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A Pilot Study of a Family Management Program for Parents of Children with Acute Lymphoblastic Leukemia

Wachareekorn Aungkaprasatchai[a], Nujjaree Chaimongkol[b,*], Pornpat Hengudomsub[b], Verna L. Hendricks-Ferguson[c]

[a] *Assistant Professor, Faculty of Nursing, Burapha University, Chon Buri, Thailand*
[b] *Associate Professor, Faculty of Nursing, Burapha University, Chon Buri, Thailand*
[c] *Professor, Trudy Busch Valentine School of Nursing at Saint Louis University, St. Louis, Missouri, USA*

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ABSTRACT

Objectives: The aim of this completed pilot study was to evaluate the feasibility of implementing a family management program (FMP) for parents of children with acute lymphoblastic leukemia (ALL).
Data Sources: A convenience sample of 11 parents of preschool-aged children with ALL were recruited from an ambulatory chemotherapy-care clinic at a tertiary hospital in Thailand. Participants received three FMP sessions over 3 weeks. The FMP is based on two established family programs (ie, FMP-style framework and building on family strengths) and reviewed literature. The following measures were used to evaluate parents' responses at baseline, postintervention, and follow-up: Family Management Measure, Beach-Center Family Quality-of-Life Scale, and Pediatric Quality of Life Inventory. Data were analyzed using one-way repeated-measures analysis of variance.
Conclusion: The study results provide promising evidence that the FMP is feasible and improves family management and quality of life for parents of enrolled children with ALL.
Implications for Nursing Practice: Educating pediatric oncology nurses and other healthcare professionals to replicate the FMP may help to provide better family management, and child quality of life support to future parents and other family members of young children diagnosed with ALL. This support should focus on educating parents about the potential effects of caring for a child with ALL on the family and fostering positive relationships within the family and offering guidance on effective family communications and decision-making processes.

Acute lymphocytic leukemia (ALL) is the most common type of cancer diagnosis in young children, especially in the preschool-age group.[1] Each year, between 1,000 and 1,200 new cases of pediatric cancer are diagnosed in Thailand.[2] Children of all ages can develop cancer, starting as early as birth. More than 50% of all malignancies in children are ALL types of pediatric cancers.[3] According to the Thai pediatric oncology group, the 5-year survivorship rate for ALL is 64.9%.[2]

ALL is a type of cancer of the blood and the bone marrow in which new blood cells are produced; it particularly affects white blood cells.[3] At diagnosis, common signs and symptoms of childhood ALL can include pale skin, fatigue, a high fever and frequent infections, unexplained bruising or bleeding, swollen lymph glands, bone pain, loss of appetite, and irritability.[4] Chemotherapy is the first option for treating children with ALL, which often causes a number of unpleasant adverse effects and can lead to possible complications.[1] Cancer treatments can be overwhelming for both the affected child and their family. Younger pediatric patients (eg, 2 to 5 years) often experience fatigue, nausea, poor dietary intake, and lowered immunity.[4] As a result, affected children with cancer may need ongoing psychosocial support and physical assistance from their parents for daily care needs and while receiving cancer treatments.

Families of children diagnosed with cancer face numerous challenges related to different types of pediatric cancer (eg, ALL, brain tumor, sarcoma, etc.) and treatment regimens. These challenges often include financial strain, disrupted family routine, physical and emotional exhaustion, caregiver burden, and social isolation. Parents may experience difficulties with balancing work commitments; caring for the ill child and siblings; completing routine household tasks.[5,6] The child's cancer illness also often has an impact on other family members and on the affected child's quality of life. Hence, effective family management becomes a critical aspect of the family's care needs and parents play a significant role in managing the physical, emotional, and psychosocial conditions of the ill child. Conducting normal family management tasks can also be very challenging for affected parents of a child diagnosed with cancer.

* Address correspondence to: Nujjaree Chaimongkol, Faculty of Nursing, Burapha University, 169 Longhard Bangsaen Road, Muang District, Chon Buri, 20131 Thailand.
E-mail address: nujjaree@buu.ac.th (N. Chaimongkol).

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Family management refers to the process of managing family matter, establishing and implementing appropriate family routines, and using appropriate communication skills with other family members.[7] Previous study results have shown that parents of children with a chronic illness displayed lower family management skills and reduced quality of life of family members.[8,9]

Family quality of life is concerned with family member's perception of (a) their well-being within the family context; (b) available opportunities to pursue enhanced quality of life; and (c) their ability to achieve desired goals in their the community and/or society.[8] When a child is diagnosed with cancer, it can be a difficult and overwhelming experience for the entire family. Parents often experience emotional shock, rejection, disappointment, depression, and anxiety about their child's diagnosis.[9] Parents often struggle with fears related to the uncertainty of their child's cancer response to treatments, prognosis, and acceptance that their beloved child has been diagnosed with a stressful diagnosis, such as cancer. Additionally, parents may be confronted with adjusting to their child having many unpleasant cancer treatment-triggered outcomes (eg, nausea, fatigue, alopecia, developmental regression behaviors, loss of body functions, etc.).

Existing research evidence suggests that improving family management efficiency can positively affect families' coping and perceived quality of life during a child's cancer trajectory.[6,10-12] Education on improving family management efficiency should include parents learning effective coping skills, such as communication techniques and stress-management strategies, which can help parents better manage emotions associated with their child's cancer situation.[10,12] Learned coping skills may also include being receptive to obtaining emotional support from other parents who have gone through similar experiences so that they would not feel alone in dealing with this difficult time period in their lives together as a familyunit.

ALL also affects the quality of life of affected children. Child quality of life can be influenced by a child's perception and response to their own condition and by their parents' perception of the impact of cancer treatments on the affected child. Perceived quality of life can also be influenced by the experience individuals may have in their own lives and the living conditions in which individuals find themselves.[13,14] After receiving a cancer diagnosis and cancer treatments, a child's quality of life should be evaluated to determine the presence of any changes in the child's displayed physical functions, role restrictions, emotions, and responses to cancer treatments.[15] Currently, there is a gap in the literature describing the evaluation of family management interventions for parents of children with ALL in Thailand. However, there are a few published intervention studies focused on improving and assisting families experiencing crisis situations.[10,11,16,17]

The investigators in two studies focused on the evaluation of family management strategies and family and child quality of life responses among families coping with a serious childhood illness.[10,11] The results of a study by Mai and Chaimongkol[11] showed that a family management intervention improved family quality of life and decreased caregiving burden in families with autistic children. In a second study, the results provided evidence that 2 weeks after receiving a family management intervention, the families of preschool-aged children diagnosed with ALL and receiving chemotherapy displayed higher family quality of life than families in the control group.[10] However, in both of these intervention studies, investigators reported potential subject burden limitations (ie, variations in intervention duration) that should be considered when developing a behavior- or education-focused family intervention. Investigators in both studies included an intervention delivery time period of 60 minutes per session. In the first study, the investigators found that 60 minutes equipped the participants to have full concentration. However, it caused subject burden and was viewed as boring.[11] In the second study, investigators reported their 2-week follow-up protocol plan was viewed as an insufficient time period to effectively examine any long-term changes in the participants' responses on the study measures.[10]

The family management program (FMP) was developed and guided by the Family Management Style Framework (FMSF),[18] the Building on Family Strengths program,[19] and a literature review. The FMSF focuses on potential family challenges during the care of children with chronic illnesses and emphasizes (a) the importance of promoting family management of chronic diseases (ie, enhancing knowledge, skills, offering support to help family adherence to their child's treatment regimen, and managing condition-related problems) and (b) practical family strategies (eg, understanding unique family situations and behaviors to help equip members to better cope when faced with difficult situations). By focusing on developing individual skills and understanding familial dynamics, the FMSF can help equip family members to work through tough times together rather than feeling isolated or overwhelmed by them.

The Building on Family Strengths program[19] is an evidence-based intervention designed to help families of children aged 2 to 11 years with a variety of chronic conditions. This program includes seven weekly, 2-hour sessions that is to be co-facilitated by a professional and a parent of a child who has a chronic health condition. Each co-facilitator should receive approximately 10 hours of focused curriculum implementation training. In summary, this program should include seven delivered sessions (ie, one session per week and occurs over 7 weeks). Sessions include time to recognize and celebrate the special support that parents can provide to one another within the curriculum framework. In addition to supporting parents in personally deciding how they may involve their children in developmentally appropriate shared management chores according to the child's age or developmental skills, class sessions allow parents to practice positive and practical coping strategies. In order to encourage participants to immediately put new abilities into practice, the main program focuses on parents' newly learned skills and personalized action plans.

For the current described study, an FMP was developed and designed for parents of preschool-aged children with ALL. The FMSF is a theoretical framework that focuses on how families adapt and manage challenges, particularly in the context of chronic illnesses. This approach considers the family's ability to cope with problems, adapt to changes, and effectively manage the care and needs of a child with a chronic condition.[18] The developed FMP is guided by the principles of the FMSF, focusing on enhancing the family's capacity to address challenges, adapt to circumstances, and effectively manage the care of children with ALL.

A goal of the FMP for this study was to help improve family management and family and child quality of life. The duration of FMP sessions and total number of parent sessions were planned to reduce the risk of subject burden concerns for enrolled parents. The modified parent FMP sessions were scheduled to occur during anticipated time periods when family stressors may occur and could be improved. Additionally, the FMP for this study was developed so that healthcare teams may be able to adopt it into meetings with parents with little difficulty.

The aims of this pilot test included evaluation of the (a) feasibility of delivering our FMP to parents of diagnosed young children (aged 2-5 years) with ALL in Thailand and (b) impact of the FMP on selected parent outcomes. The primary outcome evaluated was family management, and the secondary outcomes evaluated included family quality of life and child quality of life. Each outcome was measured at the following time points: (a) preintervention (T1, week 1); (b) postintervention (T2, week 3); and (c) follow-up (T3, week 7). We hypothesized that after completion of the FMP, participants would have better outcomes after receiving FMP.

Method

Study Design

A single-group repeated-measure (ie, pretest, posttest, and follow-up) design was used.

Participants and Setting

The study was conducted at a tertiary hospital, situated in the eastern region of Thailand, in their ambulatory chemotherapy care clinic. Outpatient chemotherapy treatments and related cancer care are routinely provided to pediatric patients with cancer in this ambulatory clinic. Outpatient cancer treatments in this clinic allow patients and family members to return home afterward instead of being admitted to the hospital. This clinic has several playrooms, educational facilities, and common areas to provide caregivers with a child-friendly environment. This clinic provides routine care for the patients, including suggestions for self-care while receiving chemotherapy, but no formal program for family engagement.

Participants were Thai parents of children diagnosed with ALL and currently receiving chemotherapy at the ambulatory chemotherapy clinic in the hospital setting. Eligible participants were recruited using a convenience sampling from this clinic. The inclusion criteria for eligible Thai parents included (a) being the mother or father of a child aged between 2 and 5 years that was diagnosed with ALL; (b) being the primary parent providing care for their child during cancer treatment; (c) being able to access and use a cell phone with internet coverage; (d) having a relative or someone to be with the child during taking part in the implementation sessions; (e) being able to attend all sessions of the study FMP; and (f) being able to speak and read the Thai language. The child's inclusion criteria included (a) being aged between 2 and 5 years; (b) being diagnosed with ALL and currently receiving related chemotherapy in the outpatient clinic; and (f) having a good prognosis recorded in the child's medical records.

Exclusion criteria included children who were currently receiving (a) palliative or hospice care and (b) care in the bone marrow transplant unit. Additionally, enrolled parents were planned to be withdrawn from the study if their child would have died unexpectedly prior to scheduling any of the FMP sessions. However, this did not occur.

Ethical Considerations

Prior to the enrollment of eligible participants, the study protocol was approved by the Ethics Committee (Burapha University Research Ethics Committee) (IRB3-112/2565) and (Chanthaburi Research Ethics Committee / Region 6) at Certificate of Approve (COA) No. 082/65. The principal investigator (PI) informed eligible parents about the study goals and evaluation plan (parent completion of study surveys), expected parent time and involvement in the study protocol, study timeline, and potential risks and benefits of participation. All data were kept confidential and accessed only by the principal investigator. Eligible parents were informed of their right to decline participation and to withdraw from the study at any time without any penalty and/or any effect on their child's cancer care. After parents verbalized understanding of the study protocol, reviewed the consent information, and agreed to participate, eligible parents were invited to sign the institutional review board (IRB) form—approved consent forms. The average review time of the study protocol and consent procedures with each eligible parent involved 10 to 15 minutes.

Measures

Measurements used to obtain the data in this study included an investigator-designed demographic questionnaire, the Family Management Measure (FaMM), the Beach Center Family Quality of Life Scale (BCFQOLS), and the Pediatric Quality of Life Inventory (PedsQL). Enrolled parents were invited to complete the FaMM, the BCFQOLS, and the PedsOL at three measurement time points: (a) pretest (T1, week 1), (b) posttest (T2, week 3), and (c) follow-up (T3, week 7).

Enrolled parents were asked to complete an investigator list of standard demographic questions that addressed parent and child characteristics. Parents completed this list of questions at baseline before receiving the FMP intervention. Parent demographic information included age, gender, education, occupation, and marital status. Demographic questions about the children included age, gender, type of cancer, date of diagnosis, and duration of cancer treatments.

The FaMM was developed by Knafl et al.[20] The FaMM was used to measure how parents managed the care of a child with a chronic condition/illness and the extent to which the parents' perceptions of how they incorporate a family member's chronic condition into everyday family life. The 53-item scale has six dimensions: (a) child's daily life (n = 5 items); (b) condition management ability (n = 12 items); (c) condition management effort (n = 4 items); (d) family life difficulty (n = 14 items); (e) view of condition impact (n = 10 items); and (f) parental mutuality (n = 8 items). The FaMM items are formatted with a 5-point Likert scale (1 = "Strongly disagree" to 5 = "Strongly agree"). The total possible FaMM response scores can range from 53 to 265. Higher scores indicate higher family management. The PI received permission from the tool's owner to utilize the questionnaire in both English and the existing Thai language. The FaMM has evidence of established internal consistency and reliability, evidenced by a Cronbach α range from 0.71 to 0.94.[20] In our sample, the Cronbach α reliability of the Thai version of the FaMM was 0.71.

The BCFQOLS was developed by Hoffman et al.[21] The BCFQOLS was used to measure parents' perceptions of their satisfaction with different aspects of family quality of life as perceived by the parent caregivers of children with ALL. The 25-item scale includes five dimensions: (a) family interaction (n = 6 items); (b) parenting (n = 6 items); (c) emotional well-being (n = 4 items); (d) physical and material well-being (n = 5 items); and (e) disability-related support (n = 4 items). The BCFQOLS items are formatted with a 5-point Likert scale from 5 = very satisfied, 4 = satisfied, 3 = neither, 2 = dissatisfied, and 1 = very dissatisfied. The total possible score range is from 25 to 125. Higher scores indicate higher family quality of life. The PI also received permission from the tool's owner to use the questionnaire in English language and translate into Thai language using back-translation method.[22] The BCFQOLS has an established high internal consistency and reliability, evidenced by a Cronbach α was 0.94.[21] In our sample, the Cronbach α reliability of the Thai version of the BCFQOLS was 0.98.

The PedsQL, developed by Varni[23], is a specific module for assessing perceived cancer-related symptoms experienced by the child currently or during the past 7 days. There are six versions of the PedsQL available for cancer patients of all ages, including adults, young adults, teens, children, young children, and toddlers. For this study, the toddler version was used. The existing versions include an acute and standard version for toddlers (2 to 4 years of age). The toddlers' assessment of their well-being is reported by the parents. This version has 25 items and includes the following eight dimensions: (a) pain and hurt (n = 2 items); (b) nausea (n = 5 items); (c) procedural anxiety (n = 3 items); (d) treatment anxiety (n = 3 items); (e) worry (n = 3 items); (f) cognitive issues (n = 3 items); perceived physical appearance (n = 3 items); and (g) communication (n = 3 items). The PedsOL items are formatted using a 5-point Likert scale from 0 (never) to 4 (almost always). The total possible scores can range from 0 to 100. The higher scores indicate a child's better quality of life. The PI obtained permission from the tool's owner to utilize the questionnaire in both English and the existing Thai language. The PedsQL has established internal consistency and reliability, evidenced by a Cronbach α ranging from 0.70 to 0.89.23. In our sample, the Cronbach α reliability was 0.90.

The Intervention

The FMP developed by the principal investigator was guided by the FMSF,[18] the Building on Family Strengths program,[19] and related literature. The program focused on the promotion of parents' ability to manage and take care of preschool-aged children with ALL and their families in three sessions over 3 weeks. Each session included a video presentation that the participants were able to access via their mobile phone and computer through QR code provided by the PI. Then, the participants completed the study measures at both the pretest (week 1) and posttest (week 3). One QR code applied for each session. A total of 11 enrolled parents participated in three weekly sessions that involved up to 40 to 50 minutes per session. The program was implemented to create action plans for the parents in groups, consisting of a brief presentation, discussion with participants, completed worksheets, and a reflection. A group of two or three participants stayed together for all three sessions. In the following sessions, the PI provided information and supported the parents in developing family action plans that included discussing how to practice skills learned, develop a family action plan, and develop problem-solving strategies until family management guidelines are appropriate for each parent.

Each session included a video presentation that the participants were able to access via their mobile phone and computer through QR code provided by the PI. One QR code applied for each session. Session 1 contained information about ALL in children regarding the disease and its impact on families and the children. Session 2 included family management guidelines for parents caring for a child diagnosed with ALL. Session 3 contained emotional factors and guidelines for parents' home-care management of a child with ALL, including enhanced family management and guidelines for each family. These related to knowledge, its impact on the child and family, family relationships, and communication of families having children with ALL. A summary of the FMP session is presented in Table 1.

Data Collection Procedures

After receiving all IRB approvals, the PI met with the head nurses of the pediatric oncology ward at the hospital, explained the research objectives and the data collection procedures, and asked permission to use a private room at the clinic for implementation sessions. The children were then cared for by another relative (eg, grandmother, grandfather, uncle, aunt) while the consenting parents joined the FMP sessions. The FMP sessions were delivered to small groups (ie, two or three parents per group). Once a week for 3 weeks consecutively, enrolled parents participated in activities involving watching videos and completing worksheets. After that, there is a plan of action to return and write a brief at home every day (see Table 1). The PI

TABLE 1
Sessions of the Family Management Program

Week/Session	Objective	Concept used	Activities
Week 1 Session 1: Impact of ALL on the children and families Time: 40-50 minutes	1. Introduce the FMP concepts of knowledge about the impact of living with ALL children 2. Enhance the knowledge process of parents on the impact of ALL on the child. 3. Explore the emotions and feelings of the parent having children with ALL.	Family perception of illness and treatment	• Welcome participants to the FMP program • Explain objectives of the session • Ask participants to complete the pretest questionnaires (Time 1: FaMM, BCFQOLS, and PedsOL) • Describe and explain knowledge about ALL and its impact on the children and family using 2 VDO clips • Group discussion: ask participants talk about feelings and their experiences of caring for the child with ALL, especially during undergoing chemotherapy • Describe and demonstrate on how to manage emotions and feelings • Ask participants reflect own experiences, and encourage peer support • Ask participants create plans for their family (parent-action plans) and completed worksheets.
Week 2 Session 2: Family management guidelines for families of children with ALL. Time: 40-50 minutes	1. To enhance knowledge about family management and communication practices between parents of children with ALL. 2. To enhance the family impact, develop family management, and improve taking care of children with ALL.	Management behaviors about a variety of activities and the Building on Family Strengths program (Kieckhefer et al., 2013)	• Review knowledge and understanding from week 1. • Ask participants to give feedback/reflection. • Describe and demonstrate about effective communication and explore the impact of ALL on family relationships and communication using 2 VDO clips. • Group discussion: ask participants to talk about plan of own family • Encourage participants to reflect own experiences, and stimulate peer support • Ask participants create plans for their family (parent-action plans) and completed worksheets.
Week 3 Session 3 Topic: Emotional factors and FMP guidelines for families of children with ALL. Time: 40-50 minutes	1. To improve FMP guidelines followed by each family. 2. To create nursing care guidelines for children with ALL and families.	Perceived consequences, and experience of illness and predictions.	• Review knowledge and understanding from week 2. • Ask participants to give feedback/reflection. • Describe and explain knowledge about problem solving and transition timeline for their families using a VDO clip. • Encourage participants to reflect own experiences, and encourage peer support. • Group discussion: ask participants to talk family management guidelines, like making adjustments to daily routines, seeking additional support services, managing stress • Completed the activities and thanks them • Ask participants to complete the pretest questionnaires (Time 2: FaMM, BCFQOLS, and PedsOL)

made an appointment with each of the parents' participants for follow-up and evaluation at 4 weeks later at the clinic.

Data Analysis

Data were analyzed using descriptive and nonparametric statistics. Data analysis included frequencies, means, standard deviations, and one-way repeated-measures ANOVA. The statistical significance level for the analysis of the data was set at $p < .05$ using SPSS version 26.0. Means and standard deviations were computed to describe the characteristics of the parents and the children, and percentages were used to assess recruitment, participation, and completion rates. After all of the assumptions were appropriated, one-way repeated-measures ANOVA was used to compare within-group changes in outcomes across three time points for family management, family quality of life, and children's quality of life.

Results

Characteristics of Participants

The final sample size for parents was 11 participants. Initially, 19 eligible parents attended the review of planned FMP sessions. However, 8 of the 19 eligible parents withdrew from the study for reasons such as other childcare responsibilities or no other relative during session 2 or 3 and did not provide an explanation. In summary, a total of 11 parents completed all three FMP sessions. The results showed statistically significant improvement in parent responses on the family management and child's quality of life outcome measures at post-intervention and follow-up ($p < .005$).

Among the total 11 parent participants, most of parents were mothers and the primary caregiver (n = 9); married (n = 9); aged above 40 years (n = 4); employed outside the home (n = 6); and had education below bachelor's degree (n = 6). Average duration of the children's cancer care was 27.18 (±8.85) months. The children's mean age was 48.09 (±10.339) months. Most of the children were boys (n = 7) and aged approximately 60 months (n = 4).

Preliminary Effects of the Intervention

As shown in Table 2, this study's goal was to identify whether an FMP improves family management, family quality of life, and children's quality of life after completion of the intervention. Results of one-way repeated-measures ANOVA indicated that family management and children's quality of life had significant differences among the three measurement time points. The family management three time-point results included (a) pretest (T1, week 1); (b) posttest (T2, week 3); and (c) follow-up (T3, week 7) [$F(1, 10) = 8.073$, $p < .05$, $\eta^2 = 0.447$). The parents' perception of their child's quality of life indicated $F(1, 10) = 5.244$, $p \leq .05$, $\eta^2 = 0.344$. However, there was no statistical difference among the three point-time measures for family quality of life ($p > .05$).

Subsequently, a post-hoc pairwise comparison using the Bonferroni correction revealed that there was a difference between each pair of time measurements for family management and children's quality of life. The pairwise comparisons contained multiple paired *t*-tests with a Bonferroni correction to keep the Type I error at 5% overall. Family management and children's quality of life at follow-up (T3, week 7) had better measurements than those at posttest (T2, week 3) ($p < .05$). The follow-up analysis further suggested a linear trend of the FaMM and PedsOL scores provide support to the hypothesis for this study; estimated marginal means displayed as a graph trend (see Fig, 1) show this. The average value of the dependent variable often begins progressively rising after the intervention. Therefore, the findings provide evidence that after receiving the family management sessions, the participants showed improved family management and children's quality of life.

TABLE 2
Results of one-way repeated-measures ANOVA and pairwise comparisons (N = 11)

Variable	Mean (SD)	F (1, 10)	η^2
Family management		8.073 (p = .013)	.447
Week 1 (T1)	178.00 (14.601)[a,b]		
Week 3 (T2)	175.18 (13.977)[a]		
Week 7 (T3)	192.36 (17.368)[b]		
Family quality of life		2.648 (p = .119)	.209
Week 1 (T1)	100.18 (17.966)		
Week 3 (T2)	93.64 (17.750)		
Week 7 (T3)	107.27 (15.350)		
Children's quality of life		5.244 (p = .018)	.344
Week 1 (T1)	65.82 (15.138)[a,b]		
Week 3 (T2)	60.73 (18.773)[a]		
Week 7 (T3)	71.00 (17.550)[b]		

[a,b] Superscript differences refer to the significant mean differences.

Feasibility of the Program

In the present study, 19 eligible participants completed the consent form because they were interested and qualified to take part in the FMP. Later, eight of the consenting parents withdrew from participating in the study. The IRB approved the plan protocol that each eligible consented parent of 19 parents would assign a relative or a family member to be available at the child patient clinic while a parent is attending each study session. Unfortunately, eight parents who withdrew from the study were unable to assign a family member to be available with the child patients, which occurred in session 2 or 3 of the study. They needed to stop what they were doing and go visit the child when the children started to cry and call for their mother.

Following implementation of the complete protocol (ie, three sessions over a 3-week period), the researcher met with the 11 enrolled parents (57.89%) as a group to complete the final follow-up parent group meeting at Week 7. These parent participants shared positive feedback about participating in the 3 sessions study during this final follow-up group discussion. Examples of parent evaluation comments about the sessions included that the sessions were viewed as interesting and enjoyable and parents valued the opportunity for group sharing with other parents about the sessions and the potential to use shared suggestions with their own family

During session delivery, parent participants displayed very engaged, attentive, and cooperative behaviors. For instance, parents exchanged ideas that session content was viewed as helpful in providing care for ill children and could be helpful to their own family. Parent participants also provided evaluation feedback about the duration of some of the session materials (eg, numbers and duration of the VDO clips). Originally, one session contained one to two VDO clips and the duration of each clip was about 4 to 5 minutes per clip. The parents did not share any subject burden comments (eg, experiencing fatigue) related to the sessions. Still, the researcher adjusted all VDO clips to be more concise for future parent participants (ie, combining one session for one VDO clip; about 8 to 10 minutes per clip). The researcher also provided three QR codes for participants to save all three sessions on their smartphones for future viewing.

Discussion

The main purpose of this completed pilot study was to assess the feasibility of delivering the PI's designed FMP to Thai parents of children (aged 2 to 5 years) who were diagnosed with ALL and receiving chemotherapy treatments. In addition, parent responses before and after receiving the FMP sessions were examined related to the following parent outcome responses about family management, family

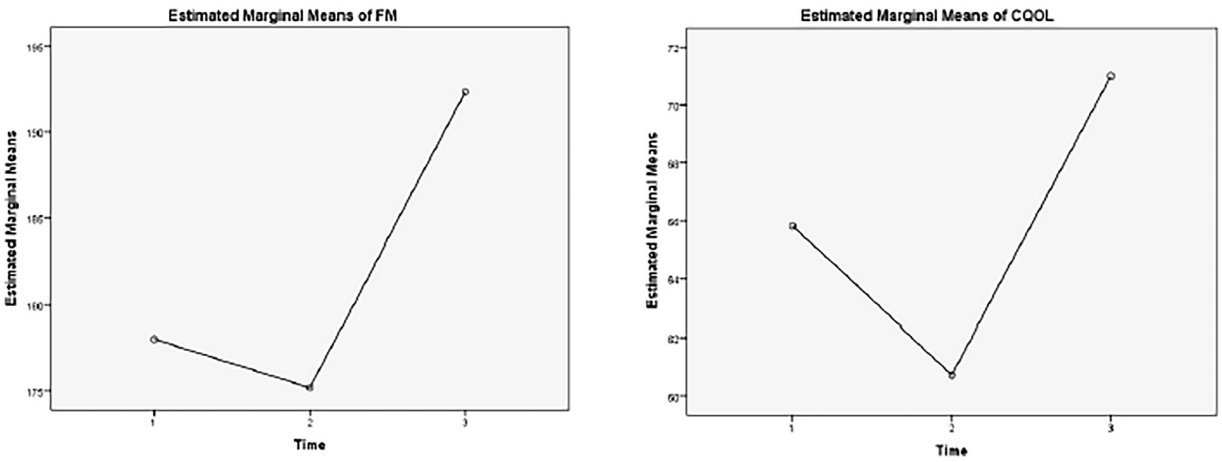

FIG 1. Graphs trend of family management and child quality of life among three time measures.

quality of life, and children's quality of life. The PI especially sought to investigate whether the FMP sessions could be successfully implemented and whether enrolled parents found the FMP sessions were beneficial and if any positive changes were identified after parents received all the FMP sessions regarding the following parent outcomes: family management strategies, family quality of life, and children's quality of life outcomes.

The findings provided evidence that delivery of the FMP to the 11 enrolled parents was feasible. All of these parent participants completed all three of the planned sessions of the protocol and the follow-up session without attrition. Based on the PI's observations of parent behaviors and the parents' shared verbal comments, the parent participants enjoyed and valued receiving and participating in the FMP protocol. These parents valued learning from one another and sharing experiences and perspectives and ideas during the final group follow-up discussion session.

The parents provided several suggestions for future delivery of the FMP. One, they suggested combining the two short-video clips into one video in sessions 1 and 2. Second, the parents suggested providing one longer video to view, which would be more convenient for parents' schedules and may enhance their understanding. Third, the parents also shared the preference of engaging more in verbal communication and group discussion, rather than primarily providing written responses on the study measures. These suggestions were collected by the researcher from individual parents, which were based on both written evaluations and recorded verbal comments shared by parents during the final group sharing session.

The findings provided evidence that family management strategies improved significantly after the participants received the FMP. This finding suggests that the FMP could be used by nurses to enhance family management strategies by other parents of young children with ALL. The results in this study also provide support for the positive impact of the FMSF and align with the framework's principles and existing research that proposes the FMSF can enhance family management behavior.[5,6]

During the implementation of the FMP sessions, the PI provided education to parents about the potential impact and feelings of children with ALL and their families and the FMP management and caring guidelines. A benefit of the FMP strategy is the delivery of parent education that emphasizes potential stressful childcare issues and situations that arise while encouraging development in accordance with each family's needs.

Delivery of the FMP session also provided evidence that it may have improved the children's quality of life. Numerous studies have been conducted to understand and assess the impact of chronic illness on the quality of life experienced by children and their families.[24,25] Previous research has shown that chronic illnesses can have a significant impact on various aspects of a child's quality of life, especially children with cancer.[12,26,27] These effects can include physical, emotional, social, and cognitive dimensions. In this study, the children's quality of life was an evaluation of child well-being provided from the parents' perspectives and by parents who were the primary caregivers of their child during cancer treatments. The FMP was designed to take all dimensions of family management−style framework into consideration of the parents' children. After the parents in this study received all protocol sessions for the FMP intervention, the results provide evidence to suggest the quality of life of children with ALL of these participating parents may have improved.

However, the family quality of life parent responses showed no significant differences among the three protocol evaluation time points. Still, the researcher of this study recommends that the study of quality of life in parents of children with cancer is an important area of research to continue to investigate and may provide helpful evidence for researchers and clinicians to better understand the challenges parents may face and to develop and/or provide potentially helpful supportive interventions for affected parents. In support of this recommendation, previous studies have shown that psychosocial-focused interventions for parents may have a positive impact on family quality of life among parents of children with cancer.[10,28] Additionally, it is important to note that every family's experience and response may be unique when adjusting to the care of a child with cancer, and the impact on parental quality of life may vary depending on individual circumstances, available support systems, and personal coping strategies. In support of this tenet, other investigators have reported that family quality of life has a higher chance of improvement after receiving recommended parenting skill-focused interventions during the care of a child with cancer and after parents start using newly learned parenting skills over time.[10,29] The co-authors of this study also recommend that future studies involving parenting-skill interventions should include a longer follow-time frame (eg, more than 4 weeks) to evaluate any changes in parents' perspectives about family quality of life.

The FMP focused on increasing the understanding of families on how to manage care for children with ALL and suggesting ways to raise family quality of life as guided by the FMSF and the Building on Family Strengths program.[6,18-19] Although the mean scores of family quality of life at Time 3 (follow-up) was higher than Time 1 (preintervention) and Time 2 (postintervention). However, the findings showed no statistically significant differences in family quality of life across the three time points. One explanation could be that the family quality of life needs may have changed over time. Thus, the follow-up period of 4 weeks may not have been long enough. In addition, in a future study, characteristics of the participants (eg, undergraduate education) would be of interest to be controlled. Parents with higher

education, good communication skills, and self-awareness may have influenced the results of this study.

The positive results shown in this pilot study are similar to other studies evaluating interventions targeting family management, family quality of life, and child quality of life outcomes.[10,12,26,28] The impact of family-focused studies is growing and has the potential to provide more evidence to encourage effective family management skills. The results related to better family management outcomes in this small pilot study contribute to the existing evidence about the positive benefits from family-focused interventions that have shown a significant improvement in the management of the family and quality of life among young children with cancer.

Strength and Limitations

Strengths of this study can be identified. First, the inclusion criteria for enrolled parents included a homogeneous sample of parent participants who were the primary caregivers of children newly diagnosed with ALL and aged between 2 and 5 years. Second, parents of children with ALL who were receiving relapsed or high-risk cancer treatments (ie, stem cell or bone marrow treatments) were excluded from this study. Third, the investigator provided the participants with resources to review as desired in the future (ie, a QR code for three short VDO clips to save on the parents' smartphones). Fourth, this study provided results for a diverse and underreported group of parents of children with cancer (ie, parents with Thai ethnicity). Fifth, the investigators used study measures with established psychometric properties. Sixth, the investigators used a well-respected family theory by Knafl (ie, FMSF) to guide this study's intervention.

There are several limitations to be considered related to the results of this pilot study design. First, the parent participants were recruited using convenience sampling. Second, the parent participants were recruited from only one setting in Thailand. Third, the one-group design for this pilot study did not allow for the inclusion of a control group to make parent comparisons among parents who did not receive the intervention evaluated in this pilot study. Fourth, the final parent sample size in this pilot study was very small (ie, 11 parents) due to a high attrition rate. Fifth, among the 19 eligible parents for this study, there was a high attrition (ie, 8 parents) due to the inclusion criteria (eg, need to have a second family member present with the participating parent). This was a lesson learned for the investigator in that for future studies the research team should screen parents for all eligibility criteria before the parents complete the consent procedures. Sixth, the participating parents' children were not experiencing any significant side effects or complications from current chemotherapy treatments. Therefore, participating parents were less at risk of experiencing emotional distress due to unpleasant child responses that often occur during and after cancer treatments. Seventh, delivery of the FMP intervention took longer than expected to deliver to the parents because the internet signal was periodically weak at the data collection site. The weak internet signal caused the need for extra session time by modifying the planned individual viewing of protocol video materials via individual smartphones to instead have the parents view the protocol video as a group via one laptop computer. A total of 6 of the 11 enrolled parents were asked to view protocol videos via this group delivery approach. However, these parents were able to view the protocol videos individually, later in their home setting. Because of all these identified limitations, the results should be interpreted with caution and cannot be generalized to similar parent populations and settings.

Implications and Recommendations

This study provided positive evidence that the FMP had a positive impact on the parents' family management skills and their children's quality of life. The investigator proposes that practicing pediatric oncology nurses and other healthcare providers can be trained to replicate the FMP to support parents and other family members of young children with ALL, such as providing information about the potential impact on the family, family relationships, effective family communications, and building positive interactions to create a decision family plan (eg, parents and family members). Findings from this pilot study provide evidence that the FMP can be delivered easily and was well received and feasible to implement. Further research is required to test the FMP program and to include (a) a randomized-controlled trial study with an attention control comparison group, (b) recruitment of a larger sample size to meet statistical power requirements, (c) recruitment of parents from multiple clinical sites, and (d) longer follow-up periods, especially to measure FQOL. In addition, investigators should collect reasons for withdrawal from consented parents during any phase of an intervention study to help track withdrawal reasons (eg, potential family responsibilities and barriers in the home setting) and to assist with planning strategies to help keep parents enrolled in future intervention studies.

Conclusion

The results of this pilot study provided preliminary that delivery of the FMP protocol is feasible and parents of young children with ALL were receptive to participate and provided constructive suggestions to improve the protocol. Also, the results provided promising evidence that the accessibility and effectiveness of the FMP protocol resulted in a positive impact on improving the parents' family management skills and improving their child's quality of life among parents of young children with ALL in Thailand.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Nujjaree Chaimongkol reports a relationship with Burapha University Faculty of Nursing that includes: employment. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

CRediT authorship contribution statement

Wachareekorn Aungkaprasatchai: Writing – original draft, Visualization, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Nujjaree Chaimongkol:** Writing – review & editing, Visualization, Validation, Supervision, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Pornpat Hengudomsub:** Visualization. **Verna L. Hendricks-Ferguson:** Writing – review & editing, Visualization, Validation.

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Authorship Statement

All authors involved in interpreting the results and writing this manuscript meet the authorship criteria and agree with the final version of this manuscript.

Author Contributions

Wachareekorn Aungkaprasatchai was responsible for conceptualization, data curation, formal analysis, funding acquisition,

investigation, methodology, visualization, and roles/writing - original draft. Nujjaree Chimongkol was responsible for conceptualization, data curation, formal analysis, methodology, project administration, supervision, validation, visualization, roles/writing - original draft, and writing - review & editing. Pornpat Hengudomsub was responsible for visualization. Verna L. Hendricks-Ferguson was responsible for validation, visualization, and writing - review & editing.

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