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PHYSICAL ACTIVITY DEVELOPMENT  
PROMOTING MODEL AMONG  
YOUNG CHILDREN IN  
GUANGDONG CHINA



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THESIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENT FOR THE  
DOCTOR OF PHILOSOPHY

FACULTY OF SPORT SCIENCE AND COACHING  
UNIVERSITI PENDIDIKAN SULTAN IDRIS

2025



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Date

Jaffry Zakaria  
Drg Jaffry Zakaria, Supervisor  
Pensyarah  
Jabatan Sains Kejurulatihan  
Fakulti Sains Sukan & Kejurulatihan,  
Universiti Pendidikan Sultan Idris  
35900 Tanjong Malim, Perak.

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Pensyarah  
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## ABSTRACT

This study aims to address the problem of insufficient physical activity among Chinese children and the lack of an integrated promotion path among families, kindergartens, and communities. Taking the promotion of physical activity among children in Guangdong Province, China as the research object, this study explores the family factors, kindergarten factors, and community factors that affect the promotion of physical activity among children and their internal mechanisms, constructs a model for promoting physical activity among children in Guangdong Province, China, and proposes a practical path. Based on the literature analysis, a questionnaire on "Factors Affecting the Promotion of Physical Activity among Children" was compiled, including a parent questionnaire, a kindergarten teacher/manager questionnaire, and a community manager questionnaire. A sample survey was conducted on parents, kindergarten teachers, and community managers of children in Guangdong Province, China. At the same time, the accelerometer ActiGraph GT3X+ was used to measure the physical activity level of children. The validity of the three questionnaires was confirmed by confirmatory factor analysis, and all latent variables met the requirements of  $GFI \geq 0.90$ ,  $CR \geq 0.7$ , and  $AVE \geq 0.5$ . In addition, the family factors, kindergarten factors, and community factors that promote physical activity among children are correlated with each other ( $P < 0.01$ ), and there is a significant correlation between these three factors and the MVPA level of children ( $P < 0.01$ ). The fit of the model for promoting physical activity in young children was verified using AMOS 23.0 software. The results showed that  $\chi^2/df = 1.853$ ,  $RMSEA = 0.067$ ,  $SRMR = 0.062$ ,  $GFI = 0.943$ ,  $AGFI = 0.902$ ,  $CFI = 0.954$ ,  $IFI = 0.959$ , and  $TLI = 0.919$ , which met the requirement of being greater than 0.9, indicating that the model fit was good. In summary, the model for promoting physical activity in young children provides a reference for improving the level of physical activity in young children.





## MODEL GALAKAN PEMBANGUNAN AKTIVITIFIZIKAL DALAM KALANGAN KANAK-KANAK DI GUANGDONG CHINA

### ABSTRAK

Kajian ini bertujuan untuk menangani masalah kekurangan aktiviti fizikal di kalangan kanak-kanak China dan kekurangan laluan promosi terpadu antara keluarga, tadika, dan komuniti. Dengan mengambil promosi aktiviti fizikal di kalangan kanak-kanak di Wilayah Guangdong, China sebagai objek kajian, kajian ini meneroka faktor keluarga, faktor tadika, dan faktor komuniti yang mempengaruhi promosi aktiviti fizikal di kalangan kanak-kanak dan mekanisme dalaman mereka, membina model untuk mempromosikan aktiviti fizikal di kalangan kanak-kanak di Wilayah Guangdong, China, dan mengusulkan laluan praktikal. Berdasarkan analisis literatur, soal selidik mengenai "Faktor-faktor yang Mempengaruhi Promosi Aktiviti Fizikal di Kalangan Kanak-kanak" telah disusun, termasuk soal selidik untuk ibu bapa, soal selidik untuk guru/pengurus tadika, dan soal selidik untuk pengurus komuniti. Survei sampel telah dijalankan ke atas ibu bapa, guru tadika, dan pengurus komuniti kanak-kanak di Wilayah Guangdong, China. Pada masa yang sama, akselerometer ActiGraph GT3X+ digunakan untuk mengukur tahap aktiviti fizikal kanak-kanak. Kesahan ketiga-tiga soal selidik disahkan melalui analisis faktor pengesahan, dan semua pemboleh ubah laten memenuhi keperluan  $GFI \geq 0.90$ ,  $CR \geq 0.7$ , dan  $AVE \geq 0.5$ . Di samping itu, faktor keluarga, faktor tadika, dan faktor komuniti yang mempromosikan aktiviti fizikal dalam kalangan kanak-kanak berkorelasi antara satu sama lain ( $P < 0.01$ ), dan terdapat korelasi yang signifikan antara tiga faktor ini dan tahap MVPA kanak-kanak ( $P < 0.01$ ). Kesesuaian model untuk mempromosikan aktiviti fizikal dalam kalangan kanak-kanak muda telah disahkan menggunakan perisian AMOS 23.0. Keputusan menunjukkan bahawa  $\chi^2/df = 1.853$ ,  $RMSEA = 0.067$ ,  $SRMR = 0.062$ ,  $GFI = 0.943$ ,  $AGFI = 0.902$ ,  $CFI = 0.954$ ,  $IFI = 0.959$ , dan  $TLI = 0.919$ , yang memenuhi keperluan melebihi 0.9, menunjukkan bahawa kesesuaian model adalah baik. Ringkasnya, model untuk mempromosikan aktiviti fizikal dalam kalangan kanak-kanak muda menyediakan rujukan untuk meningkatkan tahap aktiviti fizikal dalam kalangan kanak-kanak muda.



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## LIST OF ABBREVIATIONS

CHAMPPS	Children in Action: Motor Program for Preschoolers
CSH	Coordinated School Health
ESPEC	Early Steps Physical Education Curriculum
LPA	Light Physical Activity
MPA	Moderate Physical Activity
MVPA	Moderate-to-Vigorous Physical Activity
PA	Physical activity
PE	Physical Education
SEM	Social Ecological Model
SKIP	Successful Kinesthetic Instruction for Preschoolers
SPARK	Sport, Play, and Active Recreation for Kids
TPA	Total Physical Activity
VPA	Vigorous Physical Activity
WHO	World Health Organization
WSCC	Whole School, Whole Community, Whole Child
YPAP	Youth Physical Activity Promotion model





## APPENDIX LIST

### A Letter of Permission

- A1 Letter of Permission (Foshan Shishan Central Kindergarten)
- A2 Letter of Permission (Zhaoqing Chunhui Experimental Kindergarten)
- A3 Letter of Permission (Guangzhou Tianhe Second Experimental Kindergarten)

### B Research Instruments

- B1 Early Childhood Sports Expert Evaluation Questionnaire
- B2 Chinese Language Expert Evaluation Questionnaire
- B3 Real Study Questionnaires





## CHAPTER 1

### INTRODUCTION

This chapter first elaborates on the background of insufficient physical activity among young children and its potential impacts on their health, emphasizing the research related to promoting physical activity among young children. It argues for the necessity and urgency of constructing an integrated promotion model involving families, kindergartens, and communities. Based on social ecological and synergy theories, a research conceptual framework was developed to ensure a solid foundation for conducting and reporting the study. Furthermore, this chapter clarifies the research objectives and questions, aiming to explore optimal implementation pathways for promoting physical activity among young children across various domains and enhancing their activity levels. Next, operational definitions were provided for key concepts to ensure accuracy in concepts and measurement, laying the groundwork for empirical analysis. Lastly, the limitations of the study were analyzed, highlighting potential challenges in practical applications and pointing out directions for future research to enhance the reliability and depth of subsequent studies.





## 1.1 Background Research

The "Guidelines on Physical Activity, Sedentary Behavior and Sleep for Children Under 5 Years of Age" issued by the World Health Organization (WHO, 2019a) points out that physical inactivity has been identified as a major risk factor for global mortality and a driving factor for the increase in overweight and obesity. Insufficient physical activity will not only affect the physical development of young children, but also affect psychological status, cognition, sleep quality and bone health (W. Zhao et al., 2022).



### 1.1.1 The Promotion of Physical Activity among Children and Adolescents Has Become the Demand of the Times to Build a Healthy China

Numerous studies have confirmed that physical inactivity is the fourth leading risk factor for death worldwide after high blood pressure, smoking and hyperglycemia (WHO, 2010b). It is closely related to health problems such as cardiovascular risk factors (Ekelund et al., 2012) and obesity (Wilks, Besson, Lindroos, & Ekelund, 2011) in children and adolescents. Although the benefits of physical activity have been confirmed by numerous studies, insufficient physical activity in children and adolescents has become a global trend, with 81% of children and adolescents worldwide not meeting the recommended daily amount of physical activity (Bull et al., 2020). The situation in China is also more serious, with about 60% of children and





adolescents not reaching the recommended amount (Zhu, 2021). In addition, the physical activity levels of children and adolescents show a clear downward trend with age, which hinders healthy lifestyles in the future.

The continued decline in the physical health of children and adolescents is a major public health problem facing the world (Mackie & Sim, 2018). Since the late 1980s, the number of overweight and obese groups in my country has increased rapidly, especially the number of preschool children (F. Wang, Yao, & Yang, 2019).

The study found that the estimated prevalence of urban preschool children ranges from 6% to 14% (Zhai, Dong, Bai, Wei, & Jia, 2017). According to statistics from the General Administration of Sports of China (G. A. o. S. o. China, 2015), the physical health of children and adolescents has continued to decline in recent years, which is closely related to the lack of physical activity caused by modern lifestyles and family parenting methods. A series of health problems caused by insufficient physical activity in children and adolescents has attracted great attention from the Party, the state and society. It can be said that improving the physical activity level of children and adolescents and improving their physical health is not only an important measure to implement the "Healthy China" strategy and the Composition of "Sports Power", but also a social reality that needs to be actively responded to long-term issues related to the future development of the country and the nation.





### **1.1.2 The Promulgation of the National Policy Provides a Development Opportunity for the Promotion of Physical Activity among Young Children**

The "Healthy China 2030" Planning Outline clearly proposes to solve the health problems of key groups such as children, and to realize the whole process of health services and health protection from the fetus to the end of life. From the perspective of human life cycle, the young children stage is the key and enlightenment period of life, and its physical and mental development is related to the development and future of the country. The "Fifth National Physical Fitness Monitoring Bulletin" shows that compared with the monitoring in 2014, the average level of Chinese children's continuous jumping, sitting forward bending and standing long jump has decreased.

Insufficient physical activity is one of the main reasons for the decline of physical health (Ci, 2010). At the same time, insufficient physical activity is also closely related to the emotional, cognitive and social development of young children (Zeng et al., 2017).

Generally speaking, teachers and parents tend to think that preschool children are physically active and that younger children have participated in sufficient physical activity. However, the researchers believe that due to economic and social development and changes, the time children spend watching TV and other sedentary behaviors has increased significantly compared with the previous children. At the same time, due to the increasing proportion of single children among modern children, insufficient interaction between siblings, and parents' concerns about the management





and safety of outdoor children's playgrounds, children's physical activity has decreased and sedentary behavior has been aggravated. Therefore, parents and teachers tend to overestimate children's daily physical activity to varying degrees (Reilly, 2010).

The physical activity level of young children is affected by many factors, such as policies, lifestyle, growth environment, and cognitive level. The national macro policy is to support and guarantee the physical activity of young children, and it is also the first and most important step to carry out the promotion of physical activity of young children. In recent years, China has successively issued a series of documents such as the "Guidelines for the Learning and Development of Children Aged 3-6", "Work Regulations for Kindergartens", "Outline for the Development of Chinese Children (2021-2030)", and "Outline of the Healthy China 2030" Plan, which not only provide a comprehensive understanding of the promotion of physical activity for young children and puts forward specific requirements and suggestions, but also provide a supportive institutional environment for young children to promote their active participation in physical activities and improve their health.

Judging from the current policy documents on the promotion of physical activity for young children, whether it is the State Council, the Ministry of Education, the State Sports General Administration or the National Health and Family Planning Commission, when formulating relevant policies and systems, they all attach great





importance to the issue of children's physical activity. From national to local, from macro to micro, the network system of children's physical activity policies is gradually improving and perfecting, which has played an important role in guaranteeing and guiding the promotion of physical activity of young children.

### **1.1.3 An Integrated Model for the Promotion of Physical Activity for Young Children Needs to be Constructed Urgently**

Solving the problem of children's physical activity is not a simple problem in the field of education, but a comprehensive social problem. Only when the whole society cooperates to form a joint force can the effect be better highlighted.



At present, China has entered the "new era" development stage, and the promotion of children's physical activities has also shown new needs and derived new contradictions. If there is no new thinking and new strategic vision and strategy, to deal with the complex process of children's physical activity promotion, the past will be repeated, and there will be "collective neglect and unconsciousness" of children's physical activity problems. Therefore, based on social ecology theory, this study explores the main responsibility and new cooperative relationship among the three fields (family, kindergarten and community) that are most closely related to the promotion of children's physical activity, and builds the integration of family, kindergarten and community for children's physical activity. The promotion





framework model aims to solve the problems of uncoordinated, unbalanced, and insufficient subjects in the promotion of children's physical activity, and then provides new ideas for dealing with the problem of children's physical activity insufficiency in the new era, and promotes the implementation of "Healthy China".

The promulgation of national policies is a program and guideline at the macro level, pointing out the direction and focus of practical work, but to truly implement the policy in practice, it is necessary to start from the perspective of the main fields of children's life (family, kindergarten, community) to form a complete, systematic, operable and sustainable implementation of an integrated physical activity promotion model to ensure the effectiveness of the policy. Many Chinese scholars have carried out a series of researchs and practices on this, and found that the target of family-school-community linkage to promote physical activity is school-age children, and some of them stay at the level of theoretical speculation. A field offense has been tried practically, such as putting forward intervention countermeasures from the perspective of school or family. Therefore, to solve the problem of children's lack of physical activity, the most important thing is to build a family, kindergarten and community integrated physical activity promotion framework model that can truly serve young children.





## 1.2 Problem Statement

Insufficient physical activity has been recognized as the fourth leading risk factor for death in the world (WHO, 2010a). Statistics from China's State General Administration of Sports (G. A. o. S. o. China, 2015) show that children's physical health has continued to decline in recent years, and nearly 80% of children have less than 1 hour of physical activity per day (Y. Liu et al., 2019). Studies have shown that children aged 3-6 cannot achieve the amount of activity needed to maintain their healthy growth, and the incidence of overweight and obesity in children in this age group has increased (Ogden, Carroll, Kit, & Flegal, 2014). Therefore, the problem that current research needs to solve is how to effectively promote children's physical activity.

Regarding the research on the promotion of children's physical activity, many scholars have conducted research from the aspects of individual, environment, and behavior. So far, the most widely used is the Youth Physical Activity Promotion model (YPAP) constructed by Welk (Welk, 1999) based on the physical and mental characteristics of children and adolescents and the characteristics of their environment, which provides a broader perspective for the promotion of physical activity among children and adolescents. However, these interventions are more aimed at school-aged children. Due to the particularity of young children in terms of cognitive level and activity types, researchers mainly conduct research on the measurement of young





children's physical activity, the relationship between young children's physical activity and health, and policies related to young children's physical activity. The research on physical activity intervention shows a single characteristic. However, it does not show what kind of environment, what kind of intervention strategy or means can promote children's physical activity (Temple & Robinson, 2014). From the perspective of the YPAP model, the promotion of physical activity among children and adolescents is through the influence of the environment (enabling factors and reinforcing factors) on individuals (predisposition factors), thereby promoting their physical activity levels. It is also feasible to transfer this concept to the promotion of physical activity among young children.



Studies have shown that most of the research on the promotion of physical activity among young children has focused on kindergarten settings, and some in community and family settings (Kreichauf et al., 2012; Reilly, 2010). Family, kindergarten, and community are the main fields for the development of children's physical activities, and the interaction of elements in each field jointly determines the development of individual physical activities (W. Zhang et al., 2021). Examining the practice of promoting children's physical activity in China, it is found that children's physical activities have been greatly hindered by the constraints of children's physical education teachers, parents' physical literacy level, and social public sports equipment (Tao, Wang, Fan, & Yang, 2021). Although relevant national policy documents continue to emphasize and promote the implementation of family, school,





and community linkages. However, the integration of family, kindergartens, and communities to promote children's physical activities tends to remain in the form of slogans, presenting a real dilemma of emphasizing publicity and neglecting implementation. Separation or fragmentation of family, kindergartens, and communities is still the normal state of practice and operation of children's physical activities, and mostly based on staged and decentralized intervention research. Therefore, regarding the promotion of children's physical activities, it is necessary to pay attention to the promotion function of different field environments, and to establish a benign connection between different field environments. Build an all-round, all-time and space-integrated supportive environment for physical activity, and realize the integration and cooperation of family, kindergarten and community.

Therefore, the purpose of this study is to Composition a framework model for the integrated physical activity promotion of family, kindergartens, and communities for 3-6-year-old children in China. In addition to exploring the independent promotion responsibilities and practical activities of families, kindergartens, and communities, the relationship between the three stakeholders is further studied, in order to solve the problem of what is the integration of family, kindergarten and community to promote children's physical activity and how to integrate family, kindergarten and community to promote children's physical activity.





### 1.3 Conceptual Framework of Research

A conceptual framework is used to describe the vision and purpose of the study. It describes how the basic elements are related to each other (Cohen, Manion, & Morrison, 2011). It helps to ensure that the conduct and reporting of research work is thoroughly conceived, has a solid foundation, and effectively achieves the preset research objectives. This study uses social ecological theory and synergy theory to construct an analytical framework. Social ecological theory emphasizes that individual behavior is influenced by multi-level environmental factors, guiding the research to systematically examine the influencing mechanisms of children's physical activity from the family, kindergarten, and community levels. Synergy theory focuses on the interaction and collaboration between the sub-elements within a system, and in this study, it is used to explain how the three parties can work together through synergy to enhance the effectiveness of physical activity promotion. Accordingly, the study conducted a detailed investigation into the influencing factors of the family, kindergarten, and community on the promotion of children's physical activity, and subsequently constructed an integrated model of family, kindergarten, and community. The aim is to explore the optimal implementation path for promoting children's physical activity across different fields and to promote the improvement of children's physical activity levels.





Three themes emerged from the analyzed documents and they are:

1. Family influencing factors on young children's physical activity.
2. Kindergarten influencing factors on young children's physical activity.
3. Community influencing factors on young children's physical activity.

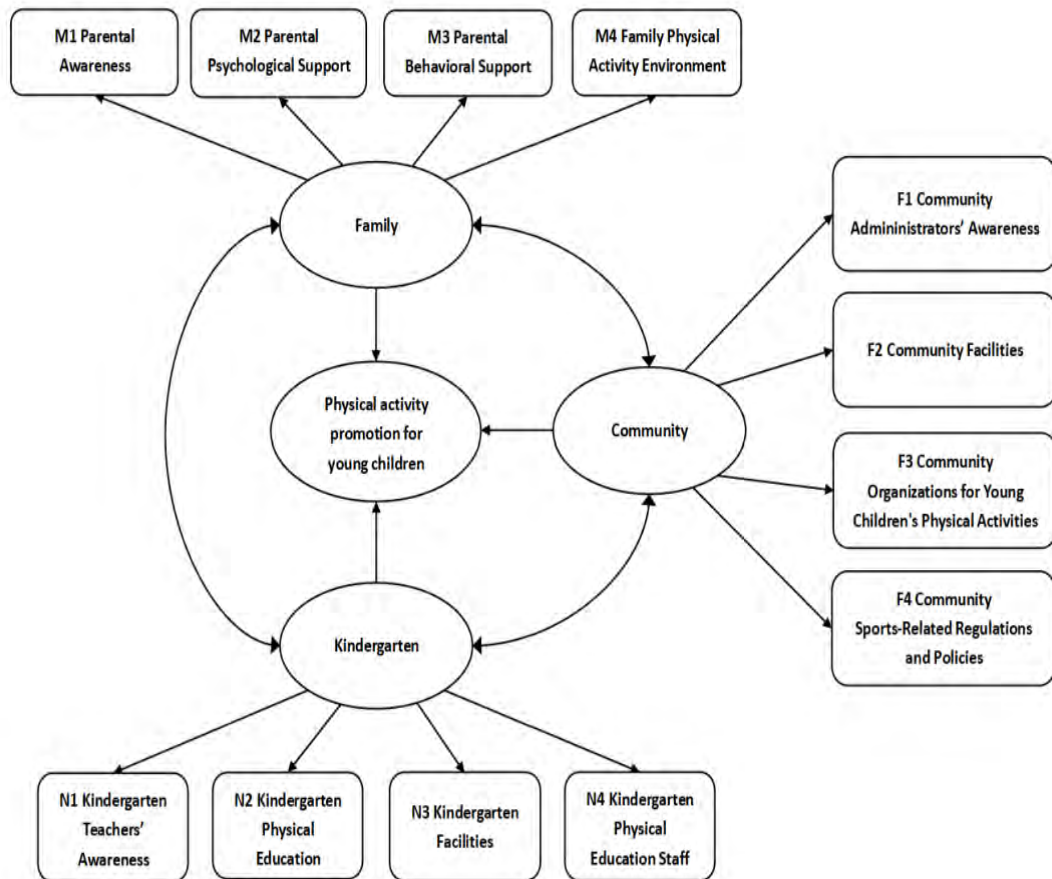
These themes are then further developed and discussed into projects that further explain each theme. The items were validated by experts and three sets of questionnaires were developed around the themes that emerged. The questionnaire was distributed to parents, teachers, and community managers to obtain their views on

the importance of these themes.



The conceptual framework of this study is shown in the figure, which interweaves the family, kindergarten and community integration models to form the physical activity promotion model implementation plan.



**Figure 1.1***Conceptual Framework*

Family influencing factors include parental awareness, parental psychological support, parental behavioral support and family physical activity environment. Parental awareness includes that physical activities can promote the all-around development of young children, and that parental friends or colleagues are interested in sports activities. Parental psychological support includes that parents support children's participation in various sports competitions, encourage children to engage



in more outdoor activities and actively inquire about whether children participate in sports at kindergarten. Parental behavioral support includes that parents regularly participate in physical activities, often participate in physical activities with children, have sports equipment or toys (such as balls, bicycles, etc.), and limit children use electronic devices. The family physical activity environment includes parents' concern about safety issues during sports activities, concern about the impact of sports activities on children's learning, and family economic conditions or living standards that support children to participate in sports activities.

Kindergarten influencing factors include kindergarten teachers' awareness, kindergarten physical education curriculum, kindergarten venues and facilities, kindergarten physical education teachers. Kindergarten teachers' awareness includes that teachers attach great importance to young children's physical activities, and that young children's participation in physical activities promotes all-round development. The kindergarten physical education curriculum includes that the kindergarten organizes a variety of physical activities, has specialized physical education materials for young children, and that the kindergarten education curriculum in kindergarten is well-structured, and that the kindergarten is a sports-themed institution. The kindergarten venues and facilities include sufficient sports facilities and equipment, enough venues for physical activities, and protective measures for the kindergarten's facilities and equipment. Furthermore, the kindergarten physical education teachers include kindergarten teachers with high physical education quality, specialized





physical education teachers in kindergartens, and regular training in physical education in kindergartens.

Community influencing factors include community managers' awareness, community venues and facilities, community organizations for young children's physical activities, and community sports-related rules and regulations. Community managers' awareness includes that the sports awareness of community managers facilitates the promoting of physical activities among young children, and that the attitude of community managers towards physical activities can affect young children's physical activities. Community venues and facilities include enough venues for young children's physical activities, numerous physical facilities for young children, and protective measures for young children's sports equipment. Community organizations for young children's physical activities include that the community regularly organizes physical activities for young children, has organizations for young children's physical activities, and offers a rich array of physical activities for young children. Community sports-related rules and regulations include that the community has well-established sports-related rules and regulations, and that the community implements sports-related rules and regulations effectively.

Based on synergy theory, the family, kindergarten, and community should collaborate and complement each other's strengths in promoting children's physical activity. The indicators under each dimension not only play a role within their





respective systems but should also form a supportive mechanism for children's physical activity through information sharing, resource complementarity, and goal coordination. For example, family support behaviors can extend to community-organized activities, kindergarten curricula can be integrated with community facilities, and the cognition of all three parties can align through joint training and communication, thus promoting the formation of an organized and systematic support network that comprehensively enhances children's physical activity levels.

#### 1.4 Objective of the Study



1. To identify the demographic profiles of respondents on family, kindergarten and community in promoting young children's physical activity process.
2. To identify the influence of family, kindergarten and community in promoting young children's physical activity process.
3. To explain the relationship between family, kindergarten and community in promoting physical activity among young children.
4. To identify the contribution of family, kindergarten and community integrated models to the promotion of physical activity among young children.





## 1.5 Research Question

1. What is the demographic profile of respondent on family, kindergarten and community in promoting young children's physical activity process?
2. What is the influencing factor of family, kindergarten and community in promoting young children's physical activity process?
3. What is the relationship between family, kindergarten and community in promoting physical activity among young children?
4. What is the contribution of family, kindergarten and community integrated models to the promotion of physical activity among young children?



## 1.6 Operational Definition

### 1.6.1 Family Influencing Factors

Studies have shown that family can affect children's physical activity through various mechanisms, such as parental awareness, family economic support, and living environment influences, which are significantly correlated with children's physical activity levels (Du & Luo, 2017). Therefore, this study uses parental awareness, parental psychological support, parental behavioral support, and family physical activity environment as the measurement indicators of children's physical activity promotion. Parental cognition refers to parents' understanding of the importance of





physical activity for the comprehensive development of young children, as well as their perception of the interest in physical activities within the social environment. Parental psychological support includes encouragement, support, and involvement in children's participation in physical activities, reflecting emotional support from parents, with a focus on how parents can positively influence their children's physical participation through verbal encouragement. Parental behavioral support primarily focuses on how parents promote children's physical activity through their own behaviors. The family physical activity environment mainly concerns the physical and social environment provided at home, including available sports facilities, attention to the safety of physical activities by family members, and economic conditions. The measurement of these indicators is based on the Children's Physical Activity Promotion Family Influence Factors Scale developed in this study.

### **1.6.2 Kindergarten Influencing Factors**

Research shows that kindergarten can affect children's physical activity through various mechanisms, such as kindergarten teachers' cognition, institutional arrangement, and kindergarten environment, which are significantly correlated with children's physical activity level (Du & Luo, 2017). Therefore, this study uses kindergarten teachers' awareness, kindergarten physical education curriculum, kindergarten venues and facilities, and kindergarten physical education teachers as the





measurement indicators of children's physical activity promotion. Kindergarten teachers' cognition primarily focuses on the views and cognitive levels of kindergarten teachers and administrators regarding the importance of physical activity, especially how they perceive the role of physical activity in children's development. Kindergarten physical education courses mainly focus on the frequency, resources, curriculum design, and professional features of physical education in the kindergarten. Kindergarten facilities primarily concern the role of the physical environment in children's physical activities. Kindergarten physical education teachers focus on the teachers' qualifications, professional knowledge, and training levels, which play a key role in physical education. The measurement of these indicators is based on the Children's Physical Activity Promotion Kindergarten Influence Factors Scale developed in this study.

### 1.6.3 Community Influencing Factors

Studies have shown that the community can affect children's physical activity through a variety of mechanisms, such as the community managers' awareness, community venues and facilities, community regulations, and community environment, which are significantly correlated with children's physical activity levels (Du & Luo, 2017). Therefore, this study uses community managers' awareness, community venues and facilities, community organization for young children's physical activities as the





measurement indicators of children's physical activity promotion. Community managers' cognition primarily focuses on how community managers' understanding and attitudes toward physical activity influence community-level sports activity strategies and implementation. Community facilities mainly concern the impact of the physical environment in the community on children's physical activities. Community children's physical activity organizations focus on how the community promotes children's physical activity through organized sports activities. Community sports-related regulations primarily focus on the community's rules and regulations and whether they are effectively implemented. The measurement of these indicators is based on the Children's Physical Activity Promotion Community Influence Factors



#### 1.6.4 Young Children

The Modern Chinese Dictionary of China (Office, 2016) interprets “young child” as “a young kid”. It generally refers to a child of preschool age. The U.S. Department of Health and Human Services (HHS) defines children aged 3-6 as preschool children (Hao, Wang, & Mao, 2017a). Japanese scholars define the age of young children as 2-6 years old (Suto, Kita, Suzuki, Inagaki, & Misago, 2017). The group of young children referred to in this study is defined as children aged 3-6 (the end of 6 years old, that is, before entering school).





### 1.6.5 The Promotion of Physical Activity among Young Children

Physical activity (PA) was first defined by Caspersen in 1985 as "any form of physical movement that consumes energy due to the activity of skeletal muscles" (Caspersen, Powell, & Christenson, 1985), and has been used by WHO and researchers around the world to this day. Therefore, the promotion of young children's physical activity in this study refers to the purpose of improving children's physical activity level, to explore the main factors affecting children's physical activity in the three fields of family, kindergarten and community, and to build a framework model for young children's physical activity promotion integrating family, kindergarten and community. The activity promotion framework model clarifies the promotion path of children's physical activity, in order to effectively promote children's physical activity.



### 1.7 Study Limitations

This study aimed to develop a framework model for young children's physical activity promotion based on Analysis of Moment Structure (AMOS) as a confirmatory analysis software. Before developing the framework model, the software is used to measure the structurally compliant items in the measurement model. Therefore, if the data is analyzed with other software, the results may not be the same. The family, kindergarten and community integrated framework model for physical activity





promotion of young children constructed in this study focuses more on the impact of kindergarten, family and community on young children's physical activity, and needs to be further supplemented from the consideration of the government and the whole society. It will be gradually improved in the long-term research in the future.

Another limitation of this study is that the data were collected from parents, kindergarten teachers (managers), and community managers whose thoughts and behaviors are directly related to the physical activity levels of young children, but thoughts and behaviors change. Therefore, the framework model developed may not have the same effect as time changes, society changes. The active physical activity behavior of young children requires long-term subtle influence. This study also focused on the sustainability of physical activity promotion pathways and the perceptions and attitudes of supporting subjects such as family, kindergarten teacher, and community manager. Due to various conditions, it is impossible to conduct large-scale and long-term follow-up investigations and interventions. In the follow-up research, the scope of the investigation needs to be expanded. In addition, due to cultural, economic and awareness differences in different regions, the integrated framework model of family, kindergarten and community for physical activity promotion among young children may only be applicable in the Guangdong region.





## 1.8 Significance of the Study

Firstly, from a public health perspective, early childhood is a critical period for forming healthy lifestyle habits. Adequate physical activity not only helps prevent obesity and related chronic diseases but also improves children's mental health and social skills, laying a solid foundation for their future healthy development. However, the physical activity levels of young children in China are generally insufficient, and there is an urgent need for effective strategies and interventions to address this issue. By analyzing the specific impacts of the family, kindergarten, and community on children's physical activity, this study proposes practical pathways for promoting children's physical activity, aiming to enhance their activity levels and address the current shortcomings.

Secondly, by analyzing the integrated model of family, kindergarten, and community, the study can provide scientific evidence for policymakers, supporting them in formulating more effective physical activity promotion policies at the family, kindergarten, and community levels. In addition, the study may offer guidance to practitioners in early childhood education and community development, helping them better understand and implement strategies for promoting physical activity.

Finally, the implementation and results of this study will expand existing theories on promoting children's physical activity, providing new research





perspectives and data support, and contributing to further research in this field. In conclusion, the in-depth development of this research is of significant theoretical and practical importance for improving children's physical activity levels, promoting their overall healthy development, and guiding related policies and practices.

## 1.9 Summary

Current research on promoting physical activity commonly uses socio-ecological theory as its theoretical basis, encompassing multiple layers including the individual, family, school, and community. These studies emphasize the interaction between different levels of factors and their impact on promoting physical activity, indicating that socio-ecology has become a consensus within the academic field.

This study constructs an integrated model for promoting physical activity among young children in families, kindergartens, and communities, using socio-ecological theory as the theoretical foundation. The model approaches from both ontological and methodological perspectives: on one hand, it recognizes kindergartens, families, and communities as the main venues for young children's physical activities; on the other hand, it analyzes how these venues interact with each other and affect young children's physical activities, highlighting a shift from entities to relationships and from singular to multiple factors.





In summary, this research reviews the development background of relevant theories and practices, further clarifying the rationale and necessity of constructing an integrated framework model for promoting physical activity among young children in families, kindergartens, and communities.

