

The Relationship between Children's Temperament, Mothers' Perceived Stress and Social and Emotional Development of Preschool Children from Malaysia Urban Low-income Households

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Abstract

It is well known that young children from low-income households are prone to develop social and emotional deficits. However, relatively little research has been conducted on preschool children from urban low-income households. This study's objective was to examine the relationship between children's temperament, mothers' perceived stress, and the social and emotional development of preschool children from low-income households in urban Malaysia. 360 mothers of preschool children aged 42 to 53 months, whose children attend Taska PERMATA KEMAS from low-income households in the Klang Valley, were assessed through a set of questionnaires to determine the relationship between the variables. Consistent with previous research, the results indicated that children who experience and exhibit more negative emotions and have a low ability to regulate their thoughts, emotions and behaviour tend to exhibit more deficits in their social and emotional development. In addition, mothers who experience more stress in their daily lives have children who display greater deficits in their social and emotional development. As this study is cross-sectional in nature, future studies should consider employing a longitudinal design to establish causality in the relationship. Additionally, adopting a multi-informant approach would provide a more comprehensive understanding of the relationship.

Keywords: Temperament, Social and Emotional Development, Low-income, Mothers' Perceived Stress, Preschool Children

Introduction

Children's social and emotional skills continue to develop at various ages and stages as they transition from highly dependent infants to increasingly independent pre-schoolers with increasingly complex skills and abilities (Schaefer & DiGeronimo, 2000). According to research in the field of child development, a strong social and emotional foundation in early childhood is an excellent predictor of later competencies. In the literature, researchers refer to social and emotional development using a wide variety of terms such as social competence, attachment, emotional competence, self-perceived competence, temperament/personality (Denham, Wyatt, Bassett, Echeverria & Knox, 2009), behavioural problems and self-regulation (Haller & Darling-Churchill, 2016). Accordingly, this study will use the terms "emotional problems", "behavioural problems", "social competence", and related terms interchangeably to refer to the discussion of social and emotional development of children.

Several studies have linked healthy social and emotional development to overall child functioning and well-being, including school readiness, academic achievement (Denham, 2006; Zins et al., 2004), mental health (Jones et al., 2015), stress management, and the formation of positive relationships (Wolf et al., 2021). However, social and emotional maladjustment can begin in early childhood and persist into adulthood, particularly among the vulnerable groups such as children from low-income

households. It is reported that 250 million, or 43 percent, of children in their early childhood years from low- and middle-income countries such as Malaysia failed to achieve their full developmental potential due to poverty (World Health Organization, 2016). It is also worth highlighting that Malaysia has made significant strides in reducing urban poverty, with a decrease from 25.5% in 1970 to 1% in 2012 (Siwar et al., 2016). However, the rapid pace of urbanization in Malaysia has given rise to various challenges for urban residents, including affordable housing, employment opportunities, and the availability of quality services and infrastructure. This rapid urban growth has also brought about economic and social costs, negatively impacting the quality of life for urban dwellers, leading to increased unemployment, crime rates, social issues, and environmental concerns (Siwar et al., 2016). Furthermore, in a study conducted by the United Nations Children's Fund (UNICEF) Malaysia, a team of researchers revealed a concerning level of poverty among children residing in low-cost flats known as Program Perumahan Rakyat (PPR) in the city of Kuala Lumpur. The study found that 99.7% of children in low-cost flats lived in relative poverty, with 7% living in absolute poverty. Moreover, it was revealed that only 50% of children aged 5 to 6 years attended preschool, significantly lower than the national enrolment rate of 92% in 2015. The study also found that one in three households lacked reading materials for children under 18, while four in ten households had no toys for children under 5 (UNICEF, 2018). Data from past research underscore the urgent need in the present study to particularly address the social and emotional development of children from urban low-income households, as this specific population faces unique contextual challenges that can potentially hinder children's development.

Furthermore, a substantial body of research indicates that emotional and behavioural problems in children tend to persist and remain relatively stable over time. Additionally, living in low-socioeconomic households has been found to directly impact children's social and emotional development by increasing risk factors and limiting protective factors. Due to limited financial resources, families with low-income experience a scarcity of opportunities for stimulating and enriching environment such as access to reading materials. Consequently, children from these families are more likely to be exposed to the detrimental effects associated with living in low socioeconomic households, such as behavioural problems and

low academic achievement (Engle & Black, 2008). In Malaysia, a study conducted by Mohamed and Toran (2018) revealed that children from low-income backgrounds exhibit lower levels of social-emotional development compared to their counterparts from higher income backgrounds. In another recent study on the prevalence of mental health conditions among Malaysian children, 11.1% of children under the age of 18 have mental health issues. Further analysis found that children from low-income families with a parent with a mental health condition were more likely to develop mental health conditions (Sahril et al., 2021). Many individual and environmental factors contribute to the social and emotional development in children. Specifically, it has been determined that children's individual temperament directly influences the social and emotional development both in normal population and among vulnerable groups. Temperament is defined as the unique combination of emotional, motor, and attentional reactivity to stimulation that is biologically determined and influenced (Rothbart & Bates, 2006). These individual variations in temperament affect how children react and respond to their surroundings. The Process-Person-Context-Time (PPCT) model of Bronfenbrenner's bioecological theory (Bronfenbrenner, 1989; Bronfenbrenner & Morris, 2006) explains that development is the result of a reciprocal interaction between a child and the embedded environment (Bjorklund & Blasi, 2012; Krishnan, 2010). It has been discovered that children with difficult temperaments, such as those who tend to experience more negative emotions or who are extremely shy, have a more difficult time adjusting to their surroundings, which in turn hinders their ability to develop essential social and emotional skills. In addition to the individual factor, children's development may be hindered by negative environments, such as living in low-socioeconomic households. Children growing up in low-income households are often at risk for several negative outcomes due to the risk factors associated with low-income backgrounds such as malnutrition, low-quality childcare and inaccessible amenities. Therefore, the interaction between individual and environmental factors may pose additional obstacles for the optimal development of children from low-income households. Numerous studies have also demonstrated the association between temperament traits and various aspects of social and emotional development in children, such as behavioural issues Gartstein et al (2012), internalising behavioural problems Behrendt et al (2019); Nielson et al (2019), externalising behaviours Nielson et al (2019), social competence Bohlin et al (2005), and school readiness (Potmesiloya & Potmesil, 2021). Thus, the existing body of research acknowledged the significance of addressing children's temperament in relation to preschool children's social and emotional development specifically in the context of urban low-income backgrounds.

Parental stress has also been found to directly influence the social and emotional development of children. In the context of the present study, maternal perceived stress is used to discuss and evaluate parental stress. Stress occurs when "the situation is perceived as threatening or otherwise demanding, and there are insufficient resources available to deal with it" (Cohen et al., 1983). A variety of factors can influence an individual's perception of the stressfulness of life and his or her ability to cope with such stress (Lazarus, 1966; Phillips, 2013). The challenges of living in a low-socioeconomic backgrounds have an impact on numerous aspects of parents' daily lives and well-being, including their stress levels. Consequently, it has negative effects on the development of children. Berger et al (2009) noted that low-income status affects the quality of parenting in part because parents in this group are more likely to be depressed and stressed, making them less likely to respond sensitively to their children's needs. Financial stress, limited housing and employment opportunities, and a lack of social support are some of the obstacles faced by low-income

parents that cause them to develop a higher stress level than their more privileged counterparts. Belsky's ecological framework on parenting explains the relationship between parental stress and child outcomes, parenting, and family functioning. This model proposes that three factors influence parenting: the parent's personal resources, contextual sources of stress and support, and the characteristics of the child. These dysfunctions are associated with poor parental functioning, which will ultimately have negative effects on child and family outcomes (Belsky, 1984). Numerous studies have established a correlation between parental stress and different aspects of children's social and emotional development. Researchers discovered a correlation between parental stress among mothers and children's behavioural problems (Ward & Lee, 2020; Crum & Moreland, 2017; Liu & Wang, 2015), anxiety and withdrawal (Crum & Moreland, 2017; Rodriguez, 2011), depressive symptoms (Rodriguez, 2011), and low child coping competence (Cappa et al., 2011).

Understanding the relationship between the aforementioned variables has been the focus of a significant amount of study. However, the majority of notable studies have been conducted within the context of Western societies, and urban low-income samples in developing nations such as Malaysia have received scant attention. This study aims to contribute to the existing literature by empirically determining the relationship between children's temperament (i.e., negative affectivity and effortful control), mothers' perceived stress, and preschool children's social and emotional development.

Objectives of the Study

The general objective of the study is to determine the relationship between children's temperament, mothers' perceived stress and the social and emotional development of preschool children from low-income households. Meanwhile, the specific objectives include to describe the demographic background of the participants and to examine the correlation between children's temperament (i.e., negative affectivity and effortful control), mothers' perceived stress with social and emotional development in urban low-income preschool children.

Literature Review

Temperament and Social and Emotional Development

Numerous studies have attempted to explain the relationship between children's temperament and their social and emotional development. For example, research has investigated the relationship between early temperament traits and the development of behavioural problems in toddlers and pre-schoolers. 361 infants and their carers from a small U.S. city participated in the study. Results indicated that negative affect traits were associated with internalising problems, whereas only frustration, sadness, and low falling reactivity were the only sub-trait of negative affect traits that correlated with externalising behaviour (Gartstein et al., 2012). In a more recent longitudinal study, the same pattern was observed. Researchers examined the relationship between surgency, negative affectivity, and effortful control with social and emotional outcomes among 542 typically developing preschool children. They discovered that negative affectivity was specifically associated with internalising behavioural problems among the children (Behrendt, Wade, Bayet, Nelson & Bosquet Enlow, 2019). In addition, in the same study which followed children from infancy to preschool using longitudinal path analysis, researchers found that temperament is relatively stable in early life and that different dimensions of temperament influence various social and emotional outcomes during preschool (Behrendt et al., 2019).

In another study, researchers followed a cohort of 81 infants and their mothers until the children reached the age of 8 to examine how a temperament trait known as behavioural inhibition affects social competence, which was determined by measuring the children's prosocial orientation, social initiative, and peer popularity. Behavioural inhibition is the tendency to react with fear and withdrawal to social and non-social novelty, which is related to the negative affectivity dimension of temperament. The researchers discovered that behavioural inhibition at the age of four predicted the children's school-age social competence (Bohlin et al., 2005). Furthermore, Ortiz and Barnes (2018) examined the importance of parents' perceptions of early child temperament and their own personality traits in predicting and understanding their reports of socioemotional and behavioural development at 51 months. The longitudinal study conducted among preschool children and their parents revealed that a challenging temperament in the second year predicted parent reports of later problems in externalising and internalising behaviours at both stages of analysis (Ortiz & Barnes, 2018). Besides, a study has been conducted to investigate the relationship between different aspects of temperament and the externalising or internalising behaviour of 36-month-old children. Mothers, fathers, and teachers filled out questionnaires, and home observation was also conducted. Four aspects of temperamental dimensions that predict externalising and internalising behaviours are anger/frustration, fear, sadness, and impulsivity subscales. As predicted, impulsivity and anger were positively associated with externalising behaviour, impulsivity was negatively associated with internalising problems, and fear was positively associated with internalising problems (Karreman et al., 2010).

In another interesting study, a group of researchers observed the association between temperament traits and psychiatric disorders. Dougherty and colleagues (2011) discovered that certain temperament traits in preschool-aged children were associated with psychiatric disorders. In particular, temperamental dysphoria, a component of negative affectivity, was linked to depression, whereas low exuberance, which is closely linked to the effortful control dimension of temperament, and low sociability, which is closely linked to the surgency dimension of temperament, were linked to anxiety disorders. Disinhibition, another trait closely associated with the dimension of effortful control, and dysphoria were found to be associated with oppositional defiant disorder (Dougherty et al., 2011). Moreover, 73 mother-child pairs from the Head Start programme in the United States have participated in a study. The objective of the study was to examine the connection between children's temperament traits and their attention skills. Children in the study ranged in age from three to five and came from economically disadvantaged households. Multiple hierarchical regression analysis revealed that the relationship between effortful control and attention skills was statistically significant. Attention skills are essential for the cognitive, socioemotional, and motivational development of children (Chang & Burns, 2005).

Mothers' perceived stress and Social and Emotional Development

Past research has demonstrated that parental stress, particularly among mothers, has a direct impact on children's social and emotional development. A study conducted with a sample of parents from low-income families revealed, for instance, that parental stress for both mothers and fathers was negatively associated with their responsiveness towards their children. Consequently, parents' lack of responsiveness exacerbated their children's behavioural issues (Ward & Lee, 2020). In a separate study, Crum and Moreland (2017) examined the relationship between parental stress and children's social-emotional behavioural outcomes in a sample of mothers, fathers, and their 2 to 6-year-old children. High

parental stress was found to be associated with low social competence, high anxiety or withdrawal, and high levels of anger or aggression among children.

In China, a one-year longitudinal study on parenting stress and children's internalising and externalising behaviour problems has been conducted. 311 preschool-aged children's mothers and fathers participated in the study. The findings revealed that maternal parenting stress had direct effects on both internalising and externalising behavioural issues. The study also found no direct correlation between fathers' parenting stress and their children's internalising and externalising behaviour issues (Liu & Wang, 2015). In a separate study, researchers examined the relationship between maternal parenting stress and the internalising behaviours of children. Specifically, 92 mother-child pairs were recruited and evaluated. Results indicated that maternal parenting stress significantly predicted children's anxious and depressive symptoms (Rodriguez, 2011).

Cappa and colleagues (2011) conducted bidirectional research to determine the relationship between parental stress and children's emotions, academic performance, and social coping skills. The data was collected from a sample of 610 parents and preschool children enrolled in the Pace Study programme in the United States. Using cross-legged panel analysis, the researchers determined that parental stress predicted later child coping competence and that child coping mechanisms predicted later parental stress (Cappa et al., 2011).

Based on previous research, it has been determined that temperament and parental stress primarily predicts many aspects of children's social and emotional development. Despite the abundance of research conducted on the topic, most studies are conducted outside of Malaysia. As a result, there is a limited understanding of the relationship between temperament, mothers' perceived stress, and the social and emotional development of preschool-aged children in Malaysia, particularly those from low-income households residing in urban areas. Further research is needed to understand this relationship within the unique context of Malaysia urban areas. To address this gap in research, the present study aims to investigate the relationship between children's temperament, mothers' perceived stress, and the social and emotional development of preschool children in Klang Valley, Malaysia's most urbanized area. The study seeks to achieve the following research objectives: (1) to provide a description of the respondents' background profile and (2) to examine the relationship between children's temperament, mothers' perceived stress, and their social and emotional development. This study aims to contribute to the current body of knowledge by providing insights into the social and emotional development of preschool children from urban low-income background.

Methods

Research Design

In the present study, a quantitative correlational design was used to examine the association between children's temperament, mothers' perceived stress and children's social and emotional development. This study specifically examined preschool-aged children (aged 42 to 53 months) from low-income, below-40 (B40) households in urban Malaysia. The B40 group is classified as the "Below 40%" group, which consists of individuals with a monthly household income of RM4,850 or less. Specifically, mothers of preschool children enrolled at government-run childcare centres namely Taska PERMATA KEMAS, were recruited for the study as majority of the children who attend Taska PERMATA KEMAS are from B40 households. Before obtaining the total number of respondents, a single-stage cluster sample was conducted to divide childcare centres into clusters. Then, a simple random sampling technique was used to select Taska PERMATA KEMAS in each of the urban districts of Klang

Valley: Sentul, Bangsar-Pudu, Keramat, Gombak, Hulu Langat, Petaling, Klang, and Putrajaya. In the cluster sampling method, the population is divided into clusters from which a simple random sample is drawn. In order to conduct simple random sampling, a number was assigned to each childcare centre. The numbers were written on papers, which were then folded in order to preserve anonymity. Then, papers with numbers were selected at random, one by one. Given the fact that all the papers had been collected, 21 day-care facilities were finally chosen based on the number of papers collected. Then, all of the students from each childcare facility that had been selected earlier were chosen to participate in the study. As the questionnaires were intended to be completed by mothers, all the mothers of the selected children were automatically selected to complete the surveys. The final sample size for this investigation was 360 individuals.

Variables and Measurements

Social and emotional development of children was measured using Ages and Stages Questionnaires: Social-Emotional (ASQ:SE). This parent-completed questionnaire covers 7 areas of social-emotional development in young children namely self-regulation, compliance, social communication, adaptive functioning, autonomy, affect and interaction with people (Squires et al., 2002). Specifically, this study utilized questionnaire for age group of 48 months old (ranges from 42 months 0 days to 53 months 30 days) that has been translated into Malay language. In this section, 36 questions were answered by parents in which the responses were either “often or always”, “sometimes” or “rarely or never” that best describes their child’s behaviour. The last three are open-ended questions which ask any related parental concerns regarding their child’s behaviour. Examples of items in the instrument include, “Does your child look at you when you talk to him? (*Adakah anak anda memandang anda apabila bercakap dengannya?*)” and “Do other children like to play with your child? (*Adakah kanak-kanak lain suka bermain dengan anak anda?*)”. Based on the manual of Ages and Stages Questionnaires: Social-Emotional (ASQ:SE), the cut-off score of the ASQ: SE assessment is 70, so, if a score falls above 70, it indicates that the child is likely to have deficits in his or her social and emotional development. ASQ:SE Malay adapted version was reported to have high internal consistency of 0.80 (Mohamed & Toran, 2018).

Temperament was measured using The Very Short Form of the Child Behaviour Questionnaire (CBQ) (Putnam & Rothbart, 2006) that measure three dimensions of temperament namely surgency, negative affect as well as effortful control. The Very Short Form of CBQ has 36 items and used a 7-point Likert scale that ranges from 1 (extremely not true), 2 (quite not true), 3 (slightly not true), 4 (neither true nor false), 5 (slightly true), 6 (quite true) to 7 (extremely true) and NA (not applicable). In order to compute the scores, there are 8 items that must be reverse-scored, and it is done by subtracting the numerical response given by the respondents from 8 (eg: response of 7 becomes 1, 6 becomes 2, 5 becomes 3, 4 remains 4, 3 becomes 5, 2 becomes 6 and 1 becomes 7). After that, the scores were summed up and divided by total items to get the mean score. For the present study, only Negative Affectivity and Effortful Control scales were utilized to assess negative affectivity and effortful control level of preschool children. The Very Short Form of CBQ demonstrated acceptable internal consistency with alpha coefficient for Negative Affect of 0.67 and Effortful Control of 0.77, respectively (Putnam & Rothbart, 2006). Examples of items in the instrument for Negative Affect include, “Get quite frustrated when prevented from doing something s/he wants to do (*Kecewa apabila dihalang daripada melakukan sesuatu yang dia mahu*)” and “When angry about something, s/he tends to stay upset for ten minutes or longer (*Apabila marah dengan sesuatu, dia cenderung untuk berasa sedih selama 10 minit atau lebih*)” whereas examples of

items in the instrument for Effortful Control include, "When drawing or colouring in a book, shows strong concentration (*Apabila melukis dan mewarna, dia memberikan tumpuan yang tinggi*)" and "Is good at following instructions (*Pandai mengikut arahan*)".

Perceived Stress Scale (PSS)-Malay version (Sandhu et al., 2015) was used to measure maternal perceived stress. It is a 10-items questionnaire that ask about feelings and thoughts during the last month. For every item, respondents were asked to choose the number that indicates their feelings and thoughts in the last month as either 0 (never), 1 (almost never), 2 (sometimes), 3 (fairly often) or 4 (very often). The questions are of general nature in which they measure the perception of stress in general by examining the degree of how someone appraise his or her life situations as stressful. The scores are obtained through reverse scoring for four positive items (items 4, 5, 7 and 8) and summing across all scale items.

The higher the score, the higher the level of perceived stress. Perceived Stress Scale Malay version was reported to have a good internal consistency with Cronbach's alpha coefficient of 0.63 (Sandhu et al., 2015). Examples of items in the instrument include, "In the last month, how often have you felt confident about your ability to handle your personal problems? (*Dalam tempoh sebulan ini, berapa kerap anda berasa yakin dengan kebolehan anda untuk mengurus masalah peribadi anda?*)" and "In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? (*Dalam tempoh sebulan ini, berapa kerap anda berasa kesusahan melampau sehingga anda tidak dapat mengatasinya?*)".

Data Analysis

The collected data were analysed using SPSS version 22 and descriptive statistics were used to describe the respondent's background. Next, a Pearson's correlation analysis was conducted to determine the relationship between preschool children's temperament and mothers' perceived stress with social and emotional development of preschool children from urban low-income households.

Results

Descriptive Analysis

Table 1 shows the demographic information of the participants of the study namely children's gender, mothers' occupation, mothers' marital status, number of children per family, mothers' education level, mothers' race, and mothers' religion.

A total of 360 respondents participated in the present study in which respondents were mothers of preschool children aged three to four years old who attended Taska PERMATA KEMAS from low-income households in Putrajaya, Selangor and Kuala Lumpur. In terms of gender distribution, mothers who have girl pre-schoolers are made up of 43.5% (157) while mothers who have boy pre-schoolers are made up of 56.5% (203). It is also reported that 87.8% (316) of the mothers work full-time, 8.6% (31) of them are fulltime housewife and another 3.6% (13) work on part-time basis. Moreover, 97.8% (352) of the mothers are married while another 2.2% are divorced (8). In terms of number of children per family, 91.4% (329) mothers reported they have two or more children suggesting a small to moderate family size (mean number of children in the families = 2.76, SD = 1.09). Furthermore, 99.8% (359) of the mothers attained at least upper secondary education qualifications in which 33.9% (122) of them has Malaysian Certificate of Education or equivalent, 42.5% (153) are diploma holders, 21.7% (78) are degree holders, 0.8% (3) has master's degree. Majority of the sample consisted of 99.2% (357) Malay and Muslim respondents while another 0.8% (3) of other ethnics of 0.6% (2) of them are Buddhists and 0.3% (1) is a Christian.

Table 1

Demographic profile of respondent

Variables	n	%
Children's Gender		
Male	165	45.8
Female	195	54.2
Mother's occupation		
Full-time	316	87.8
Part-time	13	3.6
Unemployed	31	8.6
Mother's marital status		
Married	352	97.8
Divorced	8	2.2
Number of children		
One	31	8.6
Two	132	36.7
Three	119	33.1
Four	54	15.0
Five	19	5.3
Six	3	.8
Seven	2	.6
Mother's education level		
No formal education	2	.6
PMR	2	.6
SPM	108	30.0
Diploma	153	42.5
Bachelor's degree	78	21.7
Master's degree	3	.8
Others	14	3.9
Mother's race		
Malay	357	99.2
Others	3	.8
Mother's religion		
Islam	357	99.2
Buddhism	2	.6
Christian	1	.3

Correlation Analysis

Table 2 shows correlation analysis which indicates the relationship between children's temperament (i.e., negative affectivity and effortful control) and social and emotional development of the children. The relationship between the variables was analysed using Pearson's correlation. The results showed that children's negative affectivity was positively correlated to social and emotional development ($r = .19$, $p < .01$) in which a higher score of negative affectivity is correlated to a higher score of ASQ:SE that equates to more deficits in their social and emotional development. On the other hand, children's effortful control was found to correlate significantly and negatively with social and emotional development ($r = -$

.25, $p < .01$) in which a lower score of effortful control is correlated to a higher score of ASQ:SE that equates to more deficits in social and emotional development. In terms of mothers' perceived stress, it was found to correlate significantly and positively with social and emotional development in children ($r = .17$, $p < .01$) in which a higher score of mothers' perceived stress is correlated to a higher score of ASQ:SE that also equates to more deficits in their social and emotional development.

Table 2

Pearson's correlation between children's temperament (i.e., negative affectivity and effortful control), mothers' perceived stress and social and emotional development

Variables	Social and Emotional Development	
	r	p
Children's Negative Affectivity	.19**	.000
Children's Effortful Control	-.25**	.000
Mothers' Perceived Stress	.17**	.000

** $p < .01$

Therefore, in conclusion, there is a significant relationship between children's temperament (i.e., negative affectivity and effortful control) with social and emotional development and mothers' perceived stress with social and emotional development of preschool children from low-income households in Malaysia urban areas. The results for this study are in line with the past literature that found high negative affectivity, low effortful control in children and high mothers' perceived stress tend to cause more deficits in children's social and emotional development.

Discussion and Conclusion

The purpose of this study is to contribute to the expanding field of research by examining the children's temperament, mothers' perceived stress, and social and emotional development of preschool children in the context of urban low-income households in Malaysia. There was a significant positive correlation between children's negative affectivity and social and emotional development, and a significant negative correlation between children's effortful control and social and emotional development. These findings are consistent with prior research indicating that children who experience and express more negative emotions and are less able to regulate their emotions, thoughts, and behaviours have more deficits in various aspects of social and emotional development, such as internalising behaviours (Behrendt et al., 2019; Karreman et al., 2010), externalising behaviours (Garstein et al., 2012), and social incompetence (Bohlin et al., 2010). In the specific context of urban low-income households, the findings of the current study align with previous research that has established a connection between temperament and the social-emotional development of children. For instance, a study conducted in a US city focused on urban low-income Black and Hispanic children, examining the relationship between negative reactivity and the progression of behavioural problems discovered that negative reactivity was predictive of higher levels of average behaviour problems among these children (McCormicj et al., 2014). The current findings particularly support Bronfenbrenner's bioecological theory, which posits that individual factors at microsystem-level, such as temperament, can influence children's outcomes, specifically social and emotional development. Nonetheless, to the best of our knowledge, there is still limited research that has explored the association between

temperament and social-emotional development specifically among urban low-income preschool children. Therefore, these findings hold particular significance and may have distinct implications for government-run preschools such as Taska PERMATA KEMAS with a substantial representation of urban low-income students. These findings also underscore the importance of recognizing the individual temperament of each child, and the need for caregivers to tailor their approach to meet the unique needs of each child.

In addition to the role of temperament in children's social and emotional development, the present study found a significant positive relationship between mothers' perceived stress and the social and emotional development of preschool children from urban low-income households in Malaysia. This finding is consistent with previous research, which has demonstrated that parental stress, particularly in mothers, is associated with a range of negative outcomes in children, including behavioural problems (Ward & Lee, 2020), externalizing and internalizing behaviours (Liu & Wang, 2015; Crum & Moreland, 2017), anxiety (Crum & Moreland, 2017; Rodriguez, 2011), and low coping competence (Cappa et al., 2011). These findings highlight the importance of supporting mothers in managing their stress levels, particularly those who are from urban low-income households as they may face greater challenges due to the unique contextual setting in which they live. Reducing maternal stress may have a positive impact on the social and emotional development of their children. This is due to the fact that when mothers experience less stress, they are more capable of responding positively to their children's requirements, thereby stimulating positive developmental outcomes. This aligns with Belsky's theory, which emphasizes the significance of a mother's psychological condition in shaping her responses towards her children, and thus, influencing the outcomes of the children (Belsky, 1984). Therefore, practitioners in the field can play a critical role in supporting mothers by providing them with the necessary resources and interventions to manage stress effectively to potentially improve social and emotional development of young children.

Despite the important findings of this study, it is crucial to interpret the results with caution in light of some limitations. First, this study is cross-sectional in nature, which limits the ability to establish causality of the relationship between the variables. Future research should consider employing longitudinal designs that can investigate the bidirectional or reversed effects of the relationship between the variables over time. Second, another limitation of the study is the sole reliance on mothers as the primary informants. This may have restricted the comprehensiveness of understanding the entire relationship between the variables, as fathers or teachers may provide unique perspectives on the child's temperament and the parenting context. Future research could benefit from utilizing a multi-informant approach to obtain a more holistic view of the child's temperament and the impact of parental stress on child development.

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