

## THE RELATIONSHIP BETWEEN PARENTAL ANXIETY, CHILD'S BEHAVIORAL INHIBITION AND CHILD ANXIETY

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### ABSTRACT

The purpose of this cross-sectional study was to investigate the role of a child's behavioral inhibition in mediating the relationship between parental anxiety and childhood anxiety in the Malaysian context. Participants were 92 parents (father = 23, mother = 69) of young children aged four to six years old. They completed three measures which were The Beck Anxiety Inventory (BAI), The Preschool Anxiety Scale (PAS) and Behavioral Inhibition Questionnaire (BIQ). Results indicated that there was a correlation between; (i) parental anxiety and child anxiety; and (ii) child's behavioral inhibition and child anxiety, which supported our hypothesis. However, our findings did not provide support for the hypothesis that a child's behavioral inhibition plays a mediating role in the association between parental anxiety and childhood anxiety. Although this study does not illuminate the mediating role of a child's behavioral inhibition, our results still provided a groundwork for the development of a specific early intervention program for young children in Malaysia with childhood anxiety symptoms, with the inclusion of precursors of the presence of parental anxiety and child's behavioral inhibition. Future improvements should focus on recruiting a larger sample size and incorporating the feedback from both father and mother in completing the measures.

**Keywords:** parental anxiety, child anxiety, child's behavioral inhibition, mediating effect

### INTRODUCTION

Anxiety disorder is known as one of the prevailing health problems affecting children and adolescents (Canals et al., 2018; Ghandour et al., 2019). According to the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM-5; American Psychiatric Association, 2013), it refers to a group of the condition including separation anxiety disorder, selective mutism, specific phobia, social anxiety disorder, panic disorder and generalized anxiety disorder. In Malaysia, a study has raised a concern about the internalizing problems manifested by preschool children as 28% of the study sample was found to be in the clinical level of internalizing symptoms (Ahmad et al., 2016). The manifestation of anxiety symptoms is associated with the quality of life of children and adolescents in terms of health, emotional and social functioning (Raknes et al., 2017). These studies imply that preoccupation with fear and/or anxious thoughts accompanied by somatic symptoms of anxiety have limited the abilities of anxious children and adolescents to behave typically as their peers in things such as

getting along with friends and concentrating in class. Furthermore, the history of childhood anxiety disorder was found to associate with poor health outcomes, financial concern, and interpersonal issues in adulthood (Copeland et al., 2013).

Based on previous research, it has been found that parental anxiety is one of the main predictors of childhood anxiety. Two meta-analyses studies displayed that there is an elevated risk of childhood anxiety among offspring of parents with anxiety disorders (Micco et al, 2009; Lawrence et al., 2019), with extensive finding in Lawrence et al. (2019) found that the risk was more notable in particular anxiety disorders in children which were generalized anxiety disorder, separation anxiety, and specific phobia. Another study assessing the effects of parental anxiety on child symptomology also found the association of parental anxiety and child anxiety symptoms (Burstein et al., 2010). Research has consistently explored a number of variables to explain the transmission of parental anxiety towards the development of anxiety symptoms in their offspring. One of the factors is parenting style or parental modelling, in which anxious parents were found to engage in specific parenting behavior such as less warmth, modelling of anxious behavior, and more critical (Drake & Ginsburg, 2011; Crosby Budinger et al., 2012; Teetsel et al., 2013). Anxious parents may experience difficulties to regulate their own emotions (Kerns et al., 2017). Consequently, this will affect their capacities in demonstrating a positive affect that is essential in building their children's self-esteem and sense of competency. Parents with an elevated level of anxiety symptoms also commonly tend to display overprotection towards their children (Möller et al., 2014; Waite & Cresswell, 2015). It has been found that a higher level of controlling behavior in anxious parents is likely to influence their child's interpretation of the environment as threatening which eventually linked to the development of extreme fear or avoidant behavior in these children (Affrunti & Ginsburg, 2012).

Another factor that is found to predict childhood anxiety is a child's behavioral inhibition. Behavioral inhibition is a type of temperament which is described as consistent withdrawal or fear towards novelty in terms of situation or people (Kagan et al., 1984). Children with this temperament may be better known as "shy" children when they encounter unfamiliarity. Studies have shown the establishment of the association between behavioral inhibition and the development of anxiety symptoms in children (Dougherty et al., 2013; Paulus et al., 2014), especially social anxiety disorder (Luis-Joaquin et al., 2020). It was also demonstrated that consistent display of behavioral inhibition since preschool-aged has been linked to, not only social anxiety disorder during adolescence, (Lewis-Morrarty et al., 2014), but also obsessive-compulsive disorder and separation anxiety disorder (Hudson et al., 2018). From the cognitive aspect, the relationship of a child's temperament and childhood anxiety is explained via the deficits of attentional control (i.e., individual's ability to select what they focus on and what they ignore) (Gramszlo et al., 2017). This suggests that even though they are unrelated to the situation, behaviorally inhibited may be biased in concentrating on salient threatening signs (Perez-Edgar, 2018). Furthermore, the stability of behavioral inhibition temperament that is associated with the development of psychopathology is linked with overprotective or over-controlling parenting practices which grant these children less autonomy to explore on their own in the situation whenever they have to encounter novelty (Henderson et al., 2018). Hence, for this reason, children may learn to continue to avoid unfamiliar people or situations which subsequently will pose as a trigger for risk for anxiety disorders.

Previous studies have found the role of a child's behavioral inhibition in explaining the intergenerational transmission of parental anxiety. In a study by Pahl et al. (2012), the potential risk factors of childhood anxiety were examined in preschool children aged 4 to 6 years. It was found that the effect of parental psychopathology (i.e., parental depression and parental anxiety) on anxiety symptoms in children was partially mediated by the child's behavioral inhibition. Correspondingly, another study investigated several predictors (i.e., symptoms of childhood anxiety, temperament, maternal anxiety and depression, violence exposure, sociodemographic factors) using a latent-variable methodology (Mian et al., 2010). Results indicated that a child's temperament (which included inhibition) mediated the association of parental anxiety and childhood anxiety. In a study by Aktar et al. (2013), they also found that the interplay of expressed parental anxiety and infant's fear and avoidance in encountering novel social stimuli was explained by the observed level of the infant's behavioral inhibition. Taken together, these studies illuminated that the association of parental anxiety and childhood anxiety can also be explained by the role of child factors, instead of merely parental factors which able to enhance the available treatment and prevention. Hence, it is essential to build further understanding of the inclusion of the interplay of parental anxiety and a child's behavioral inhibition in the developmental trajectories of child anxiety.

To our knowledge, there is limited research that has been conducted in evaluating parental anxiety and its risk of childhood anxiety symptoms among young children in Malaysia. A study by Samsul Bahari and Dzainudin (2020) has assessed qualitatively the parents' understanding of the occurrence of separation anxiety that may arise in their children due to Movement Control Order (MCO) during COVID-19. Most of the previous research conducted in the Malaysian context has been focusing on investigating the prevalence of anxiety symptoms in adolescent and its relationship with risk factors such as parenting behavior and sociodemographic variables (Latiff et al., 2015; Mousavi et al., 2016; Jafari et al., 2016).

There are also past studies that have been examining the association of the child's temperament and internalizing symptoms of young children in Malaysia. Yap (2015) and Indran (2016) found that children with negative affectivity temperament (i.e., tendency to experience fear, sadness, frustration) are associated with higher externalizing and internalizing problems. Results of another research by Hong et al. (2018) indicated that children with higher emotionality temperament (i.e., cry easily, more fearful, get excited quickly) demonstrated a higher level of anxiety symptoms. However, there is yet a study that has chosen to focus on another theory of child's temperament conceptualized by Kagan et al. (1984) which is behavioral inhibition and its interactions in the relationship between parental anxiety and child anxiety in Malaysia.

Therefore, to fill in the knowledge gap in the Malaysian context, the purpose of the current study was to examine the relationship of parental anxiety, child's behavioral inhibition, and child anxiety, and to extend the finding of previous research on the role of child's behavioral inhibition as a mediator on the association of parental anxiety and childhood anxiety. Specifically, this study hypothesized that: (1) parental anxiety predicted childhood anxiety (2) child's behavioral inhibition predicted childhood anxiety (3) child's behavioral inhibition mediated the relationship of parental anxiety and childhood anxiety. The results of this study would contribute to facilitating clinicians and researchers for further development of specific prevention or intervention program targeting parents and young children with a manifestation of anxiety symptoms in the Malaysian population.

## **METHODOLOGY**

### **Study design**

The design of this study was a correlational study that examined the association between parental anxiety, child's behavioral inhibition, and child anxiety.

### **Participants**

Participants in this study were parents (father or mother) with a child/children aged four to six years old who attended kindergarten. 92 parents (father = 23, mother = 69) were recruited via two methods: 59 parents from seven private kindergartens in the Johor Bahru area (using convenience sampling) and another 33 parents via an online platform (using snowball sampling). The seven private kindergartens in the Johor Bahru area were chosen based on geographical proximity to the author's location during data collection. The online respondents were recruited to increase the sample size as physical data collection had to be halted due to Movement Control Order (MCO).

The range of parents' age was from 25 to 52 years old ( $M = 36.33$ ,  $SD = 5.11$ ). The sample consisted of varied ethnicity with 79.3% indicated to be Malay, followed by Indian (12.0%), Chinese (5.4%) and other races (3.3%). The majority of the parents completed tertiary education (72.8%) and working parents (78.3%). The children in this study were comprised of 48 boys (52.2 %) and 44 girls (47.8%) with a mean age of 5.25 ( $SD = .78$ ).

### **Measures**

#### ***Demographic Information***

The demographic section consisted of personal information of the participant which were age, gender, race, educational level and occupation. Information related to the participant's child age and gender were also included as part of the demographic information.

#### ***The Beck Anxiety Inventory (BAI) (Beck et al., 1988)***

BAI comprises of 21 items (e.g., "Fear of losing control"). The items are rated by a four-point response scale (0 – not at all to 3 – severely). A higher score (total score range = 0 -36) indicates that the parent demonstrates a higher level of anxiety symptoms. BAI has high reliability with internal consistency ranges from .92 to .94 for adults. It also has sound psychometric properties when tested with the nonclinical sample with a high level of internal consistency of .90 and .91 on two different times of administrations (seven weeks) (Creamer et al., 1995). As this study provided a bilingual questionnaire for the participants, Beck Anxiety Inventory – Malay (Mukhtar & Zulkefly, 2011) ( $\alpha = .91$ ) was jointly being used with the BAI. The overall reliability of this measure in this study is .93.

### ***The Preschool Anxiety Scale (PAS) (Spence et al., 2001)***

PAS measures the presence of anxiety symptoms in preschool-aged children (i.e., three to six years old). The anxiety symptoms assessed are comprised of five dimensions: obsessive-compulsive disorder, social anxiety, generalized anxiety, separation anxiety and fear of physical injury. It consists of 28 items (e.g., “Is afraid of crowded or closed-in places”) and is rated by a five-point response scale (0 – not true at all to 4 – very often true). The higher the score (total score range = 0 – 122), the higher the anxiety symptoms manifested by the child. The score of PAS is moderately and positively correlated with the total score of the internalizing scale of the Child Behavioral Checklist (CBCL) (mother = .68, father = .59). In addition, PAS is found to have a high-reliability coefficient (between .59 and .86) in the community sample (Broeren & Muris, 2008). This scale was translated into Malay with the assistance of context experts as this study aimed to provide a bilingual questionnaire to the participants. The overall reliability of PAS in this study is .92.

### ***Behavioral Inhibition Questionnaire (BIQ) (Bishop et al., 2003)***

BIQ assesses the presence of behavioral inhibition (i.e., temperamental characteristics related to shyness and withdrawal) in preschoolers aged three to six years old. It comprises 30 items (e.g., “Dislikes being the center of attention”) and is rated by a seven-point response scale (1 – hardly ever to 7 – almost always). A higher score (total score range = 30 – 210) indicates that the child has a higher level of behavioral inhibition. There are sound psychometric properties for BIQ with internal consistency above .80 and test-retest reliability (mother = between .60 and .78, father = between .55 and .74). Another study conducted with a nonclinical sample aged 4 to 7 years old revealed satisfactory reliability with Cronbach’s alpha varied between .79 to .96 (Broeren & Muris, 2009). This scale was translated into Malay with the assistance of content experts as this study aimed to provide a bilingual questionnaire to the participants. The overall reliability of this scale in this study is .74.

## **Procedure**

A pilot study was conducted with 10 parents from a kindergarten to assess the reliability of the Malay translation of PAS and BIQ ( $\alpha = .78$ ). Ethical consent for this study was obtained from the university ethics committee. For the study site approval, permission was attained from the principal of the selected registered private kindergarten. The set of information sheets, informed consent, and research questionnaires were being sent to parents with the assistance of kindergarten teachers. The survey was being taken home to be completed by a parent (father or mother). For each selected kindergarten, the number of returned questionnaires to the author was approximately half of the initial number of questionnaires set distributed to each kindergarten.

66 sets of questionnaires were obtained from six different private kindergartens. However, seven responses had to be omitted from analyses due to incomplete questionnaires. Furthermore, the recruitment of participants from private kindergartens had to be halted earlier than the initial plan due to the Movement Restricted Order implemented by the Malaysian government due to the COVID-19 pandemic. The recruitment of participants was resumed via

the online method. 33 parents completed the questionnaire via the Google Form link which in sum, 92 questionnaires were able to be obtained for this study.

### Statistical Analyses

All data were entered and analyzed using IBM SPSS (version 25). The data on the correlational relationship between parental anxiety, behavioral inhibition and child anxiety was assessed by calculating Pearson’s correlation coefficient. To examine the mediating effect of behavioral inhibition on the relationship between parental anxiety and child anxiety, Baron and Kenny’s (1986) four-step approach was performed in which several regression analyses was conducted.

Firstly, to measure the relationship significance of parental anxiety and child anxiety, simple regression analysis was conducted. The second step included a simple regression analysis with parental anxiety and behavioral inhibition. The third step involved a regression equation of behavioral inhibition and child anxiety while controlling for parental anxiety. Finally, the last precondition of Baron and Kenny’s (1986) approach was to observe the reduction of the effect of parental anxiety on child anxiety, when the child’s behavioral inhibition was controlled. The final approach was conducted to establish the mediational role of a child’s behavioral inhibition. Bootstrapping test (Bollen & Stine, 1990) was also included to evaluate the indirect effect (i.e., the amount of mediation) by using the PROCESS macro tool for SPSS (Hayes, 2009).

## RESULTS

### Means, Standard Deviations and Intercorrelation among Variables

Table 1 shows the means, standard deviations, and intercorrelations among parental anxiety, child’s behavioral inhibition, and child anxiety. It was found that parental anxiety was significantly correlated with child anxiety ( $r = .37, p < .001$ ). Furthermore, the correlation between behavioral inhibition and child anxiety was also statistically significant ( $r = .56, p < .001$ ). Hence, the results supported the hypothesis whereby higher parental anxiety and higher child’s behavioral inhibition predicted higher symptoms of childhood anxiety.

Table 1  
*Means, Standard Deviations and Intercorrelations among Variables*

Variables	<i>M</i>	<i>SD</i>	1	2	3
1. Parental Anxiety	11.10	10.84	1		
2. Child’s Behavioral Inhibition	100.85	24.32	.11	1	
3. Child Anxiety	35.33	17.75	.37*	.56*	1

$N = 92; *p < .001$

### The Effect of Child’s Behavioral Inhibition on The Relationship between Parental Anxiety and Child Anxiety

The first regression analysis (refer to Table 2) indicated that parental anxiety significantly predicted child anxiety ( $\beta = .37, p = .00$ ), accounting for approximately 14% of the variance in the score of child anxiety ( $F(1, 90) = 14.25, p = .00, R^2 = .14$ ). In the second regression analysis

(refer to Table 3), it was found that parental anxiety did not significantly predicted behavioral inhibition ( $\beta = .11$ ,  $p = .32$ ), accounting approximately only 1% of the variance in child's behavioral inhibition score ( $F(1,90) = 1.02$ ,  $p = .32$ ,  $R^2 = .01$ ). Next, the third regression analysis (refer to Table 4) revealed that behavioral inhibition significantly predicted childhood anxiety ( $\beta = .53$ ,  $p = .00$ ), even when parental anxiety was controlled. 41% of the variance in child's anxiety score could be attributed to child's behavioral inhibition ( $F(2, 89) = 31.32$ ,  $p = .00$ ,  $R^2 = .41$ ) when parental anxiety was included in the analysis.

Based on the mediation precondition by Baron and Kenny (1986), the regression results above suggested that the mediating role of a child's behavioral inhibition in the relationship between parental anxiety and child anxiety is not established. This was because the precondition of the predictor variable (i.e., parental anxiety) must significantly associate with the mediating variable (i.e., behavioral inhibition) is not met (refer to Figure 1). The results of bootstrapping with 1000 bootstrap samples yielded an indirect effect of parental anxiety on childhood anxiety via a child's behavioral inhibition,  $b = .09$ , 95% CI (-.06, .31). As the confidence interval does include zero, this suggests that the indirect effect was statistically insignificant from zero (Bollen & Stine, 1990). This is consistent in supporting that there is no presence of the mediating role of the child's behavioral inhibition in the association of parental anxiety and child anxiety.

Table 2

*Regression Analysis for Parental Anxiety Predicting Child Anxiety*

Variable	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	<i>p</i>
Parental Anxiety	.61	.16	.37	3.78	.00

 $R^2 = .14$ 

Table 3

*Regression Analysis for Parental Anxiety Predicting Child's Behavioral Inhibition*

Variable	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	<i>p</i>
Parental Anxiety	.24	.24	.11	1.01	.32

 $R^2 = .01$ 

Table 4

*Regression Analysis for Parental Anxiety and Child's Behavioral Inhibition Predicting Child Anxiety*

Variable	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	<i>p</i>
Parental Anxiety	.51	.13	.31	3.84	.00
Child's Behavioral Inhibition	.39	.06	.53	6.47	.00

 $R^2 = .41$ 

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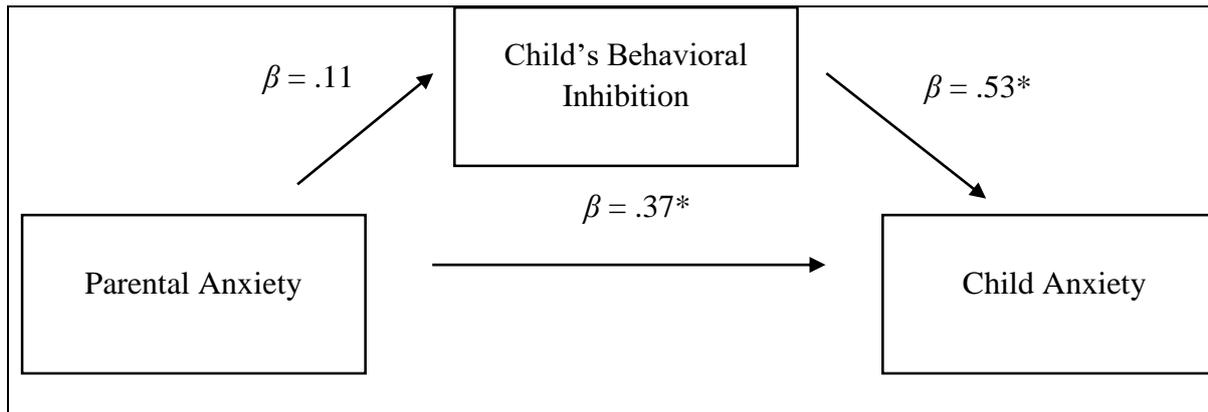


Figure 1. The Role of a Child's Behavioral Inhibition as a Mediator on the Relationship of Parental Anxiety and Child Anxiety

## DISCUSSION OF THE FINDINGS

This study aimed to investigate the relationship of child anxiety, child's behavioral inhibition, and parental anxiety in the Malaysian population and to the extent previous research on the mediating role of a child's behavioral inhibition in the relationship of child anxiety and parental anxiety. Consistent with previous findings (Micco et al., 2009; Burstein et al., 2010; Lawrence et al., 2019), the results of this study reported a significant association between parental anxiety and child anxiety. This suggested that children manifested higher symptoms of childhood anxiety when their parents also reported higher anxiety symptoms. Parents with elevated anxiety symptoms may demonstrate more parental factors such as over-controlling parenting style (Möller et al., 2014; Waite & Cresswell, 2015) or emotional dysregulation (Kerns et al., 2017) in which may substantially shape the characteristics of anxiety symptoms as early as in the toddlerhood period.

Another hypothesis concerning the relationship between a child's behavioral inhibition and child anxiety was also supported by this study. Children who were higher on behavioral inhibition based on their parent's observation demonstrated a higher level of childhood anxiety symptoms. This is consistent with previous research that found the association of behavioral inhibition and child anxiety (Dougherty et al., 2013; Paulus et al., 2014). This finding supported the role of biological vulnerabilities (i.e., temperamental) as an independent risk factor of any childhood anxiety disorder (American Psychiatric Association, 2013).

In addition, our final hypothesis of the role of a child's behavioral inhibition in the association of parental anxiety and child anxiety was not supported by the findings of this study. The mediating relationship was not able to be established in this study mainly due to parental anxiety that was not related to the child's behavioral inhibition. The result is contrary to the findings of previous studies that have established the mediating role of a child's behavioral inhibition in the transmission of parental anxiety towards the development of child anxiety (Mian et al. 2010; Pahl et al. 2012; Aktar et al., 2013). However, similar to our findings, Hudson et al. (2018) has found that there is no significant role of a child's behavioral inhibition across time in the interaction of maternal anxiety and the development of childhood anxiety. This suggested that the relationship of parental anxiety and child anxiety may be better explained with other variables such as parental factors (e.g., parenting style, parenting stress),

environmental factors (e.g., negative life events), and child factors (e.g., attachment). Moreover, instead of mediating the association of parental anxiety and child anxiety, the child's behavioral inhibition may act as a moderator in influencing the strength of the relationship between parental anxiety and child anxiety. A study has found that children with anxious parents and possessed higher behavioral inhibition were found to develop anxiety disorder during preschool age in comparison to children with a lower level of behavioral inhibition (Aktar et al., 2017).

There were some limitations in this study that should be given attention for further improvements in future research. Firstly, this study had a small sample size due to unforeseen circumstances during data collection. Hence, it provided smaller statistical power related to the confidence level of the study and margin of error (Jones et al., 2003; Faber & Fonseca, 2014). Furthermore, a bigger sample size would reflect more conclusive results about the general population in Malaysia especially in terms of heterogeneity and socioeconomic status.

Another shortcoming of this study is the assessment of child anxiety symptoms and the child's behavioral inhibition was completed by either parent (father or mother). There is a potential difference between father's and mother's perception towards their child's behavior which might affect the score of questionnaires as the mother responded more correspondingly with their children-report of anxiety symptoms (Jansen et al., 2017). Hence, future research may incorporate feedback from both father and mother to obtain a more accurate score on children's anxiety symptoms and the presence of behavioral inhibition.

In terms of assessing anxiety in both parents and children, a lack of diagnostic data is also a limitation in this study. Future research could consider using diagnostic interviews such as The Structured Clinical Interview for DSM-5 (SCID-5) (First et al., 2016) and Mini International Neuropsychiatric Interview (MINI) (Sheehan, 2015). The use of a clinician's observation of the child's behavioral inhibition is also recommended to include a thorough assessment of the temperament of the child.

Finally, this present study was conducted using the cross-sectional design which only allows the researchers to assess the relationship of parental anxiety, child's behavioral inhibition, and childhood anxiety at a given point in time. It may be beneficial in the future to conduct a longitudinal study to allow researchers to observe the pattern of the association of the study variables over time. It will also provide an opportunity to determine causal relationships which will help to enhance the comprehension of the development of childhood anxiety symptoms.

Despite these limitations, this present investigation has demonstrated the association of parental anxiety, child's behavioral inhibition, and child anxiety in the Malaysian context. It also suggests some implications. Firstly, the findings of this study may facilitate clinicians and researchers for further development and implementation of relevant early intervention program for parents and young children in Malaysia with childhood anxiety symptoms. Furthermore, identifying anxiety symptoms in parents of anxious children and the presence of a child's behavioral inhibition will further assist in designing a specialized treatment plan that may improve the efficacy of the early intervention in the Malaysian population. Suitable activity for preschoolers such as drawing should be included in the intervention strategies as it has been found to improve the socioemotional development of young children (Zakaria et al., 2020; Zakaria et al., 2021). Nevertheless, as this study was unable to yield additional support on the role of child's behavioral inhibition as a mediator, it warrants future research to explore other

relevant variables such as parenting style, life events, and child's interpretation bias to explain the intergenerational transmission of parental anxiety and child anxiety.

## CONCLUSION

This study has discussed in detailed about the relationship between parental anxiety, child's behavioral inhibition and child anxiety. Results showed that the presence of parental anxiety and child's behavioral inhibition influenced the anxiety symptoms in younger children. Hence, the findings of this study should be extended in the future to enhance the knowledge of childhood anxiety in Malaysia

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