternal appraisal and social support were also found to correlate significantly with parenting stress among mothers of CP children, thus yielding support to the objective of this study. Higher positive appraisal and higher social support associated with lower maternal parenting stress, whereas higher negative appraisal correlated with higher parenting stress. Interestingly, the background variable of the number of children was found to negatively correlate with stress among mothers. However, when testing for the objective of determining unique predictors for maternal parenting stress, out of the selected variables that were regressed against the dependent variable, only maternal appraisal reported significance in predicting parenting stress among mothers. Also, negative appraisal of family impact, in particular, was identified as the best predictor that could uniquely predict maternal parenting stress. In short, this study is able to give a brief overview towards the current scenario of the practice of parenting children with CP among mothers in the Malaysian context. The findings demonstrated that despite the altered role of caregiving among mothers for their CP children, the main contributor of maternal parenting stress still lies with their appraisal towards the impact brought about by childhood disability. Positive impact appraisal is able to mediate and moderate the level of parenting stress experienced while negative impact appraisal will lead to exemplification or heightened level of maternal parenting stress.

Hereafter, such findings may serve as potential use of reference in the future designation of policies and programmes for families with CP children. Findings of this study can also aid policy makers, governmental organizations and non-governmental organizations in designing specific intervention programmes to shape and boost positive appraisal, besides reducing negative appraisal brought about by family impact among these mothers. Examples of such programmes include parent-to-parent support groups and family counselling.

This study has presented limitations in several aspects. The first limitation was that only mothers were included as respondents in the current study, hence limiting the findings to only the maternal experience of raising children with CP. Also, the respondents for this study were identified through non-random sampling methods, such as purposive and convenience samplings, which limits the findings of this study to only the particular sample of study. Hence, caution should be applied in generalizing the findings to the larger population of caregivers for CP children. Therefore, future studies are recommended to maximize random assignment during data collection, so as to ensure the generalization of results to the general population of mothers caring for their CP child. Besides that, future research is recommended to take into account the caregiving roles of fathers with CP children, so as to better understand the parenting well-being of such parents. The inclusion of fathers as respondents in future studies will also contribute to the expansion of knowledge of parenting stress pertaining to their caregiving roles in particular.

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