ORIGINAL ARTICLE

Stress Experiences of Mothers of Children With ADHD: Significant Coping Strategies That Safeguard Their Mental Health

Qarem Mohamed Mustafa[1,2], Intan Aidura binti Alias[3],Azlin Hj. Alwi[3]

[1] Universiti Teknologi MARA, Cawangan Pulau Pinang, Kampus Bertam 13200 Penang, Malaysia
[2] Faculty of Health Sciences, Universiti Teknologi MARA, Cawangan Selangor, Kampus Puncak Alam, 42300 Bandar Puncak Alam, Selangor Malaysia
[3] Department of Pyshcology, Kulliyyah of Islamic Revealed Knowledge and Human Sciences, International Islamic University Malaysia,Jalan Gombak, 53100, Selangor, Malaysia

ABSTRACT

Introduction: Being a mother is a challenging task that comes with its occasional stress. This is especially true when taking care of a child with Attention Deficit/Hyperactivity Disorder (ADHD). It is important to understand the association between the stress experienced by the mothers with their mental health and the type of coping strategies that could be a buffer for them. This study examined the relationship between parental stress, coping strategies, and depressive symptoms among mothers of children with ADHD in which a significant interaction between these variables were hypothesized. **Materials and Methods:** A total of 94 Malay mothers with a mean age of 39.67 participated in a workshop related to ADHD in which a questionnaire was provided to them that consists of Parental Stress Inventory-Short Form (PSI-SF), Brief-COPE, and Centre of Epidemiological Study-Depression (CES-D) scales. Multiple regression was then used to analyse the interaction between the variables. **Results:** Stress from parental sacrifices ($\beta = 0.61$, $p < 0.001$), stress from behavioural expression ($\beta = -0.57$, $p < 0.05$), problem-focused coping ($\beta = -0.72$, $p < 0.001$), and coping through social support ($\beta = -0.82$, $p < 0.001$) was found to be a significant predictor to depressive symptoms. Problem-focused coping was found to significantly moderate the relationship between parental sacrifice and depressive symptoms ($\beta = -0.053$, $p < 0.01$). **Conclusion:** Mothers who are experiencing parental stress are at risk of increase in depressive symptoms but can be mitigated with problem-focused coping strategies.

Keywords: Mothers, ADHD, Coping, Mental health

Corresponding Author:
Qarem Mohamed Mustafa, MHSc.
Email: qarem@uitm.edu.my
Tel: +604-562 3511

INTRODUCTION

Taking care of children with Attention Deficit/ Hyperactivity Disorder (ADHD) poses a lot of challenges (1, 2). The parents or caregivers experience greater stress as compared with parents of typically developed children (1 - 7) because the needs of those children far exceed the demands of normal children (9). A significant number of studies have also found that parents of children with ADHD showed higher stress levels as compared to parents of children with learning disabilities, HIV-affected, asthma (7), and Autism Spectrum Disorder (ASD) (5). The increase in stress level could then lead to the development of negative mental health outcomes such as depression which consequently limits the mothers' ability to provide the necessary and vital care required by their children (10). Furthermore, mothers suffering from depression would put their children at a greater risk of difficulties such as the development of emotional and behavioural problems, academic difficulties, and problems in self-regulation in the children (11).

Support for mothers of children with ADHD is important as the prevalence of ADHD is found to be increasing globally by the years (12, 13). Specifically, the prevalence of ADHD in Malaysia was found to be as high as 9 to 12.5 per cent (14) as compared to the global estimated prevalence of 4 to 8 per cent (12). The focus on mothers is essential as mothers are commonly the primary caregivers for children in Malaysia (15). As the primary caregiver, working mothers have to balance both the role of a provider and a caregiver of the children, in which the need to manage the two roles places the mothers at risk of various negative health outcomes,

including stress, anxiety, and depression (16, 17). Even without the role conflicts, mothers are still exposed to these negative health outcomes because of the child's oppositional behaviours and inattention-disorganization behaviours (3 – 5, 18 – 20). Furthermore, disruptive behaviours manifested from the hyperactivity and inattentive symptoms (21) in addition to angry outbursts, difficulty in following rules, and performing behaviours without thinking of the consequences (22) contribute to the increase of stress experienced by mothers of children with ADHD.

Adequate coping resources are found to be useful in reducing the stress experience of the mothers thus reducing the risk of depression (21, 23, 24). Coping resources or strategies such as active coping, planning, self-distraction, positive reframing, and social support which can also be specified into problem-focused coping and emotional-focused coping are available for the mothers to manage their stress experience. However, the significance of the coping strategies differs across populations (25 – 29). For example, some parents who used social support as a method of coping were found to experience an increase in negative health outcomes (21). Mothers of children with leukaemia on the other hand were found to significantly reduce their depressive symptoms with the increase use of problem-focused coping while the use of emotional-focused coping was associated to a significant increase in depressive symptoms (28). However, the increase use of problem-focused coping among parents of children with Autism Spectrum Disorder (ASD) was found to be significantly associated with the increase of depressive symptoms (26).

Previous findings also suggest that both social support (30, 31) and problem-focused coping (32 – 36) significantly moderates the relationship between parental stress and poor mental health. As such, coping strategies can be a significant buffer to reduce the impact of parental stress to their mental health. The conflicting findings regarding the role of coping strategies could be explained due to the different symptoms and behavioural manifestations presented for different illnesses (26, 28). Therefore, the aim of the current study was to determine the level of parental stress experience by mothers of children with ADHD specifically the parental sacrifices, parental expectations, emotional expression, and behavioural expression and its relation to depressive symptoms. Additionally, the study also explores the coping strategies used by the mothers to cope with the parental stress and how these interactions relate to presence of depressive symptoms.

MATERIALS AND METHODS

Samples

The present study is a cross-sectional study as the data was gathered at one point of time in which self-reported measures were used for data collection. A total of 104 Malay mothers of children with ADHD were purposefully sampled to participate in this research. The mothers were identified based on their participation in a workshop regarding parental stress specifically for mothers of children with ADHD. Most of the mothers are from urban area as the workshop was conducted within the city centre of Shah Alam. Purposive sampling was used in this study because it involves a specific group of people who are knowledgeable in relation to the variables of interest (37). One possible limitation of using purposive sampling is that it reduces the level of generalizability. However, it is important to note that the population of mothers of children with ADHD are distributed throughout Malaysia. There are very few resources available to identify the location of each specific mother for randomize sampling method to be used effectively. In this case, purposive sampling is an appropriate method due to the limited primary data source that can participate in this study (37). In the present study, getting information directly from mothers of children with ADHD by examining their parental stress, coping strategies, and depression will best answer the research questions and test the hypotheses. The inclusion criteria for the samples are mothers who are raising the following child: i. the child was given the diagnosis by a medical doctor, specialist, or clinical psychologist; ii. the child is the only child within the family with the ADHD diagnosis; iii. the child does not have any comorbidity other than ADHD.

This research abides by the ethical standards of the Department of Psychology, International Islamic University Malaysia which was approved by the Postgraduate Committee and appointed examiners by the Department of Psychology and Departmental Postgraduate Thesis Committee (Reference: IIUM/301/DPGS/13/12/01). Additionally, approval was also obtained by Ministry of Education Malaysia for collection of data from Program Pendidikan Khas Integrasi (Reference: JPNS.PPN 600-1/49 JLD.75(32))

Measurements

Three scales were used in the present study to measure parental stress, coping strategy, and depression. The scales are Parental Stress Inventory-Short Form (PSI-SF) to measure parental stress, Brief-COPE to measure coping strategies, and Center of Epidemiologic Studies – Depression (CES-D) to measure depression. The details of all scales are given below. All the scales are self-reported measures that have to be completed by the participants. However, researchers were available during the session for any clarification required by the participants.

Parental Stress Inventory-Short Form (PSI-SF)

PSI-SF (38) was used to measure the parental stress index of the mothers. The test contains 36 items and uses the likert scale of 1 to 5, in which 1 represents "Strongly

Agree" and 5 represents "Strongly Disagree". The items can be divided into four domains which are parental sacrifice, parental expectations, parental emotion, and behavioural stress. High scores represent high experiences of each respective domain. The internal consistency for each domain is within the acceptable range (38). An alternative form where the language is in Malay (15) was also used for parents who are not fluent in English. Both the English and the Malay equivalent were provided based on the setting in which the questionnaire was distributed. Based on the data obtained in this study, the internal consistency of the scale was found to be within the acceptable range (Cronbach alpha = 0.90 to 0.74).

Brief-COPE

Brief-COPE (39) was used to identify the coping strategies used by the mothers. The test contains 28 items and uses the likert scale of 1 to 4 (1 – "I haven't been doing this at all"; 2 – "I've been doing this a little bit"; 3 – "I've been doing this a medium amount"; 4 – "I've been doing this a lot"). The items can be divided into two or three categories which could represent problem-focused coping, emotion-focused coping, and social support coping (39 – 41). Moreover, a translated version of Brief-COPE is available in Malay (41), which was provided based on the participants' preference. In the present study, the reliability for problem-focused coping (Cronbach alpha = 0.87), emotion-focused coping (Cronbach alpha = 0.78), and social support coping (Cronbach alpha = 0.80) are found to be within the acceptable range.

Center of Epidemiologic Studies – Depression (CES-D)

The experience of depression was measured using CES-D (42), which has been shown to be reliable based on its internal consistency (Cronbach alpha = .75) (43). The test contains 20 items, where participants have to choose from the range of 1 to 5 on the likert scale to represent the frequency of experiencing depressive symptoms in the previous week (1 – "Not at all or less than 1 day last week"; 2 – "One or two days last week"; 3 – "Three to four days last week"; 4 – "Five to seven days last week"; 5 – "Nearly every day for two weeks"). High scores in CES-D do not diagnose the participants with depression but indicate that the participant is at risk of having depression. The alternative form in Malay translated by Mazlan and Ahmad (43) was also provided to the participants. Reliability analysis shows that the internal consistency of the scale is within the acceptable range (Cronbach alpha = 0.84).

Statistical Analysis

The data obtained were subjected to several stages of analysis using Statistical Package for Social Sciences version 21 (SPSS-21). First, the data was subjected to a descriptive statistical analysis to obtain an overall view of each variable gathered. Any outliers identified were corrected before further analysis was conducted. The mean, median, mode, and standard deviation were obtained to describe the characteristics of the population of interest. The assumptions of normality, multicollinearity, and independence of errors were also tested before proceeding with parametric tests (44). Next, the correlation coefficients were obtained using Pearson product-moment correlation to examine the relationship between the variables. This was followed with the multiple regression analyses to identify significant predictors among the variables of interest and the outcome measure which is depression.

RESULTS

Socio-demographic information of participants

Based on the data gathered, eight mothers were excluded for further analysis, as they have more than one child within the family that are diagnosed with ADHD. Therefore, only a response rate of 92.3 per cent was used for further analysis. The age of the mothers ranged from 31 to 53 years old, with the mean of 39.67 (SD = 6.07) in which all of them are Malays. Almost half of the mothers are degree holders (40.6%); the lowest academic qualification that the mothers have is Sijil Pelajaran Malaysia (13.5%). Most of the children were diagnosed with ADHD at the age of 7 years old (39.6%), but the earliest diagnosis was given at the age of 5 years old (2.1%), while the oldest is at 9 years old (4.2%). The diagnosis was mainly provided by health providers, be it medical doctors (77.1%) and medical specialists (12.5%), while a small percentage of the children were diagnosed by clinical psychologists (9.4%). A majority of 77.1 per cent of the children are not on any medication, while 12.5 per cent are on Ritalin, with 9.4 per cent on Concerta. Detailed demographic information of the participants can be seen in Table I.

Descriptive statistics of parental stress, coping strategies, and depressive symptoms experienced by mothers of children with ADHD

The mean score for the specific domains of parental stress shows that most mothers are experiencing stress due to the emotional over-involvement and feeling of hostility as they take care of their children (mean = 37.85, SD = 8.77). The sacrifices that the mothers have to make when taking care of children with ADHD also contributes to the experience of parental stress (mean = 27.26, SD = 6.28). In terms of coping strategy, problem-focused coping is suggested to be the main strategy (mean = 34.62, SD = 5.83) used by the parents followed by emotional-focused coping (mean = 15.74, SD = 4.21) and social support coping (mean = 11.01, SD = 2.57). The results also show that mothers who are taking care of children with ADHD experience moderate depressive symptoms (mean = 19.14, SD = 7.89) (refer Table II).

Multiple regression predicting depressive symptoms from parental stress and coping strategies

Table III shows the results of the multiple regression

analysis predicting depressive symptoms in relation to parental stress domains and coping strategies. Significant predictors to experience of depressive symptoms among mothers are parental sacrifices and behavioural expression such that an increase in parental sacrifices significantly predicts higher depressive symptoms ($\beta = 0.61$, $p < 0.001$) while an increase in behavioural expression significantly predicts lower depressive symptoms ($\beta = -0.57$, $p < 0.05$). Furthermore, an increase in problem-focused coping was also found to significantly predict lower depressive symptoms ($\beta = -0.72$, $p < 0.001$) experienced by the mothers.

Table I: Sociodemographic information of participants.

Demographic	Total	
	N	%
Level of Education		
SPM	20	20.8
Diploma	11	11.5
Bachelors Degree	39	40.6
Masters Degree	34	14.6
PhD	6	6.3
Missing	6	6.3
Monthly Household Income		
RM1001 – RM3000	2	2.1
RM3001 – RM4000	27	28.1
RM4001 – RM6000	46	47.9
RM6001 and above	7	7.3
Missing	14	14.6
Number of Children		
One	3	3.1
Two	40	41.7
Three	6	6.3
Four	19	19.8
Five	21	21.9
Six	7	7.3
Age of Child with ADHD		
Six	8	8.3
Seven	15	15.6
Eight	34	35.4
Nine	15	15.6
Ten	8	8.3
Eleven	8	6.3
Twelve	9	9.4
Thirteen	1	1
Age Diagnosis Given		
Five	2	2.1
Six	16	16.7
Seven	38	39.6
Eight	29	30.2
Nine	4	4.2
Missing	7	7.3
Diagnosis Provider		
Medical Officer	33	77.1
Medical Specialist	42	12.5
Clinical Psychologist	15	9.4
Missing	6	6.3
Medication		
None	74	77.1
Ritalin	12	12.5
Concerta	9	9.4
Missing	1	1

Table II: Descriptive statistics of parental stress domains, coping strategies, and depressive symptoms of mothers of children with ADHD.

Variable	N	Mean	Standard Deviation	Range	
				Minimum	Maximum
Parental sacrifices	96	27.2604	6.28322	16.00	39.00
Parental expectations	96	13.1146	3.33993	8.00	22.00
Emotional expression	96	37.8542	8.77194	25.00	57.00
Behavioural expression	96	12.5000	3.26384	7.00	19.00
Problem-focused coping	96	34.6250	5.83140	20.00	44.00
Emotional-focused coping	96	15.7396	4.21088	9.00	29.00
Social support coping	96	11.0104	2.56903	4.00	16.00
Depressive symptoms	96	19.1354	7.88018	8.00	37.00

Table III: Multiple regression of parental stress domains and coping strategies as predictors to depressive symptoms of mothers of children with ADHD.

Predictors	R^2 Change	β	SE B
Step 1	.216***		
Parental sacrifices (PS)		.613***	.138
Parental expectations (PE)		.145	.224
Emotional expression (EE)		.129	.093
Behavioural expression (BE)		-.573*	.284
Step 2	.411***		
Problem-focused coping (PFC)		-.716***	.105
Emotion-focud coping (EFS)		-.053	.127
Social support coping (SS)		-.815***	.227
Moderation Analysis			
EE x PFC	.0035	.0093	.0117
EE x EFC	.0058	.0149	.0199
EE x SS	.0091	.0348	.0323
PS x PFC	.0217	-.0286*	.0141
PS x EFC	.0002	.0044	.0309
PS x SS	.0004	-.0107	.0413
PE x PFC	.0360	-.0786*	.0336
PE x EFC	.0196	-.0886	.0646
PE x SS	.0265	-.1402	.0758
BE x PFC	.0045	-.0319	.0382
BE x EFC	.0070	-.0556	.0688
BE x SS	.0044	-.0893	.1214

*p < .05

***p < .001

This is also similar to the positive association between social support coping and depressive symptoms ($\beta = -0.82$, $p < 0.001$). Additionally, result shows that parental stress explains 21.6 per cent of the variance for scores on depression while coping strategies explain 19.5 per cent of the score for depression.

Moderation analysis between parental stress and depressive symptoms with coping strategies as moderator

The method described by Cohen and Cohen (45) was applied to evaluate the interaction between domains of

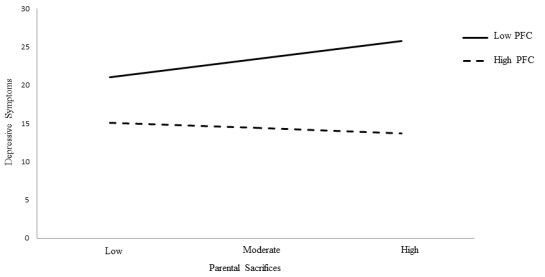

Figure 1: The interactions between parental sacrifices and depressive symptoms at high and low level of problem-focused coping.

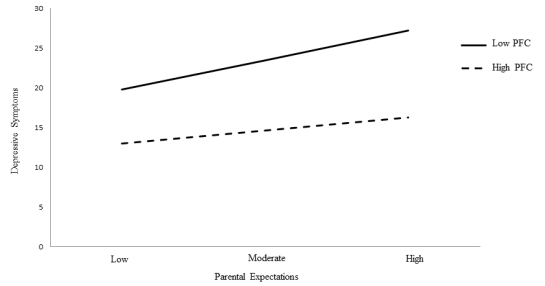

Figure 2: The interactions between parental expectations and depressive symptoms at high and low level of problem-focused coping.

parental stress and coping strategies. Equations predicting depressive symptoms from parental sacrifices and problem-focused coping and parental expectations and problem-focused coping were derived. The interactions suggest that problem-focused coping significantly buffered the adverse effect of parental sacrifices (Figure 1) and parental expectations (Figure 2) on experience of depressive symptoms.

DISCUSSION

Mothers of children with ADHD are experiencing parental stress specifically from parental sacrifices and emotional expression consequently increasing the risk of depression. The findings support and extend the existing literature regarding parental stress of children with ADHD (1, 3 – 6) emphasizing the importance of providing the same support to them similar to the support provided to parents of children with other disabilities or illnesses. Despite the suggested similarities between parents who are taking care of children with other disabilities or illnesses in terms of financial stress and limited support, there are uniqueness in the experiences due to the different symptoms presentation and behavioural manifestations of the disabilities or illnesses (26, 28). As such, there are differences between the sacrifices made by the mothers, the expectations towards them, the emotional involvement, and behavioural involvement when taking care of their children.

The significant relationship between stress experienced by the mothers and the development of depressive symptoms is consistent with previous findings (3 – 5, 18 – 20). The need to manage the internal symptoms of ADHD such as inattentiveness, distractibility, and disorganization and external symptoms such as restlessness, motor and verbal excesses, and impulsivity (46) contributes to the increase of stress experienced by the mothers. The findings suggest that mothers have to make sacrifices in order to constantly supervise the behaviours of their children as children with ADHD tend to perform behaviours without thinking of the consequences. Moreover, ADHD is a treatable but not curable disease such that the mothers will have to continuously use their emotional resources to manage the continuous demand of their children as they grow older. The emotional over-involvement of the mothers is suggested to the increase their risk of depression as their emotional resources are depleted.

Various coping strategies can be used by the mothers to manage their stress. The current findings suggest there is a higher tendency for mothers to use problem-focused coping strategies as compared to emotional-focused coping or coping strategies that relies on social support. However, both the use of problem-focused coping and social support coping was found to significantly reduce depressive symptoms expanding the existing literature on the importance of such strategies to reduce negative outcomes (30, 31, 33 – 36). Problem-focused coping ensures that most of the effort by the mothers is towards resolving the difficulties they faced which consequently improve their ability to problem solved and reduce the threat of the situation they are in (47). Due to this, they have more mastery over the situation and are able to adapt better which reduces the risk negative symptoms (47). The presence of social support also ensures that the mothers have additional resources to manage the parenting demands that they faced (30, 31, 35). It is suggested that the increase in social support reduces the burden borne by the mothers (31) consequently reducing the risk of feeling overwhelm or hopelessness that are associated to depression. In contrast, mothers who use emotion-focused coping tend to rely on distraction and expressing emotions to manage the demands that they faced (36). As such, the current study found no association between emotion-focused coping with regard to the increase of decrease in depressive symptoms.

Problem-focused coping was also found to moderate the relationship between parental sacrifice and depressive

symptoms and behavioural expression and depressive symptoms. This finding is consistent with numerous past studies (30 – 32) which suggest that the use of problem-focused coping not only safeguard the mothers from depression but also acts as a buffer for the adverse effect of parental stress and depression. Stress will always be present due to their role as a mother (2, 7, 8) and the increase of stress is suggested to predict the presence of negative mental health outcome such as depression (5, 7, 18). However, the severity of the relationship can be reduced with the increase of problem-focused coping. Even when the mothers have to increase the sacrifices in the process of caring of their children, the presence of problem-focused coping ensures that there is a buffer so that they are not at risk of depression. The buffer also applies to stress from the children's behavioural expression due to their ADHD symptoms. This suggests that parents who are stress due to external symptoms such as inability to sit still or complete task are able to mitigate the stress from impacting their mental health when applying problem-focused coping strategies. This is also consistent with previous findings in which an increase in severity of the external symptoms presented by the children is associated with increase in parental stress (48). However, when parents are given training to actively identify solution and make appropriate plans to manage the symptoms, they are better able to manage the stress that they experienced (48). These findings highlight the importance of problem-focused coping strategies as a significant buffer between parental stress and their mental health.

CONCLUSION

The present study expands the important role of coping strategies in addition to highlighting the stress experience of mothers of children with ADHD. There is a need to ensure the well-being of these mothers are protected as they are at risk of poor mental health if they do not have adequate resources to manage the demands of their children. The findings suggest support provided for mothers should not only focus on financial support but also equipping mothers with parent training (46) that includes problem-focused coping strategies and ensuring that they have support from their social system. Having access to problem-focused coping strategies such as making plans and actively identifying solutions for the problems ensures that the mental health of the mothers are safeguarded even when there is an increase in stress. Consequently, mothers with good management of their stress and their mental health will then be able to provide optimum care for their children (10). Future research also has an empirical basis when designing interventions for mothers of children with ADHD.

There are limitations such as small sample size and the cross-sectional design of the current study. The small sample size is due to the size of the population in addition to the vulnerable nature of the population. Future research can expand the population to both mothers and fathers controlling for their role when analysing the data. Furthermore, future studies can also expand the research to a longitudinal design to better understand the changes of coping strategies used by the mothers (36). A qualitative method will also be meaningful as it can provide an in depth exploration of the specific strategies used by parents and how it is being applied in their daily life as they manage their parental stress and preserve their mental health. Even with these limitations, the current findings provide an empirical basis for improvement on governmental policies especially institutions that provide support for vulnerable communities such as the Department of Social Welfare Malaysia. A holistic support system should be design so that the caregivers are also receiving appropriate care.

ACKNOWLEDGEMENT

This work was made possible with the guidance and support of allahyarhamah Dr. Mimi Iznita Mohamed Iqbal and numerous individuals from the Department of Psychology, International Islamic University Malaysia. Collaborative efforts from JiwaDamai Psychology Center and the Facebook group Persatuan ADHD Malaysia was also essential in completing the research. However, there are no conflicting interest with any entities as the support and collaboration was done to create awareness regarding the experience of mother of children with ADHD.

REFERENCES

1. Munoz-Silva A, Lago-Urbano R, Sanchez-Garcia M, Carmona-Marquez J. Child/adolescent's ADHD and parenting stress: The mediating role of family impact and conduct problems. Frontiers in Psychology. 2017;8(22):1-12.
2. Deault LC. A systematic review of parenting in relation to the development of comorbidities and functional impairments in children with attention-deficit/hyperactivity disorder (ADHD). Child Psychiatry & Human Development. 2010;41(2):168-192.
3. Wiener J, Biondic D, Grimbos T, Herbert M. Parenting stress of parents of adolescents with attention-deficit hyperactivity disorder. Journal of Abnormal Child Psychology. 2015;44(3):561-574.
4. Heath CL, David FC, Fan W, McPherson R. The association between parental stress, parenting self-efficacy, and the clinical significance of child ADHD symptom change following behaviour therapy. Child Psychiatry and Human Development. 2014;46(1):118-129.
5. van Steijn DJ, Oerlemans AM, van Aken MAG, Buitelaar JK, Rommelse NNJ. The reciprocal relationship of ASD, ADHD, depressive symptoms and stress in parents of children with ASD and/

or ADHD. Journal of Autism Developmental Disorder. 2014;44(1):1064-1076.
6. Graziano PA, McNamara JP, Geffken GR, Reid A. Severity of children's ADHD symptoms and parenting stress: A multiple mediation model of self-regulation. Journal of Abnormal Child Psychology. 2011;39(7):1073-1083.
7. Gupta ND, Simonsen M. Non-cognitive child outcomes and universal high quality child care (Working Paper No. 3188 cited 2020 December 31). Retrieved from IZA Discussion Paper website http://hdl.handle.net/10419/34322
8. Fischer M, Barkley RA, Fletcher KE, Smallish L. The stability of dimensions of behavior in ADHD and normal children over an 8-year followup. Journal of Abnormal Child Psychology. 1993;21(3):315-337.
9. Lovell B, Moss M, Wetherell M. The psychosocial, endocrine and immune consequences of caring for a child with autism or ADHD. Psychoneuroendocrinology. 2012;37(4):534-542.
10. Byrne MB, Hurley DA, Daly L, Cunningham CG. Health status of caregivers of children with cerebral palsy. Child: Care, Health and Development. 2010;36(5):696-702.
11. Jaffee SR, Poulton R. Reciprocal effects of mothers' depression and childrens' problem behaviours from middle childhood to early adolescence. In Huston AC, Ripke MN, editors. New York: Cambrigde University Press; 2006.
12. Woon LSC, Zakaria H. Adult attention deficit hyperactivity disorder in a Malaysia forensic mental hospital: a corss-sectional study. East Asian Arch Psychiatry. 2019;29(1):118-123.
13. Barkley RA. Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment. United States: Guilford Publications; 2014.
14. Woo PJ, Teoh HJ. An investigation of cognitive and behavioural problems in children with attention-deficit hyperactive disorder and speech delay. Malaysian Journal of Psychiatry. 2007;16(2):50-58.
15. Narkunam N, Hashim AH, Sachdev MK, Pillai SK, Ng CG. Stress among parents of children with attention-deficit hyperactivity disorder, a Malaysian experience. Asia-Pacific Psychiatry. 2014;6(2):207-216.
16. Estes A, Olson E, Sullivan K, Greenson J, Winter J, Dawson G, Munson J. Parenting-related stress and psychological distress in mothers of toddlers with autism spectrum disorders. Brain Development. 2012;35(2):133-138.
17. Frone MR, Russell M, Cooper ML. Relation of work–family conflict to health outcomes: A four-year longitudinal study of employed parents. Journal of Occupational and Organizational Psychology. 1997;70(4):325-335.
18. Theule J, Wiener J, Tannock R, Jenkins JM. Parenting Stress in Families of Children With ADHD A Meta-Analysis. Journal of Emotional and Behavioral Disorders. 2013;21(1):3-17.
19. van der Oord S, Prins PJ, Oosterlaan J, Emmelkamp PM. The association between parenting stress, depressed mood and informant agreement in ADHD and ODD. Behaviour Research and Therapy. 2006;44(11):1585-1595.
20. Chi TC, Hinshaw SP. Mother–child relationships of children with ADHD: The role of maternal depressive symptoms and depression-related distortions. Journal of Abnormal Child Psychology. 2002;30(4):387-400.
21. Podolski CL, Nigg JT. Parent stress and coping in relation to child ADHD severity and associated child disruptive behavior problems. Journal of Clinical Child Psychology. 2001;30(4): 503-513.
22. Johnson N, Frenn M, Feetham S, Simpson P. Autism spectrum disorder: parenting stress, family functioning and health-related quality of life. Families, Systems & Health. 2011;29(3):232-252.
23. Predescu E, Sipos R. Cognitive coping strategies, emotional distress and quality of life in mothers of children with ASD and ADHD—a comparative study in a Romanian population sample. Open Journal of Psychiatry. 2013;3(2A):11-17.
24. Dalton JH, Elias MJ, Wandersman A. Community psychology (3rd Ed). Belmont, CA: Cengage Learning; 2012.
25. Digryte L, Baniene I. Depression, anxiety, and stress coping in parents of children with the oncological disorder. Biological Psychiatry and Pharmacology. 2017;19(1):1-6.
26. Lai WW, Goh TJ, Oei TPS, Sung M. Coping and well-being in parents of children with autism spectrum disorders (ASD). Journal of Autism and Developmental Disorders. 2015;45(8):2583-2593.
27. Hall HR, Graff JC. Maladaptive behaviours of children with autism: parent support, stress, and coping. Issues in Comprehensive Pediatric Nursing. 2012;35(4):194-214.
28. Demirtepe-Saygili D, Bozo O. Predicting depressive symptoms among the mothers of children with leukaemia: a caregiver stress model perspective. Psychology and Health. 2011;26(1):585–599.
29. Hodapp RM, Fidler DJ, Smith AC. Stress and coping in families of children with Smith-Magenis Syndrome. Journal of Intellectual Disability Research. 1998;42(2):331–340.
30. Halstead EJ, Griffith GM, Hastings RP. Social support, coping, and positive perceptions as potential protective factors for the well-being of mothers of children with intellectual and developmental disabilities. International Journal of Developmental Disabilities. 2017;3869(1):1–9.
31. Dardas LA, Ahmad MM. Coping strategies as mediators and moderators between stress and quality of life among parents of children with autistic disorder. Stress and Health. 2015;31(1):5–12.
32. Adams D, Rose J, Jackson N, Karakatsani E, &

Oliver C. Coping Strategies in Mothers of Children with Intellectual Disabilities Showing Multiple Forms of Challenging Behaviour: Associations with Maternal Mental Health. Behavioural and Cognitive Psychotherapy. 2017;45(4):1–19.
33. Shahbaz A, Hasan S. Psychological distress and coping strategies in mother of children with ADHD. International Journal of Scientific & Engineering Research. 2017;8(10):1004-1012.
34. Durukan I, Erdem M, Tufan AE, Congologlu A, Yorbik O, Turkbay T. Depression and anxiety levels and coping strategies used by mothers of children with ADHD: a preliminary study. Anatolian Journal of Psychiatry. 2008;9(1):217-223.
35. Pottie CG, Ingram KM. Daily stress, coping, and well-being in parents of children with autism: A multilevel modelling approach. Journal of Family Psychology. 2008;22(6):855 – 864.
36. Kim HW, Greenberg JS, Seltzer MM, Krauss MW. The role of coping in maintaining the psychological well-being of mothers of adults with intellectual disability and mental illness. Journal of Intellectual Disability Research. 2003;47(5):313-327.
37. Palinkas LA, Horwitz SM, Green CA, Wisdom JP, Duan N, Hoagwood K. Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. Administration and Policy in Mental Health. 2016;42(5):533-544.
38. Abidin RR. Parenting Stress Index, Third Edition: Professional Manual. Odessa, FL: Psychological Assessment Resources, Inc.; 1995.
39. Carver CS. You want to measure coping but your protocol's too long: Consider the brief cope. International Journal of Behavioral Medicine. 1997;4(1):92-100.
40. Folkman S, Lazarus RS. If it changes it must be a process: study of emotion and coping during three stages of a college examination. Journal of Personality and Social Psychology. 1985;48(1):150-170.
41. Yusoff N, Low WY, Yip CH. Reliability and validity of the Malay version of brief cope scale: a study on Malaysian women treated with adjuvant chemotherapy for breast cancer. Malaysian Journal of Psychiatry. 2010;18(1):1-9.
42. Radloff LS. The CES-D scale a self-report depression scale for research in the general population. Applied Psychological Measurement. 1977;1(3):385-401.
43. Mazlan NH, Ahmad A. Validation of the Malay-translated version of the center of epidemiological study-depression scale. ASEAN Journal of Psychiatry. 2014;15(1):54-65.
44. Field A. Discoveirng Statistics using IBM SPSS Statistics: Fourth Edition. City Road, London: SAGE Publications Ltd; 2013.
45. Cohen J, Cohen P. Applied multiple regression/ correlation analysis for the behavioural sciences. New Jersey: Erlbaum Hillsdale; 1983.
46. Hogue A, Dauber S, Lichvar E, Spiewak G. Adolescent and caregiver reports of ADHD symptoms among inner-city youth: Agreement, perceived need for treatment, and behavioral correlates. Journal of Attention Disorders. 2014;18(3):212–225.
47. Craig F, Savino R, Fanizza I, Lucarelli E, Russo L, Trabacca A. A systematic review of coping strategies in parents of children with attention deficit hyperactivity disorder (ADHD). Research in Developmental Disabilities. 2020;98:1-13.
48. Ciesielski HA, Loren RE A, Tamm L. Behavioural parent training for ADHD reduces situational severity of child noncompliance and related parental stress. Journal of Attention Disorders. 2019;24(5):1-10.