Perceptions and Experiences of Mothers on Parenting to Promote Executive Functions in Preschool Children

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Abstract: Executive functions, or higher cognitive processes which underpin goal-directed behavior, can allow children to control themselves against temptation, focus on tasks at hand, memorize agreements to initiate actions, and adapt their behavior in unfamiliar situations. Mothers play an essential role as role models, supporting and organizing activities to encourage their children to develop executive functions. Therefore, a research study on maternal practices is needed to promote executive functions. This qualitative descriptive study aimed to explore mothers' perceptions and experiences regarding the promotion of executive functions in preschool children in northern Thailand. Data were collected using participant observation and in-depth interviews between May 2019 and July 2020 with 18 biological mothers of children aged 3-5 years old who participated in a training program to promote executive functions. Content analysis was applied for data analysis.

The findings on maternal parenting related to promoting executive functions comprise seven categories: 1) supporting children to focus their attention; 2) encouraging children to use their ability to accomplish tasks; 3) promoting to solve problems on their own; 4) enhancing self-confidence; 5) encouraging imagination; 6) supporting awareness of their own emotions and actions; and 7) practices hindering executive functions. This study's findings help nurses understand mother's parenting related to promoting executive functions in their children, which can be applied to develop programs/strategies to promote executive functions in preschool children.

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Introduction

Executive functions (EFs) refer to the higher cognitive processes which underlie goal-directed behavior and are organized by neuron activity in the prefrontal cortex. The foundational components of these skills include working memory, inhibitory control, and cognitive flexibility.[1] EFs is necessary, especially in unfamiliar situations. When instinctive actions cannot be executed, people need concentration and thoughts to process appropriate actions.[2] Children with EFs can handle

abstract ideas and symbols such as numbers and alphabets. They can control themselves not to respond immediately when teased, and they can complete tasks despite temptations. Children with self-control abilities can create bonds with their classmates and teachers at school, preparing them for academic success.[3] In addition, children with EFs are equipped with the ability to learn vocabulary, mathematics, listening comprehension, and science readiness.[4] They are found to have greater self-control in eating behaviors, linked to a lower risk of obesity.[5] A long-term follow-up study discovered that children with inhibitory control abilities were more likely to have better health, wealth, and less possibility of involvement in crime when they grew up.[6] In contrast, children with poor EFs have apparent problems with impulsivity, inattention, and disorganized patterns in everyday life, expressing behavioral problems, such as aggression, social problems, and delinquency.[7]

A survey study conducted on EFs of Thai children revealed that 28.32% of the sample had a lower score of EFs, including lack of self-regulation ability, impulsive behavior, impatience, inability to focus, and short attention span.[8] Additionally, Thai children confront problems with IQ and emotional intelligence (EI) when they grow up. First-grade students aged 6-7 years had an average IQ of 98.2, which is considered in the normal to low range, and 23% of these children had a lower EQ, especially in the intelligence domain, including the lack of perseverance and lack of problem-solving skills.[9] Children are not born with EFs, but these can be fostered through practices and learning experiences to enable them to think, decide, and self-control toward directed goals.[10]

A study of parenting styles of Thai parent's preschoolers revealed that the most common parenting style was authoritative (46.52%), followed by authoritarian, and permission parenting styles, accounting for 32.03%, 21.45%, respectively.[11] Authoritative parenting involves parents allowing their children to have the freedom to think and to make a decision based on their maturity appropriately. Parents generally set rules and regulations for living together to encourage their children to adhere to them. In contrast, the authoritarian parenting style refers to parents are strict and impose rules on their children to follow only with little or no explanation, using coercion and punishment when children fail to meet their parents' expectations.[12] Moreover, many Thai parents recognize that corporal punishment helps to discipline their children.[13] The authoritarian, permission parenting styles, and negative parenting behaviors such as parental hostility, aggression, and neglect are associated with children's EFs deficits.[14]

In most Thai families, mothers are the primary caregivers responsible for the upbringing of their children. Mothers' parenting, which is considered the children's closest environment, is critical to encourage preschool children to develop EFs.[15] One kindergarten in a rural area of Chiang Mai has applied teaching methods that foster the development of EFs among children. Also, mothers' roles are highlighted to participate in the school's activities to promote EFs in their children. Nevertheless, no research has been done on mothers' experiences promoting EFs in preschool children within their contexts. This study, therefore, will help nurses gain a better understanding of mothers' behavior in promoting EFs in their children.

Review of Literature

Parenting related to promoting EFs in preschool children includes parental scaffolding, cognitive stimulation, sensitivity/responsive caregiving, and supportive behavioral control vs. negative control.[16] Scaffolding refers to the process of encouraging the motivation of children and designing activities to facilitate children's ability to accomplish a task beyond their current ability.[17] Parental scaffolding involves the adjustment of support consistent with the ability of children that allows them to accomplish tasks by stimulating them to review prior knowledge and

experience for application in action-planning and providing clues and explaining mistakes for correction.[18] Additionally, parental autonomy support during problem-solving activities involves acknowledging children's ability to accomplish tasks, providing children with a choice and allowing them to make decisions by themselves. As a result, children will develop self-confidence in performing challenging tasks, which further help to develop EFs.[19]

Cognitive stimulation refers to the parental provision of activities to stimulate children's development, learning materials, and home environments for learning.[20] Providing children with the opportunity to learn by doing activities helps them develop brain function and language, promoting greater EFs. A quality home environment for learning, which includes providing age-appropriate learning materials, correlates with EFs,[21] verbal ability and cognitive development.[22]

Parental sensitivity refers to a suitable and contingent response to children's signals and providing information for anticipating consequences to gain experience and self-confidence.[23] Maternal sensitivity to children's needs, expression of positive emotion, and engaging in activities to promote children's development are associated with lower levels of cortisol hormone release when children are under stress, affecting the functions of the prefrontal cortex.[24] Maternal sensitivity with contingent response to children's desire by allowing them to share opinions is correlated with children's EFs.[15] Maternal support for children to complete tasks by expressing positive emotions and giving praise is related to children's inhibitory control.[25]

In contrast, negative parental control involves expressing negative emotions and behaviors, criticism, and/or intrusiveness. This parenting stimulates the hypothalamic-pituitary-adrenal (HPA) axis, causing glucocorticoid hormone secretion and affecting prefrontal cortex activity. A higher level of cortisol hormone is associated with decreased EF control.[16] Supportive behavioral control is inversely related to saliva cortisol levels, while negative parenting is positively related to cortisol levels.[24] Children with a higher level of saliva cortisol show a lower score in EFs.[26] Maternal negative affect behavior is described as a mother's use of a negative tone, hostility, and harsh or power-assertive control.[27] High controlling parental guidance in directive commands was a significant negative predictor of children's EFs.[28]

According to the literature review, most of the studies abroad described the association between parenting and children's EFs. In Thailand, a study of factors related to the development of preschool children's EFs indicated that mother-child attachment, parenting stress, and authoritative parenting style were predictors of preschool children's EFs.[29] Moreover, a training program on positive discipline encourages parents to create positive interactions to discipline children.[30] However, fewer studies emphasize in-depth studies on parenting behaviors related to promoting EFs in preschool children. Therefore, it is necessary to explore how mothers promote EFs in preschoolers.

Study Aim

To explore mothers' perceptions and experiences of parenting to promote EFs in their preschool children.

Methods

Study design: A qualitative descriptive approach was applied to achieve the aim of the study, as this approach allows for exploration of the phenomena of interest in its natural state with no pre-selection of variables to study, no manipulation of variables, and no pre-existing theoretical commitment of target phenomenon. This approach is less interpretive than other approaches, such as phenomenology, and focuses on the presentation of case facts by using participant observation in the most basic sense, close to the data from which they are derived.[31]

Study setting and participants: The study was set in a rural area just outside of Chiang Mai city in Thailand. The population was about 5,000 people, with one kindergarten responsible for around 140 children. The community was selected based on its proximity to the kindergarten, which conducted the project to develop parents' capacity to promote EFs in preschool children.

Participants were recruited using purposive sampling based on the inclusion criteria of being biological mothers of children aged 3-5 years, having attended a training program on promoting EFs, being literate in the Thai language, being Thai citizens, and volunteering to participate in this study. The kindergarten organized a training program for promoting EFs involving one training session, including a lecture and practice sessions. Participants were selected based on their experience promoting EFs in their children.

According to the COVID-19 pandemic, the teachers had a learning-at-home strategy in which mothers received weekly worksheets for children's learning experiences, media, and equipment. Mothers received a video clip introducing the teaching for each day and were required to return the worksheet to the teacher at school once per week. Participants were excluded if they had a child with cognitive disorder, delayed development, or psychiatric problems. The sample size was ultimately determined by obtaining sufficient data to answer research questions and gain data saturation.

Ethical considerations: The Research Ethics Committee, Faculty of Nursing, Chiang Mai University (Study code: 2018-EXP068) approved this study. After being informed verbally about the purpose, methods, potential risks and benefits of participation, all participants took part voluntarily and signed a consent form. Participants were free to withdraw from the study at any time. All participants' information will be kept strictly confidential and anonymous in the publication of this study.

Data collection: The Consolidated Criteria for Reporting Qualitative Research (COREQ) guided the reporting of this study. Participant observations with field notes and in-depth interviews were utilized to collect data from May 2019 to July 2020. Data was collected by the primary investigator (PI), who was trained with two credits of qualitative research and methodology to improve data collection and analysis skills. After ethics approval, the PI distributed flyers to mothers via teachers in the kindergarten. When the mothers made initial contact, the PI met them at the kindergarten and arranged home visits. At the first visit, the PI established rapport with mothers to build relationships with their child and asked for their willingness to participate in the study. Then, the PI conducted participant observation using an observation guide to see how parents performed activities to promote their child's EFs, which might vary based on each participant's interaction with their child. The guide consisted of observing 1) the home environment as a learning resource for children, 2) mother's practices during activities with their children in daily life to promote EFs, such as free-play, doing homework, playing games, storytelling, and 3) interactions between mothers and their children during activities. Each participant was observed 2-3 times with an observation period of approximately 2-3 hours. The observation was conducted on various days and times. Field notes were taken during and immediately after observation. Twenty-one mothers were approached, but three mothers withdrew from the study because of unavailability to engage in participant observation.

In-depth interviews were conducted with 18 mothers who were the primary caregiver. Each participant was interviewed twice, and interviews lasted between 80 and 90 minutes, which took place in their homes. The research team developed an interview guide as a tool to obtain data about parenting related to promoting EFs in preschool children. It encompassed four components of parenting, including scaffolding, stimulation, sensitivity, and negative control. The guide consisted of open-ended questions based on the literature review: 1) "Have you ever heard of the term 'brain EFs'?"; "What does

it mean based on your understanding?"; 2) "How do you plan to promote your child's attention, problem-solving, and adaptation to change?"; 3) "How do you plan to promote your child's cognitive development?"; 4) "How can you observe and respond to what your child needs and is interested in?"; 5)"When you perceive your child's needs, what do you do?"; and 6) "In case your child misbehaves or disobeys, how do you deal with such behaviors?" During the interview, probing "how" and "why" questions were used to elicit more details.

Data analysis: Qualitative data were analyzed using content analysis in five steps: 1) transcribe interviews verbatim; 2) read the entire transcript several times, as ideas emerge while reading data; 3) group information into small categories, and provide a label to code, identify codes, and classify these codes into categories; 4) interpret data based on PI's perspective and literature review; 5) represent data and describe categories to illustrate inductive analysis that began with raw data.[32] The PI conducted member checking by sharing and discussing the interpretation reports with two participants. All steps of the data analysis process were discussed with the research team until consensus was reached.

Rigor and trustworthiness: This study applied the strategies of trustworthiness conducted, including credibility, transferability, dependability, and confirmability.[33] Credibility was ensured with a triangulation method, peer debriefing, and member checking. Transferability was achieved through thick description. To improve dependability, the data collection process was described through transcripts, field notes, and a reflective diary approved by the research team. Confirmability was enhanced through an audit trail to ensure that the findings were transparent, consistent, and derived from verbatim transcriptions, which were verified by the research team.

Findings

Characteristics of the participants

Participants included 18 biological mothers of preschool children aged 3-5 years. The age of participants ranged from 23-41 years (mean = 31.4). All were Buddhists. Most of them lived in an extended family (n=15) and were married (n=17). The participants' education levels fell into three groups: bachelor's degree, high vocational certificate, and high school certificate (n=6 each). Less than half of the participants had an income of 10,000-20,000 THB/month (296.33-592.66 US$/month) (n=8) **(Table 1).**

Table 1 Demographic characteristics of the mothers and preschoolers

Demographic data	Mothers (n=18)	Demographic data	Children (n=18)
Age (years, Mean = 31.4)		**Age** (years,Mean = 3.9)	
20-30	7 (38.9%)	3	9 (50.0%)
31-40	9 (50.0%)	4	6 (33.3%)
> 40	2 (11.1%)	5	3 (16.7%)
Education level		**Gender**	
Bachelor's degree	6 (33.3%)	Male	6 (33.3%)
High vocational certificate	6 (33.3%)	Female	12 (66.7%)
High school certificate	6 (33.4%)		
Occupation		**Number of children**	
Merchant	7 (38.8%)	One	12 (66.7%)
Self-Employed	5 (27.8%)	Two	6 (33.3%)
Company employee	3 (16.7%)		
Government officer	3 (16.7%)		

Table 1 Demographic characteristics of the mothers and preschoolers (Cont.)

Demographic data	Mothers (n=18)	Demographic data	Children (n=18)
Income (THB/month)			
< 10,000 (<296.33 US$)	3 (16.7%)		
10,000-20,000 (296.33-592.66 US$)	8 (44.4%)		
20,001-30,000 (592.69-888.99 US$)	5 (27.8%)		
> 30,000 (>888.99 US$)	2 (11.1%)		

Sociocultural context of mothers' parenting

The community resided in a scenic rural area. In the past, most people were engaged in agriculture and farming. Nowadays, the government has developed this area to be a natural conservation attraction, creating more jobs within the community. Mothers have the convenience of accessing information about child-rearing through the internet. Most mothers have a job and are responsible for raising their children, and are assisted in raising their children by family members and relatives living in the neighborhood.

Findings were categorized into seven categories as described in **Table 2.**

Table 2 Categories and sub-categories arising from the data

Categories	Sub-categories
Supporting children to focus their attention	Arranging to do one activity at a time
	Creating an environment without distractions
Encouraging children to use their ability to accomplish tasks	Providing incentives
	Designing tasks to be done more efficiently
	Helping to understand before doing
	Giving encouragement
Promoting to solve problems on their own	Asking about ways to solve problems
	Supporting their attempts at trial and error
	Allowing them to make decisions and choices
Enhancing self-confidence	Developing warmth and trust
	Helping to prepare for what could happen
	Encouraging them to be proud of themselves
Encouraging imagination	Encouraging to use their imagination
	Scheduling creativities activities as part of a routine
Supporting awareness of their own emotions and actions	Teaching to recognize their own emotions
	Assisting in managing negative emotions
	Explaining reasons to understand
	Making an agreement for self-discipline
Practices hindering executive functions	Giving the solution to problems
	Controlling behavior by causing fear

Table 3 The summarizing correlation between the parenting domains and the categories emerged in the study

Parenting domain	Categories
Parental scaffolding	Supporting children to focus their attention
	Encouraging children to use their ability to accomplish tasks
	Promoting to solve problems on their own
Parental stimulation	Encouraging imagination
Parental sensitivity	Enhancing self-confidence
Promoting discipline vs. negative control	Supporting awareness of their own emotions and actions
	Practices hindering executive functions

Category 1: Supporting children to focus their attention

Mothers perceived that with concentration children could complete tasks and succeed in their studies. They supported their children to concentrate by arranging to do one activity at a time and creating an environment without distractions.

Mothers mentioned that their children could hold their attention on activities they were interested in, so mothers provided activities for children that facilitated focus on the task at hand. The mothers allowed children to do and complete one activity at a time to promote concentration.

> *"I try to find whatever activities that my kid can accomplish to train her concentration. I bring her a picture for painting and let her complete this task, one at a time."* (Mother 7, 4-year-old daughter)

Mothers said that surrounding areas could distract their children's attention while performing activities. The mothers used various methods to arrange an environment without distraction, including choosing quiet places, turning off the television and radio, and keeping mobile phones and tablets out of sight.

> *"While my kid is doing homework, I do not allow her to watch TV. It distracts her."* (Mother 1, 5-year-old daughter)

> *During the observation, the mother kept her mobile phone on top of the shelf, which was higher than the child's sight and avoided using the phone while doing activities with her child.* (PO, Mother 9, 4-year-old daughter)

Category 2: Encouraging children to use their ability to accomplish tasks. Mothers expect that their children can rely on themselves in the future. They encouraged children to use their abilities to complete tasks by providing incentives, designing tasks to be done more efficiently, helping to understand before doing, and giving encouragement.

Mothers stated that their children wanted encouragement and something to motivate them to complete the tasks. Mothers provided incentives to motivate children in the form of rewards such as stickers, toys, and so on. When the children followed the mothers' directions, they received a reward which could be for things that they desired.

> *"I give her a star as a reward when she does something on her own. I tell her that I will take her to buy something she wants if she has collected 10 stars. It motivates her to do it."* (Mother 18, 3-year-old daughter)

Mothers revealed that when their children were confronted by a lot of homework or a complicated task, they would not want to do it. Mothers would support children to complete the task by suggesting to divide homework into halves to complete at different times and dividing into steps that children could complete easily.

"I let her choose to finish one task first and finish the rest on Saturday. So she will have encouragement that there is not much left to complete." (Mother 1, 5-year-old daughter)

"I let her paint part by part and complete it step by step. I divide the task into steps so it will be simple to do." (Mother 5, 3-year-old daughter)

Mothers expressed that they required their children to do homework on their own, and children needed to understand instructions before doing, so they provided instructions before letting their children do homework. Additionally, when children faced problems during homework, the mothers provided an example to demonstrate how it could be done, which was an easy way to teach their children.

"I explain the instructions of his homework to him. Then, I let him do it on his own. I won't do it for him but help him understand the task so he can do it by himself." (Mother 3, 3-year-old son)

"When she wants to draw the sea but does not know how, I will take a piece of paper to draw it for her as an example. Then, she can do it by herself" (Mother 2, 4-year-old daughter)

Mothers mentioned that their children needed encouragement to complete the task. The mothers stayed beside children until the task was completed to give children reassurance while giving suggestions and providing support. For example, when they noticed that children started to lose their focus on a task, they praised children by supporting them to maintain motivation in completing the task.

"I will stay with her to keep her company and to give support. She will be reassured that I will be there for her." (Mother 14, 4-year-old daughter)

"I always praise him 'You can do it! Almost done! Just a little more, and it will be finished.'" (Mother 3,3-year-old son)

Category 3: Promoting to solve problems on their own

Mothers perceived that children with EFs were more capable of problem-solving. Various methods were used to encourage children to solve problems, including asking about ways to solve problems, supporting their attempts at trial and error, and allowing them to make decisions and choices independently.

When their children were confronted with challenges in everyday life, one-third of mothers reported that they required the children to share ideas. The mother interrogated the children to encourage them to think about dealing with the circumstance rather than telling them the solutions.

"I usually ask her to think by herself first. For example, there were two car toys, but one was not running. So, I asked her what we should do with it. I want her to think and try to solve problems on her own before I make a suggestion." (Mother 12, 3-year-old daughter)

Some mothers trained their children for problem-solving after telling a story. They asked their children questions about the story and encouraged them to continue thinking about applying it to their situations.

"After telling a story, I ask my kid to think about what she would do if she were in the story. Like 'What would you do if you couldn't finish the apple?'" (Mother 14, 4-year-old daughter)

Mothers mentioned that their children must be able to think and behave independently. By trial and error, the mothers provided games and exercises for their children. So that the children first tried to fix the game on their own. This allowed the mothers to know what children did not understand, allowing them to explain what they did not understand afterward.

"I ask her, 'Do you want to try it?' If she can't make it right the first time, she will try again until it is correct. I want her to think and try it by herself first." (Mother 5, 3-year-old daughter)

The mothers perceived that their children had their own identity, so they allowed them to choose objects depending on their preferences, such as toys, clothes, and food. They asked children to choose and decide what they wanted to buy or activities they wanted to play.

> *"I tell her, 'Mom allows you to buy one toy. You can choose which one you want.' She starts to have her own ideas, so I let her choose and make decisions by herself."* (Mother 7, 4-year-old daughter)

Category 4: Enhancing self-confidence. Mothers perceived that children with EFs were assertive and confident to express themselves in appropriate manners. The mothers encouraged their children's self-confidence by developing warmth and trust, helping to prepare for what could happen, and encouraging them to be proud of themselves.

Mothers stated that when children received love and warmth, they would behave well and obey their parents without stubbornness. The mothers showed love to children by hugging, kissing, and stating their love for their children. As a result, their children became assertive to express love to their parents in return.

> *"I always tell my kid that I love him, and also hug and kiss him. I do it as a daily routine so he won't be embarrassed to show love to his parents."* (Mother 17, 3-year-old son)

Moreover, most mothers had discussions every day with their children about school and daily activities to create a bond of trust with them. This helped children feel that they could discuss anything with their mothers about anything.

> *"I talk with her every day about what she has done today. I also share stories about what I did, talking as a friend. I want her to trust me so she can talk to me about everything."* (Mother 7, 4-year-old daughter)

Mothers mentioned that they prepared their children for upcoming situations by providing information about what could happen at school. The mothers discussed with children about school requirements and trained their children about activities that they would do at school. Then, in a real situation, children could handle it.

> *"I tell her that tomorrow is Monday and she has to go to school. She has to get up early. I usually tell her first so she can prepare herself."* (Mother 16, 3-year-old daughter)

Mothers revealed that they often praised children for their accomplishments to develop their self-esteem and encourage them to do the activity again. Moreover, the mothers avoided criticizing their children because it could discourage them and reduce their confidence.

> *"I tell her, 'You did a great job today! You put your dish away by yourself!' I praise her when she accomplishes something. She will be happy and proud to do it again next time."* (Mother 18, 3-year-old daughter)

Categories 5: Encouraging imagination. Mothers perceived that children with EFs would have creativity and imagination. The mothers boosted their children's imagination by encouraging them to use their imagination and scheduled creative activities as part of their routine.

Mothers stated that they encouraged their children to describe what they created during play based on their imagination. When asked to describe something, the children would create something based on their past experiences. This helped children exercise their imagination.

> *"I let him play Legos. I ask him what figure he is creating. It improves his imagination."* (Mother 17, 3-year-old son)

Mothers boosted their children's imagination during role-playing by having children think about what they wanted to be, such as a vendor, chef, or doctor. They also proposed "what if" situations that helped children think and use their imagination to play.

> *"I let her use her imagination about what she wants to be such as a doctor, vendor....I ask her, 'There are no more eggs. What will you do?"* (Mother 14, 4-year-old daughter)

Additionally, the mothers mentioned that storytelling helped children develop imagination. After telling the same story many times, the mothers asked their children to help them retell the same story through pictures.

> *"I often read stories to him. Sometimes I tell him stories so he can develop his imagination. When I tell the same story many times, I will then ask him to tell the story back to me."* (Mother 3, 3-year-old son)

Most mothers disclosed that children needed regular training and repeated practice as a routine, which allowed them to memorize and learn to do activities independently. The mothers set a regular daily time for doing activities with children to be accustomed to the activity time.

> *"I have about one hour to play with her every day before going to bed, at about 7-8:30 pm. This is the golden time to do activities together."* (Mother 12, 3-year-old daughter)

Category 6: Supporting awareness of their own emotions and actions. Mothers encouraged children to be aware of their own emotions and actions by teaching them to recognize their own emotions, assisting in managing negative emotions, explaining reasons to understand, and making an agreement for self-discipline.

Some mothers stated that they told their children about their current emotions so the children could identify their emotions next time. This helped the children become aware of their emotions.

> *"I let him know that he is angry now... explain to him what emotion he is having. Next time he can tell me what emotion he has."* (Mother 17, 3-year-old son)

Most mothers perceived that their children would not listen to reason when they became upset. The mothers then used several methods to assist their children in an endeavor to control their negative emotions and calm themselves down by counting slowly up to ten together, and inviting them to do other activities to distract them from feeling upset.

> *"I teach her to count 1-10 to control her emotions when she gets angry. We count slowly together. She will cool down."* (Mother 12, 3-year-old daughter)

> *"I will hug her and console her to stop crying. When she calms down, I will ask, 'What's the matter? Can you tell me?' I let her speak to release it."* (Mother 16, 3-year-old daughter)

Mothers explained that they provided simple reasons underlying actions to help children understand and control themselves. Moreover, some mothers gave simple explanations about the consequences of actions to convince children to understand and follow discipline in the home, such as putting away toys, shoes, and clothes.

> *"I say, 'If you do not put away your toy, it will be sad that you left it to get wet in the rain. It will hide itself. What else will you play with?'... I explain the consequences of her actions and she can understand."* (Mother 12, child 3-year-old daughter)

Some mothers stated that they wanted to train their children to be self-disciplined without coercion. Thus, they created conditions and made an agreement with children about rules to follow. After making an agreement, they also remind children to behave according to what had been agreed.

> *"I make a deal with her about how many clips she can watch. I have to make an agreement first. Then she will stop herself after watching the agreed-upon number of clips."* (Mother 9, 4-year-old daughter)

Category 7: Practices hindering EFs. Some mothers felt that it was difficult to encourage their children to foster EFs because they had to give children the solution and control their children's behavior by causing fear.

Mothers stated that their children were too young to solve some complicated problems on their own. The mothers would tell children how to solve problems at the first instance of their children being confronted with problems and asking for help. Next time, the children would be able to do it by themselves.

> *"I think she is still too young and cannot think about complicated things. I must give her suggestions first. Then, she can do it."* (Mother 10, 3-year-old daughter)

> *"If I didn't tell her, I didn't think she'd know that. Sometimes, children at this age cannot think on their own and we as mothers have to help our children."* (Mother 13, 3-year-old daughter)

Mothers said that they did not want to hit their children but they had to threaten and scold them periodically to make them fearful. Then, children would obey their parents and not misbehave.

> *"When my child disobeys, I'll say 'I won't love you or buy you new toys.' Threatening about something that she doesn't want to do."* (Mother 10, 3-year-old daughter)

> *"It's impossible to never scold him. If he does something bad, I have to scold him sometimes. Then, he will do as I say."* (Mother 8, 5-year-old son)

Surprisingly, some mothers occasionally hit their children for inappropriate behavior to make them remember not to repeat such behavior again. Mothers felt sorry after hitting their children, but they felt it was necessary to discipline their children.

> *"I hit her hand using my hand or a plastic ruler. Actually, I don't want to hit her* (speaking with shaking voice). *I feel sorry for that, but I need to discipline her."* (Mother 16, 3-year-old girl)

Discussion

The findings revealed that mothers supported children's attention by arranging one activity at a time and arranging an environment without distractions. For preschool children, attention control is one domain of EFs that enables children to do assignments successfully. Mothers can help their children practice attention skills by providing activities that require attention until completion in a peaceful and relaxing environment.[34] This was consistent with prior research showing that mothers encouraged children to maintain their focus by providing games that required attention.[35] Mothers' maintenance of children's attention while performing a task is associated with children's inhibitory control.[36] Mothers can help children focus their attention by removing distractions, such as finding a space without unnecessary sounds and choosing a quiet place in the house. Furthermore, the mothers have family support in various ways, affording spare time to do activities with children. They also received kindergarten support to perform activities with children to educate, provide storybooks, equipment, and media.

Mothers encouraged their children to accomplish tasks by providing incentives, designing tasks to be done more efficiently, helping to understand before doing, and giving encouragement. This was consistent with the notion that parental scaffolding involves providing necessary assistance to allow children to use their ability to solve problems and accomplishing tasks.[17,23] Likewise, a study reported that mothers provided support depending on their children's pace, including using questions to stimulate children to review their prior knowledge and plan what they should do, giving hints when children made mistakes, explaining, and demonstrating examples.[18] The mothers praised and encouraged their children, which was associated with children's EFs.[15]

Mothers promoted children to solve problems independently by asking about possible solutions, supporting attempts at trial and error, and allowing

them to choose and make decisions. This study supported a previous study on asking open-ended questions to stimulate children to think, plan, and solve problems on their own, which could promote EFs.[37]

Mothers encouraged their children to play an active role in problem-solving tasks by encouraging and praising them, providing clues and helpful advice, and using their tone of voice to reassure that parents would be there to help, accepting children's opinions and following their own pace giving choices.[19]

This study revealed that mothers enhanced children's self-confidence by developing warmth and trust, helping to prepare for what would happen, and praising to encourage. This finding aligned with previous studies in that parenting which demonstrated warmth towards children by closeness, friendliness, assistance when needed, and encouragement to do what children desired, was associated with EFs in children.[38] Additionally, maternal sensitivity to children's desires and interests was associated with EFs of children.[25]

Furthermore, mothers promoted their children to control emotions by teaching them to recognize their own emotions and assisting them to manage negative emotions. The result was in line with a previous study demonstrating that maternal mental-state talk was correlated with children's EFs as children imitated speech from their mothers to express what they wanted and how they felt, which allowed children to control their thoughts, emotion, and action.[39] Mother's speech which allows children to think about the consequences of their actions and make decisions by themselves, is associated with children's EFs.[28]

In contrast, practices hindering EFs included giving solutions to problems instead of questioning children how to solve problems. This was similar to a prior study indicating that providing guidance by giving information about steps children had to perform without letting them think and asking close-ended questions was inversely associated with EFs in preschool children.[37] Moreover, the current study revealed that controlling behavior by causing fear was another practice hindering EFs. This was consistent with previous studies reporting that harsh parenting involving parents' unresponsiveness to children's desires, no expression of love and warmth, and strict parenting discipline by causing fear was associated with lower inhibitory control of children.[40] The hostility or aggressive parenting by frequently punishing, ignoring and neglecting, and always telling children how to behave was associated with children's working memory and inhibitory control deficits.[14]

Limitations

This study was conducted with mothers who attended training programs on promoting EFs and had healthy normal children with no developmental abnormality. Therefore, the mothers' parenting related to promoting children's EFs may be different and influenced by the obtained knowledge about EFs and characteristics of children, which may not be transferable to other mothers who had not attended a training program. In this study, as all participants lived in a rural community in northern Thailand, so the findings do not represent others living in urban areas or other parts of Thailand.

Conclusions and Implications for Nursing Practice

The findings provide insight into mothers' parenting related to promoting EFs in preschool children after they had attended a training program. Mothers wanted their children to have concentration, the ability to complete assignments, rely on themselves, and be creative and assertive. The mothers provided activities to promote their children's concentration. They also supported the children to foster EFs by encouraging them to use their own ability to accomplish tasks and solve problems, enhancing self-confidence, imagination, and emotional control. However, some mothers provided the solution when their children faced a problem and asked for help. They thought that children were too

young to be able to solve complicated problems. Only one-third of mothers used questioning to guide their children to think and reflect on their attempts at trial and error. Additionally, some mothers believed that there was still a need to make children feel afraid to obey their parents. Instead of hitting them, the mothers threatened and scolded their children to scare them into stopping inappropriate behavior. The findings can help nurses understand how mothers promote EFs in their children and raise awareness to empower mothers for knowledge and skills in raising the children. Moreover, nurses can apply these findings as essential information to develop an intervention to enhance the capability of mothers to promote EFs in their preschool children.

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การรับรู้และประสบการณ์ของมารดาต่อการเลี้ยงดูบุตรเพื่อส่งเสริมการคิดเชิงบริหารในเด็กก่อนวัยเรียน

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บทคัดย่อ: การคิดเชิงบริหารหรือกระบวนการคิดในระดับสูงที่ช่วยสนับสนุนพฤติกรรมที่มุ่งสู่เป้าหมาย ซึ่งจะช่วยให้เด็กสามารถควบคุมตัวเองต่อสิ่งที่มายั่วยุ มีสมาธิจดจ่อกับสิ่งที่ทำ จดจำกติกาหรือข้อตกลงเพื่อนำมาปฏิบัติได้ และสามารถปรับตัวต่อการเปลี่ยนแปลงได้ มารดามีบทบาทสำคัญในการเป็นแบบอย่าง สนับสนุนและจัดกิจกรรมเพื่อส่งเสริมให้บุตรของตนมีการพัฒนาด้านการคิดเชิงบริหาร ดังนั้นจึงจำเป็นต้องมีการศึกษาวิจัยเกี่ยวกับการปฏิบัติของมารดาเพื่อส่งเสริมการคิดเชิงบริหาร การศึกษาเชิงคุณภาพแบบพรรณาครั้งนี้มีวัตถุประสงค์เพื่อศึกษาการรับรู้และประสบการณ์ของมารดาที่มีต่อการส่งเสริมการคิดเชิงบริหารในเด็กก่อนวัยเรียนในภาคเหนือของประเทศไทย เก็บรวบรวมข้อมูลโดยใช้การสังเกตแบบมีส่วนร่วมและการสัมภาษณ์เชิงลึก ระหว่างเดือนพฤษภาคม 2562 ถึงกรกฎาคม 2563 กับมารดาผู้ให้กำเนิดของเด็กอายุ 3-5 ปี จำนวน 18 คน ที่เคยเข้าร่วมโครงการอบรมเกี่ยวกับการส่งเสริมการคิดเชิงบริหาร วิเคราะห์ข้อมูลโดยใช้การวิเคราะห์เนื้อหา

ผลการศึกษาพบว่าการอบรมเลี้ยงดูของมารดาที่เกี่ยวกับการส่งเสริมการคิดเชิงบริหารใน 7 ประเด็นหลัก ได้แก่ 1) การสนับสนุนให้เด็กมีสมาธิจดจ่อ 2) ส่งเสริมให้เด็กใช้ความสามารถของตนเองในการทำงานให้สำเร็จ 3) ส่งเสริมการแก้ไขปัญหาด้วยตัวเอง 4) เสริมสร้างความมั่นใจในตัวเอง 5) ส่งเสริมให้เกิดจินตนาการ 6) สนับสนุนให้ตระหนักถึงอารมณ์และการกระทำของตนเอง และ 7) การปฏิบัติที่ขัดขวางการคิดเชิงบริหาร ผลการวิจัยนี้ช่วยให้พยาบาลเข้าใจการอบรมเลี้ยงดูของมารดาที่เกี่ยวข้องกับการส่งเสริมการคิดเชิงบริหารของเด็ก ซึ่งสามารถนำไปใช้ในการพัฒนาโปรแกรมหรือกลยุทธ์เพื่อส่งเสริมการคิดเชิงบริหารในเด็กก่อนวัยเรียน

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คำสำคัญ: การอบรมเลี้ยงดู การส่งเสริม การคิดเชิงบริหาร เด็กก่อนวัยเรียน การวิจัยเชิงคุณภาพ

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