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ORIGINAL RESEARCH

Feasibility and Acceptability of an ABCD Program for Child Development Among Skipped Families in Rural Thailand: A Pilot Study

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Introduction: The study aimed to develop and examine the aesthetic, bedtime story, connecting with nature, and drawing (ABCD), community based, program for grandparents to help them promote their grandchildren's development.

Methods: The action research was conducted in two phases. In the first phase, semi-structured interviews and focus group discussions were utilized to gather information from healthcare providers, teachers, and community leaders to develop the ABCD program. This was followed by a critical evaluation of the program's activities, materials, and contents. The second phase was to examine the program's effectiveness. A one-group pretest-posttest design was used to study the effectiveness of the program among 20 dyads of grandparents and grandchildren.

Results: All grandparents attended and completed the program. The grandparents' knowledge increased significantly ($p = 0.024$), and satisfaction with the program was high (X = 9, SD = 0.93) while children's development was not statistically different ($p = 0.317$).

Conclusion: The ABCD program was found to be feasible and acceptable to grandparents of skipped families to promote their grandchildren's development. The importance of healthcare providers, teachers, and community leaders in providing ABCD programs must also be recognized.

Keywords: child development, health equity, rural health

Introduction

The phenomenon of skipped generations, in which grandparents assume the role of primary caregivers for their grandchildren, is becoming increasingly prevalent worldwide.[1] This trend is particularly common in rural areas where middle-aged family members relocate for various reasons, leaving grandparents to take on child-rearing responsibilities.[2,3] In Europe, a study conducted across 10 countries found that the majority of grandparents (58% of grandmothers and 49% of grandfathers) had looked after at least one of their grandchildren under the age of 16 in the preceding year.[4] In the United States, one in four children under the age of five has been cared for by their grandparents. This is a significant statistic, especially considering that one-fifth of these children live below the poverty line.[5] In Thailand, the number of grandparents raising grandchildren is disproportionately higher, with more than 400,000 skipped-generation families accounting for two percent of all families in the country; the majority of these families (76%) reside in rural areas, and 43.5% of these older persons work to provide for their grandchildren's needs.[6] Chiang Rai Province showcases a unique socio-cultural environment defined by a diverse population, poverty, and rural communities. Numerous families in the province grapple with economic challenges, compelling parents to explore work opportunities beyond their immediate communities and leaving the children in the care of grandparents.[7]

Raising young children is a significant and lifelong commitment that many grandparents may not be fully prepared for, which can result in inadequate care and difficulties managing the demands of raising a child.[8] Taking on the role of

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the parent a second time can be especially challenging for grandparents who have to manage their own physical and emotional well-being while also being responsible for caring for their grandchildren. Studies have shown that the experience of caring for their children while handling one's own health problems can significantly impact both the well-being of the grandparents and the grandchildren.[5,6,8] Changes in family routines and increased stress levels can have negative emotional and physical health outcomes for grandparents.[4,9] Moreover, some grandparents may feel a sense of servitude toward their children and grandchildren, which can further exacerbate the burden of raising their grandchildren and negatively impact the grandparents' physical and emotional health.[6] The burden of raising grandchildren increases when the children have physical or behavioral problems. Such situations can lead to additional stress and can pose significant challenges for grandparents who may not be equipped to handle these specific needs.[10–12]

As the trend of skipped generations continues to grow, it is important to consider the impact that it has on both the grandparents and the children being raised. Numerous studies have highlighted various factors that contribute to the negative emotional experiences of grandparents raising their grandchildren.[4,13,14] Previous studies have also indicated that grandparents who are older, less educated, and more likely to have low incomes may face particular obstacles that prevent them from bringing their children to early childhood education programs that can aid the child's development.[15] While grandparents may provide love and support, the responsibility of raising grandchildren can be physically and emotionally challenging, particularly for those who are also working to support the family financially and with family tasks, making it difficult to also promote child development.[8,16] As a result, grandchildren in skipped-generation families are more likely to experience delayed development, behavioral problems, and lower school engagement than children raised by their parents.[8,17]

Providing adequate support and resources to these grandparents can ensure the best outcomes for both generations.[18] Several studies have reported that a child's development in various areas, from fine and gross motor skills to emotions and communication, can improve through play and fun activities, such as dancing, singing, telling bedtime stories, connection with nature, and drawing. Grandparents who are solely responsible for their grandchildren may require support in the form of educational and developmental programs for their grandchildren, as well as emotional and financial support.[19] Therefore, providing such programs through community resources can be crucial for grandparents who are raising their grandchildren, especially in low-resource communities.[20,21]

This study aimed to create a unique program to promote child development, called ABCD program that included four essential elements: A for aesthetic (dancing and singing),[22] B for a bedtime story,[23] C for connecting with nature (outdoor activities)[24], and D for drawing.[25] This program was developed by key leaders in the community, such as teachers from child development centers (CDC), healthcare providers who work at a sub-district health promoting hospital (SDHPH), and village health volunteers (VHVs), who are valuable resources in low-resource communities.[26] The primary objective of this study was to assess the feasibility and acceptability of the ABCD program. The secondary aim was to investigate the program's impact on child development, grandparents' knowledge, and their satisfaction with the program.

Methods

Study Design

The present study, which is action research, uses the Kemmis and McTaggart model[27] to systematically plan, implement, and evaluate the ABCD program. This type of research design is commonly used in the field of program evaluation to determine the effectiveness, feasibility, and acceptability of an intervention or program. The program aimed to provide support for grandparents who are raising their grandchildren in rural areas of one province, Thailand. The intervention and data collection were conducted between February 2021 and January 2022. This study comprised two phases.

Phase I: Development

In this phase, the Principal Investigator (PI) thoroughly examined the pertinent literature and conducted Focus Group Discussions (FGDs) involving key informants and the research team. The primary focus of these discussions was to glean insights from participants in formulating a program specifically designed to enhance the development of children under the age of 5 who reside in skipped-generation families, primarily cared for by their grandparents. Employing a semi-structured interview approach, the PI aimed to gather comprehensive data by posing inquiries such as: "What strategies or experiences

have proven effective in nurturing the development of your grandchildren?" "As a primary caregiver, what challenges have you encountered in supporting your grandchildren's development, and how did you address them?" and "From your perspective, how does community support contribute to the overall development and well-being of your grandchildren, and in what ways have you been involved in or contributed to such support?" The outcomes of this phase assisted stakeholders and researchers in understanding the circumstances of skipped generations and the development of children. It was also important to note the identified training needs of low-literacy grandparents, as well as the lack of support services and interventions.

This first phase emphasized not only enhancing grandparents' developmental and skills but also assisting with socio-economic and healthcare accessibility issues that may affect their ability to care for their grandchildren. The number of program activities, content, and material were well designed for cultural and contextual relevance. The first draft of the program was presented to and reviewed by the teachers and nurse practitioners to provide the researchers with additional feedback and to ensure scientific accuracy. The ABCD program was initially planned through community collaboration and in participation with healthcare professionals, grandparents, CDC teachers, VHVs, and the community leaders to make sure that the program would be feasible, acceptable, sustainable, and effective. After being reviewed, the ABCD program was revised and divided into four sessions (Table 1).

Phase II: Piloting

Sampling

Participants in the program were identified by the researchers in consultation with teachers in the CDC. The inclusion criteria for grandparents in this study were that they 1) provided the primary care for their grandchildren in a skipped

Table 1 The ABCD Program Activities

Session	Activities	Methods and Materials	Multidisciplinary
Session 1 Day 1	Introduction to general developmental knowledge - Training sessions covering four modules including 1) A: aesthetic - Providing information and guidance related to singing and dancing on child development - Use of modified folk songs and dancing 2) Bedtime story - Emphasized the importance of telling stories before bedtime and discussion on benefit of telling the child stories.	- FGDs - Handout - ABCD package - Skill demonstration	- CDC teachers - Nurse practitioner - VHVs
Session 2 Day 2	3) C: connecting with nature - Explanation of the significance of providing the child opportunity to play in natural settings such as in parks, in their homes, on the school playground. 4) D: drawing - Introducing the significance of drawing in school aged children	- FGDs - Handout - ABCD package - Skill demonstrations	- CDC teachers - Nurse practitioner - VHVs
Session 3 week 1–3	**VHVs 1st –3rd week home visit** - Review of the previous session and summary ABCD program activities on child development and progress - Individual discussion of ABCD program activities - Encouraging the grandparents with about how to maintain ABCD activities and guidance	- Questionnaires - ABCD package	- Nurse practitioner - VHVs
Session 4	**VHVs 4th week home visit** - Review of the previous session and summary ABCD program activities on child development and progress - Individual discussion of ABCD program activities - Post program assessment	- Questionnaires - ABCD package - CDQ - Program satisfaction - FGDs - Supportive resources	-Nurse practitioner - VHVs
3 months	**Re-assessment** - DSPM	- Questionnaires	- CDC teachers

family, 2) were currently providing care for at least one year or more care for their grandchildren aged between one and five years, 3) were fluent in the Thai language, and 4) were participating in the study on a voluntary basis. Grandparents who were intellectually disabled, had disabilities, such as hearing impairments, or received psychological counseling were excluded. Inclusion criteria for children included that 1) the child was aged from one to five years old and was being raised by their grandparents and 2) the child live with their grandparents at the time of data collection (Figure 1). Eligible and interested participants were recruited during school meetings, and the primary investigator (PI) (SK) provided information related to the study objectives, activities, program schedule, benefits, and potential risks.

Measurements

The Developmental Surveillance and Promotion Manual (DSPM), developed by the National Institute of Child Development of the Ministry of Public Health (MoPH), is an early detection tool for screening children from birth to age six for developmental delays. The instrument is designed to assess five different skills: gross motor (GM), fine motor (FM), receptive language (RL), expressive language (EL), and personal and social (PS). The DSPM has a sensitivity value of 96.04, signifying that the tool accurately identifies 96.04% of children with developmental delays. The specificity value is 64.67, signifying that the tool accurately identifies 64.67% of children without developmental delays. These values suggest that the DSPM is a reliable and effective screening tool for children with developmental delays.

The Child Development Questionnaire (CDQ) was developed to assess children's developmental knowledge. The CDQ consists of 20 items covering knowledge related to general development in early childhood, the evaluation of child development, and the promotion of child development in four domains. Using true-false questions, the CDQ was used to

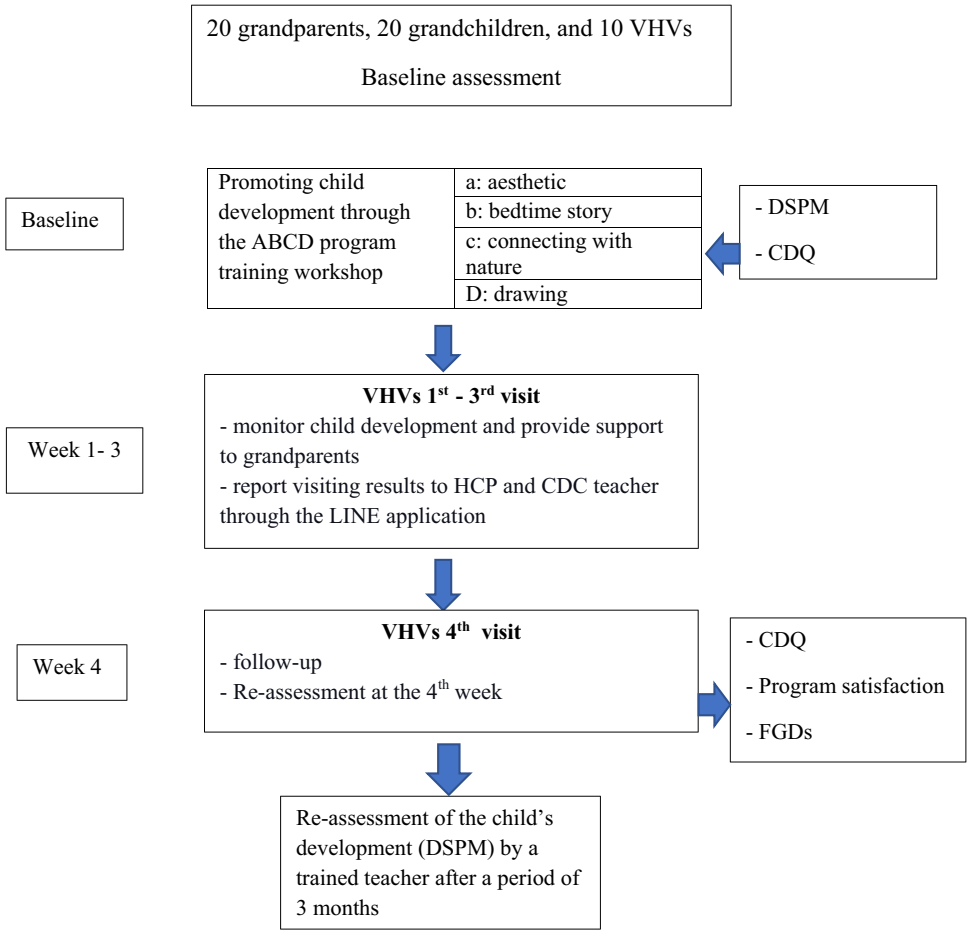

Figure 1 Flow chart of the ABCD program activities.

assess the level of knowledge of grandparent(s), with higher scores indicating a higher level of knowledge. The CDQ was validated by two experts in pediatric nursing and Cronbach's alpha was 0.86.

Program Feasibility and Acceptability

Acceptability was evaluated by conducting semi-structured interviews at the end of the structured intervention and during the subsequent follow-up session. Grandparents shared their comprehensive experiences with the program, offering valuable perspectives on the program's acceptability. The assessment utilized a questionnaire containing statements such as, "I agree to participate in a further ABCD program if it is offered."

Program Satisfaction

Satisfaction was developed by the research team to assess the acceptability of the ABCD program using responses to a single question with a limited number of response options, such as "10 = very happy", "5 = fairly happy", and "0 = not happy."

Data Analysis

The analysis of qualitative data obtained from interviews and FGDs employed a content analysis method, enabling a systematic examination of the qualitative material. This method facilitated the identification of recurring concepts, trends, and underlying meanings within the data. Through meticulous coding and organization of the information into distinct categories, researchers could distill key insights, drawing attention to significant aspects that contribute to a deeper understanding of the subject matter. The objective of this analytical approach was to uncover nuanced patterns and themes within the data, which might not be immediately evident through casual observation or a straightforward perusal of transcripts.[28]

The quantitative data, such as the rate of recruitment and retention to determine the feasibility of the program, were evaluated using descriptive statistics (IBM SPSS version 26), the change in the child's development from pretest to posttest conditions, and a comparison of the differences between the pre and posttest.

Results

Participants' Characteristics

All the participants (20 grandparents) completed the training program and submitted the questionnaires. The grandparents ranged in age from 44 to 62 years. The baseline characteristics of the participants are presented in Table 2.

Table 2 Participants' Demographics Data

Characteristics	Grandparents (n = 20)		Grandchildren (n = 20)	
Gender				
Men	3 (15%)		11 (55%)	
Women	17 (85%)		9 (45%)	
Age	Grandparents (years)		Grandchildren (months)	
	40–45	2 (10.0%)	30–35	3 (15.0%)
	46–50	6 (30.0%)	36–40	5 (25.0%)
	51–55	6 (30.0%)	41–45	2 (10.0%)
	56–60	5 (25.0%)	46–50	3 (15.0%)
	61–65	1 (5.0%)	51–55	3 (15.0%)
			56–60	4 (20.0%)

(*Continued*)

Table 2 (Continued).

Characteristics	Grandparents (n = 20)	Grandchildren (n = 20)
	(Mean 52; SD 5.18)	(Mean 45; S.D 9.16)
Religion		
Buddhist	12 (60.0%)	12 (60.0%)
Christianity	8 (40.0%)	8 (40.0%)
Education level		
Uneducated	8 (40.0%)	
Elementary school	11 (55.0%)	
Junior high school	1 (5.0%)	
Occupation		
Employee	7 (35.0%)	
Agriculturist	3 (15.0%)	
Housewife	10 (50.0%)	
Income (Bath)		
< 5000	16 (80.0%)	
5000–10,000	2 (10.0%)	
10,000–15,000	2 (10.0%)	

The ABCD Program Effective

Table 3 shows the changes throughout the 12 weeks of the program. There were no statistically significant differences in the development of children ($p = 0.317$) while the grandparents' knowledge increased significantly ($p = 0.024$) (Table 3).

Table 3 Comparison of Child Development and Grandparents' Knowledge at Week 0 and Week 12 (N = 20)

	Pretest n = 20	Posttest n = 20	Z	p-value
Gross Motor (GM)			0.000b	1.000
Normal	20 (100.0%)	20 (100.0%)		
Suspected Delay	0 (0.0%)	(0.0%)		
Fine Motor (FM)			−1.732c	0.83
Normal	17 (85.0%)	20 (100.0%)		
Suspected Delay	3 (15.0%)	(0.0%)		
Receptive Language (RL)			0.000b	1.000
Normal	20 (100.0%)	20 (100.0%)		
Suspected Delay	0 (0.0%)	0 (0.0%)		
Expressive Language (EL)			0.000b	1.000
Normal	18 (90.0%)	18 (90.0%)		
Suspected Delay	2 (10.0%)	2 (10.0%)		
Personal and Social (PS)				
Normal	17 (85.0%)	20 (100.0%)	−1.732c	0.83
Suspected Delay	3 (15.0%)	0 (0.0%)		
Total				
Normal	17 (85.0%)	18 (90.0%)	−1.000b	0.317
Suspected Delay	3 (15.0%)	2 (10.0%)		
Grandparents' knowledge score regarding the child development (n=20)	Mean 10.45 (S.D. 2.72)	Mean 11.95 (S.D. 1.85)	−2.445	0.024*

Note: *P<0.05.

Table 4 Satisfaction with the ABCD program of Grandparents

	Mean	S.D.	Range
Satisfaction rating scale 1–10	9	0.93	7–9

Feasibility and Acceptability of the ABCD Program

All 20 grandparents participated in all four program sessions and adhered to the program and its components. The participants' responses during the FGDs about the intervention were generally positive. The grandparents were very pleased with the ABCD program and indicated appreciation for the intervention and satisfaction with the program was high (X = 9, SD = 0.93) (Table 4). At the 12-week post-intervention assessment, acceptability was measured, revealing agreement among all grandparents. They acknowledged that the program had been instrumental in enhancing their knowledge and skills to support their grandchildren. Furthermore, they expressed a willingness to participate in a similar program in the future.

Suggestions by the grandparents included increasing the amount of time spent on home visits, using folk stories, and expanding the material to promote the child's development as the following comments demonstrate:

> Thank you for helping us care for the child, and these materials that I never used before can enhance the child's development.

> I discovered that the program is easily accessible and user-friendly. If similar programs become available in the future, I am more than willing to participate.

> It was so nice to have people help me take care of my grandchild. Getting older makes it hard for me to understand the new parenting concepts.

> It was good to sing the songs with my grandchild. It seemed embarrassing to sing and dance at my age … but it was good to do it once again.

> Promoting child's development during lockdown can be a challenging and having the support of VHVs can make it easier to provide the best possible care.

However, negative feedback on the intervention included remarks that the intervention did not address the participants' financial needs and that the participants perceived their limitations while following the program activities, as the following comments indicate:

> It is difficult for me to read a book that I had never read before … and my reading ability is too weak.

> The program is good, but I thought it needed more time … but I have to work in the daytime … and in the evening or bedtime, I preferred to rest well and let the children sleep by themselves.

Acceptability of the ABCD Program

Discussion

The development of better intervention and training strategies provides a necessary basis for knowledge and skills among grandparents who are raising their grandchildren.[9] The ABCD program was formed based on information gained from stakeholders (e.g. grandparents, nurse practitioners, CDC teachers, and VHVs). In FDGs, grandparents in this study admitted to being unfamiliar with modern parenting approaches, impeding their ability to match the support given by their own children. The rapid evolution of technology widens the generation gap, making grandparents less skilled at implementing current approaches. Physical limitations, linked to age-related health issues, hinder active participation in childcare, affecting their hands-on support.[10–13] Educational constraints contribute to a feeling of being out of touch, creating challenges in providing informed guidance. A lack of resources, encompassing financial constraints and limited access to technology and the internet, exacerbates this issue, impeding their ability to stay informed about the latest parenting trends and recommendations.[17,20,29] In this study, the posttest results showed that, overall, the children's development was not statistically

different, which is presumably due to the short duration of the intervention. However, the grandparents' knowledge improved significantly.

In light of these results, it seems likely that these grandparents may be experiencing additional challenges to the ones addressed in this study. Through the ABCD program, the grandparents received support from healthcare providers, VHVs, and community leaders, which is key to increasing their developmental skills and knowledge.[30,31] The findings also demonstrate that low-tech approaches can be effective in promoting child development and learning. This study provided a number of activities that facilitated positive interactions between grandparents and their grandchildren and suited their cultural traditions and contexts.[32] Activities such as singing enhance the child's aesthetic experience and help stimulate child development through movement and fun. The program's activities are tailored to the participants' context to help them cope with the challenges of raising grandchildren in their particular environment.

Storytelling can be an especially effective means of facilitating child development in the context of grandparent caregiving because grandparents may have unique cultural and religious traditions to share with their grandchildren through storytelling. The grandparents in this study reported providing their grandchildren with a folk tale appropriate to the child's literacy level as their bedtime story. The grandparents found that storytelling helped improve the child's creativity, language, and cognitive development. Bedtime stories can also promote moral values and bonding when they are folk stories taught by beloved grandparents.[33] Mindell and Williamson (2018) reported that bedtime stories can contribute to children's moral development by teaching them right and wrong and providing a wisdom-based learning environment.[32] The ABCD program also reinforced a sense of kinship and bonding, suggesting that it may have strengthened family relationships, values, and traditions.[34]

The COVID-19 pandemic has demonstrated the importance of young children having access to and using mobile technology for distance learning. However, the grandparents may request guidance on how to use technology to support their children's development. Without appropriate use or adequate technology literacy on the part of the child's guardians, screen time can negatively impact a child's physical activity and learning ability, delay development, or cause behavioral problems. The findings from this study demonstrated that it is imperative to strike a balance between technology use and non-technology-based activities in promoting children's development.[35,36] Children's participation in outdoor activities and exposure to natural environments can also contribute to their growth and development, as well as their development of environmentally responsible attitudes. Barrable and Booth (2020)[37] observed that "green time" can be an effective way to foster children's growth and development. The use of pen and pencil for drawing, along with activities such as dancing and singing, can enhance the child's development and strengthen the relationship between the child and their grandparent.

Importantly, the ABCD program is accessible and effective for grandparents who live in rural areas or have low socioeconomic status because it is implemented through collaboration with local agencies using community resources.[38] In this study, the teachers and VHVs also played an important role in the ABCD program because they could travel to remote areas and bridge the gap between healthcare sectors, education sectors, and the community. Due to their deep understanding of the participants' circumstances, such as family background, as well as their familiarity with the community and its contextual realities, teachers can contribute to the grandparents' satisfaction with the program.[39–41] However, some teachers may encounter challenges when performing home visits and providing child health recommendations because of the complexity of behavioral recommendations and a lack of age-specific intervention materials. To enhance the delivery of the ABCD program during implementation and scale-up, it is essential to identify procedures to minimize these obstacles.[42]

Limitations

This pilot study has a number of limitations that are important to consider. The small number of participants restricts the generalizability of the results and the statistical power. Second, as we conducted a single-arm study to ascertain the feasibility and acceptability of the ABCD program, this study may not be adequate for determining the relative benefits of the intervention. Lastly, follow-up periods of four and 12 weeks may not be sufficient to detect improvement in child development.

Recommendations

The ABCD program resulted in positive outcomes for grandparents who are caring for their grandchildren and live in rural areas of Thailand. The study's findings have multiple implications for healthcare professionals who deliver care and

support for young children and their grandparents, and establish collaborations between CDC teachers and community leaders. Interdisciplinary home visits involving CDC teachers and VHVs should be provided on a regular basis to improve development skills of the grandparents and maintain the program's sustainability. To determine the long-term impact of the ABCD program, a large-scale trial with an extended follow-up period is needed.

Conclusion

This pilot study indicates that the ABCD program may be an effective method of supporting grandparents who are raising their grandchildren and encountering challenges in finding resources and assistance. In this program, healthcare providers, teachers, and community leaders, such as VHVs and local governors, work collaboratively to support grandparents. The study also shows the potential for the ABCD program to be adapted to meet the needs of a variety of communities and cultures. The program was also able to help grandparents overcome barriers related to literacy and screen time issues.[43] Conducting prolonged studies to assess how the impact of the ABCD program on grandparents and their grandchildren unfolds over an extended period. This approach will provide valuable insights into the program's effectiveness over time. Additionally, evaluating the effectiveness of the ABCD program in diverse socioeconomic contexts to investigate whether it continues to be beneficial for both grandparents and grandchildren, irrespective of whether they reside in low-resource or more affluent communities.

Abbreviations

CDC, Child Development Center; FGDs, Focus Group Discussions; SDHPH, Sub-district health promotion hospital; VHVs, Village health volunteers.

Ethics Approval

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee Mae Fah Luang University (Protocol No: EC 21001-19 COA 038/2021). Informed consent was obtained from all individual participants included in the study. Additional informed consent was also obtained from all individual participants for whom identifying information is included in this article.

Consent for Publication

Additional informed consent was also obtained from all individual participants for whom identifying information is included in this article, and written informed consent for publication of their information was also obtained before they voluntarily participated. Participants were made aware that they could withdraw at any time.

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Author Contributions

All author played a substantial role in the work reported, contributing to the conception, study design, data acquisition, analysis and interpretation. They actively participated in drafting, revising, and critically reviewing the article. All authors provided final approval for the version intended for publication, reached consensus on the selected journal, and committed to being accountable for all aspects of the work.

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Disclosure

The authors have declared that no competing interest exist.

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