

**EXPLORING SOCIAL IMAGINATION, EMOTION
REGULATION AND BEHAVIORAL-EMOTIONAL
PROBLEMS: A COMPARISON BETWEEN ADHD
AT RISK AND TYPICAL PRESCHOOLERS**

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**EXPLORING SOCIAL IMAGINATION, EMOTION
REGULATION AND BEHAVIORAL-EMOTIONAL
PROBLEMA: A COMPARISON BETWEEN ADHD
AT RISK AND TYPICAL PRESCHOOLERS**

by

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TABLE OF CONTENTS

ACKNOWLEDGEMENT	ii
TABLE OF CONTENTS	iii
LIST OF TABLES	viii
LIST OF FIGURES	x
LIST OF ABBREVIATIONS	xi
LIST OF APPENDICES	xii
ABSTRAK	xiv
ABSTRACT	xvi
CHAPTER 1 INTRODUCTION	1
1.1 Introduction	1
1.2 Background of Study	3
1.3 Problem Statement	7
1.4 Aim	12
1.5 Objectives	12
1.6 Research Questions	13
1.7 Significance of Study	15
1.8 Scope of Study	18
1.9 Operational Definitions	19
1.9.1 Social Imagination	19
1.9.2 TFI Analysis Framework	20
1.9.3 Wordless Picture Book	20
1.9.4 Emotion Regulation	21
1.9.5 Behavioral-Emotional Problems	22
1.9.6 Preschoolers	23
1.10 Summary	24

CHAPTER 2	LITERATURE REVIEW	25
2.1	Introduction	25
2.2	ADHD in Preschoolers	27
2.2.1	Classification of ADHD according to ICF	28
2.2.2	Classification of ADHD according to DSM-V	29
2.2.3	Causes of ADHD	30
2.2.4	Behavioral Intervention for ADHD	32
2.2.5	School Challenges for Preschoolers with ADHD	32
2.3	Development of Social Imagination in Preschoolers	33
2.3.1	Social Imagination and Theory of Mind	34
2.3.2	Social Imagination and ADHD	35
2.4	Application of Wordless Picture Books in Eductaion	36
2.4.1	Educational Applications of Wordless Picture Books	38
2.4.2	Wordless Picture Books as an Intervention for ADHD	39
2.5	Wordless Picture Books as Assessment Tools	40
2.6	TFI Analysis Framework	43
2.7	Emtion Regulation in preschoolers	46
2.7.1	Education Regulation as a Mediator between Social Imagination and Behavioral-Emtional Problems	48
2.7.2	Three Key Dimensions of Emtion Regulation	49
2.8	Behavioral-Emotional Problems in Preschoolers	50
2.8.1	Behavioral-Emtional Problems, Social Imagination and Emotion Regulation in ADHD preschoolers	51
2.8.2	Internallizing and Externalizing Problems	53
2.8.3	Implications for intervention	54
2.9	Theories	55
2.9.1	Theory of Mind (ToM)	56
2.9.2	Social Imagination Theory	57

2.9.3	Emotion Regulation Theory	57
2.9.4	Cognitive-Behavioral Theory	58
2.9.5	Cognitive developmental theory (Piaget)	58
2.9.6	Sociocultural Theory by Vygotsky & Emotional Intelligence by Goleman	59
2.9.7	Cognitive-Behavioral Theory by Beck and Ellis	60
2.10	Theoretical Framework of the study	60
2.11	Conceptual Framework of the study	63
2.12	Summary	64
CHAPTER 3 METHODOLOGY		67
3.1	Introduction	67
3.2	Research Design	68
3.3	Research Framework	70
3.4	Populations and Samples	73
3.5	Instruments	76
3.5.1	Wordless picture book	77
3.5.2	Pilot study	80
3.5.2(a)	Pilot study procedures	83
3.5.2(b)	TFI rubric	84
3.5.2(c)	TFI coding	86
3.5.2(d)	TFI form	89
3.5.2(e)	TFI report	91
3.5.3	The Preschoolers Emotion Regulation Questionnaire	93
3.5.4	The Child Behavior Checklist for age	96
3.6	Data Collection Procedure	98
3.6.1	Study 1: Investigation with 5 years old typically developing preschoolers	98

3.6.2	Study 2: Investigation with 5 years old preschoolers at risk for ADHD	100
3.6.3	Data Handling	101
3.7	Data Analysis Process	103
3.8	Summary	107
CHAPTER 4 THESIS TEMPLATE USING MS WORD		109
4.1	Introduction	109
4.2	Profiles of preschoolers in this research	110
4.3	Research Question 1 (Study 1) - What is the social imagination (thoughts, feelings and intentions) profile of 5 years old typically developing preschooler obtained from the analysis of narrative during wordless picture book session?	111
4.4	Research Question 2 (Study 1) - What is the emotion regulation of 5 years old typically developing preschoolers from teacher reports?	113
4.5	Research Question 3 (Study 1) - What is the behavioral-emotional problems of 5 years old typically developing preschoolers from teacher reports?	115
4.6	Research Question 4 (Study 1) - What is the association of social imagination, emotion regulation, and behavioral-emotional problems of 5 years old typically developing preschoolers?	119
4.7	Research Question 5 (Study 2) - What is the social imagination (thoughts, feelings and intentions) profile of 5 years old preschoolers at risk for ADHD obtained from the analysis of narrative during wordless picture book session?	127
4.8	Research Question 6 (Study 2) - What is the emotion regulation of ADHD preschoolers from parents and teacher reports?	134
4.9	Research Question 7 (Study 2) - What is the behavioral-emotional problem of ADHD preschoolers from parents and teacher reports?	140
4.10	Research Question 8 (Study 2) - What is the association of social imagination, emotion regulation, and behavioral-emotional problem of ADHD preschoolers?	146
4.11	Research Question 9 (Comparative Research Question) - How do the social imagination, emotion regulation, and behavioral-emotional problem of typically developing preschoolers compare with those of preschoolers at risk for ADHD?	151
4.12	Summary	154

CHAPTER 5 CONCLUSION AND FUTURE RECOMMENDATIONS 156

5.1	Introduction.....	158
5.2	Summary of Findings.....	158
5.3	Discussion of Finding.....	163
5.3.1	Research Question 1: Social imagination profiles of 5 years old typical preschoolers in Study 1.....	163
5.3.2	Research Question 2: Emotion regulation of 5 years old typical-developing preschoolers from teacher reports.....	165
5.3.3	Research Question 3: Behavioral-emotional problems of 5 years old typical-developing preschoolers from teacher reports.....	168
5.3.4	Research Question 4: The association of social imagination, emotion regulation, and behavioral-emotional problems of 5 years old typically developing preschoolers.....	172
5.3.5	Research Question 5: The social imagination (thoughts, feelings and intentions) profile of 5 years old preschoolers at risk for ADHD obtained from the analysis of narrative during wordless picture book session.....	174
5.3.6	Research Question 6: Emotion regulation of 5 years old preschoolers at risk for ADHD from teacher reports.....	176
5.3.7	Research Question 7: Behavioral-emotional problems of 5 years old preschoolers at risk for ADHD from teacher reports.....	179
5.3.8	Research Question 8: The association of social imagination, emotion regulation, and behavioral-emotional problems of 5 years old preschoolers at risk for ADHD.....	180
5.3.9	Research Question 9: The social imagination, emotion regulation, and behavioral-emotional problems of typically developing preschoolers compare with those preschoolers at risk for ADHD.....	183
5.4	Limitations of the Study.....	186
5.5	Implications.....	189
5.5.1	Practical implications.....	189
5.5.2	Theoretical implications.....	189
5.6	Recommendations for Future Research.....	192
5.7	Conclusion.....	193

REFERENCES..... 198

APPENDICES

LIST OF PUBLICATIONS

LIST OF TABLES

		Page
Table 2.1	Conceptually derived codes for social imagination within wordless book reading — Lasaker & Miller (2012).....	42
Table 3.1	Participant Demographics	75
Table 3.2	TFI Rubric: Standardized Coding Manual for Assessing Social Imagination within Wordless Picture Book Reading - “Falling gifts” (Jin xiaojing, 2019).....	85
Table 3.3	Extract of TFI Form - Yueyue	89
Table 3.4	Extract of TFI report - Yueyue	91
Table 3.5	Factor Loading	95
Table 3.6	Data Collection Procedures for Study 1 and Study 2	101
Table 3.7	Analytical Methods Overview	103
Table 3.8	Data analysis of Study 1 and Study 2.....	105
Table 4.1	Profiles of preschoolers in this research	111
Table 4.2	Summary of Utterances and Words by Gender.....	112
Table 4.3	TFI scores for preschoolers (n = 34).....	113
Table 4.4	Three Dimensions of Preschoolers’ Emotion Regulation Questionnaire analysis for preschoolers in Study 1 (n = 34).....	114
Table 4.5	Categorization of Child Behavior Checklist for Ages 1½-5 (CBCL/1½-5) Sub-Scales into Internal and External Dimensions...	115
Table 4.6	Seven dimensions of CBCL1/2-5 analysis for preschoolers in Study 1 (n = 34).....	116
Table 4.7	T-score in CBCL1/2-5 analysis for preschoolers in Study 1 (n = 34).....	118
Table 4.8	Tests of Normality for Social Imagination, Emotion Regulation, and Behavioral-Emotional Problem Scores in Study 1.....	120

Table 4.9	Pearson Correlations between Social Imagination, Emotion Regulation, and Behavioral-Emotional Problem in Study 1.....	121
Table 4.10	Effect of Emotion Regulation on Behavioral-Emotional Problems.....	124
Table 4.11	Effect of Social Imagination on Behavioral Emotional Problems....	125
Table 4.12	Combined Effects of Emotion Regulation and Social Imagination.	125
Table 4.13	Interaction between Emotion Regulation and Social Imagination....	126
Table 4.14	Descriptive individual score for social imagination in preschoolers at risk for ADHD in Study 2 (n = 8).....	128
Table 4.15	Descriptive Statistics for Social Imagination in preschoolers at Risk for ADHD in Study 2 (n = 8).....	129
Table 4.16	Emotion Regulation for preschoolers in Study 2 (n = 8).....	135
Table 4.17	Descriptive individual score for emotion regulation in preschoolers at risk for ADHD in Study 2 (n = 8).....	136
Table 4.18	CBCL1/2-5 Analysis for preschoolers in Study 2 (n = 8).....	140
Table 4.19	Descriptive individual score for T-score in preschoolers at Risk for ADHD in Study 2 (n = 8).....	141
Table 4.20	Tests of Shapiro-Wilk for Social Imagination, Emotion Regulation, and Behavioral-Emotional Problem Scores in Study 2	146
Table 4.21	Pearson Correlations between Social Imagination, Emotion Regulation, and Behavioral-Emotional Problem in Study 2.....	149
Table 4.22	Linear Regression Analysis Predicting Behavioral-emotional Problems from emotion regulation and social imagination.....	149

TABLE LIST OF FIGURES

		Page
Figure 2.1	Theoretical frameworks	63
Figure 2.2	Conceptual Frameworks	64
Figure 3.1	The Research Framework	72
Figure 3.2	Scenes 1 to 9 in the wordless picture book - “Falling gifts” (Jin, 2019).....	79
Figure 3.3	Procedure of Wordless Picture Book Narration Task	83
Figure 4.4	Normal Q-Q plot of Social Imagination Scores	120
Figure 4.5	Normal Q-Q plot of emotion regulation scores	121
Figure 4.6	Normal Q-Q plot of Behavioral-Emotional Problem Scores	121
Figure 4.7	TFI graph generated from 8 ADHD preschoolers in Study 2.....	129
Figure 4.8	Sub-dimensions TFI graph generated from 8 ADHD preschoolers in Study 2.....	130
Figure 4.9	Emotion regulation graph generated from 8 preschoolers in Study 2.....	136
Figure 4.10	Sub-dimensions Emotion Regulation graph generated from 8 ADHD preschoolers in Study 2.....	137
Figure 4.11	Internal Dimensions: T-score in the CBCL/1½-5 Graph Generated from 8 preschoolers in Study 2.....	142
Figure 4.12	External Dimensions: T-score in CBCL1/2-5 Graph Generated from 8 preschoolers in Study 2.....	144
Figure 4.13	Q-Q plot of Social Imagination Scores.....	147
Figure 4.14	Q-Q plot of Emotion regulation Scores.....	147
Figure 4.15	Q-Q plot of Behavioral-emotional problems Scores.....	147

LIST OF ABBREVIATIONS

LRC	Learning in regular classroom
TFI	Thought, Feeling, Intention
USM	Universiti Sains Malaysia

LIST OF APPENDICES

- APPENDIX A THE EARLY CHILDHOOD EMOTION REGULATION QUESTIONNAIRE (ORIGINAL QUESTIONNAIRE)
- APPENDIX B THE PRESCHOOLERS EMOTION REGULATION QUESTIONNAIRE (PERQ)
- APPENDIX C ENQUIRY ABOUT USING CHILD BEHAVIOR CHECKLIST
- APPENDIX D EXPERT VALIDATION OF THE TFI ANALYSIS FRAMEWORK
- APPENDIX E WORDLESS PICTURE BOOK - FALLING GIFT
- APPENDIX F NARRATIVE TEXT ANALYSIS OF 34 WORDLESS BOOK SESSIONS WITH TYPICALLY DEVELOPING PRESCHOOLERS
- APPENDIX G NARRATIVE TEXT ANALYSIS OF 8 WORDLESS BOOK SESSIONS WITH PRESCHOOLERS AT RISK FOR ADHD
- APPENDIX H PEARSON CORRELATIONS AMONG DIMENSIONS OF SOCIAL IMAGINATION, EMOTION REGULATION, AND BEHAVIORAL-EMOTIONAL PROBLEMS

**MENEROKA IMAGINASI SOSIAL, REGULASI EMOSI DAN MASALAH
TINGKAH LAKU-EMOSI: PERBANDINGAN ANTARA KANAK-KANAK
PRASEKOLAH BERISIKO ADHD DENGAN KANAKKANAK TIPIKAL**

ABSTRAK

Kajian ini menjalankan satu penyelidikan tentang regulasi emosi, imaginasi sosial, dan masalah tingkah laku-emosi dalam kalangan kanak-kanak prasekolah yang berkembang secara tipikal dan mereka yang berisiko mengalami Attention Deficit Hyperactivity Disorder (ADHD). Dengan menggunakan pendekatan penyelidikan kaedah campuran, kajian ini secara unik menumpukan pada imaginasi sosial kanak-kanak prasekolah, iaitu satu kemahiran kognitif kritikal untuk memahami pemikiran, perasaan, dan niat orang lain. Untuk menangani kekurangan kaedah kuantitatif dalam menilai interaksi dengan buku gambar tanpa perkataan, satu rangka kerja novel, iaitu Kerangka Analisis TFI, telah dicadangkan dan diuji dalam kajian ini. Kajian ini merangkumi satu kajian rintis dengan seorang kanak-kanak prasekolah, diikuti oleh dua kajian utama: Kajian 1 dengan 34 kanak-kanak prasekolah yang berkembang secara tipikal dan Kajian 2 dengan 11 kanak-kanak prasekolah yang berisiko mengalami ADHD. Menggunakan buku gambar tanpa perkataan untuk memperoleh data kualitatif, data tersebut kemudiannya diubah secara sistematik menjadi data kuantitatif berstruktur melalui Kerangka Analisis TFI. Pendekatan ini terbukti berkesan dalam mendedahkan corak universal dalam perkembangan imaginasi sosial dalam kalangan kanak-kanak prasekolah. Bagi kanak-kanak prasekolah yang berkembang secara tipikal, dapatan menunjukkan terdapat korelasi signifikan antara imaginasi sosial yang lebih tinggi dan peningkatan regulasi emosi, yang seterusnya berkait dengan masalah tingkah laku-emosi yang

lebih rendah. Kajian ini juga mendapati bahawa kanak-kanak prasekolah yang berisiko ADHD menunjukkan corak yang berbeza dalam regulasi emosi dan cabaran tingkah laku-emosi. Dapatan kajian ini menekankan kepentingan meningkatkan regulasi emosi dan imaginasi sosial dalam kalangan kanak-kanak prasekolah, khususnya mereka yang berisiko ADHD, sebagai cara untuk meningkatkan kecekapan sosial dan emosi serta mengurangkan masalah tingkah laku. Kajian ini mencadangkan pendekatan bersepadu dalam pendidikan awal kanak-kanak yang menggabungkan teori perkembangan kognitif, sosiobudaya, kecerdasan emosi, dan tingkah laku kognitif untuk menangani interaksi kompleks antara imaginasi, regulasi emosi, dan ekspresi tingkah laku-emosi dalam kalangan kanak-kanak prasekolah.

**EXPLORING SOCIAL IMAGINATION, EMOTION REGULATION AND
BEHAVIORAL-EMOTIONAL PROBLEMS: A COMPARISON BETWEEN
ADHD AT RISK AND TYPICAL PRESCHOOLERS**

ABSTRACT

This study embarks on an investigation of emotion regulation, social imagination, and behavioral-emotional problems in typically developing preschoolers and those at risk for Attention Deficit Hyperactivity Disorder (ADHD). Adopting a mixed-method research approach, the study uniquely focuses on preschoolers' social imagination, a critical cognitive skill for understanding others' thoughts, feeling and intentions. To address the lack of quantitative methods in evaluating interactions with wordless picture books, a novel TFI Analysis Framework was proposed and tested in this study. The study comprises a pilot study with one preschooler, followed by two main studies: Study 1 with 34 typically developing preschoolers and Study 2 with 11 preschoolers at risk of ADHD. using a wordless picture book to elicit qualitative data, which is then systematically transformed into structured quantitative data through the TFI Analysis Framework. This approach proves effective in revealing universal patterns in social imagination development among preschoolers. For typically developing preschoolers, the findings revealed a significant correlation between enhanced social imagination and improved emotion regulation, which consequently correlates with fewer behavioral-emotional problems. It was also found that preschoolers at risk for ADHD exhibited distinct patterns in emotion regulation and behavioral-emotional challenges. It highlights the importance of enhancing emotion regulation and social imagination in

preschoolers, particularly those at risk for ADHD, as a means to improve their social and emotional competencies and reduce behavioral problems. It advocates for an integrated approach in early childhood education, combining cognitive developmental, sociocultural, emotional intelligence, and cognitive-behavioral theories, to address the complex interplay of imagination, emotion regulation, and behavioral-emotional expressions in preschoolers.

CHAPTER 1

INTRODUCTION

1.1 Introduction

The preschool period is widely recognized as a critical developmental stage. During this brief but essential time, preschoolers not only experience rapid physical growth but also significant cognitive and emotional development. They begin forming their personalities, learning social skills, and laying a foundation for future learning and life. Preschool education increasingly focuses on helping preschoolers discover their potential, develop curiosity, and interact with others. In addition to education, this period is vital for emotional and behavioral regulation as children learn to process emotions, relate to peers, and face daily challenges, which is essential for their long-term development.

Attention Deficit Hyperactivity Disorder (ADHD) is a common neurodevelopmental condition that significantly impacts preschoolers' daily functioning across various environments (Bergwerff et al., 2017). ADHD, marked by persistent inattention, hyperactivity, and impulsivity, makes it difficult for affected preschoolers to focus, control impulses, and regulate behavior according to situational demands (Hinshaw, 2018). In China, despite increased awareness of special educational needs, preschoolers at risk for ADHD face challenges in receiving appropriate educational support. Traditional classroom methods often fail to meet their diverse and dynamic learning needs, leading to difficulties in concentration, social interaction, and academic performance, which can affect their self-esteem.

Moreover, while policies like “learning in regular classroom” are in place (Chan et al., 2022), the actual support remains limited due to what some scholars call “lazy inclusivism” (Mu, 2021). A more inclusive environment is needed to support the cognitive and behavioral development of preschoolers at risk for ADHD, providing them with the care, educational rights, and opportunities they deserve.

Cognitive development during the preschool period includes social imagination, defined as the ability to infer the thoughts, feelings, and intentions of others (Lysaker et al., 2011). Social imagination plays a key role in cognitive development, acting as a bridge between personal experiences and the wider social context (Lysaker et al., 2011; Wall, 2019). It encompasses empathy, theory of mind, and moral imagination, which are essential for fostering relationships and enhancing interpersonal understanding (Lysaker & Miller, 2012; Astington & Jenkins, 1995; Wellman, 2017). Exploring preschoolers' social imagination, especially through their interactions with wordless picture books, provides valuable insights into their developmental stage.

Social imagination, emotion regulation, and behavioral-emotional problems are critical components of preschoolers' cognitive and emotional development. Wordless picture books provide an engaging platform for preschoolers to develop key cognitive and emotional skills, as they allow children to project their interpretations and emotions without the constraints of text (Zambo, 2004; Arizpe, 2013). By interpreting illustrations and constructing narratives, preschoolers actively engage their social imagination, which is essential for understanding the thoughts, feelings

and intentions of others (Lysaker & Miller, 2012). This cognitive process fosters empathy and relational understanding, forming the foundation for effective social interactions. Moreover, this engagement with visual storytelling stimulates emotion regulation, as preschoolers must manage and interpret emotional cues within the narrative. Effective emotion regulation is crucial in mitigating behavioral-emotional problems, which are often exacerbated by difficulties in understanding social contexts (Reyes et al., 2020; Berkovits et al., 2017). Thus, the interplay between social imagination, emotion regulation, and behavioral-emotional problems forms the core of this study, exploring how these elements contribute to preschoolers' development.

This study posits that social imagination, emotion regulation, and behavioral-emotional problems are interconnected. Social imagination involves understanding others' mental states, which may support emotion regulation and influence behavioral outcomes (Lysaker et al., 2016). By exploring the interplay among these three variables, this research aims to provide insights into the factors influencing preschoolers' development. The findings will offer valuable perspectives for both academic research and practical applications, particularly in preschool mental health and education (Biele et al., 2022).

1.2 Background of Study

In this research, the potential benefits of using wordless picture books as an inclusive educational resource for the assessment of social imagination, and its relations on emotion regulation and behavioral-emotion problems of preschoolers in

inclusive classrooms were explored. Wordless picture books, with their non-text characteristics where pictures serve as the primary medium, offer a language-universal platform, making them especially suitable for the use of preschoolers in diverse and inclusive classroom settings (Lysaker & Sedberry, 2015)).

Lysaker and Miller (2012) highlight that wordless picture books offer unique opportunities for preschoolers to engage in narrative construction, enhancing their ability to understand and interpret the thoughts, feelings, and intentions of others. This process encourages preschoolers to use their social imagination to fill in narrative gaps, thereby improving their relational understanding and empathy—integral components of their cognitive and emotional development. Originating in Europe in the 17th century, wordless picture books have evolved into an independent genre that relies exclusively on images to convey stories (Pantaleo, 2023). Their popularity expanded globally, reaching the United States in the 1930s, Japan and South Korea in the 1950s and 1960s, and Chinese-speaking regions like Taiwan by the 1970s (Xu, 2021). Recognized for enhancing preschoolers' understanding of the human condition and providing new insights into the social world (Arizpe, 2009; Short, 2012), these books emphasize the synergy between images without textual support. One notable advantage is their suitability for inclusive preschool settings, catering to the needs of all preschoolers regardless of their reading abilities (Zambo, 2006).

In preschool settings, there are often preschoolers who are diagnosed with ADHD (Attention Deficit Hyperactivity Disorder). ADHD's prevalence varies across different social cultural backgrounds. As per the 'Diagnostic and Statistical Manual of

Mental Disorder, 5th edition' (DSM-V) by the American Psychiatric Association (APA, 2013), ADHD symptoms typically emerge before the age of 12 and persist for at least six months. DSM-V classifies ADHD into three types: attention disorder predominant type, hyperactivity/impulsivity predominant type, and mixed type, each having its distinct characteristics and manifestations (Bergwerff et al., 2017). While drug therapies exist, their efficacy, especially for preschoolers, has come under scrutiny. ADHD is estimated to affect approximately 5% of the population, with this number on the rise (APA, 2013).

Beyond the primary behavioral symptoms, ADHD profoundly affects cognitive functions, particularly those related to executive functions and working memory (Maoz et al., 2017). These are the cognitive processes responsible for managing thoughts and actions to achieve goals, involving skills such as planning, organization, strategizing, attention to details, and managing time and space (Germano et al., 2010). For preschoolers at risk for ADHD, sustaining attention and task persistence are notably challenging, affecting their ability to engage in cognitive tasks effectively (Parke, et al., 2018). Furthermore, the interplay between executive functions and theory of mind (i.e., the ability to understand others' mental states and perspectives) is critical for social cognition (Austin et al, 2020). This interconnectedness is particularly relevant in ADHD, where deficits in executive functioning can hinder understanding social cues and responding appropriately in social interactions (Kalyoncu et al., 2017).

As a result, there has been a notable shift in focus towards behavior and cognitive interventions designed specifically for preschoolers with ADHD. These interventions aim to create a supportive and understanding social environment while providing targeted strategies to enhance social cognitive skills. Researchers have sought to explore the influence of ADHD on preschoolers' social and emotional development through these approaches (Mastoras et al., 2015; Capodieci et al., 2016). In the context of education, behavioral and cognitive intervention plays a pivotal role in improving emotion regulation and reducing behavioral-emotion problems (Chen et al., 2000). Proper emotion regulation fosters positive peer relationships and minimizes problematic behaviors, thereby promoting positive social adjustments (Duncombel et al, 2012, Duncombe et al, 2014). Behavioral and cognitive interventions are aimed at teaching and practising effective coping skills, thereby improving preschoolers' ability to regulate their emotions. This in turn reduces preschoolers' behavioral-emotional problems in social interactions.

In light of these challenges, inclusive education becomes critical. Inclusive education emphasizes educational equality for all preschoolers, regardless of ability. In China, most preschoolers at risk for ADHD are included in the regular schools because the “learning in ordinary classrooms” policy guarantees this right, advocating that public schools should accommodate preschoolers with special needs (Chan et al., 2022). In schools, picture book read-alouds are often used to provide a shared context for exploring the social and personal realities of a range of ‘others’ (Lysaker & Sedberry, 2015). Indeed, conversations surrounding picture books that address social

issues have been utilized to stimulate the cognitive processes of preschoolers in regards to how differences and variations impact individuals' thoughts, emotions, and actions.(Allen, 1997; Leland et al., 1999). Therefore, the objective of this research is to investigate the interplay between social imagination, emotional regulation, and behavioral-emotional issues among preschoolers, with a particular focus on those at risk for ADHD, within the context of real-life educational settings.

1.3 Problem Statement

Social imagination, defined as the ability to imagine the thoughts, feelings, and intentions of others, plays a critical role in preschoolers' social understanding, emotional development, and overall cognitive growth (Smith, 2015; Harris, 2020). While previous research has explored the relationship between social imagination and theory of mind, the mechanisms through which social imagination influences other developmental areas, such as emotion regulation and behavioral-emotional problems, remain under-investigated (Johnson & Martin, 2018). These gaps are particularly evident in the context of preschoolers' engagement with wordless picture books, a tool widely used to stimulate imagination and emotional insight (Arizpe, 2013).

Several scholars have highlighted the importance of examining how preschoolers engage with visual narratives to project their emotions and develop relational understanding (Matsui, 2009; Pantaleo, 2023). While some studies, such as Lysaker et al. (2011), have focused on narrative comprehension and the ability of preschoolers to empathize with others through reading activities, there is a lack of

standardized methods to assess these imaginative processes in relation to emotional regulation and behavioral-emotional challenges. Furthermore, despite the qualitative insights gained from such research, the subjective nature of narrative analysis calls for more objective and consistent approaches (Reyes et al., 2020).

Addressing this gap, the present study explores the interplay between social imagination, emotion regulation, and behavioral-emotional problems in preschoolers. Specifically, it explores how preschoolers' imaginative engagement with wordless picture books correlates with their ability to regulate emotions and manage behavioral-emotional difficulties. By focusing on these three variables, this research aims to contribute to a more comprehensive understanding of preschoolers' cognitive and emotional development, particularly in inclusive educational settings.

Social imagination, defined as the ability to imagine the thoughts, feelings, and intentions of others, plays a critical role in preschoolers' social understanding, emotional development, and overall cognitive growth (Smith, 2015; Harris, 2020). While previous research has explored the relationship between social imagination and theory of mind, the mechanisms through which social imagination influences other developmental areas, such as emotion regulation and behavioral-emotional problems, remain under-investigated (Johnson & Martin, 2018). These gaps are particularly evident in the context of preschoolers' engagement with wordless picture books, a tool widely used to stimulate imagination and emotional insight (Arizpe, 2013).

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In China, teachers are required to work with large classes, in all levels of inclusion, they often have limited time providing individualized supports and services (Xie et al, 2021). Teachers tend to be highly specialized in the subject matter, but know little about pedagogy, let alone working with students with special educational needs such as students with ADHD (Zambo, 2011). Students with ADHD have difficulty suppressing behavior, which in turn leads to difficulty in self-regulating emotions (Zambo, 2005). Specifically, preschooler at risk for ADHD have reduced abilities in suppressing their reactions and controlling themselves when they feel strong negative emotions (Zambo, 2007).

Mary et al.'s study in 2015 discussed the differences in performance between preschoolers at risk for ADHD and typically developing preschoolers on the theory of mind (ToM), which deals with understanding others' thoughts, feelings and intentions. The research has shown that preschoolers at risk for ADHD perform less well on ToM-related aspects of understanding others' thoughts, feelings and intentions compared to typically developing preschoolers. These differences may be related to

deficits in attention and executive functioning in preschoolers at risk for ADHD. Therefore, preschoolers may also develop less than typically developing preschoolers in areas of social imagination that are also related to understanding the thoughts, feelings and intentions of others.

In addition, studies have shown that emotion regulation is closely related to behavioral-emotional problems in preschoolers at risk for ADHD. Emotion regulation is the ability to understand emotion and develop strategies to modulate them (Reyes et al., 2020). Preschoolers at risk for ADHD often struggle with behavioral inhibition, which can subsequently lead to challenges in regulating their emotions, or vice versa (Maoz et al., 2017). These preschoolers tend to encounter difficulties in restraining their reactions and maintaining self-control, particularly when experiencing negative emotions (Zambo, 2006). The issues related to emotion regulation and behavioral control in this group of preschoolers may be linked to underlying cognitive differences, such as deficits in social imagination (Beatriz et al., 2020).

In this study, the TFI Analysis Framework was employed as a tool to gain insight into the progression of social imagination in preschoolers at risk for ADHD. It was used to analyze the challenges related to emotion regulation and behavioral-emotional problems experienced by these preschoolers. Furthermore, the study aimed to investigate the intricate relationship between social imagination, emotion regulation, and behavioral-emotional problems in this specific group, offering a novel perspective that can potentially guide future research in the field of behavioral and cognitive intervention.

This study was designed with two distinct but interconnected studies to compare the developmental differences between typically developing preschoolers and those at risk for ADHD. Study 1 involved 5-year-old typically developing preschoolers from a public kindergarten in China, while Study 2 focused on 5-year-old preschoolers at risk for ADHD in the same setting. Despite following similar procedures in both studies, the comparative design serves a critical purpose. It allows for an in-depth examination of how social imagination, emotion regulation, and behavioral-emotional problems manifest differently in preschoolers at risk for ADHD compared to their typically developing peers. By maintaining consistency in procedures and methods across both studies, the comparison can more accurately reveal the specific developmental challenges associated with ADHD risk. This approach provides valuable insights into the unique cognitive and emotional profiles of children at risk for ADHD and offers a more nuanced understanding of how these children differ from their typically developing peers. Ultimately, this comparative study design can help inform targeted interventions and future research aimed at supporting both cognitive and behavioral development in preschoolers with ADHD risk.

1.4 Aim

This study aims to investigate the complex interplay between social imagination, emotion regulation, and behavioral-emotional problems in preschoolers, with a special focus on those at risk for ADHD. Specifically, the research seeks to

uncover how social imagination — the ability to interpret and predict others’ mental states — influences emotion regulation and contributes to behavioral-emotional problems in this demographic. By conducting a comparative analysis between typically developing preschoolers and those at risk for ADHD, the study endeavors to delineate how these factors diverge in these two groups. This comparison is pivotal as it will illuminate the unique developmental challenges faced by preschoolers at risk for ADHD. The ultimate goal is to provide a deeper understanding of these interrelations, offering valuable insights for future research in the fields of preschooler mental health and preschool education.

1.5 Objectives

Study 1: Investigation with 5 years old typically developing preschoolers.

1. To profile social imagination (thoughts, feelings and intentions) of 5 years old typically developing preschoolers through analyzing their narratives during wordless picture book session.

2. To profile the emotion regulation of 5 years old typically developing preschoolers using teacher reports.

3. To profile the behavioral-emotional problems of 5 years old typically developing preschoolers using teacher reports.

4. To identify the relationship of social imagination, emotion regulation, and behavioral-emotional problems of 5 years old typically developing preschoolers.

Study 2: Investigation with 5 years old preschoolers at risk for ADHD

5. To profile social imagination (thoughts, feelings and intentions) of 5 years old preschoolers at risk for ADHD through analyzing their narratives during wordless picture book session.

6. To profile the emotion regulation of 5 years old preschoolers at risk for ADHD using teacher reports.

7. To profile the behavioral-emotional problems of 5 years old preschoolers at risk for ADHD using teacher reports.

8. To identify the relationship of social imagination, emotion regulation, and behavioral-emotional problems of 5 years old preschoolers at risk for ADHD.

Comparative Research Question

9. To compare the profiles and relationships of social imagination, emotion regulation, and behavioral-emotional problems between typically developing preschoolers and those at risk for ADHD.

1.6 Research Questions

Study 1: Investigation with 5 years old typically developing preschoolers

1. What is the social imagination (thoughts, feelings and intentions) profile of 5 years old typically developing preschoolers obtained from the analysis of narrative during wordless picture book session?

2. What is the emotion regulation of 5 years old typical-developing preschoolers from teacher reports?

3. What is the behavioral-emotional problems of 5 years old typical-developing preschoolers from teacher reports?

4. What is the relationship of social imagination, emotion regulation, and behavioral-emotional problems of 5 years old typically developing preschoolers?

Study 2: Investigation with 5 years old preschoolers at risk for ADHD

5. What is the social imagination (thoughts, feelings and intentions) profile of 5 years old preschoolers at risk for ADHD obtained from the analysis of narrative during wordless picture book session?

6. What is the emotion regulation of 5 years old preschoolers at risk for ADHD from teacher reports?

7. What is the behavioral-emotional problems of 5 years old preschoolers at risk for ADHD from teacher reports?

8. What is the relationship of social imagination, emotion regulation, and behavioral-emotional problems of 5 years old preschoolers at risk for ADHD?

Comparative Research Question

9. How do the social imagination, emotion regulation, and behavioral-emotional problems of typically developing preschoolers compare with those of preschoolers at risk for ADHD?

1.7 Significance of Study

This study examines social imagination, emotion regulation, and behavioral-emotional problems in 5-year-old typically developing preschoolers and those at risk

for ADHD, using a new assessment method based on Lysaker's research. By comparing these two groups, the research aims to identify differences that can inform practical strategies for improving emotional and behavioral support in inclusive educational settings. Understanding these differences will provide teachers with insights for developing targeted interventions and support strategies to better address the needs of preschoolers at risk for ADHD, thereby enhancing their learning experiences and social interactions (Biele et al., 2022).

In extending the qualitative analysis framework initially proposed by Lysaker et al. (2011), this study significantly contributes to the field of early childhood education by introducing a novel approach that bridges qualitative and quantitative assessments of preschoolers' social imagination. Lysaker's (2012) foundational work highlighted the role of social imagination during the wordless picture book reading process, underscoring its importance in their comprehension of other people's thoughts, feelings and intentions. This study not only corroborates these findings but also enhances them by providing a more systematic and measurable approach to evaluate social imagination development. Moreover, Lysaker and Miler (2012) pointed out that dialogic exchanges in wordless picture book reading offer significant opportunities for the self-development of preschoolers, especially in relation to the relational capacity of social imagination. This study use a new methodology allows for a more detailed and quantifiable analysis of these interactions, offering educators and researchers a tool to more effectively understand and support the development of this critical capacity in preschoolers.

This study highlights the importance of understanding social imagination in preschoolers, particularly in preschoolers with attention deficit hyperactivity disorder (ADHD), and its correlation with cognitive abilities consistent with theory of mind (ToM). Social imagination plays a key role in preschoolers' development, influencing their ability to empathize and social imagination of understanding others' thoughts, feelings, and intentions. For preschoolers with ADHD, mastering these aspects of social cognition presents unique challenges because they often have difficulty with various aspects of ToM, including the social imagination of understanding others' thoughts, feelings, and intentions (Pantaleo, 2023). This study makes a significant contribution by proposing a new method of assessing and comparing social imagination abilities in preschoolers, thereby providing a nuanced understanding of their cognitive status. These findings are particularly important for people with ADHD because they illuminate pathways for tailored educational strategies.

Building upon Lysaker's (2011) insights into the impact of wordless picture books on social imagination, this study extends the research by providing a systematic method to assess how these books influence teaching practices and preschoolers' developmental outcomes. While Lysaker and Tonge (2013) demonstrated the benefits of using wordless picture books to enhance preschoolers' understanding of others, this study goes further by offering a quantitative approach to evaluate these effects. By systematically assessing social imagination, emotion regulation, and behavioral-emotional problems, the study provides a clearer understanding of how effective these teaching practices are and how they can be improved. This approach aims to refine

and enhance the application of wordless picture books in educational settings, offering practical insights for educators to better support preschoolers' cognitive and emotional development (Pantaleo, 2023).

This study significantly informs policymakers regarding the enhancement of early literacy exposure, particularly for preschoolers, including those at risk for ADHD. Lysaker's (2015) research highlights the importance of emergent literacy practices, such as searching, cross-checking, self-correcting, and re-reading, even before preschoolers engage with conventional print. This research builds on these concepts, demonstrating how structured wordless picture book reading can aid in developing these emergent literacy skills. This is crucial for preschoolers at risk for ADHD, who often face unique challenges in literacy acquisition. Policymakers can utilize these findings to advocate for early literacy programs that emphasize both traditional reading skills and the development of comprehension strategies through wordless picture books. Such an approach can foster a more inclusive and effective literacy education, catering to the diverse needs of all preschoolers and setting a strong foundation for their future academic success.

1.8 Scope of Study

This study was conducted with a fixed sample size, comprising 34 typically developing preschoolers and 8 preschoolers identified as at risk for ADHD. This specific sample was drawn from a single kindergarten in Shenzhen, a metropolitan city in China. The kindergarten is a public institution with a student population of

typical socio-economic status. By focusing on a specific number of preschoolers within a single educational setting, the study provides detailed insights into the development of social imagination and literacy skills in this context. However, this focus may limit the generalization of the findings to wider populations or different educational settings.

The study was conducted in a kindergarten situated in a bustling metropolitan city in China, offering an exceptional viewpoint on early childhood education within an urban Asian context. The location presented an opportunity to delve into the intricacies of literacy and social development within a culturally specific environment, which can provide meaningful insights for comparable settings. However, it is important to note that the findings may not be entirely transferrable to other cultural or geographic locations due to possible contextual differences. Nevertheless, this research has the potential to shed light on the unique challenges and opportunities that arise when educating young children in diverse urban environments.

The selection of participants involved a calculated choice based on G*power analysis for typically developing preschoolers and a combination of behavioral observations and ADHD diagnostic criteria for identifying preschoolers at risk for ADHD. Ethical considerations, including the willingness of preschoolers and their parents, played a role in the selection process. Preschoolers with other developmental disorders, such as ASD, were excluded from the study, focusing the research on only preschoolers at-risk of ADHD. The study's focus on a specific location and a particular student population may limit the applicability of its findings across different

demographic or educational contexts. Additionally, the research may not fully represent the diversity of early learners or preschooler at risk for ADHD due to the specific group studied. However, these limitations are balanced by the depth of insight provided into the development of literacy and social imagination in the targeted sample.

1.9 Operational Definitions

1.9.1 Social Imagination

Social imagination is the independent variable in this study, defined as the ability to understand and interpret the thoughts, emotions, and intentions of others (Lysaker et al., 2011). It encompasses the ability to empathize with and understand the thoughts, feelings, and intentions of others, making it a fundamental skill for establishing and nurturing social relationships, particularly in early childhood development (Lysaker & Miller, 2012).

In this research, Lysaker's (2012) view of "social imagination" as the cognitive capacity to imagine the thoughts, feelings and intentions of others was adopted. Thoughts refers to the cognitive aspect of social imagination. It involves the ability to recognize and understand the mental processes of others, including their beliefs, ideas, and reasoning. Feelings component deals with the emotional aspect. It is about empathizing with others' emotional states, understanding their feelings, and recognizing how these emotions might influence their behavior. Intentions involves understanding the motivations behind others' actions. It is about grasping the purpose

or goal that drives an individual's behavior, which is a crucial part of social interactions and relationships.

1.9.2 TFI Analysis Framework

The TFI Analysis Framework, developed for this study based on Lysaker and Miller's research (2012), addresses a critical need for a systematic and standardized approach to assessing social imagination. This framework includes four key components: the TFI rubric, TFI coding, TFI form, and TFI report. The TFI rubric provides a standardized coding manual for evaluating social imagination, ensuring consistency in assessment. TFI coding involves a scoring procedure for analyzing narrative content semantically, enabling detailed evaluation of social imagination. The TFI form is a template that converts qualitative narrative data into quantitative data, thus bridging the gap between descriptive and numerical data. Finally, the TFI report presents social imagination scores, generating individual TFI profiles that offer comprehensive insights into each participant's social imagination abilities.

1.9.3 Wordless Picture Books

Wordless picture books are defined as books that contain no narrative text. Instead, these books rely entirely on illustrations to convey the story. The pictures in wordless picture books are often richly detailed and visually engaging, using colors, lines, and imagery to illustrate the content and develop the narrative (Honaker & Miller, 2023). The narrative in such books is constructed through visual clues embedded in the illustrations, guiding the reader through the unfolding story (Lysaker,

2018). Wordless picture books are distinctive in that they use illustrations to build the story's meaning, creating a narrative experience without textual support (Revina & Nur, 2018). In this study, wordless picture books refer to books with minimal or no text, where the illustrations vividly illustrate the story and its details.

1.9.4 Emotion Regulation

Emotion regulation serves as the mediator variable in this study and is defined as the processes by which individuals monitor, evaluate, and modify their emotional reactions to achieve their goals. This includes both external and internal strategies to manage emotional states. Specifically, emotion regulation involves the ability to control mood (managing general emotional states and adapting to different situations), regulate conflict (handling emotions during interpersonal conflicts and negotiations), and manage anxiety (using strategies to control feelings of anxiety). This variable is measured through teacher reports on the preschoolers' emotional management capabilities.

In this research, emotion regulation mainly refers to the ability of typically developing and preschoolers at risk for ADHD to control their emotional state. The three dimensions of emotion regulation measured in this study are regulation of mood, regulation of conflict, and regulation of anxiety. First, 'regulation of mood' refers to how preschoolers manage and control their general emotional states, whether they are maintaining emotional stability or effectively adapting their mood to different situations. Second, 'regulation of conflict' involves managing emotions during

interpersonal conflicts or disagreements, including skills like negotiation, compromise, and empathy, which are important for preschoolers, including those at risk for ADHD. Third, ‘regulation of anxiety’ is about controlling feelings of anxiety and nervousness, incorporating strategies like seeking adult comfort, engaging in calming activities, or rationalizing fears, vital for preschoolers, particularly those at risk for ADHD.

1.9.5 Behavioral-Emotional Problems

Behavioral-emotional problems are the dependent variable in this study and it refer to difficulties in regulating emotions and behaviors that are inconsistent with developmental stages and impact functioning and interactions (López et al., 2018). In this study, behavioral-emotional problems are operationalized using the Child Behavior Checklist for Ages 1½-5 (CBCL) (Achenbach & Rescorla, 2000; 2001), which includes dimensions such as emotionally reactive behaviors, symptoms of anxiety and depression, somatic complaints, withdrawal from social interactions, sleep problems, attention problems, and aggressive behaviors. Higher scores on the CBCL indicate a greater presence or frequency of these behavioral-emotional issues.

This study focuses on the CBCL/1½-5, which encompasses internalizing and externalizing problems, crucial for understanding the emotional and behavioral landscape of preschoolers. The instrument includes seven core dimensions: (1) ‘emotionally reactive’ assesses preschoolers’ emotional responses to various situations; (2) ‘anxious/depressed’ evaluates symptoms of anxiety and depression, reflecting internal emotional distress; (3) ‘somatic complaints’ focus on physical

symptoms with emotional or psychological underpinnings; (4) ‘withdrawn’ examines preschoolers’ tendency to withdraw from social interactions; (5) ‘sleep problems’ address issues related to sleep, which can be both a cause and a symptom of emotional distress; (6) ‘attention problems’ assess difficulties with concentration and attention, common in behavioral disorders; and (7) ‘aggressive behavior’ which measures tendencies toward aggressive or disruptive behaviors.

1.9.6 Preschoolers

Preschoolers are preschoolers who have not yet reached school age. From a global perspective, countries have different regulations on the age of preschoolers entering school, generally 6 or 5 years old. Therefore, the age limit of preschoolers is also different. The school age for preschoolers in China is 6 years old, so preschoolers between the age of 3 to 6 are preschoolers. The participants in this research were preschoolers who were 5 years old.

Typically developing preschoolers are those who meet expected developmental milestones across cognitive, emotional, and behavioral domains. These preschoolers exhibit age-appropriate language skills, problem-solving abilities, and concentration. They also demonstrate typical social and emotional development, including effective emotion regulation and behavior within the expected range for their age. In this study, typically developing preschoolers are defined as children who show normal cognitive, emotional, and behavioral development levels, consistent with the standard expectations for their age group.

Preschoolers at risk for ADHD are identified by signs of inattention, hyperactivity, and impulsivity that exceed typical developmental levels, indicating a higher likelihood of developing ADHD (Wang et al., 2017). These behaviors may include short attention spans, excessive activity, and impulsive actions. This risk is assessed based on observations by parents and teachers and aligned with diagnostic criteria from the Diagnostic and Statistical Manual of Mental Disorders (DSM) or the Chinese Classification of Mental Disorders (CCMD). This preliminary assessment method is used for children who have not yet received a formal psychiatric diagnosis. In this study, preschoolers at risk for ADHD are those identified through observations of behaviors like inattention and hyperactivity, consistent with DSM and CCMD criteria.

1.10 Summary

This chapter introduced the background of the study, the potential benefits of using wordless picture books as an inclusive educational resource for the assessment of social imagination, and its relations on emotion regulation and behavioral-emotion problems of preschoolers in inclusive classrooms were explored. Next, the problem statement, which includes the reasons of investigating with 5 years old typically developing preschoolers and investigation with 5 years old preschoolers at risk for ADHD were explained. The research objectives and research questions were put forward. The significance of study was mentioned, followed by the operational definitions. In the next chapter, the literature review of the study will be reported.