Factors Predicting Health-Promoting Behaviors among Caregivers of Children under 5 Years during the COVID-19 Pandemic: Cross-Sectional Study in Rural Thailand

ปัจจัยทำนายพฤติกรรมของผู้ดูแลในการส่งเสริมสุขภาพของเด็กอายุต่ำกว่า 5 ปี ในช่วงที่มีการระบาดของโควิด-19: การศึกษาภาคตัดขวาง ในเขตชนบท ประเทศไทย

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Abstract

The COVID-19 pandemic and associated quarantine measures have had a negative impact on children and caregivers, both mentally and physically. Children who receive inappropriate health-promoting behavior from the caregiver could have health problems. This study aimed to identify factors influencing the health-promoting behaviors (HPBs) of caregivers of children under five years of age while experiencing lockdowns. The cross-sectional study conducted between March and May 2021 had 138 caregivers of children who completed the questionnaires, which captured demographic information, parenting style, social support, self-efficacy, and HPBs. The study used descriptive statistics and multiple linear regression to determine the predicting factors of the HPBs of caregivers. The results showed the mean age of the participants was 34.06 ± 8.96 years, more than half were recognized as day laborers (69.6%), and one-third had primary school education (30.4%). The percentage of total variance explained by all study variables (parenting style, social support, and self-efficacy) was 29.8 percent (adjust R2 = .298, F = 20.420, $p < .001$), and self-efficacy was the best predictor of the HPBs of caregivers ($\beta = 0.580$, $p < .001$).

These findings represent a preliminary stride towards recognizing the factors that influence the development of HPBs among caregivers of children under five years old. In achieving this, there is a need to enhance the caregivers' self-efficacy and direct interventions to counteract the adverse effects on the health of children residing in a rural community during and following the COVID-19 Pandemic.

Keywords: Caregivers, health-promoting behavior, early childhood health, COVID-19 pandemic

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บทคัดย่อ

การระบาดของโควิด-19 และมาตรการควบคุมโรคที่เกี่ยวข้องส่งผลกระทบในเชิงลบต่อเด็กและผู้ดูแลทั้งด้านร่างกายและจิตใจ ซึ่งในช่วงเวลาดังกล่าวเด็กที่ได้รับการดูแลจากผู้ดูแลที่มีพฤติกรรมการส่งเสริมสุขภาพไม่เหมาะสมอาจจะทำให้เด็กเกิดปัญหาสุขภาพต่างๆ ได้ การศึกษานี้จึงมีวัตถุประสงค์เพื่อศึกษาปัจจัยทำนายพฤติกรรมของผู้ดูแลในการส่งเสริมสุขภาพของเด็กอายุต่ำกว่า 5 ปี ในช่วงที่มีการระบาดของโควิด-19 และมีการประกาศมาตรการปิดเมือง (Lockdown) การศึกษาแบบภาคตัดขวางนี้ดำเนินการในช่วงเดือนมีนาคมถึงเดือนพฤษภาคม พ.ศ. 2564 กลุ่มตัวอย่างเป็นผู้ดูแลของเด็กอายุต่ำกว่า 5 ปี จำนวน 138 คน เครื่องมือที่ใช้ในการรวบรวมข้อมูลเป็นแบบสอบถามประกอบด้วย ข้อมูลส่วนบุคคล รูปแบบการเลี้ยงดู การสนับสนุนทางสังคม การรับรู้สมรรถนะแห่งตน และพฤติกรรมของผู้ดูแลในการส่งเสริมสุขภาพเด็ก วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนาและสถิติวิเคราะห์การถดถอยพหุคูณ

ผลการวิจัย พบว่า กลุ่มตัวอย่างมีอายุเฉลี่ย 34.06 ± 8.96 ปี กลุ่มตัวอย่างมากกว่าครึ่งหนึ่งมีอาชีพรับจ้างทั่วไป (69.6%) และหนึ่งในสามจบการศึกษาในระดับชั้นประถมศึกษา (30.4%) ซึ่งจากการวิเคราะห์ทางสถิติ พบว่า ตัวแปรทั้งหมด ได้แก่ รูปแบบการเลี้ยงดู การสนับสนุนทางสังคม และการรับรู้สมรรถนะแห่งตน สามารถร่วมทำนายพฤติกรรมของผู้ดูแลในการส่งเสริมสุขภาพเด็กได้ร้อยละ 29.8 อย่างมีนัยสำคัญทางสถิติ (adjust R^2 = .298, F = 20.420, p < .001) โดยการรับรู้สมรรถนะแห่งตนสามารถทำนายพฤติกรรมของผู้ดูแลในการส่งเสริมสุขภาพเด็กอย่างมีนัยสำคัญทางสถิติ (β = 0.580, p < .001) จากผลการวิจัยดังกล่าวข้างต้นสามารถระบุปัจจัยทำนายที่ช่วยพัฒนาพฤติกรรมของผู้ดูแลในการส่งเสริมสุขภาพของเด็กอายุต่ำกว่า 5 ปี โดยการส่งเสริมการรับรู้สมรรถนะแห่งตน เพื่อลดผลกระทบจากการระบาด และภายหลังการระบาดของโควิด-19 ในเขตชนบทที่มีต่อภาวะสุขภาพของเด็กได้

คำสำคัญ: ผู้ดูแล พฤติกรรมการส่งเสริมสุขภาพ สุขภาพของเด็กปฐมวัย การระบาดของโควิด-19

Introduction

Child health is particularly sensitive to the environment during the first 5 years of life, and risks such as poverty, low parental competence, and malnutrition can affect brain structure and function as well as developmental trajectory.[1] Inappropriate parenting affects the child's development and personality more in early childhood than in other childhood periods and can have long-term consequences for adult functioning.[2,3] Moreover, investment in early childhood health and education results in up to seven-fold gains in economic return in the long term, including the country's competitiveness and societal well-being.[4] Therefore, high quality of parenting in early childhood, from birth up to the age of 5 years, is a primary consideration in ensuring the well-being of the next generation.[5,6,7]

The coronavirus disease 2019 (COVID-19) pandemic led to the implementation of several restrictive measures globally. Childcare, schools, and recreational facilities across the world were closed due to restrictive quarantine measures, affecting an estimated 1.38 billion children. Lockdowns have left many parents struggling, especially in low and middle-income countries, and many children who remain at home do not get the support they need for healthy development. A systematic review showed that the COVID-19 pandemic is threatening child growth and development because epidemics can cause high levels of stress among caregivers and their children, [8,9] and recent data revealed that around 40% of young children were not receiving adequate social-emotional and cognitive stimulation from their caregivers in the home environment.[10]

Poor health-promoting behavior (HPBs) among caregivers can negatively impact the health and well-being of children. According to Multiple Indicator Cluster Surveys (MICS) 2022 by the United Nations Children's Fund (UNICEF), there are the prevalence of main health indicators of children under 5 years in Thailand, underweight = 8.5%, wasting = 9.7%, stunting = 17.4%, overweight = 16.1%, and delay development = 22.2% from the survey 10,502 children under 5 years in Thailand. [11] It's also recognized that caregivers' HPBs can indeed have a significant impact on children's health outcomes. For example, uninvolved parenting, often referred to as neglectful parenting, is a parenting style characterized by a lack of emotional involvement, responsiveness, and support. In such cases, caregivers might not provide the necessary attention, guidance, and care that children need for healthy development. Thus, the question arises as to the possible predictors of these positive experiences in caring for young children during the COVID-19 outbreak, especially in rural Thailand. In this context, several factors should be considered, both internal and external. Internal factors, including psychological factors such as self-efficacy, hope, resilience, and attitudes, help caregivers to increase their adaptability and overcome problems.[12,13] External factors include environmental and caregiver-related factors, such as socioeconomic characteristics, social support received from healthcare organizations, and the community, that are positively related to children’s health, growth, and development.[14,15,16] We can presume that parenting style, self-efficacy, and social support will affect caregivers’ HPBs, which may significantly influence their children’s health, with early childhood requiring special attention.[17,18] Thus, the present study aimed to investigate factors contributing to positive caregiver behaviors and identify ways to enhance them.

This study focused on the predicting factors of caring behavior to promote young children’s health and well-being during the COVID-19 pandemic, including caregivers’ self-efficacy,

social support, and parenting style. The results can guide the caregivers' behavior to support their children's health and well-being by identifying the factors that contribute to effective caregiving and offering concrete strategies, caregivers can enhance their practices and create a nurturing environment for their children. Furthermore, the predicting factors identified in the research can serve as a foundation for experimental research programs aimed at promoting HPBs among caregivers. This comprehensive approach has the potential to greatly benefit both caregivers and their children, fostering improved health and well-being for all parties involved.

Research objective

To study the predicting factors including self-efficacy, parenting style, and social support on HPBs among caregivers of children under 5 years.

Conceptual Framework

The researcher identified the factors based on the PRECEDE-PROCEED model.[19] The PRECEDE phase of this model is a comprehensive framework used in public health and health promotion planning and evaluation. It stands for "Predisposing, Reinforcing, and Enabling Constructs in Educational Diagnosis and Evaluation. The PRECEDE phase sets the stage for the development of a comprehensive health promotion program by providing a deep understanding of the factors influencing the health issue. Predisposing factors are the characteristics or beliefs that make individuals or communities more or less likely to engage in a particular health behavior. This research explores self-efficacy as a predisposing factor. Reinforcing factors are the factors that provide ongoing support or reinforcement for a particular health behavior. This research explores parenting style as a reinforcing factor. Enabling factors are the practical or logistical factors that facilitate or impede the ability to engage in a health behavior. This research explores social support as an enabling factor. This model serves as a guiding framework for the research conducted in this study. Widely recognized and utilized in nursing research, this model offers a systematic approach to comprehending and addressing the intricate interplay of factors that impact health behaviors and outcomes. The researchers are able to navigate the complexities of understanding and influencing HPBs in a structured and organized manner.

According to the PRECEDE phase, the predicting factors of this study include a predisposing factor (self-efficacy), a reinforcing factor (parenting style), and an enabling factor (social support). First, self-efficacy is the notion that someone believes they can successfully carry out a particular

behavior. Caregivers with higher levels of self-efficacy are more likely to engage in health-promoting behaviors for their children. Second, parenting style Parenting style is the method and techniques a parent or caregiver uses to raise their child. More favorable health outcomes are frequently linked to an authoritative parenting style, which is defined by setting clear expectations and being attentive to a child's needs. Third, social support refers to the resources and assistance that individuals receive from their social networks, including family, friends, and community. Caregivers who have strong social support are more likely to engage in health-promoting behaviors because they have access to resources, information, and emotional encouragement.

The conceptual framework of this research is shown in Figure 1.

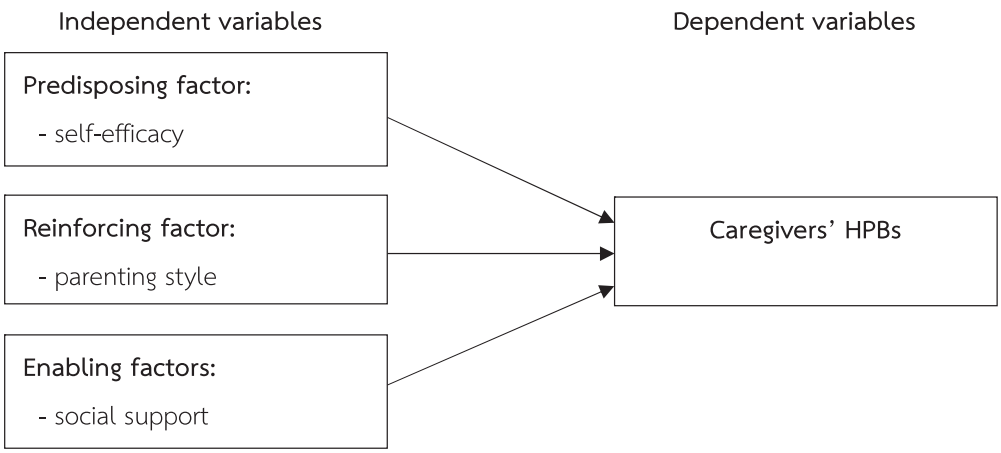

Figure 1 Conceptual Framework

Methods

Study Design

This was a cross-sectional study identifying factors influencing caregivers' health-promoting behaviors (HPBs) for children aged under 5 years during the COVID-19 pandemic.

Sample and setting

For this study, the recommended effect size for multiple linear regression is considered moderate, as there are no recent studies available for comparison. The sample size calculation was based on a moderate effect size of 0.15, with a power of 0.95 and an alpha level of 0.05.[20] The regression model included 3 predictors. According to the G*Power calculation, the sample size required for this multiple linear regression analysis was determined to be 119 participants. As noted in a previous similar study,[21] an additional 20 percent of participants were added in order

to account for possible dropouts during the study, since the researchers allowed participants to complete the questionnaires at home independently. To maintain a whole number, the sample size was adjusted to 140 participants.

The parents or caregivers of children aged under 5 years in two rural child centers in Mae-Chan district, Chiang Rai province, Thailand. This district was chosen for two reasons. The first reason is that the Mae-Chan district has a large number of children under 5 years old. The second reason is situated in a large mountainous region and difficult transportation. So, the children's lives depend on caregivers' health-promoting behaviors more than other districts in Chiang Rai province. A convenience sampling method was used to recruit the participants for the study because the COVID-19 pandemic made researcher difficult to access the sample's houses. The inclusion criteria were as follows: 1) the participant was the primary caregiver of children from birth to age 5 years, 2) could communicate fluently in the Thai language and could complete the questionnaires, and 3) confirmed that they agreed to participate voluntarily.

Measures

A questionnaire developed by the researcher based on this research's conceptual framework was used for data collection. It consisted of five parts. Part one consisted of questions related to the demographic background of the participants, including gender, age, occupation, and education. Part two consisted of 29 questions on parenting style. Part three comprised of 20 items on the self-efficacy of the caregivers. Part four consisted of 18 items regarding the perception of social support. Finally, Part five comprised of 40 questions about the HBP of the caregivers, covering aspects such as nutrition and exercise provided to their children.

Validation of the Questionnaire

The validity and reliability of the questionnaire were assessed by different methods. Item-objective congruence method (IOC) was used to evaluate the validity of the questionnaire. In this method, three external experts, consist of a nurse, a teacher, and a lecturer, assessed the congruence between the questions and the context of the study, including the objectives of the study. The scores from the experts were pooled and divided by three before interpretation. Questions with an average score lower than 0.5 were deleted from the questionnaire, whereas items with a score higher than 0.7 were included in the final questionnaire.

The reliability test of the questionnaire was piloted with 30 people who had similar characteristics to the study population. In this step, the feasibility, appropriateness of words or sentences used, order of the questions, and reliability were analyzed. The Cronbach's alpha was found to be 0.95, 0.84, 0.93, 0.94, and 0.90, respectively, for the final questionnaires.

Data Collection Procedure

After obtaining ethics approval from the Chiang Rai Provincial Public Health Office (CRPPHO No.7/2564), a campaign approach was used to advertise the study to the directors of childcare centers, with meetings scheduled to explain the study's objectives, procedures, and sample rights protection. Of 220 potential volunteers by a convenience sampling method, 138 caregivers were willing to participate and provided informed consent. The data collection process in the study incorporated COVID-19 safety measures to protect the participants. These measures likely encompassed practices such as wearing masks, maintaining social distance, conducting COVID-19 testing, and ensuring vaccination to reduce the risk of virus transmission throughout the research. Participants spent 20–25 minutes completing the study questionnaires. Upon completion and return, the researchers checked the completeness of the questionnaires. During data collection, the participants were free to withdraw without providing any reason, and the confidentiality of the participants was ensured throughout. Data collection took place from March to May 2021.

Data Analysis

All statistical analyses were conducted using the IBM SPSS program (version 24.0). The statistical significance level was set at .05. Descriptive statistics were used to analyze the demographic characteristics of the sample as well as the data regarding parenting style, self-efficacy, social support, and HPBs. The relationships between parenting style, self-efficacy, social support, and HPBs were evaluated using Pearson's product-moment correlation coefficient. Multiple linear regression analysis was used to identify significant correlations among predictor variables. Before multiple linear regression analysis, assumption testing was conducted to ensure that the predictor and outcome variables were normally distributed and that predictors had multivariate normality and no multicollinearity.

Results

A total of 138 participants were included in this study. The mean age of the caregivers was 34.06 ± 8.96 years, more than half (69.6%) were day laborers, approximately one-third (30.4%) had completed primary school education, and 68.84% had a monthly income below THB 10,000 (USD 300; see table 1).

Table 1 the demographic characteristics (n=138)

Characteristics	Number	%
Gender		
Male	39	28.26
Female	99	71.74
Caregiver's age (years) (mean=34.06, S.D.=8.96, Min=19, Max=68)		
15-25	20	14.49
26-35	68	49.28
36-45	50	36.23
Number of early childhood children		
1	110	79.71
2	28	20.29
Occupation		
Government employee	6	4.35
Day laborers	96	69.57
Farmer	8	5.79
Other occupation	28	20.29
Educational level		
No formal education	13	9.42
Primary school	42	30.43
Junior high school	35	25.36
Senior high school	27	19.57
Vocational school/Certificate	2	1.45
Bachelor's degree	19	13.77
Income (baht)		
<5,000	32	23.19
5,000-10,000	63	45.65
10,000-15,000	22	15.94
15,000-20,000	8	5.80

Table 1 the demographic characteristics (n=138)

Characteristics	Number	%
>20,000	4	2.90
Other	9	6.52
Welfare benefit		
Received	67	48.55
Not received	71	51.45
Descriptive statistics of variables		
HPBs (mean = 140.82, S.D. = 11.66)		
Low level	0	0.00
Moderate level	10	7.25
High level	128	92.75
Parenting style (mean = 91.59, S.D. = 15.16)		
Low level	7	5.07
Moderate level	115	83.33
High level	16	11.60
Self-efficacy (mean = 83.68, S.D. = 10.75)		
Low level	0	0.00
Moderate level	27	19.57
High level	111	80.43
Social support (mean = 64.60, S.D. = 13.46)		
Low level	9	6.52
Moderate level	71	51.45
High level	58	42.03

This study assessed the relationship among the participants' socioeconomic characteristics such as age, education level, and monthly income, as well as parenting style, self-efficacy, and social support. Statistically significant relationships were observed between all independent variables and HPBs, with HPBs being positively related to parenting style ($r = .182$; $p < .05$), self-efficacy ($r = .550$; $p < .01$), and social support ($r = .223$; $p < .01$; see table 2).

Table 2 Correlation of coefficients between HPBs of caregivers and independent variables (n=138)

Variables	1	2	3	4
1. HPBs	1			
2. Parenting style	0.182*	1		
3. Self-efficacy	0.550**	0.206*	1	
4. Social support	0.223**	0.313**	0.503**	1

* $p < .05$, ** $p < .01$

We also found that self-efficacy, parenting style, and social support were significant joint predictors of caregivers' HPBs (adjust R^2 = .298, F = 20.420, p < .001) and self-efficacy was an influential factor of HPBs of caregivers with statistical significance (ß = .580; p < .001), while the other two variables, i.e., parenting style and social support, did not show statistical significance in predicting the HPBs of caregivers (Table 3).

Table 3 Multiple regression analysis of the predictors of HPBs of caregivers (n = 138)

Variables	B	SEB	ß	t	p-value
Constant	87.102	7.564		11.516	0.000
Parenting style	0.072	0.058	0.094	1.241	0.217
Self-efficacy	0.629	0.090	0.580	6.988	0.000*
Social support	-0.085	0.074	-0.098	-1.148	0.253

R = 0.560, R^2 = 0.314, Adjust R^2 = 0.298, F = 20.42, p < .001*

Discussion

The health emergency of the COVID-19 pandemic and the consequent restrictive quarantine measures have upset the lifestyles and daily lives of families with young children. The results of the present study showed that caregivers of children under 5 years of age displayed a high level of HPBs. A possible explanation is that the caregivers displayed appropriate behaviors in caring for their children because the lockdown policy forced caregivers and children to stay at home full-time, giving caregivers sufficient time to care for their children and learn appropriate HPBs. It is important for caregivers, especially during these restrictive times, to know how to protect their children from infection, promote positive emotional functioning, organize their children's daily lives, and maintain a normal lifestyle. The ability to promote child health is vital for caregivers, and the findings of this study are similar to those of previous studies, confirming that during quarantine periods, caregivers can improve their caregiving ability and capacity to prevent infection with and transmission of COVID-19.[22,23] However, all the participants in this study were the primary caregivers of their children and most of them were day laborers who worked for payment on a daily basis and cared for their children at home while doing their job. Many caregivers faced difficulties related to income reduction or, in some cases, job loss during the pandemic. This economic hardship contributed to poor parenting and child health and well-being.[18]

In addition, the majority of caregivers had an authoritative parenting style, the style characterized by the most support, warmth, and sensitivity, which may be explained by the influence of Thai culture and traditions, resulting in high responsiveness to the child's physical and emotional needs as well as and regulation in the form of HPBs aimed at protecting the child from serious disease. The finding of this study aligned with a previous study showing that warmth and support from caregivers became even more important when children faced difficulties in their personal growth and development.[10,24] The authoritative parenting style is also considered the best parenting style, especially for children facing the COVID-19 pandemic.[25]

Social support was also found to be a related factor to the HPBs of the caregivers. Participants who perceived more support from family members and the community were more likely to comply with COVID-19 measures and help to promote adherence to these measures.[26,27] In contrast, individuals who perceived less support may have felt greater pressure to manage their child's health while practicing social distancing.[8,28] This study found that caregivers had a medium level of social support, which may be because more than half of the study participants were day laborers and when the factory, construction, or farm areas and stay at home. The participants perceived receiving less from the government or community in financial terms.[18] However, a supportive network plays a significant role in shaping the attitudes, beliefs, and health behaviors of individuals, particularly in the adoption of preventive measures during a pandemic.[29,30]

The data also revealed that the participants had a high level of self-efficacy. A possible explanation is that during the COVID-19 pandemic, the information received via social media or community announcements enhanced the caregivers' confidence to manage their lives and their children's health in the home environment.[31] According to Bandura[32], support such as physical and emotional support from a family member and informational support from healthcare providers as well as the community can affect caregivers' self-efficacy in successfully achieving their goals, i.e., caring for their children. Previous studies also showed that the relationship between caregivers' HPBs and mental health and children's well-being is mediated and predicted by self-efficacy.[33]

The findings of this study highlight the importance of considering self-efficacy, parenting style, and social support as combined predictors of caregivers' HPBs. The interplay of these factors, as suggested by the PRECEDE-PROCEED model,[19] plays a crucial role in shaping caregivers' HPBs. By considering these components, researchers and healthcare professionals can develop targeted interventions to promote caregivers' HPBs. Furthermore, if caregivers have all three components, it

will enhance caregivers' confidence, promote positive parenting styles, and create supportive environments that empower caregivers to make informed decisions and take actions that improve the health and well-being of their children. Caregivers who are well-informed, skilled, and supported are more likely to adopt nurturing and responsive approaches to parenting. This includes establishing healthy boundaries, fostering open communication, and providing emotional support to their children. By utilizing positive parenting styles, caregivers can effectively nurture their children's health and well-being. On the other hand, the absence of even a single factor can have negative outcomes on their children's health and well-being. It is crucial to recognize the importance of these factors and work towards ensuring that caregivers have the necessary support, knowledge, resources, and beliefs to provide optimal care for their children.

A notable finding of this study was that self-efficacy was the best predictor of caregivers' HPBs. Considering the above and the current context of the COVID-19 outbreak is associated with many changes and challenges. Our findings found that self-efficacy can be considered a predictive factor of the caregivers' competence to care for their children. As per the PRECEDE-PROCEED model,[19] predisposing factors are a person's knowledge, attitude, values, and perceptions that contribute to their motivation to change their health-promoting behavior. In other words, self-efficacy can be considered a predisposing factor or an internal factor that influences the rationale for and confidence in one's own abilities to exert certain behaviors. It is generally believed that internal factors are those that are under the control of the individual, whereas external factors are those that are dictated by their surroundings and cannot be controlled by the individual. The self-efficacy of caregivers is thus a powerful and controllable factor for motivating HPBs among caregivers of children under five years of age.[32]

The findings of this study were also similar to the previous study[23] reported that self-efficacy is a key factor influencing caregivers and children's well-being and has been linked to positive outcomes for caregivers and children younger than 5 years. Of note, self-efficacy plays a crucial role in the human capacity to adapt to various situations as reflected by how well caregivers motivated themselves to care for their child when living in a risky and restricted environment and how well they adapted and put effort into various activities to maintain their daily lives and functions.[17,34] The outbreak consolidated the role of parents or caregivers as the individuals primarily responsible for both childcare and work. The increased burden on caregivers caused by lockdown policies, excessive housework, longer working with their children as well as family finances has a pervasive negative influence on caregivers' caregiving ability and mental

health and may adversely affect their HPBs. However, when the caregivers received adequate support, both material and psychological, as well as adequate information, they were able to perform HPBs for their children effectively.[31,35]

Conclusion

This study shed light on the influence of self-efficacy on caregivers' HPBs during the COVID-19 pandemic. Greater perceived competence or self-efficacy along with the receipt of adequate support from the community as well as family members potentially enhances caregivers' ability to care for children under 5 years of age. Our findings also emphasized certain practical implications that need consideration. Healthcare professionals play a significant role not only in guiding caregivers regarding disease prevention or equipment use but also in planning or tailoring interventions for caregivers that would allow them to maintain their parenting functions as effectively as possible in a restrictive environment. Such interventions should be focused on supporting caregivers by integrating basic technology such as the LINE application, which is suitable in socioeconomic and rural contexts for managing children in their everyday practice both during and after the COVID-19 pandemic. Moreover, daycare professionals may take advantage of the findings concerning interventions and channels to support caregivers in terms of focusing on and caring proactively and developmental promotion with caregivers, indirectly supporting children's health and well-being.

Study Limitations

This study includes several basic limitations that need to be acknowledged and addressed, first, the researchers recruited the participants by using a convenient sampling technique from two rural communities that may lack diversity and may not be a good representative. Secondly, the data collection method utilized in this study centered around self-report questionnaires that were purposefully developed to target the specific research objectives and hypotheses. Nonetheless, it is imperative to emphasize the need for continued attention to the rigorous development and testing of these questionnaires. Finally, the data were cross-sectional that are collected from participants at one point of time limited to generalization.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

References

1. Hamadani JD, Mehrin SF, Tofail F, Hasan MI, Huda SN, Baker-Henningham H, et al. Integrating an early childhood development programme into Bangladeshi primary health-care services: an open-label, cluster-randomised controlled trial. Lancet Glob Health. 2019;7(3):e366–75. doi:10.1016/S2214-109X(18)30535-7.

2. Doyle O, Hegarty M, Owens C. Population-based system of parenting support to reduce the prevalence of child social, emotional, and behavioural problems: difference-in-differences study. Prev Sci. 2018;19(6):772–81. doi: 10.1007/s11121-018-0907-4.

3. Eltanamly H, Leijten P, Jak S, Overbeek G. Parenting in times of war: a meta-analysis and qualitative synthesis of war exposure, parenting, and child adjustment. Trauma Violence Abuse. 2021;22(1):147–60. doi:10.1177/1524838019833001.

4. Tong Y, Li JX, Shu B. Is children's academic performance valuable to parents? linking children's effort vs. results and fathers' vs. mothers' subjective well-being. Child Indic Res. 2021;14(2):583–605. doi:10.1007/s12187-020-09763-3.

5. Buain O, Pholphirul P. Early childhood education and child development outcomes in developing countries: empirical evidence from Thailand. Int J Early Years Educ. 2022;30(2):369–86. doi:10.1080/09669760.2020.1733937.

6. Max, E. The drawbacks of universal pre-k: a review of the evidence. [internet]. 2021. [cited 2023 May 3]. Available from: https://files.eric.ed.gov/fulltext/ED611913.pdf

7. Thomson KC, Jenkins E, Gill R, Richardson CG, Gagné Petteni M, McAuliffe C, et al. Impacts of the COVID-19 pandemic on family mental health in Canada: findings from a multi-round cross-sectional study. Int J Environ Res Public Health. 2021;18(22):12080. doi:10.3390/ijerph182212080.

8. Almeida ILL, Rego JF, Teixeira ACG, Moreira MR. Social isolation and its impact on child and adolescent development: a systematic review. Rev Paul Pediatr. 2021;40:e2020385. doi:10.1590/1984-0462/2022/40/2020385.

9. Araújo LA, Veloso CF, Souza MC, Azevedo JMC, Tarro G. The potential impact of the COVID-19 pandemic on child growth and development: a systematic review. J Pediatr. 2021;97(4):369–77. doi:10.1016/j.jped.2020.08.008.

10. Rothstein JD, Buckland AJ, Gagnier K, Ochoa M, Allen-Valley A, Jivapong B, et al. Assessing the play and learning environments of children under two years in peri-urban Lima, Peru: a formative research study. BMC Public Health. 2021;21(1):108. doi:10.1186/s12889-020-10119-3.

11. National Statistical Office of Thailand. Thailand multiple indicator cluster survey 2022 [internet]. 2023 [cited 2023 Aug 12]. Available from: https://www.unicef.org/thailand/reports/thailand-multiple-indicator-cluster-survey-2022 (in Thai)

12. Roos LE, Salisbury M, Penner-Goeke L, Cameron EE, Protudjer JLP, Giuliano R, et al. Supporting families to protect child health: parenting quality and household needs during the COVID-19 pandemic. PLoS One. 2021;16(5):e0251720. doi:10.1371/journal.pone.0251720.

13. Russell BS, Hutchison M, Tambling R, Tomkunas AJ, Horton AL. Initial challenges of caregiving during COVID-19: Caregiver burden, mental health, and the parent-child relationship. Child Psychiatry Hum Dev. 2020;51(5):671–82. doi:10.1007/s10578-020-01037-x.

14. Cusinato M, Iannattone S, Spoto A, Poli M, Moretti C, Gatta M, et al. Stress, resilience, and well-being in Italian children and their parents during the COVID-19 pandemic. Int J Environ Res Public Health. 2020;17(22):8297. doi:10.3390/ijerph17228297.

15. Spinelli M, Lionetti F, Setti A, Fasolo M. Parenting stress during the COVID-19 outbreak: socioeconomic and environmental risk factors and implications for children emotion regulation. Fam Proces. 2021;60(2):639–53. doi:10.1111/famp.12601.

16. Westrupp EM, Bennett C, Berkowitz T, Youssef GJ, Toumbourou JW, Tucker R, et al. Child, parent, and family mental health and functioning in Australia during COVID-19: comparison to pre-pandemic data. Eur Child Adolesc Psychiatry. 2023;32(2):317–30. doi:10.1007/s00787-021-01861-z.

17. Xue A, Oros V, Marca-Ghaemmaghami PL, Scholkmann F, Righini-Grunder F, Natalucci G, et al. New parents experienced lower parenting self-efficacy during the COVID-19 pandemic lockdown. Children (Basel). 2021;8(2):79. doi:10.3390/children8020079.

18. Zhang L, Cao H, Lin C, Ye P. Family socio-economic status and Chinese preschoolers' anxious symptoms during the COVID-19 pandemic: the roles of parental investment, parenting style, home quarantine length, and regional pandemic risk. Early Child Res. 2022;60:137–49. doi:10.1016/j.ecresq.2022.01.007.

19. Green L, Kreuter M. An educational and environment approach in health promotion planning. 2nd ed. Toronto: Mayfield Publishing; 1991.

20. Cohen J. Statistical power analysis for the behavioral sciences. 2nd ed. Hillsdale, NJ: Lawrence Erlbaum Associates; 1988.

21. Sitipa K, Baosoung C, Sansiriphun N. Anxiety, social support, and postpartum functional status among first-time mothers. Nursing J. 2017;44(3):31-40. (in Thai)

22. Fosco GM, Sloan CJ, Fang S, Feinberg ME. Family vulnerability and disruption during the COVID-19 pandemic: prospective pathways to child maladjustment. J Child Psychol Psychiatry. 2022;63(1):47–57. doi:10.1111/jcpp.13458.

23. Witoonsakul P, Chaisuwan C, Rungamornrat S. Factors Influencing Behaviors in Preventing COVID-19 of Teachers and Caregivers in Child Care Centers. Nurs Sci J Thail. 2021;39(4):41-54. (in Thai)

24. Thisara P, Chotibang J, Fongkaew W, Jintrawet U. Perceptions and experiences of mothers on parenting to promote executive functions in preschool children. Pac Rim Int J Nurs Res. 2021;26(1):105-20.

25. Karki U, Dhonju G, Raj Kunwar A. Parenting during the COVID-19 pandemic. JNMA J Nepal Med Assoc. 2020;58(231):957–9. doi:10.31729/jnma.5319.

26. Park SI, Cho IY. Factors affecting parent health-promotion behavior in early childhood according to family cohesion: focusing on the COVID-19 pandemic. J Pediatr Nurs. 2022;62:121–8. doi:10.1016/j.pedn.2021.08.022.

27. Ren J, Li X, Chen S, Chen S, Nie Y. The influence of factors such as parenting stress and social support on the state anxiety in parents of special needs children during the COVID-19 epidemic. Front Psychol. 2020;11:3413. doi:10.3389/fpsyg.2020.565393.

28. Achterberg M, Dobbelaar S, Boer OD, Crone EA. Perceived stress as mediator for longitudinal effects of the COVID-19 lockdown on wellbeing of parents and children. Sci Rep. 2021;11(1):2971. doi:10.1038/s41598-021-81720-8.

29. Paykani T, Zimet GD, Esmaeili R, Khajedaluee AR, Khajedaluee M. Perceived social support and compliance with stay-at-home orders during the COVID-19 outbreak: evidence from Iran. BMC Public Health. 2020;20(1):1650. doi:10.1186/s12889-020-09759-2.

30. Taubman-Ben-Ari O, Ben-Yaakov O. Distress and apprehension among new parents during the COVID-19 pandemic: the contribution of personal resources. Am J Orthopsychiatry. 2020;90(6):810–6. doi:10.1037/ort0000497.

31. Wang Y, Zhang X. Influence of parental psychological flexibility on pediatric COVID-19 vaccine hesitancy: mediating role of self-efficacy and coping style. Front Psychol. 2021;12:783401. doi:10.3389/fpsyg.2021.783401.

32. Bandura A. Self-efficacy: the exercise of control. New York: W.H. Freeman; 1997.

33. Morelli M, Cattelino E, Baiocco R, Trumello C, Babore A, Candelori C, et al. Parents and children during the COVID-19 lockdown: the influence of parenting distress and parenting self-efficacy on children's emotional well-being. Front Psychol. 2020;11:584645. doi:10.3389/fpsyg.2020.584645.

34. Pongnimitporn S, Kaewkajorn S, Somboon L, Thaiyapirom N. Parental knowledge and perceived self-efficacy in teaching sex education to young children. Nursing J. 2017;44(2):28-37. (in Thai)

35. Garcia AS, Carotta CL, Brown R, Da Rosa P, Pravecek B, Carson P. Parenting stress, self-efficacy and COVID-19 health risks as predictors of general stress among nurses. Int J Nurs Pract. 2021;27(6):e13009. doi:10.1111/ijn.13009.