

Sociodemographic Factors, Parental Stress, and Depressive Symptoms among Mothers of Children with ADHD [†]

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Abstract: The increased prevalence of children with ADHD signals the increase in mothers who are caring for those children. This will then put the mothers at risk of various mental health issues, consequently impacting their ability to care for their children who need their support. Thus, the objectives of this study are to identify the parental stress experienced by mothers of children with ADHD and examine the relationship between sociodemographic variables and parental stress with the presence of depressive symptoms based on the transactional model of stress. The findings highlight the importance of ensuring parental stress experienced by mothers through appropriate support.

Keywords: strain; maternal; disability



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1. Introduction

The global prevalence of ADHD is between 3% and 7%, averaging at 5%. This number is expected to increase based on the comparison of data from previous years [1]. In the United States for example, the prevalence of children diagnosed with ADHD was at 2.5% in 2010 [2], while the current available data show a prevalence of 9.4% [3]. A similar pattern can also be seen in Malaysia, in which the prevalence of children with ADHD, specifically those who are predominantly hyperactive and impulsive, was found to be at 0.32% in 2011 [4], while the National Health and Morbidity Survey conducted in 2015 found a prevalence of 4.6% [5]. This can be considered relatively high when compared to the prevalence of ADHD in other countries in Southeast Asia, such as Japan with a prevalence of 1.65% [6], the Philippines with a prevalence of 3% [7], or Taiwan with a prevalence of 4.2% [8]. ADHD is typically diagnosed during childhood because the symptoms tend to surface in early childhood [9], and parent ratings of the symptom's presentation are necessary for the process of diagnosis [1]. As the number of children with ADHD increases, the number of parents who have to care for those children would also increase at an equal rate.

Caring for children with ADHD may not be the same as caring for typically developed children. This is because children with ADHD may appear to be stubborn with a low frustration threshold, causing them to have difficulty obeying instructions and rules set by the parents [10]. Additionally, they are also found to be more susceptible to maladjustment, oppositional behaviours, inattention–disorganization behaviours, and angry outbursts, due to the nature of the disorder [10,11]. The parents may need more resources, as compared to other parents of typically developed children. The lack of resources to meet the demands of the children with ADHD, creating an aversive psychological reaction, is known parental stress [12]. Past studies also found that parenting children with ADHD is more stressful compared to parenting children who are HIV-affected, have asthma, learning

disabilities [13], and have autism spectrum disorder [12]. This may be due to how the needs of children with ADHD may exceed the demands of children with other illness.

High levels of parental stress are found to contribute to the development of negative mental health outcomes across numerous populations [11,12,14]. Specifically, parents with high levels of stress were found to also have high symptoms of psychological distress [12,14], anxiety [11], and depression [11,12]. When the parents have poor mental health, their children are exposed to a greater risk of socioemotional impairments, poor cognitive and academic abilities, and to some extent, their well-being as they grow older [15]. This highlights the importance of safeguarding the parents' mental health, which can be done by identifying significant predictors to not only the mental health, but also the parental stress. There are many possible factors that are suggested to be associated with the mental health of the parents, including parenting style, coping strategies, and also parental stress [16]. Children's characteristics, such as age, gender, atypical behaviours, sensory processing difficulties, and parents' socioeconomical status, were found to be associated with the parental stress of the parents, among others [16].

Due to the different nature of parental responsibility in Malaysia, the current study will also focus only on mothers, as opposed to both mothers and fathers. This is due to the nature of parenting in Malaysia [17]. Although there are studies that suggest there is not a significant difference between the stress experienced by mothers and fathers [18], there are also studies that suggest otherwise [17], which makes the comparison inconclusive. This is where a cultural component may play an important role. In Malaysia, for example, mothers are known to have dual roles, while the father is the main breadwinner of the family. Mothers are expected to not only work, but also to manage household chores once they completed their work, which may not be expected of fathers [17]. The need to meet the demand of working and household chores, added with the need to meet the demands of children with ADHD, may impact the mental health of the mothers significantly. According to the transactional model of stress [19], when mothers are exposed to an event that is perceived to be stressful, they will appraise whether the event is something threatening to their well-being. They will also identify resources that will be useful to mitigate the stressful event, and failure to do so is suggested to put the mothers at risk of negative outcomes, such as negative emotions and reducing the ability to function [19]. Therefore, the current study will focus specifically on the parental stress experienced by mothers of children with ADHD, taking into account their socioeconomic status and determining how these variables are associated to their mental health.

2. Methodology

2.1. Study Design and Sample

A quantitative cross-sectional design was used, and a questionnaire was distributed for data collection. The population of interest is mothers of children with ADHD, in which purposive sampling was applied due to the specific characteristics of the population that is knowledgeable about the variables of interest [20]. A total of 104 mothers participated in the study, but eight questionnaires were removed because the information provided did not match the inclusion criteria or have significant missing data. The sample size was determined by using G*Power software version 3.1, with the statistical test being correlation, two-tailed, 0.3 effect size, 0.05 probability of error, and 0.80 power. The recommended sample size is 82, but was increased to 100 to take into account the 10% dropout rate [21]. Therefore, only data from 94 mothers were used as the sample, with a response rate of 92.3%. The inclusion criteria to be counted as part of the sample are:

- Having a child between the age of 6 years old and 12 years old with ADHD.
- The child has no other comorbidities other than ADHD.
- The ADHD diagnosis was provided by a medical doctor, specialist, or clinical psychologist.

These inclusion criteria were decided to reduce the possibility of confounding variables. Therefore, mothers who have children with ADHD that are 12 years old and above are excluded. Moreover, if the child only shows symptoms but are yet to receive a formal

diagnosis, the data provided by the mother will not be included. Mothers who are unable to read or understand English and Malay or have any cognitive impairment were also excluded from participating in answering the questionnaire.

2.2. Data Collection

A knowledge sharing program was organized with a psychology center to provide knowledge on how to care for children with ADHD. A psychiatrist, occupational therapist, and clinical psychologist were appointed to share their knowledge based on their respective field. The program was promoted in the Facebook group ADHD Malaysia, which was made available for all to participate. At the end of the program, the questionnaires were distributed only to the mothers, since some fathers were also present. The completed questionnaires were retrieved, and additional data were gathered by sharing the version of the same questionnaire in a Google Form in the same Facebook group for other mothers who were interested in participating.

2.3. Measurement Tools

The questionnaire consists of sections for sociodemographic information, which also includes socioeconomic status, the parental stress inventory-short form (PSI-SF), and the Center of Epidemiologic Studies—Depression (CES-D). The PSI-SF was developed by Abidin [22] to measure parental stress. There are 36 items with the Likert scale as the response format. Participants have to select between the range of 1 and 5 with 1 representing “Strongly Agree” and 5 representing “Strongly Disagree”. The items can be further divided into four domains, mainly parental sacrifices, parental expectations, parental emotion, and behavioral stress. The Cronbach alpha of each domain for the current study was found to be within the range of 0.90 to 0.74, which is an acceptable range for internal consistency [23]. Radloff [24] developed the CES-D to measure depression within the community and inpatient samples. The scale consists of 20 items, in which the participants will have to select from the Likert scale between 1, representing “Not at all or less than 1 day last week”, and 5, representing “Nearly every day for two weeks”. High scores represent a high presence of depressive symptomatology. The internal consistency of the scale for the current study is within the acceptable range (Cronbach alpha = 0.84).

2.4. Statistical Analysis

The data were analyzed using the Statistical Packages for Social Science (SPSS) software version 25. The data were cleaned, removing outliers before further analysis was conducted. Descriptive statistical analysis was done to obtain mean and standard deviation for each variable of interest. Assumptions of normality, multicollinearity, and independence of errors were tested to decide upon parametric or non-parametric inferential statistics. These were then followed with the Pearson product-moment correlation to obtain the correlation coefficient and multiple regression analysis to identify the variance contributed by socioeconomic status and parental stress on mental health among mothers of children with ADHD.

2.5. Ethical Approval

The Postgraduate Committee and examiners appointed by the Department of Psychology Postgraduate Thesis Committee ensures that the current research follows the ethical standards of the Department of Psychology, International Islamic University Malaysia (Reference: IIUM/301/DPGS/13/12/01). Informed consent was given to all the participants, and they were made aware of the risk and benefits of participating in the research. All information was also kept private and confidential, used only by the researchers.

3. Result and Findings

The sociodemographic information, which also includes the socioeconomic status of the parents, can be seen in Table 1. The mean age of the participants is 39.57 (SD = 6.07), with all the participants being Malays. Most of the mothers have a bachelor’s degree (40.6%),

while only a few of their highest education certificates are the Sijil Pelajaran Malaysia (13.5%). A total of 46 participants have a monthly household income between RM4001 and RM6000, which constitutes 47.9%, while only 2% have a monthly household income of RM1001 to RM3000. Most of the children were diagnosed at the age of 8 years old ($n = 34$; 34.5%), while only 7 children were diagnosed at the age of 11 years old (7.3%).

Table 1. Sociodemographic information of participants.

Demographic	Total	
	Mean	SD
Age	39.57 n	6.07 %
Level of education		
SPM	21	21.9
STPM	12	12.5
Diploma	40	41.7
Bachelor's degree	17	17.7
Master's degree	6	6.3
Monthly household income		
RM1001–RM3000	3	3.1
RM3001–RM4000	36	37.5
RM4001–RM6000	50	52.1
RM6001 and above	7	7.3
Age of child when diagnosed		
6 years old	8	8.3
7 years old	15	15.6
8 years old	34	35.4
9 years old	15	15.6
10 years old	8	8.3
11 years old	7	7.3
12 years old	9	9.4

The Pearson product–moment correlation was used to identify the correlation between the variables of interest, in which a p -value of 0.05 and below indicates a statistically significant relationship. A significant negative relationship was found between the age of the mothers and parental expectations ($r = -0.267, p < 0.01$), while a significant positive relationship was found between level of education and behavioural expression ($r = 0.255, p < 0.05$). No significant association was found between socioeconomic variables and depressive symptomatology. However, parental stress in the form of parental expectations was found to be significantly associated with depressive symptomatology, such that an increase in parental expectations is suggested to significantly increase depressive symptomatology ($r = 0.412, p < 0.01$). Table 2 shows the result for other variables of interest.

Table 2. Correlation coefficient of sociodemographic information, parental stress, and depressive symptomatology.

Variable	Mean	SD	1	2	3	4	5	6	7	8
1 Age	39.67	6.06								
2 Level of education	4.74	1.17	0.210 *							
3 Average household income	3.64	0.67	0.293 **	0.120						
4 Number of children	3.38	1.47	0.177	−0.224 *	−0.042					
5 Emotional expression	37.85	8.77	−0.048	0.139	−0.079	0.073				
6 Parental sacrifices	27.26	6.25	−0.150	−0.049	−0.057	−0.133	0.239 *			
7 Parental expectations	13.11	3.34	−0.267 **	−0.006	−0.076	−0.035	−0.038	0.144		
8 Behavioural expression	12.5	3.26	−0.092	0.255 *	−0.167	−0.068	0.440 **	0.504 **	−0.070	
9 DepressionSymptomatology	19.14	7.88	0.119	−0.165	0.007	0.029	0.154	0.412 **	0.143	0.068

* $p < 0.05$; ** $p < 0.01$.

Further analysis used multiple linear regression, in which the assumptions of normality, multicollinearity, and independence of errors were met. The independent variables are sociodemographic information and parental stress, while the dependent variable is depressive symptomatology. The analysis found a significant interaction between parental expectations and depressive symptomatology ($B = 0.466, p < 0.01$). This means that the depressive symptomatology experienced by parents of children with ADHD is predicted to increase by 0.466 standard deviation units with every 7.88 increase in CES-D score. Overall, parental stress was found to contribute a 23.2% variance in explaining depressive symptomatology experienced by the participants ($F [7,95] = 48.03, p < 0.001$). More information can be seen in Table 3.

Table 3. Multiple regressions of sociodemographic information, parental stress, and depressive symptomatology.

Predictors	R ² Change	β	SE B
Step 1	0.052		
Age		0.165	0.140
Level of education		−0.198	0.699
Average household income		−0.017	10.257
Step 2	0.232 ***		
Emotional expression		0.153	0.090
Parental sacrifices		0.466 **	0.138
Parental expectations		0.137	0.228
Behavioural expression		−0.161	0.296

** $p < 0.01$; *** $p < 0.001$.

4. Discussion

The current research aims to identify the parental stress experienced by mothers of children with ADHD in addition to identifying the status of their mental health. This is achieved by measuring their stress level based on four main domains and identifying depressive symptomatology experienced by the mothers. Socioeconomic status was also considered as a variable of interest.

The present study found high parental stress experienced by mothers of children with ADHD, specifically within the domain of parental sacrifices, which puts their mental health at risk. This is consistent with past studies [11,12,14], in which parents of children with ADHD have higher levels of stress as compared to typically developed children or children with other disorders [12,13]. This can be explained by the symptoms of ADHD, in which the children tend to be more active than other children [10,11]. Additionally, some children with ADHD tend to be impulsive and inattentive, resulting in behaviours that are performed without considering consequences, as well as difficulty following rules and instructions [10,11]. Mothers are then expected to make sacrifices to manage these behaviours, so much so that their resources can be depleted faster compared to other mothers. Examples of sacrifices based on the measurements used are in terms of sleep schedules, inability to perform leisure activities, inability to enjoy attending gatherings, and many others [20]. When such sacrifices are made and the behaviours are still present, it is not surprising that a sense of hopelessness can start to exist. This is due to the nature of ADHD, which is suggested to be a lifelong disorder, which means that the symptoms can exist throughout childhood, adolescence, and even adulthood [6]. This could explain the significant positive interaction between parental sacrifices and depressive symptomatology.

In relation to parental stress, the age of the mothers and level of education was found to be significantly associated with parental stress. Results show that as the mothers' age increases, their stress due to parental expectations decreases. This is consistent with a past study, which found that mothers who are more experienced are able to manage their stress better [16]. Furthermore, the added experience that comes with age helps mothers to better regulate their expectations to their children's development. Expectation management is beneficial because they will then have more realistic expectations toward the children. The

realistic expectations are possibly a reflection of acceptance of the children's condition that they will not behave similar to typically developed children. A study found that one reason for parents to hesitate to seek help from a professional is because they first need come to accept that the problem is beyond what they can handle themselves [25]. Once the mothers are able to accept the situation that they are in, they can then focus on problem solving and identify the best method for their family to adapt to the demands of the child that has ADHD. In addition to age, level of education was found to increase parental stress due to the behavioural expression of ADHD. This can be explained due to the atypical progress of the children's behavioural expression in relation to their development. The discrepancies between the knowledge that the parents possess due to their level of education does not coincide with the behaviours shown by the children creating stress. It is also suggested that those with high cognitive functioning tend to ruminate and worry more [26], which means that parents with a high level of education tend to be affected more by the behavioural manifestation of the ADHD symptoms. This suggests the benefit of cognitive behavioural therapy for parents so that they can manage the way they think, feel, and behave with regard to the condition of their children. Therefore, intervention can be beneficial for the parents as well as the children.

5. Conclusions and Recommendation

The findings of the current study provide empirical support of the relationship between parental stress and the mental health among mothers of children with ADHD. This highlights the importance of caring for the mothers as they are caring for their children. Although no socioeconomic status was found to be a significant predictor to mental health, some sociodemographic factors were found to be associated with the parental stress. The empirical information can then be used to expand on policies to provide further assistance to mothers of children with ADHD. Since socioeconomic status is not a significant predictor of parental stress and the mental health of the mothers, other types of resources may be important to the mothers, which need to be identified by future studies. Moreover, future studies can expand on the limited number of participants of the current study, in addition to diversifying the race of the participants, since the samples of the current research were only among Malays. It is also suggested that future studies focus on qualitative methods to have an in-depth understanding of the stress experienced by the mothers and perform an analysis of needs regarding the resources required by the mothers to manage their parental stress.

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