



**RELATIONSHIP BETWEEN SCREEN TIME, SLEEP DURATION,
PARENT-CHILD INTERACTION AND PSYCHOSOCIAL
ADJUSTMENT AMONG PRESCHOOL CHILDREN
IN SELANGOR, MALAYSIA**

By

FOO NING

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in
Fulfillment of the Requirements for the Degree of Master of Science**

June 2023

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Master of Science

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June 2023

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The current study aimed to determine the relationship between screen time, sleep duration, parent-child interaction and psychosocial adjustment among preschool children in Selangor, Malaysia. The study also intended to determine whether a difference exists in psychosocial adjustment between males and females. Moreover, the study aimed to examine whether sleep duration and parent-child interaction mediate the relationship between screen time and psychosocial adjustment as well as explore unique predictors of psychosocial adjustment. A multistage cluster sampling method was employed to select the sample in this study. The sample consisted of 392 parents (either mother or father) of preschool children aged between four to six years old in Selangor. The Screen Time Questionnaire (STQ) was applied to measure screen time while the Children's Sleep Habits Questionnaire (CSHQ) was used to measure sleep duration. Besides, the Parent-Child Interaction Checklist and the Strengths and Difficulties Questionnaire (SDQ) were utilized to assess parent-child interaction and psychosocial adjustment respectively. The relationship between screen time, sleep duration, parent-child interaction, and psychosocial adjustment was analysed using Pearson's correlation analysis. Independent samples t-test was used to determine the difference in psychosocial adjustment between boys and girls. Multiple regression analysis was used to determine the unique predictors of psychosocial adjustment. Findings indicated that there was a significant difference in psychosocial adjustment (hyperactivity, peer problems, prosocial behaviour, and total difficulties) between boys and girls. Besides, there was a significant correlation between screen time and parent-child interaction. The child's gender, father's years of education, child calming screen time, and parent-child interaction were significant predictors of psychosocial adjustment. However, mediation analysis was unable to be conducted to determine the mediating role of sleep duration and parent-child interaction on the relationship between screen time and psychosocial adjustment, as screen time did not significantly correlated with psychosocial adjustment overall. This study provides a deeper understanding of how screen time, sleep duration, and parent-child interaction

influence children's psychosocial adjustment. It also provides a platform for future research to explore other factors that may influence children's psychosocial adjustment.



Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk Ijazah Master Sains

**HUBUNGAN ANTARA MASA SKRIN, TEMPOH TIDUR, INTERAKSI IBU
BAPA-ANAK DAN PENYESUAIAN PSIKOSOSIAL DALAM
KALANGAN KANAK-KANAK PRASEKOLAH DI SELANGOR, MALAYSIA**

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Kajian ini bertujuan untuk menentukan hubungan antara masa skrin, tempoh tidur, interaksi ibu bapa-anak dan penyesuaian psikososial dalam kalangan kanak-kanak prasekolah di Selangor, Malaysia. Kajian ini juga ingin menentukan sama ada wujud perbezaan dalam penyesuaian psikososial antara lelaki dan perempuan. Selain itu, kajian ini bertujuan untuk meneliti sama ada tempoh tidur dan interaksi ibu bapa-anak menjadi pengantara dalam hubungan antara masa skrin dan penyesuaian psikososial di samping menerokai peramal unik penyesuaian psikososial. Teknik pensampelan kluster berperingkat telah digunakan untuk memilih sampel dalam kajian ini. Sampel merangkumi 392 orang ibu bapa (sama ada ibu atau bapa) bagi kanak-kanak prasekolah yang berumur antara empat hingga enam tahun di Selangor. *Screen Time Questionnaire (STQ)* telah digunakan untuk mengukur masa skrin manakala *Children's Sleep Habits Questionnaire (CSHQ)* telah digunakan untuk mengukur tempoh tidur. Selain itu, *Parent-Child Interaction Checklist* dan *Strengths and Difficulties Questionnaire (SDQ)* masing-masing telah digunakan untuk menilai interaksi ibu bapa-anak dan penyesuaian psikososial. Hubungan antara masa skrin, tempoh tidur, interaksi ibu bapa-anak dan penyesuaian psikososial telah dianalisis dengan menggunakan analisis korelasi *Pearson*. Ujian-t sampel tidak bersandar telah digunakan untuk menentukan perbezaan dalam penyesuaian psikososial antara lelaki dan perempuan. Analisis regresi berganda telah digunakan untuk menentukan peramal unik penyesuaian psikososial. Hasil kajian menunjukkan bahawa terdapat perbezaan yang signifikan dalam penyesuaian psikososial (hiperaktif, masalah rakan sebaya, tingkah laku prososial, dan jumlah kesukaran) antara lelaki dan perempuan. Selain itu, terdapat hubungan yang signifikan antara masa skrin dan interaksi ibu bapa-anak. Jantina kanak-kanak, jumlah tahun pendidikan bapa, masa skrin kanak-kanak yang menenangkan, dan interaksi ibu bapa-anak merupakan peramal yang signifikan terhadap penyesuaian psikososial. Walau bagaimanapun, analisis pengantara tidak dapat dilakukan untuk menentukan peranan

pengantara tempoh tidur dan interaksi ibu bapa-anak dalam hubungan antara masa skrin dan penyesuaian psikososial kerana masa skrin tidak mempunyai hubungan yang signifikan dengan penyesuaian psikososial secara keseluruhan. Kajian ini memberikan pemahaman lebih mendalam tentang bagaimana masa skrin, tempoh tidur dan interaksi ibu bapa-anak mempengaruhi penyesuaian psikososial kanak-kanak. Ia juga menyediakan platform bagi kajian akan datang untuk meneroka faktor lain yang mungkin akan mempengaruhi penyesuaian psikososial kanak-kanak.



ACKNOWLEDGEMENTS

I would like to express my sincere appreciation to my thesis supervisor, Dr. Nellie Ismail for her patient guidance and support throughout the process of writing my thesis. Thank you very much to her for providing insightful ideas, suggestions, and feedback which have helped me a lot in this challenging process. Besides, I would like to thank my thesis co-supervisor, Assoc. Prof. Dr. Zarinah Arshat for her helpful comments and recommendations. I would also like to express gratitude to my parents for their unconditional support and love throughout these years. I am blessed to be given the opportunity to further my studies with your encouragement. Thank you to all principals/teachers that have helped me in sending the survey to parents as well as parents that have participated in my research. I am truly grateful for all of your kind assistance.

This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master of Science. The members of the Supervisory Committee were as follows:

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LIST OF ABBREVIATIONS

TV	Television
SES	Socioeconomic Status
CPD	Childhood Psychosocial Dysfunction
EBD	Emotional and Behavioural Problems
MCMC	Malaysian Communications and Multimedia Commission
PDD	Psychomotor Developmental Delay
BMI	Body Mass Index
STQ	Screen Time Questionnaire
CSHQ	Children's Sleep Habits Questionnaire
SDQ	Strengths and Difficulties Questionnaire
PMT	Parent Management Training
WHO	World Health Organization
CBCL	Child Behaviour Checklist
YSR	Youth Self-Report
TRS	Teacher Rating Scale
BASC-2	Behaviour Assessment System for Children 2
EBP	Emotional and Behavioural Problems
K-SADS-PL	Kiddie-Schedule for Affective Disorders and Schizophrenia-Present and Lifetime Version
UK	United Kingdom
TDS	Total Difficulties Score
NSCH	National Survey of Children's Health
DVD	Digital Versatile Disc/Digital Video Disc
MED	Mobile Electronic Device
CEDI	Chinese Early Development Instrument

BISQ	Brief Infant Sleep Questionnaire
ASQ:SE	Ages and Stages Questionnaire: Social Emotional
FTF	Five-to-Fifteen
CHILD	Canadian Healthy Infant Longitudinal Development
ADHD	Attention Deficit/Hyperactivity Disorder
ASQ-3	Ages and Stages Questionnaire Third Edition
HRQoL	Health-Related Quality of Life
GSHS	Global School-Based Student Health Survey
PAQ-A	Physical Activity Questionnaire for Adolescents
PEDsQL	Pediatric Quality of Life
ASBI	Adaptive Social Behaviour Inventory
ASD	Autism Spectrum Disorder
CABS	Clancy Autism Behaviour Scale
GP	General Practitioner
CD	Conduct Disorder
MP3	Moving Picture Experts Group Audio Layer-3
PDT	Parent Developmental Theory
PACHIQ-R	Parent-Child Interaction Questionnaire-Revised
UPM	Universiti Putra Malaysia
JKEUPM	Jawatankuasa Etika Universiti Putra Malaysia
MCO	Movement Control Order
PCA	Principal Component Analysis
ICSD	International Classification of Sleep Disorders
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders Fourth Edition
SPSS	Statistical Package for Social Science

EDA	Exploratory Data Analysis
P-P plot	Probability-Probability plot
Q-Q plot	Quantile-Quantile plot
r	Pearson's Correlation Coefficient
M	Mean
SD	Standard Deviation
SRP	Sijil Rendah Pelajaran
PMR	Penilaian Menengah Rendah
SPM	Sijil Pelajaran Malaysia
STPM	Sijil Tinggi Persekolahan Malaysia
PhD	Doctor of Philosophy
Min	Minimum
Max	Maximum
AAP	American Academy of Pediatrics
ESS	Emotional Symptoms Scale
CPS	Conduct Problem Scale
HS	Hyperactivity Scale
PPS	Peer Problem Scale
PS	Prosocial Scale
df	Degrees of freedom
CI	Confidence Interval
r^2	Coefficient of Determination
PCI	Parent-Child Interaction
PSA	Psychosocial Adjustment
ST	Screen Time

CGST	Child General Screen Time
CEST	Child Entertainment Screen Time
CCST	Child Calming Screen Time
SDS	Sleep Duration Subscale
VIF	Variance Inflation Factor
R	Multiple Correlation Coefficient
R^2	Coefficient of Determination



CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Preschool stage is the crucial phase of life when major development creates the basis and determines the later life course (Rahim et al., 2023). Early development will be most significantly affected by the nurturing qualities of the environment, for instance, parents, family and community, where children live, learn and are nurtured. The psychosocial development of children occurs rapidly during preschool. The impact of social emotional learning is greater at this stage as children's behavioural patterns are still developing (Fisak et al., 2011, as cited in Martinsone et al., 2021). The most common psychosocial health issues among preschool children are emotional and behavioural problems (EBD) (Egger & Angold, 2006, as cited in Rahim et al., 2023), often causing impairment or distress. This concerning trend has caused significant functional impairment in many aspects. These aspects include behavioural and school-related issues, emotional and family relationship challenges as well as adjustment issues following the impact of psychological and social adversities like poverty, abuse and neglect. Children with behavioural and emotional problems during the preschool stage are more inclined to experience mental health difficulties throughout childhood and adolescence (Black et al., 2017, as cited in Rahim et al., 2023). The qualities of surrounding that a child lives, develops and learns are crucial for their attainment of milestones. Insufficient or inappropriate social and emotional experiences in the early life of a child can compromise higher-level brain functioning necessary in social engagement (Young, 2002; as cited in Arumugam et al., 2021). It is during this critical time that a child develops competencies of cognitive language, sensory motor and social emotional development (Sigman, 2017, as cited in Arumugam et al., 2021).

Hence, psychosocial adjustment is important in children as it affects various aspects of their daily life. Psychosocial adjustment in childhood often indicates the adaptation and functioning in main areas such as family and school settings during this stage (Piqueras et al., 2019). For instance, when children transit to primary school from kindergarten. During school transitions, they need to adjust to new difficulties and situations (Longobardi et al., 2019). Children would need to adapt to the new school environment, adjust themselves to people other than their family members, form new peer groups, and face academic challenges (Yoleri, 2015). This can heighten the risk of children developing internalizing as well as externalizing psychological signs (Longobardi et al., 2019). It has been shown that children exhibit improved psychosocial adjustment in other settings and have increased subjective well-being when they manage to adapt successfully in school (Gutiérrez & Gonçalves, 2013; Viñas Poch et al., 2015, as cited in Vargas et al., 2019).

The way children interact with screen-based media in early childhood is continuously changing. The way the younger generations live, learn and interact has altered greatly over the years as technology has gradually filled their childhood. Screen media are

currently integrated in the everyday lives of children (Musa et al., 2022). The increase in screen use has been even more noticeable due to the lockdowns and restrictions imposed during the pandemic. Past researches had suggested that preschool children become familiar with electronic devices before getting exposed to books (Brody, 2015; Hopkins et al., 2013, as cited in Gottschalk, 2019). It can be observed that the age which children first accessed devices have become younger (Gottschalk, 2019). Children's exposure to screen-based media in the early years can affect their optimal functioning and development, as this stage is a crucial phase of brain development. It impacts their psychosocial development as well as cognitive abilities (Swider-Cios et al., 2023). According to the Common Sense Census (2017), which looks into children's media utilization in the United States, 98% of children aged eight and below stay in a home with some type of digital gadget, with 95% of families with children in this age range having a smartphone. About 45% of children aged zero to eight have their own mobile devices. Data collected from this census also indicated that the quantity of time spent on smartphones and tablets has a 31% increase in the total screen time during 2017 compared to 2011. Two to four-year-old children use screens for around 2 hours and 39 minutes a day while five to eight-year-old children use around 3 hours a day. Children from ages two to four use mobile devices for 58 minutes per day whereas children from ages five to eight spend 1 hour and 2 minutes on average per day utilizing mobile devices (Rideout, 2017).

However, spending excessive time on screens may lead to risks in psychosocial adjustment. Screen time indicates the time consumed on screens, for instance, computers, mobile, tablets, and television (Stiglic & Viner, 2019). Based on a review article by Domingues-Montanari (2017), spending time on screens excessively can have various influences on the physiological and psychological development of children. Physical strength, health complaints, obesity, and sleep are some of the physiological effects. Routine physical exercise is linked with enhanced health outcomes among children. Besides, high-risk television behaviours were related to an increased likelihood of being overweight and greater food consumption that is high in fat or sugar. Reduced sleep duration and quality also had been reported due to screen time. In psychological development, particularly in cognitive ability, it was noted that the maturing brain responds distinctly to parental attention to that stimulated by the utilization of digital devices (Lagercrantz, 2016). Furthermore, reduced socio-emotional well-being like aggression and externalising behaviours was associated with increased TV exposure in infants (Chonchaiya et al., 2015).

Sleep duration is a possible mediating variable in the relationship between screen time and psychosocial adjustment. Sleep duration suggests the total quantity of sleep acquired, either throughout the nocturnal sleep occurrence or covering the 24-hour interval (Kline, 2013). Sleep is a crucial feature of health and well-being that influences multiple domains of early childhood development (Mindell & Williamson, 2019). Sleep deprivation in early childhood heightens the risk of physical health concerns such as obesity, risks of developing neurodevelopmental issues such as intensifying symptoms of autism or behavioural problems, which may lead to poor attention in later life (Scharf & DeBoer, 2015; Taveras et al., 2014; Scharf et al., 2013).

Parent-child interaction is another possible mediating variable in the relationship between screen time and psychosocial adjustment. Parent-child interaction implies the simultaneous, bidirectional, and shared bond between a child's behaviour and the response from parents. It includes the responsiveness of the parent along with the child and their joint emotional capacity to respond to each other (Feldman, 2007; Mendive et al., 2013; Leclerc et al., 2014). Excessive screen time among young children is linked with an increased likelihood of displacing parent-child interaction, which is essential to a child's learning and development journey (Christakis et al., 2019, as cited in Arumugam et al., 2021). Research outcomes have revealed the advantages of adequate, high-quality parent-child interactions during the early years in the development of adaptable social, emotional, and cognitive skills at later ages. The consequences of a parent-child relationship can be implied via the capacity of parenting and interactions between parent and child (Acar et al., 2017). Inflexibility in parent-child interactions, for instance not joining play activities with children, was related to heightened levels of internalizing and externalizing signs among children (Hollenstein et al., 2004). Besides, there were studies regarding technofence (disturbances in interpersonal communication due to the attention paid to personal digital gadgets) recently. These technologies-mediated interference with parent-child interactions can adversely influence children's views of parental warmth and psychosocial health (Stockdale et al., 2018; Wong et al., 2020). Various types of parent-child activities might have distinct significance for children's social-emotional well-being too (Ginsburg et al., 2007). Dysfunctional parent-child interactions are linked with behavioural difficulties in young children (Zhao et al., 2018; Grazuleviciene et al., 2017). Besides, infrequent parent-child interactions could be associated with lower prosocial behaviour among children (Zhao et al., 2018), while positive parenting and parent-child attachment are connected to higher social competence (Neppl et al., 2019).

In addition, background characteristics like gender, age, and socioeconomic status (SES) can also play a role in influencing psychosocial adjustment. Findings from a study showed that there were gender differences in externalizing behaviour between boys and girls (Maguire et al., 2016). Boys tended to show greater levels of hyperactivity. On the contrary, there was more prosocial behaviour among girls. Boys demonstrated more adjustment problems at the social degree and of an externalizing character (Keiley et al., 2000). However, some research showed that child maladjustment is unconnected to age or gender (Chen et al., 2014). Socioeconomic status also predicted behavioural problems, with lower family income predicting internalized issues, externalized issues, and total behavioural issues. Lower education attainment among mothers predicted externalized issues and total behavioural issues, while fathers' education attainment did not significantly predict behavioural problems (Hosokawa & Katsura, 2018).

Previous studies have investigated the association between screen time, sleep duration, parent-child interaction, and psychosocial adjustment, separately but not comprehensively. Therefore, the present study aims to determine the link between screen time, sleep duration, parent-child interaction, and psychosocial adjustment among preschool children.

1.2 Statement of Problem

Psychosocial adjustment is a form of positive self-development through the integration of personal and other people's perceptions of oneself (Brugman et al., 2001). Behavioural and emotional concerns in preschool children have often been overlooked or viewed as transient areas of children's arising autonomy (Bornstein et al., 2013). In the recent past, a considerable increase in behavioural and adaptive issues has been observed among children in the family and school settings, which is a cause of concern for educational institutions and society (Rodríguez-Fernández et al., 2016). An increase in emotional and behavioural problems among children has been noticed in numerous Western and Eastern countries. This is a worrying phenomenon as these problems may manifest into various serious issues in adulthood if left undetected (Idris, 2017). Childhood psychosocial dysfunction (CPD), for instance, aggressive behaviour, fear, and anxiety is prevalent in children and may contribute to limitations in everyday functioning. It is among the most common chronic health conditions in childhood, in which the outcomes for a child's academic accomplishment and social development are often significantly and adversely impacted (Soliman et al., 2020). Longitudinal evidence has revealed that preschool children with behavioural and developmental problems are at a heightened likelihood of mental health issues throughout childhood and adolescence, especially if co-occurring internalizing and externalizing issues are present (Bornstein et al., 2013). These issues in children and adolescents predict many complicated outcomes in adulthood which concern significant challenges across diverse crucial life aspects involving family functioning, mental health, education, and employment (Trentacosta et al., 2013, as cited in Magai et al., 2018).

Numerous studies have portrayed that psychosocial concerns are increasingly prevalent among preschool children. A study from Rahim and colleagues (2023) revealed that the estimated prevalence of emotional and behavioural problems was 8.4% overall among preschool children in Kelantan, Malaysia. The results demonstrated that peer problems (19.7%) were the most prevalent attribute, followed by prosocial behaviour (13.5%), emotional problems (6.8%), hyperactivity (5.6%), and conduct problems (5.2%). Data analyzed from the National Health and Morbidity Survey (NHMS) 2015 conducted in Malaysia found that the prevalence of mental health issues among children aged 5 to 15 was 11.1% (Sahril et al., 2021). Moreover, 11.9% of preschool children were found to be at risk of behavioural and emotional issues based on a study conducted in Thailand (Teekavanich et al., 2017, as cited in Rahim et al., 2023), while the prevalence is 13.6% among preschoolers aged three to six in China (Chen et al., 2017, as cited in Rahim et al., 2023).

Children's psychosocial adjustment is typically impacted by several factors, including excessive screen time. It was found that 91.8% of children aged 5 to 17 accessed the internet using a smartphone based on the Hand Phone Users Survey carried out by the Malaysian Communications and Multimedia Commission (MCMC) (2018). Children mostly text, go onto social networks, obtain information, and watch videos when they are online. This pose concerns to parents as they are worried about their children being exposed to inappropriate content, cyberbullying, communicating with strangers, and online scam (MCMC, 2018). This may further cause problems in children's

psychosocial adjustment if no appropriate measures are taken to monitor their behaviour when using screens.

The rise in the use of devices has led to much attention on the impacts of technology use and how it affects children's brains as well as their various aspects of development such as socioemotional, cognitive, and physical development. Many studies have linked screen time with psychosocial adjustment issues. Screen time is negatively related to psychosocial well-being among preschool children (Zhao et al., 2018). It may cause issues such as impaired attention, speech or language delays, learning issues, anxiety and depression, and negative character (Sundus, 2018). Associations between violent media content and aggressive behaviour in children were also documented in previous studies (Christakis, n.d., as cited in Radesky & Christakis, 2016). Depression and aggressive behaviour are some of the later outcomes linked with low levels of well-being in electronic media use among young children (Toumbourau, 2011, as cited in Bozzola et al., 2018). Children who often use technology generally disregard their surroundings, as they prefer spending time on technology rather than enjoying themselves with their companions in the playground, for instance (Suhana, 2018). These issues may further cause them to face difficulties in daily life, especially when it comes to interacting with people around them. School adjustment may also be a challenge for preschool children with the issues above (Nakamichi et al., 2019).

In addition, sleep duration is also associated with psychosocial adjustment. Sleep duration has been described as the total quantity of sleep acquired, either throughout the nocturnal sleep occurrence or covering the 24-hour interval (Kline, 2013). Firouzi and colleagues (2013) have examined sleep patterns and sleep disorders among children in Malaysia. They found that 41.5% of children did not have sufficient sleep with significant differences among various ages. The data showed that the children slept less than they needed and sleep disturbances were prevalent among those who stayed in urban areas besides children who were overweight and obese. In a real-world study of healthy children, parents rated children with fragmented sleep as having more behavioural problems than those with continuous sleep (Medic et al., 2017). Other concerns include psychiatric indicators, social issues, externalizing signs, and self-harm behaviours (Paavonen et al., 2009; Velten-Schurian et al., 2010; Singareddy et al., 2013).

Moreover, parent-child interaction also seems to be associated with children's psychosocial adjustment. Parent-child interaction indicates the simultaneous, bidirectional, and shared bond between a child's behaviour and the response from parents. It includes the responsivity of the parent along with the child and their joint emotional capacity to respond to each other (Feldman, 2007; Mendive et al., 2013; Leclere et al., 2014). Numerous relationships help to develop positive adjustment and normative functioning in children, but most importantly it is through the ties between children and their parents. Parent-child interaction can help in developing a child's competence and confidence, enhance the child's connections with parents and other caregivers, encourage the development and demonstration of a child's distinctive personality, and support the child's moral and spiritual advancement (Santos et al., 2016). Constructive interactions between parent and child lay a foundation for children in which they can explore and experience the world throughout their development

(Alberta Home Visitation Network Association, n.d.). The previous study has demonstrated that poor quality of interaction between mother and child among infants with psychosocial risk is linked with the likelihood of delay in their development (Binda et al., 2019). Interaction of low quality between mother and child as well as non-participation of fathers in childcare are linked with a heightened risk of psychomotor developmental delay (PDD).

Sleep duration and parent-child interaction play an important mediating role between screen time and psychosocial adjustment among preschool children. A study investigated the association between the time spent on devices, sleep period at night, and behavioural issues among preschoolers in China (Wu et al., 2016). Results revealed that children who spent more than two hours on screens per day and less than 9.15 sleep hours per day scored higher in behavioural problems. Children spending more than two hours per day on screens were found to have a notably heightened risk of experiencing total difficulties, emotional signs, conduct problems, hyperactive behaviour, peer concerns, prosocial issues, and also behavioural indicators of autism. However, children with short sleep intervals did not have a significantly heightened risk of emotional symptoms. In a study examining the relationship between media utilization of mothers and children, with parent-child interaction in relation to behavioural concerns and strengths of children (Poulain et al., 2019), findings indicated that high screen use was related to more conduct issues, more hyperactivity/inattention indicators, and less prosocial practices. On the contrary, an enhanced amount of parent-child interactions was linked with children exhibiting fewer conduct issues, fewer concerns with peers, and more prosocial behaviour.

However, there are only a few studies that investigate the association between screen time, sleep duration, parent-child interaction, and psychosocial adjustment. Up to date, only one study that investigated both sleep interval and parent-child interaction as mediators in the relationship between screen time and psychosocial adaptation in China has been found (Zhao et al., 2018). The study indicated that the duration spent on screens had a negative link with psychosocial well-being among preschoolers. Besides, body mass index (BMI), sleep interval, and parent-child interaction appeared to significantly mediate the association, explaining how screen time affects psychosocial well-being. Parent-child interaction contributed the most to this mediating role. Therefore, this study would like to assess the mediating effects of sleep duration and parent-child interaction between screen time and psychosocial adjustment among preschool children.

Previous evidence acknowledged demographic aspects like gender, age, parental education, and family monthly income as risk factors for children's psychosocial adjustment. However, the findings were inconsistent in terms of the direction of this association. For example, some studies found that there were differences in psychosocial adjustment (externalizing behaviour) between males and females (Maguire et al., 2016), while other studies have noted that there was no notable difference between gender and behavioural problems in children (Yoleri, 2014). In terms of gender differences, previous studies suggested that boys tend to have a higher score in behavioural issues (Idris et al., 2019; Murriss et al., 2003; Shojaei et al., 2009), and were more inclined to have problems regarding conduct and hyperactivity, but less

likely to have emotional concerns. In terms of emotional and behavioural problems with respect to age, studies indicated a significant decreasing trend with age in the scores for total difficulties and emotional problems according to the data reported by parents (Idris et al., 2019). In terms of parental education, most of the studies revealed that parents with higher education levels were linked with better psychosocial adjustment and mental health functioning in children (D'Souza et al., 2019; Mohamed & Toran, 2018; Hosokawa & Katsura, 2017; Grazuleviciene et al., 2017; Sonogo et al., 2012). In a study investigating the education of parents and aggressive behaviour among children in a moderated-mediation paradigm for inhibitory control and gender (Cabello et al., 2017), results indicated that lower education in parents was linked with greater levels of aggressive behaviour. This occurred independently of inhibitory control among girls, whereas inhibitory control mediated this relationship among boys.

Hosokawa and Katsura (2017) also suggested that family income had a direct association with children's psychological functioning such as social skills and behavioural issues while controlling for other variables. Findings also suggested that there was a notable difference between the social-emotional development in children with the monthly income of parents (Mohamed & Toran, 2018). Hence, this present study will examine the relationship between demographic factors (child's age, parental education, and family monthly income) with psychosocial adjustment among preschool children. This study will also consider the role of a child's gender in predicting psychosocial adjustment. The background characteristics are considered in this study, in which the relationship between a child's age and socioeconomic status is examined in relationship with psychosocial adjustment based on the local context. In addition, the difference in terms of gender in various aspects of psychosocial adjustment will be studied. Most past studies have assessed the background characteristics and psychosocial adjustment through a Western perspective (Maguire et al., 2016; Keiley et al., 2000; Chen et al., 2014).

In examining the links between emotional well-being or psychological health outcomes and technology utilization in children, information on how children below eight years old use technology is considerably sparse. Besides, most of the studies show small correlations, small effect sizes, and the mechanisms of whether technology contributes to these outcomes remain unclear (Gottschalk, 2019). Moreover, there are still limited studies examining screen time and its impact on preschool children as most of the past studies focused on adolescents and university students. Besides, there are no studies that investigated the association between screen time, sleep duration, parent-child interaction, and psychosocial adjustment based in Malaysia being found currently. Therefore, this study may provide new insights into the child development field, particularly in the local context.

1.3 Research Questions

Based on the statement of the problem, five research questions were derived. The research questions were as below:

1. What are the characteristics of children, parents, screen time, sleep duration, parent-child interaction, and psychosocial adjustment?
2. Is there any relationship between children's characteristics (age) and parents' characteristics (mother's years of education, father's years of education, and family monthly income) and psychosocial adjustment among preschool children?
3. Is there any relationship between screen time, sleep duration, parent-child interaction, and psychosocial adjustment among preschool children?
4. Is there any difference in psychosocial adjustment between males and females?
5. What factors are unique predictors of psychosocial adjustment among preschool children?
6. Is there a mediating effect of sleep duration and parent-child interaction on the relationship between screen time and psychosocial adjustment among preschool children?

1.4 Research Objectives

This section examined the general objective and specific objectives of the study.

1.4.1 General Objective

This study aimed to determine the relationship between screen time, sleep duration, parent-child interaction, and psychosocial adjustment among preschool children in Selangor, Malaysia. The specific objectives are listed below.

1.4.2 Specific Objectives

1. To describe children's characteristics (age and gender), parents' characteristics (mother's years of education, father's years of education, and family monthly income), screen time, sleep duration, parent-child interaction, and psychosocial adjustment.
2. To determine the relationship between children's characteristics (age) and parents' characteristics (mother's years of education, father's years of education, and family monthly income) and psychosocial adjustment among preschool children.
3. To determine the relationship between screen time, sleep duration, parent-child interaction, and psychosocial adjustment among preschool children.
4. To determine the difference in psychosocial adjustment between males and females.
5. To determine the unique predictors of psychosocial adjustment among preschool children.
6. To determine the mediating effect of sleep duration and parent-child interaction on the relationship between screen time and psychosocial adjustment among preschool children.

1.5 Hypotheses

Objective 2: To determine the relationship between children's characteristics (age) and parents' characteristics (mother's years of education, father's years of education, and family monthly income) and psychosocial adjustment among preschool children.

Ha1: There is a significant relationship between children's age and psychosocial adjustment among preschool children.

Ha2: There is a significant relationship between mother's years of education and psychosocial adjustment among preschool children.

Ha3: There is a significant relationship between father's years of education and psychosocial adjustment among preschool children.

Ha4: There is a significant relationship between family monthly income and psychosocial adjustment among preschool children.

Objective 3: To determine the relationship between screen time, sleep duration, parent-child interaction, and psychosocial adjustment among preschool children.

Ha5: There is a significant relationship between screen time and psychosocial adjustment among preschool children.

Ha6: There is a significant relationship between sleep duration and psychosocial adjustment among preschool children.

Ha7: There is a significant relationship between parent-child interaction and psychosocial adjustment among preschool children.

Objective 4: To determine the difference in psychosocial adjustment between males and females.

Ha8: There is a significant difference in psychosocial adjustment between males and females.

Objective 5: To determine unique predictors of psychosocial adjustment among preschool children.

Ha9: Child's gender, father's years of education, screen time (entertainment and calming), sleep duration, and parent-child interaction significantly predict psychosocial adjustment among preschool children.

Objective 6: To determine the mediating effect of sleep duration and parent-child interaction on the relationship between screen time and psychosocial adjustment among preschool children.

Ha10: Sleep duration mediates the relationship between screen time and psychosocial adjustment among preschool children.

Ha11: Parent-child interaction mediates the relationship between screen time and psychosocial adjustment among preschool children.

1.6 Terminology Definition

This section discussed the conceptual and operational definitions of the study variables.

1.6.1 Screen Time

Conceptual: Screen time refers to the duration spent on screens, for instance, computer, mobile, tablet, and television (Stiglic & Viner, 2019).

Operational: In the present study, screen time indicates the respondents' score on the Screen Time Questionnaire (STQ) (Olszewski, 2015). A higher score indicates longer time spent on screens.

1.6.2 Sleep Duration

Conceptual: Sleep duration refers to the total amount of sleep acquired, either throughout the nocturnal sleep occurrence or covering the 24-hour interval (Kline, 2013).

Operational: In the present study, sleep duration refers to the respondents' score on the Sleep Duration Subscale in the Children's Sleep Habits Questionnaire (CSHQ) (Owens et al., 2000). A higher score indicates shorter sleep duration. This subscale is used to assess whether the sleep duration of respondents is sufficient.

1.6.3 Parent-Child Interaction

Conceptual: Parent-child interaction refers to the simultaneous, bidirectional, and mutual relationship between a child's behaviour and the parental response. It includes both the parent's and the child's responsivity and their shared emotional capacity to respond to one another (Feldman, 2007; Mendive et al., 2013; Leclere et al., 2014).

Operational: In the present study, parent-child interaction indicates the respondents' scores in the checklist developed by Holzwarth (2003). A higher score indicates higher amounts of interaction between parent and child.

1.6.4 Psychosocial Adjustment

Conceptual: Psychosocial adjustment refers to a person's capacity to adapt to the environment, which signifies that the individual has sufficient mechanisms to feel good, integrate, respond adequately to environmental conditions, and achieve his or her goals (Madariaga et al., 2014). Psychosocial adjustment in childhood often refers to adaptation and functioning in areas such as family and school settings. Determining aspects of child psychosocial adjustment include social and emotional aspects (Piqueras et al., 2019). Besides, emotional and behavioural problems (EBD) are the most common psychosocial health concerns among preschool children (Egger & Angold, 2006).

Operational: In the present study, psychosocial adjustment indicates the respondents' scores on the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997). The SDQ is employed as it covers various aspects of psychosocial adjustment in terms of social, emotional, and behavioural aspects. A higher score in the four scales (emotional symptoms, conduct problems, hyperactivity/inattention, and peer problems), which is summed to create a "total difficulty score", indicates a higher level of psychosocial adjustment problems. Meanwhile, a higher score on the prosocial scale indicates more prosocial behaviour.

1.7 Significance of the Study

The current study focuses on determining the association between screen time, sleep duration, parent-child interaction, and psychosocial adjustment. Through this study, parents' awareness can be raised regarding the factors that influence children's psychosocial adjustment. Parents can then adapt to more suitable ways of nurturing children to reduce their maladaptive behaviours. Parents can participate in parenting programs to help them in dealing with their children's behaviours.

This study may also act as a guide and reference for the practitioners to develop intervention programs and embed evidence-based practice in community contexts to improve outcomes for children as well as families in need. Programs such as parent management training (PMT) can be promoted to enhance parental involvement and responsivity as well as encourage positive parenting practices and discipline, as PMT programs specifically, are the most well-established treatments available in reducing child disruptive behaviours (Kazdin, 2005; as cited in Shepard & Dickstein, 2009). Suitable recommendations could be made to overcome issues influencing the young generation according to the outcomes of this study.

This study will be a useful source for future researchers who are working in the child development field. They can be kept well-informed and updated about the progress of the latest developments in this field. Besides, researchers can carry out further research on this study, or perhaps examine the study from a different perspective such as making

some modifications in terms of the methodology. Practical implications could then be made to set directions toward improving children's development in the future.

1.8 Research Scope and Limitation

The scope of the study consisted of preschool children aged four to six years old who were currently enrolled in private preschools in Selangor, Malaysia. Based on the enrolment statistics obtained from the Ministry of Education Malaysia (2020), there were 207.7 thousand children enrolled in government preschools, while 282.8 thousand children enrolled in private preschools in 2020. A total of 85687 children were enrolled in private preschools in the state of Selangor in Malaysia (Department of Statistics Malaysia, 2020).

Formal education in Malaysia, preschool, starts at age four. However, this is not compulsory education. Even so, most of the children below six years old embark on their preschool education formally as a preparation to get into the school system (Getting pre-school education, n.d.). Preschool children are selected as the scope of the study due to the trend of using screens among preschool children is becoming more worrying nowadays. Furthermore, they are in the crucial stage for acquiring and developing behavioural and socio-emotional skills. Numerous studies have reported the prevalence of mental health issues in school-aged children, adolescents, and adults. However, fewer studies have focused on preschool children (Gustafsson et al., 2017, as cited in Rahim et al., 2023). The inclusion criteria for this study were four to six-year-old preschool children who are currently attending a preschool in Selangor. On the other hand, children who are not staying together with their parents and children who have known developmental/mental health concerns such as Autism Spectrum Disorder (ASD), Attention-Deficit/Hyperactivity Disorder (ADHD), and Conduct Disorder (CD) were excluded from this study.

Within this scope of research, there are several limitations noted in the current study. Firstly, the study intended to establish the association between screen time, sleep duration, parent-child interaction as well as psychosocial adjustment among preschool children. However, various factors may be associated with psychosocial adjustment in children. Moreover, the study focused on only one self-factor, which is sleep duration, and one environmental factor, which is parent-child interaction, in determining whether they have a mediating role in the relationship between screen time and psychosocial adjustment. There may be other more significant self and environmental factors that mediate this relationship in the current context being overlooked, apart from the two variables examined in this study. Therefore, this study has a limited scope as it does not consider other variables that may also be associated with children's psychosocial adjustment and variables that may mediate the link between screen time and psychosocial adjustment.

Besides, the sample for the present study is parents of preschool children in Selangor, Malaysia. The data collected is unable to be generalized to preschool children staying in other states in Malaysia or other countries, especially countries that have a different

culture or practice from Malaysia. Parents' as well as children's practices, for instance, parenting behaviour and children's use of digital devices are likely to be varied when their surrounding environment is different. The results in this study are also limited to children in the preschool age group only. Thus, it is unable to represent individuals from other developmental stages such as adolescents and adults.

In addition, the current study is cross-sectional, as it only involves studying data from a population at one specific point in time. This study does not consider the psychosocial adjustment of the children before or after this study is conducted. Happenings that children went through before the study which may affect their psychosocial adjustment are not known to the researcher. The collection of data is only carried out once, therefore comparisons of various information are unable to be made for each of the children.

Aside from that, data collection in this study was conducted online due to the uncertain pandemic situation. Communication with principals and teachers was managed through emails, online social platforms, and calls. Principals and teachers helped in sending out the survey link to parents. Direct recruitment of respondents was unable to be carried out online. The researcher faced difficulties in checking with principals, teachers, and parents whether they understood what needed to be done on their side and also in following up on the progress of parents filling in the survey. Overall, virtual communication was not effective throughout the data collection process.

Data was gathered through a survey questionnaire method in this study. Therefore, all data were self-reported. The responses provided by parents may not be the actual situation as portrayed by themselves or their child, as the responses are based on parents' opinions. Parents who do not understand their children well may provide responses that are not fully accurate. Parents who wish to present a favorable image of themselves or their child may also fill in the survey inaccurately. Besides, parents may not answer the questionnaire seriously. For instance, parents who want to complete the questionnaire quickly may just rush through when answering the questionnaire, and this may result in errors in the findings.

1.9 Theoretical Background

A few theories were integrated to establish the association between screen time, sleep duration, parent-child interaction, and psychosocial adjustment among preschool children in this study. The theories proposed were Erikson's Psychosocial Theory, Social Cognitive Theory, Bronfenbrenner's Bioecological Systems Theory, and the ecological techno-subsystem model respectively.

1.9.1 Erikson's Psychosocial Theory (1950)

Erik Erikson came up with a distinctive theoretical foundation for demonstrating relations between different phases of human development, growth of maturity throughout adulthood, as well as the association between the person and society. He shaped his theory according to Freud's theory of psychosexual development and his work surrounding children and families. He believed that the collective dimensions that impact how humans develop are more noteworthy in moulding the individuality of the human personality (Batra, 2013).

There are eight stages of psychosocial development in this theory. Each stage shapes upon the previous stages and lays the foundation for the subsequent phases of development. Erikson's model is based on individuals going through the psychosocial development stages as they face crises of life from infancy to old age. Individuals who can manage and deal with the crisis at each stage successfully will gain psychological strengths that will benefit them later on in life. On the other hand, individuals who are not able to deal with the crisis effectively may develop some issues when they move on to a later psychosocial development stage (Cherry, 2019).

Stage 1 of psychosocial development is trust vs. mistrust, which occurs during infancy. Stage 2 is autonomy vs. shame and doubt, which happens in early childhood. The next phase is initiative vs. guilt, which preschool children will go through. The fourth stage is industry vs. inferiority, and this usually will be faced when children start to attend school. Stage 5 is identity vs. role confusion, in which adolescents may be looking for their identity and want to know who are they. The sixth stage is intimacy vs. isolation, which characterizes the young adulthood phase. Stage 7 is the stage at which generativity vs. stagnation will take place during middle adulthood. Ego integrity vs. despair is the last phase of psychosocial development in Erikson's theory, occurring during maturity or old age.

In this study, the target sample is preschool children from ages four to six. This age range spans two stages of psychosocial development according to Erikson's theory, which is the third and fourth stages. The third stage- initiative vs. guilt usually takes place around age three to five. According to Erikson, at this stage, the sense of autonomy in children develops into an initiative, whereby they undertake and plan tasks, and exercise their ideas through play along with other activities. When caregivers support their creative ideas, they gain the initiative to undertake new things. The fourth stage- industry vs. inferiority usually occurs around six to ten years. As children begin primary school, they get exposed to peers, teachers, and authority figures. They will be driven by academic achievement and also their social circle. At this stage, children try and accomplish tasks set for them as well as seek novel interests and challenges. Therefore, it would be best if they spend less time on screens and digital devices. Instead, they should play and socialize more with other children during these developmental stages.

In the third phase, which is initiative vs. guilt, play becomes the central part of children's development. Children are capable of organizing and performing playful activities for the contentment of being active, self-define, and to fulfill their imagination (Erskine, 2019). Children explore fantasy and role play, construct and engage in games as well as collaborate with others, and initiate play with others at this stage (Erikson, 1993; as cited in Hendry, 2017). There is a successful establishment of children's sense of initiative when they have an enhanced recognition of their autonomy, which contributes to more self-directed behaviours (Erskine, 2019). However, this could be concerning when children spend large amounts of time on screens, and hence, their social play may be overshadowed by solitary play, which could influence how children develop (Hendry, 2017). During the fourth stage, it is when children start to get exposed to the school setting. They can learn and attain new skills and knowledge (David, 2014). Therefore, they may have more control over using screen-based devices at this stage, as they learn to analyze what is good or bad for them at this point.

1.9.2 Social Cognitive Theory (1989)

Bandura discussed a model of causation that involves triadic reciprocal determinism in the Social Cognitive Theory. Behaviour, cognition, and other individual factors, together with environmental effects interact and influence each other bidirectionally (Bandura, 1989). Personal factors and behaviour reflect the interplay between how we think, feel, and act. Expectations, beliefs, self-perceptions, aims, and motives mould and direct behaviour. The impacts of individuals' efforts, in turn, influence their thinking patterns and emotional reactions to some extent.

In the relationship between individual factors and environmental impacts, our expectations, beliefs, emotional bents along with cognitive capabilities are advanced and altered by collective factors via modeling, teaching as well as social persuasion (Bandura, 1986). People elicit different responses from their surroundings by their physical features. In addition, people also promote various social reactions bound by their social roles and standing.

Next is the influence between behaviour and the environment. Behaviour changes the environmental circumstances and is, in turn, changed by the situations the environment generates. Most of the dimensions in the environment do not play a role as an impact until they are initiated by appropriate behaviour. Depending on how individuals behave, the potential environment may become the actual environment.

In this study, screen time and the child's interaction with parents are considered environmental factors. Screen time is influenced by the digital environment as individuals nowadays rely heavily on digital devices. When people around children are constantly holding and looking at screens, they will also be influenced. A child's interaction with parents is another environmental factor that may affect children's psychosocial adjustment. Sleep duration is the personal factor of preschool children while psychosocial adjustment is the behavioural outcome in this study.

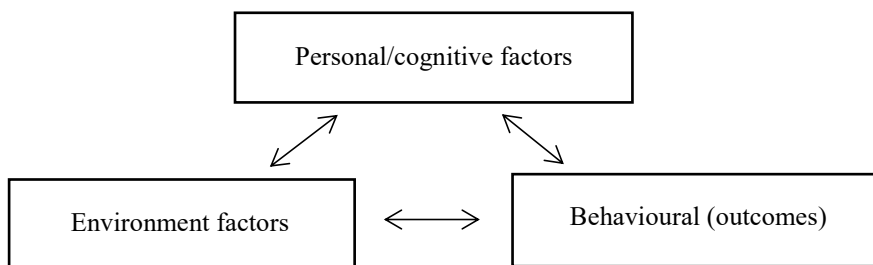


Figure 1.1 : The Social Cognitive Theory Model

(Source : Bandura, 1989)

1.9.3 Bronfenbrenner's Bioecological Systems Theory (1979)

Ecological Systems Theory, developed by psychologist Urie Bronfenbrenner (1979), discussed how different types of environmental systems affect human development. He described a child's ecology using a set of nested levels of the environment during his seminal work in 1979. He updated and modified the theory to Bioecological Systems Theory in 2006. In this adapted theory, the person's active role is emphasized in the course of development (Ettetal & Mahoney, 2017). Bronfenbrenner also focused more on the inter-relationships among multiple determinants of development. The individual characteristics, together with the role of genes and their expression are considered. This has led to a change in the name of the theory, as the biological elements of development were included (Grace et al., 2017).

The bioecological model is based on the view that the relationships children share with parents and caregivers influence their development. These relationships are affected by their work, school, and community environment, which are in turn impacted by broader social, cultural, and policy conditions (Center for Child & Family Well-Being, n.d.). Bronfenbrenner's bioecological model is "bioecological" because it suggests that biological and ecological systems are interrelated. On the contrary, an ecological model only considers the role of the environment in development. During his early career, Bronfenbrenner proposed an ecological systems theory, but he thought that it was too simplistic without the biological aspect.

Based on Bronfenbrenner (2017), the process of human development can be more specifically outlined by Bronfenbrenner's Bioecological Theory. Development is hypothesized to occur as a shared product when four primary elements are considered, which are processes, person, context, and time. Process refers to the "progressively more complex reciprocal interaction" between a person and the environment. These processes can be seen in the home at the most fundamental level. The person indicates the aspects of personal factors that can impact development, for instance, an individual's beliefs, skills, and perceptions. In this study, the values and perspectives of parents greatly influence how they mould their children. Thus, the seeds that parents sow in their children's minds since young are crucial in their development.

Furthermore, the interconnected systems that constitute one's environment are referred to as context. These systems consist of a microsystem, mesosystem, exosystem, macrosystem, and chronosystem. Microsystem is the innermost ecological system, consisting of family, school, work, play areas, and other "close" systems. Moving outward to the next level is the mesosystem. A mesosystem includes the interactions between different microsystems. An example of a mesosystem would be the child's family being involved at the child's school (relationship between a parent and the child's teacher).

An exosystem is comprised of the environment that a child does not directly interact with but still has an influence on the child's life. Examples are parent's workplaces, the government, and the media. The government is considered part of the exosystem as the child does not have direct interaction with governing agencies. However, the decisions made by the government can affect a child's life greatly. Besides, the macrosystem can be described as the way that the culture surrounding a child affects his or her development. This system consists of environments that are associated with a child's culture. It looks at how the preexisting culture that a child is born into impacts his or her growth. Furthermore, chronosystem refers to the time element, specifically including the key changes that influence an individual's development. It involves experiences that a person has gone through during their lifetime, for example, major life transitions.

The time element and the way that people think about time in this theory is also crucial factor. Time includes both chronological time and events. The chronological time in this study is the preschool stage of development of children from four to six years old. For events, examples will be the changes that take place in the environment, family life, and socio-economic aspects. Transitions that happen throughout the child's life is also an example of events. For instance, when children start to join preschool.

The environmental experiences of a child consist of various attributes that affect early childhood development, from family stimulation and support to the wider aspect of sociocultural, socio-economical, and socio-political factors. In the current study, parent-child interaction is regarded as the microsystem, as parents share a direct and close relationship with their children. Parents influence their children greatly throughout their development. The way children learn, interpret observation, and respond to their surroundings mainly depends on the immediate environment they develop in, considering what they receive from parents or caregivers (Arumugam et al., 2021).

1.9.4 Ecological Techno-Subsystem (Johnson & Pupilampu, 2008)

Catching up with the pace of constantly increasing complexity and accessibility of childhood technology, Johnson and Pupilampu (2008) suggested the ecological techno-subsystem, which is an aspect of the microsystem. The techno-subsystem consists of child interaction with living and non-living components of communication, information as well as leisure technologies in immediate or direct surroundings.

With the advancement of modern technology, children are mostly occupied with digital content which comes in many forms and sizes on various devices such as smartphones and tablets. However, the impacts of technology on preschool children are multifaceted. Technology can have positive and negative impacts on children. The impacts depend on various factors like the purpose of using the devices and the amount of time spent on it. One of the positive sides of technology is that it can help in organizing and planning. Various tools like calendars and notes are available to make organization much easier. Families can also keep in touch and plan activities together using group messaging platforms. This is beneficial, especially for families that are staying far from each other. In addition, technology helps keep loved ones and friends together. Children can stay connected with their family members and friends through messaging platforms and video calls. Besides, children can interact with their peers by playing online games. They can learn prosocial behaviour like teamwork when playing online games with friends. Aside from that, children can learn about different topics by searching information and resources on the internet. Parents can teach children how to go through the information and check if the sources of information are reliable. Moreover, children can express themselves easily with the aid of technology. They can share their thoughts and opinions online through social media platforms like Facebook by just typing and clicking. The tools/apps in technological devices such as photography apps and music software can also promote creativity among children, which enables them to explore different areas and help them express their ideas (Charles Nechtem Associates, 2021). Parents who view screen content together with their children and explain the content to them can enhance the parent-child bonding.

On the other hand, technology may pose certain risks for children if utilized excessively. One of them would be concerns relating to their health. Children may face issues, for instance, eye strain and disrupted sleep when they spend an increased amount of time on screens. Children may also have reduced time for exercise and more opportunities to snack when they are often engaged with devices, thus having an adverse influence on their physical health. Furthermore, children's social skills may be affected negatively when there are fewer opportunities for them to learn skills to interact with others. A lack of practice in this area may in turn influence their relationship with people around them, as they may not know how to engage with others. They may also become less desired to interact with their family and friends, preferring to be alone in the virtual reality. Additionally, given that a vast amount of information is available online, the internet may pose a risk to children when they browse online. As young children are still not able to filter through online information, they may be highly exposed to inappropriate content or interaction with strangers (Charles Nechtem Associates, 2021).

Based on the ecological techno-subsystem (Johnson & Pupilampu, 2008), screen time is also considered as the microsystem, which has a direct impact on children in today's digital world. It is common to see people, including children around us constantly holding gadgets and devices nowadays. This practice has been brought into children's daily lives and rapidly becoming a global culture.

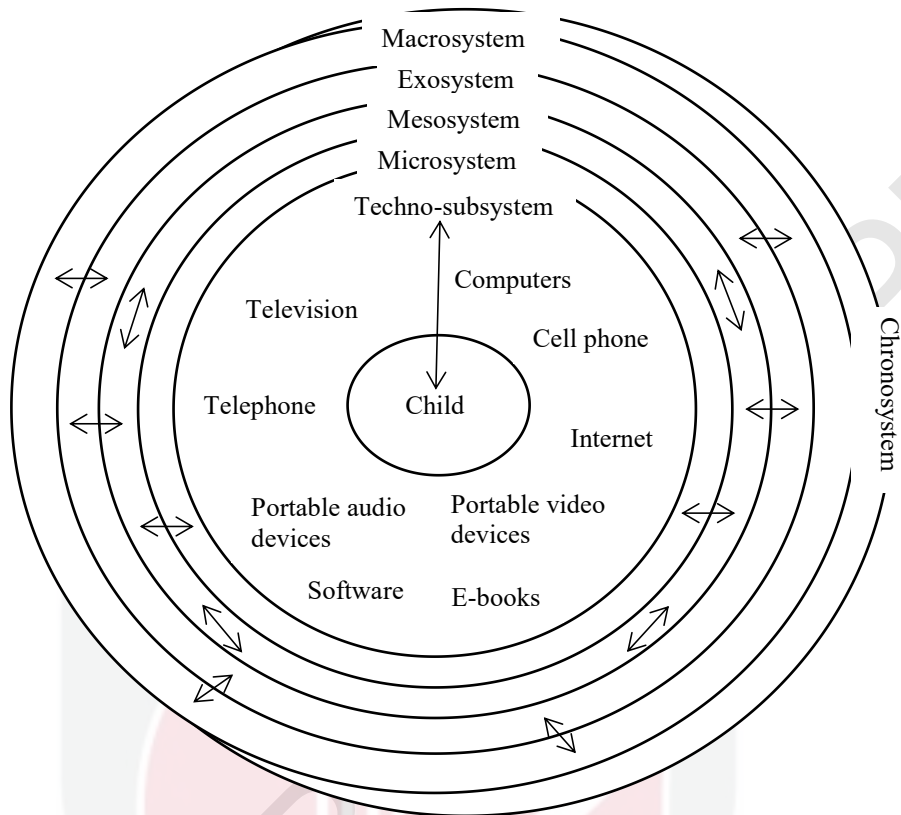


Figure 1.2 : The Ecological Techno-Subsystem
(Source : Johnson & Puplampu, 2008)

In the current study, screen time is considered as the techno-subsystem. Mobile devices may be employed to calm or distract children, or to manage their behaviour. Past studies acknowledged that parents often offer devices to children when carrying out house chores, to calm them in public settings, during meals, or to put them to sleep during bedtime (Kabali et al., 2015; Coenen et al., 2015; Dinleyici et al., 2016, as cited in Bozzola et al., 2018).

1.9.5 Integration of Theories

This study integrates Erikson's Psychosocial Theory, Social Cognitive Theory, Bronfenbrenner's Bioecological Systems Theory, and the ecological techno-subsystem in determining the association between screen time, sleep duration, parent-child interaction as well as psychosocial adjustment among preschool children.

Erikson's Psychosocial Theory mainly looks into the psychosocial development of individuals during different stages in life. According to this theory, preschool children ranging between the ages of four to six in the current study are at the phases of initiative vs. guilt and industry vs. inferiority. Erikson's Psychosocial Theory serves as a foundation for understanding children's psychosocial needs at various stages as they develop. Apart from that, Social Cognitive Theory is chosen to be included in this study, as it highlights both environmental and personal factors in determining a person's behavioural outcomes, with all three variables having a bidirectional influence on each other. In the current study, sleep duration is considered as the personal factor of a child, while screen time and parent-child interaction are considered as the environmental factors. Therefore, psychosocial adjustment as the behavioural outcome can be examined through the interplay between sleep duration, screen time, and parent-child interaction in Social Cognitive Theory.

Bronfenbrenner's Bioecological Systems Theory and the ecological techno-subsystem take into account the important role played by various environmental systems on an individual, from a proximal distance to a further distance from the individual. Bronfenbrenner's Bioecological Systems Theory outlines how human development is impacted by various types of structures in the environment by considering biological influences as well (Grace et al., 2017). A child's interaction with parents in the current study is one of the interactions that take place within the microsystem of a child. Therefore, this theory provides a platform for learning about how children's psychosocial adjustment is affected by their interaction with their parents from the bioecological viewpoint. Besides, the ecological techno-subsystem stresses the role of technology in child development. It encourages discussion of the developmental outcomes of internet utilization and prospective technological advancement throughout childhood (Johnson & Puplampu, 2008). Hence, the ecological techno-subsystem is selected to explore children's employment of screen devices and the related psychosocial outcomes in the current study.

These theories were integrated into this study in the hope of gaining a better comprehension of the impact of various factors on a child's psychosocial adjustment from various perspectives.

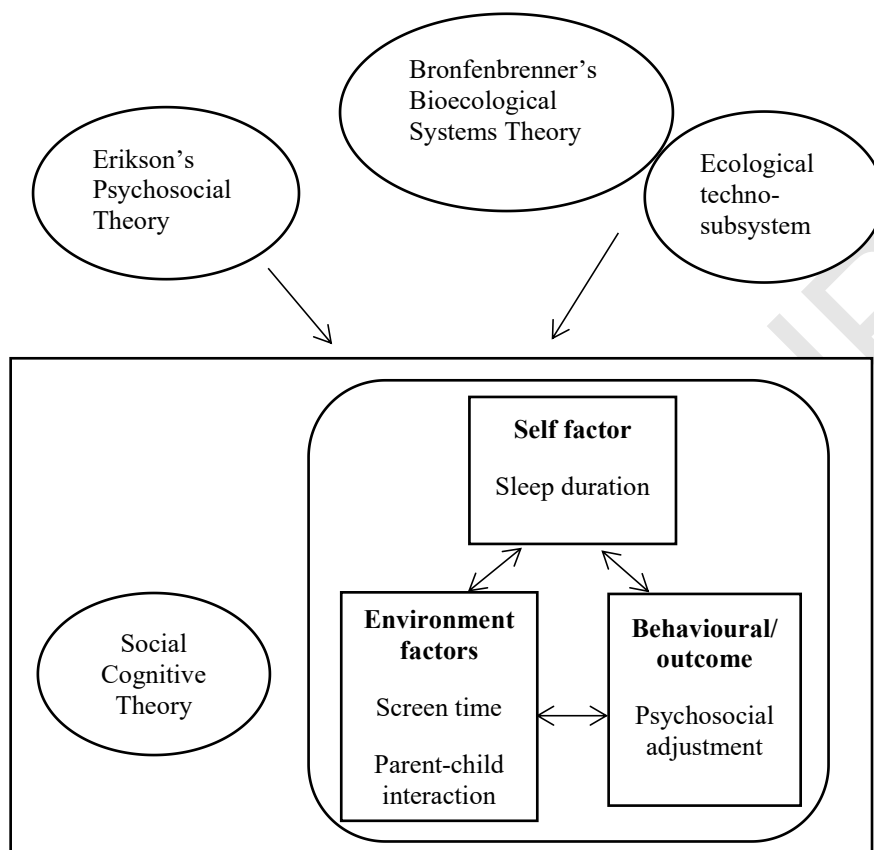


Figure 1.3 : Theoretical framework of screen time, sleep duration, parent-child interaction and psychosocial adjustment among preschool children

1.10 Conceptual Framework

The conceptual framework of the study is constructed from Erikson's Psychosocial Theory, Social Cognitive Theory, Bronfenbrenner's Bioecological Systems Theory, and the ecological techno-subsystem. This study consists of six main variables which are the child's characteristics, the parent's characteristics, screen time, sleep duration, parent-child interaction, and psychosocial adjustment. The dependent variable is preschool children's psychosocial adjustment. The independent variable is screen time. Sleep duration and parent-child interaction are the mediating variables here. The child's characteristics and the parents' characteristics are the antecedent variables in this study.

The conceptual framework (Figure 1.4) is based on the integration of the Psychosocial Theory (Erikson, 1950), Social Cognitive Theory (Bandura, 1989), Bioecological Systems Theory (Bronfenbrenner, 1979), and ecological techno-subsystem model (Johnson & Puplampu, 2008). The Psychosocial Theory, the process of getting through

each psychosocial development stage in life and emerging from them with strengths developed is the core of this theory. Based on this theory, preschool children who overcome the stage of initiative vs. guilt will gain a sense of purpose while those who overcome the stage of industry vs. inferiority can develop a sense of competence and confidence (Cherry, 2019). Therefore, parents' encouragement and support are important in children's development, as they may affect their psychosocial adjustment.

In addition, the Social Cognitive Theory focuses on three elements, namely the environmental element, personal element, and behavioural/outcome element. The behavioural/outcome element in this study is the psychosocial adjustment of preschool children. The environmental element is screen time and parent-child interaction while sleep duration is the personal element.

Furthermore, the Bioecological Systems Theory emphasizes the influence of the four environmental systems on a person's development, ranging from the more proximal to the more distal systems, while considering the biological characteristics of the individual. In this study, parent-child interaction belongs to the microsystem, in which parents have a direct impact on affecting children's psychosocial adjustment. Preschool children usually spend time at home, other than at preschool. Therefore, parents play a crucial part in nurturing and shaping their children during this developmental stage.

The ecological techno-subsystem illustrates a concept similar to the Bioecological Systems Theory, with technology and digital devices being taken into account as a dimension in the microsystem. Screen time is considered the techno-subsystem in the present study, which has a proximal and direct relationship with children in influencing their psychosocial adjustment. Many past studies stated that the excessive use of screens may have negative impacts on young children's psychosocial adjustment.

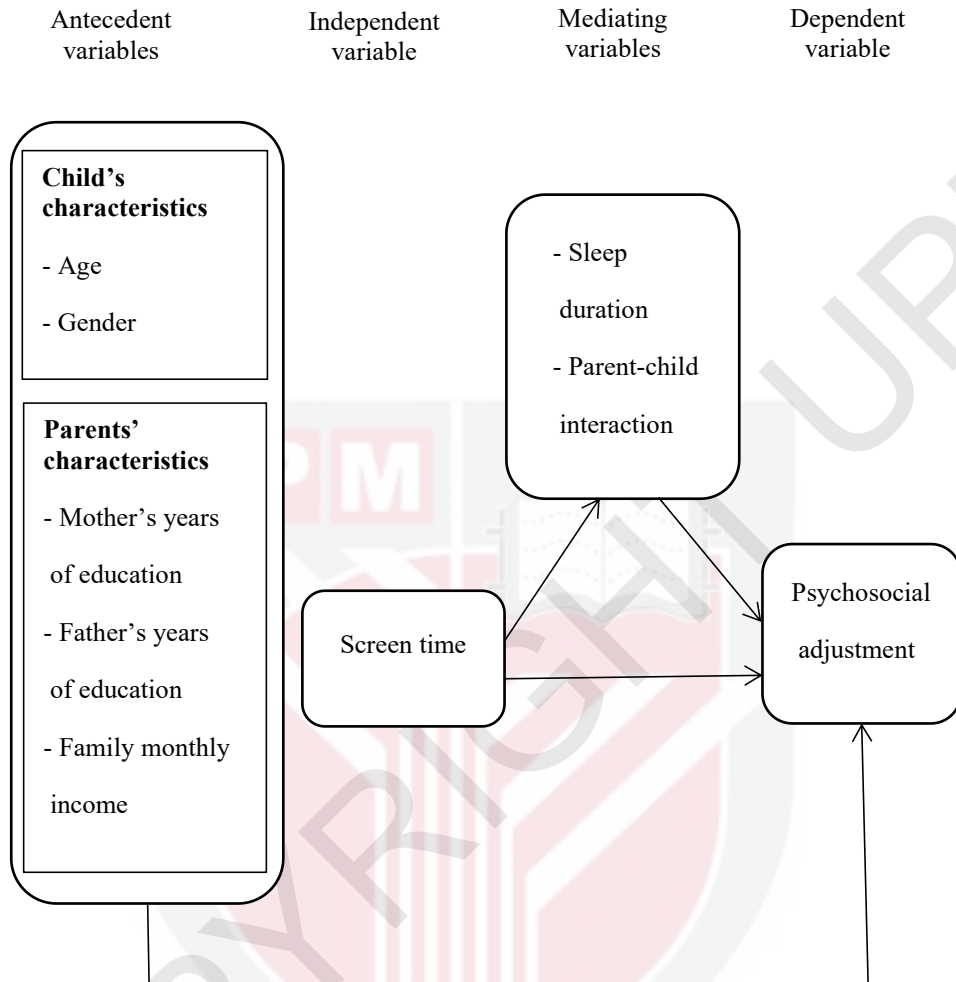


Figure 1.4 : Conceptual framework of screen time, sleep duration, parent-child interaction and psychosocial adjustment among preschool children

1.11 Chapter Summary

The chapter starts with the background of this study and the statement of the problem. It is then accompanied by the research questions, research objectives, hypotheses, terminology definitions, and the significance of the study. The theoretical background and conceptual framework are explained in the last part of the chapter. The next chapter is an analysis of the literature.

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