

Parent School Program Based on Technology: Randomized Controlled Trial Protocol

Teknoloji Temelli Ebeveyn Okulu Programı: Randomize Kontrollü Çalışma Protokolü

Ahu CIRLAK¹ | Ebru KILICARSLAN TORUNER²

ABSTRACT

Objective: The purpose of this study was to assess the efficacy of a technology-based parent school program designed for parents of children aged 1-3 to improve their parenting abilities.

Method: The research is a parallel-group, single-blind (participant) randomized controlled trial. The research will be conducted with parents with children aged 18 and 24 months in a hospital's well-child outpatient clinic in Turkey. The data of the research will be collected with Parent and Child Descriptive Data Form, Parenting Skill Assessment Form, Skill Assessment Form the Toddler Development, Development of the Psychosocial Status Assessment Form for Parents (1-3 aged), and The Self-Efficacy for Parenting Tasks Index-Toddler Scale (SEPTI-TS) (1-3 years). The minimum sample size of the research is planned to be a total of 68 participants (intervention group=34, control group=34). The program will last 10 weeks. Parents in the intervention group will read the modules on the website and then participate in the online group interaction. Parents will receive counseling throughout the program. In addition, motivational messages will be sent to parents during the follow-up phase. The modules will deal with the child's physical growth, cognitive and language development, and social-emotional development. The modules will be aided by videos and messages. This study was planned based on Meleis' Transition Theory.

Results: Following the Technology-Based Parent School Program, parents are expected to have child-rearing skills and self-efficacy in terms of the development of their children.

Usage in practice: The parent school will be a guide to support parents in physical, cognitive, social-emotional, and language development of the 1-3-year-old child.

Keywords: Child; Child Rearing; Nursing; Parent School; Trial Protocol.

ÖZET

Amaç: Bu çalışmanın amacı, 1-3 yaş arasında çocuğu olan ebeveynlerin ebeveynlik becerilerini geliştirmeleri için tasarlanmış teknoloji temelli ebeveyn okul programının etkinliğini değerlendirmektir.

Yöntem: Araştırma paralel gruplu, tek kör (katılımcı) randomize kontrollü çalışmadır. Araştırma, 18-24 aylık çocuğu olan ebeveynlerle Türkiye'de bir hastanenin sağlam çocuk polikliniğinde gerçekleştirilecektir. Araştırmanın verileri Ebeveyn ve Çocuk Tanıtıcı Veri Formu, Ebeveyn Beceri Değerlendirme Formu, Çocuğun Gelişimine Yönelik Beceri Değerlendirme Formu (1-3 yaş), Ebeveynler için 1-3 Yaş Çocuklarının Psikososyal Durumunu Değerlendirme Formu ve Anne Babalık Becerilerinde Özyeterlik Ölçeği (1-3 yaş) ile değerlendirilecektir. Araştırmanın minimum örneklem büyüklüğü 68 katılımcı olacak şekilde planlanmıştır (müdahale grubu=34, kontrol grubu=34). Program 10 hafta sürecektir. Müdahale grubundaki ebeveynler web sitesindeki modülleri okuyacak ardından çevrim içi grup etkileşimine katılacaklardır. Ebeveynler program boyunca danışmanlık hizmeti alacaktır. Ayrıca izlem aşamasında ebeveynlere motivasyon mesajları gönderilecektir. Modüller, çocuğun fiziksel gelişimi, bilişsel ve dil gelişimi, sosyal-duygusal gelişimi gibi konuları içerecektir. Modüller; ebeveyn çocuk etkileşimini gösteren videolar ve yazılı anlatım içerecektir. Bu çalışma Meleis'in Geçiş Teorisi'ne temellendirililerek hazırlanmıştır.

Bulgular: Teknoloji Temelli Ebeveyn Okulu Programı'nın ardından, ebeveynlerin çocuk yetiştirme becerilerine ve çocuklarının gelişimi açısından öz yeterliğe sahip olmaları beklenmektedir.

Uygulamada Kullanım: Ebeveyn okulu, 1-3 yaş dönemindeki çocuğun fiziksel, bilişsel, sosyal-duygusal ve dil gelişimi yönünden ebeveyni çocuk yetiştirme konusunda destekleyecek bir rehber olacaktır.

Anahtar Kelimeler: Çocuk; Çocuk Yetiştirme; Hemşirelik; Ebeveyn Okulu; Çalışma Protokolü.

¹MSc, RN Director of Nursing Services, Guven Hospital, Ankara, Türkiye, ORCID:0000-0002-0442-4893

² Prof., PhD, RN Nursing Department, Gazi University Health Sciences Faculty, Ankara, Türkiye, ORCID:0000-0002-3358-7616

Sorumlu Yazar: Ahu CIRLAK, Guven Hospital, Ankara, Türkiye, e-mail: ahu-c@hotmail.com

Atıf: Cırlak, A., Kılıcarslan Toruner, E. (2023). Parent School Program Based on Technology: Randomized Controlled Trial Protocol. Journal of Current Nursing Research, 3 (1), 1-15.

INTRODUCTION

Child health protection and development are paramount to building a healthy society, as children are unique individuals undergoing physiological, cognitive, and psychosocial changes (Cheung et al., 2021; Ellis & Pant, 2020). A healthy child means a potentially healthy adult in the future (Unicef, 2017). While the number of children under five is approximately 678 million worldwide, this figure is about 6.5 million in Turkey. These figures make up a significant part of the world and the Turkish population as well (WHO, 2020a). The first three years of life are critical because children's cognitive, physical, language, temperament, social-emotional and motor development are rapid in this term. Interventions in this period have an impact on the child's cognitive development, psychosocial behaviors, and personality in the following years (Miyake et al., 2021; WHO, 2020b).

Parents should support the child's autonomy and provide sensitive care that adapts to their child's cues, feelings, interests, and abilities (Nicholson et al., 2016). In this period, parents should develop the skills of the children who are trying to be autonomous by interfering with their efforts, not by developing a suppressive attitude, but by encouraging them (Toruner & Buyukgonenc, 2017); that is why parents want to get more robust in their adaptation to this peculiar period. In order to cope with this change in their lives, parents seek support from health professionals and need education and counseling services (Barimani et al., 2017; Pinar & Doğan, 2020; Shorey et al., 2019). In addition, there are various training programs aimed at increasing the knowledge and skills of parents. In these programs, by focusing on parents' knowledge, attitudes, and behaviors (Farris et al., 2013), parents are provided with guidance through face-to-face or group training in order to improve their parenting skills for their children's physical, mental, social, emotional, and language development (Barimani et al., 2017; Fields-Olivieri et al., 2020).

It has been recently seen that technology has started to be employed in face-to-face or group studies. Studies indicate that technology-based interventions are generally as effective as face-to-face training. The use of technology in the field of health, the fact that health-related information is more accessible and more manageable, and that information can be accessed at any time and place increases the use of such training methods (Farris et al., 2013; Lau et al., 2016; Shorey et al., 2017). Although technology-based studies have many benefits, when studies are examined, the number of studies that constitute the sample for the 1-3-year-old period is limited, and there are generally one-dimensional studies dealing with cognitive, physiological, and behavioral problems. These studies addressed autism spectrum disorder, obesity, behavioral disorder, and language development (McGarry et al., 2020; Strouse & Ganea, 2017; Uribe et al., 2021). In the literature, there was no study in which a training program included all cognitive, physiological, behavioral, motor skills, language development, and social-emotional dimensions of healthy children to parents raising children.

The theoretical basis in the training programs for parents is a good guide in determining the content, structure, and teaching methods (Cerqueira et al., 2016). Meleis' Transition Theory in nursing has recently increased, especially in child health nursing (Cerqueira et al., 2016; Düdükçü & Arslan, 2020). Each phase of parenthood is a different transition. For instance, the transition from infant parenting to 1-3-year-old parenting is a developmental transition.

Meleis' Transition Theory require parents to develop their knowledge and skills, and adapt to the circumstances in which they find themselves. Sound results can be obtained on raising the children with the provision of the training program. Technology-based parent school can be beneficial both to support parents

and to maintain children's healthy physical, cognitive, social, emotional, and language development. This paper includes the content and implementation plan of the parent school program. The results will be shared after the study is completed.

Aim of the study

This study protocol aimed to evaluate the efficacy of the technology-based parent school program, designed for parents of children aged 1-3 and intended to help them improve their parenting skills in raising their children.

Parents in the intervention group in which the technology-based parent school program was implemented and in the control group in which the program was not implemented:

H0₁: There is no difference in self-efficacy scores.

H0₂: There is no difference in parent skill assessment item scores.

H0₃: There is no difference in the skill assessment item scores for child development.

H0₄: There is no difference in the item scores of the evaluation of the psychosocial status of 1-3-year-old children for parents.

METHODS

Study design and setting

The study protocol was conducted under the guidance of Standard Protocol Items: Recommendations for Interventional Trials (SPIRIT), which was designed as a parallel group single-blind (participant) randomized controlled trial (Chan et al., 2021). The study will be reported using the Consolidated Standards of Reporting Trials (CONSORT) diagram (Schulz et al., 2010). The study was registered on ClinicalTrials.gov in May 2022 (NCT05370989). The participant timeline, including the registration, interventions, and evaluation of the study, is provided in Table 1.

The study will be carried out between October 2022 and February 2023 in the well-child-care outpatient clinics of a hospital in the Anatolian region of Turkey. The study population will consist of parents with children aged 18-24 months old who visit the clinic for routine check-ups. Through the power analysis with

G*power 3.1 program, taking the study of Erbaş et al. (2021) as an example, the minimum sample size was found to be 68, with a power level of 90%, a margin of error of 5%, and an effect size of $d=0.80$. After the sample group is determined, the assignment to the intervention and control groups will be made by the stratified randomization method. In addition to the equal number of people in the intervention group=34 and control group=34, stratification will be made in terms of parental education status and child age.

Inclusion criteria

Parents

- a) who gave birth at the age of 18 and older
- b) whose child is 18-24 months
- c) who have an internet connection and use a computer/laptop, tablet, or smartphone
- d) who agree to participate in the study.

Removal from the study

These participants are removed from the study

- a) who attend three or fewer modules on the website
- b) who attend three or fewer online interviews.

Study exclusion criteria

- a) Child with a congenital defect, chronic disease, or was born prematurely
- b) Parents with mental health problems
- c) Adolescent mother

Randomization method

Enrollment: Parents who take their children between 18-24 months for routine control will be included in the study group. A stratified randomization method will be used in the study. To ensure homogeneity, educational background (primary and high school, undergraduate and graduate), child gender (girl, boy), and the number of children (one, two, or more) groups will be provided with a total of eight layers.

Allocation: According to the coin toss method will be divided into intervention and control groups by giving letters A and B. The intervention group comprise parents who attend the parent school and will also continue their child's routine follow-up in the healthy children's outpatient clinic. The control group will consist of parents who will continue their

routine follow-up of their children in the healthy children's outpatient clinic. The CONSORT flowchart (Schulz et al., 2010) of the participants is given in Figure 1.

Data forms will be sent to parents in both groups simultaneously by the researcher.

Blinding process: Participants will not know whether they are in the intervention or control group. The application will be started simultaneously with the intervention group, and the control group will not be informed about the parent school. With this aspect, the study has a single-blind design.

Table 1. Participant timeline of registration, initiatives, and evaluations

	Working Stages				
	Enrollment	Baseline	Intervention	Follow-up	
TIME POINT	T-1	(Prior to Parent School Program) T ₀	(Parent School Program)	T ₁ (1 week after the program)	T ₂ (1 month after the program)
REGISTRATION					
Eligibility	X				
Informed consent		X			
Randomization		X			
INITIATIVES					
Experiment		X	X	X	X
Control		X		X	X
EVALUATIONS					
Demographic features		X		X	X
Self-efficacy assessment		X		X	X
Parent tasks assessment		X		X	X
Child tasks assessment		X		X	X
Psychosocial status assessment		X		X	X

Intervention

Program based on Meleis' Transition Model

Meleis defines transition as perceiving change within oneself or the environment, adapting to a new situation or role, and managing stress (Meleis, 2010). Meleis discussed the transition theory under four main headings. In this study, the characteristics of transition, facilitators and inhibitors, and the use of transition responses in the program are explained respectively (Table 2).

Creation and preliminary application of the program

A preliminary application will be performed following the creation of the modules and

website, placement of the modules on the website, and expert evaluation. In terms of the usability of the website and the intelligibility of the modules, a preliminary application will be made with five parents. After the preliminary application, the website will be evaluated with the "Web Site Evaluation Form" on the ease of access to the training materials, the clarity of the modules, the harmony of the images, the useful links suggested on the site, and the book-article suggestions. Necessary corrections are to be made after the evaluations.

Implementation of the technology-based parent school program

The web-based parent school will be conducted for a total of 10 weeks. WhatsApp groups will be created for the intervention and control groups separately, a separate meeting will be held for each group, and data collection forms will be administered by e-mail under the pre-program (T0). The Parent School will be applied based on Meleis' Transition Theory. The intervention group was given education and training specific to the 1-3-year-old period. The theoretical part of the Parent School is one module per week on the website (a total of five modules), and the interactive part is online (zoom) for 45 minutes per week (a total of five interviews). Children of the parents in the control group will continue their routine health checks and follow-ups at the well-child clinic. Data collection tools will be applied by e-mail at the time of the first follow-up (T1- one week after the program) and the second follow-up (T2-one month after the program) simultaneously with the intervention group. The flow chart and application content of the Parent School Program is given in Figure 2.

Implementation of modules on the website

Online or phone meetings will be held with the parents in the intervention group to provide information about membership to the website, promotion of the website, and the execution of the program within the scope of the parent school program. They will be given a week to register and explore the website. Upon completing the memberships, parents will begin training using the first unit of the technology-based parent school program, "Child's Magical World" (Table 3). They will have three days to complete the first module within the first three days of the week (Monday-Tuesday-Wednesday). After that, the parents will participate in the interactive part of the online modules on a day they choose in the same week (Friday-Saturday-Sunday). Counseling will be provided to parents who need it after accessing the modules on the website and online interactions. This way, parents will complete the module on the program's website at one-week intervals; also, the interactive part will occur online in the same week as the training.

When the modules are available, parents will inform on WhatsApp. Before a module is completed, the other module will not be accessible, and passing to the next module will not be possible. With text messages every week via the WhatsApp group during the monitoring phase, parents will be encouraged to put the training they receive into practice when the program is over. The program will be completed in a total of 10 weeks. The forms that will be used in data collection will be applied before the program (T0), in the first week (T1), and in the first month (T2) following the program, respectively.

Online meetings

When the parents complete their modules on the days specified for them (Monday-Tuesday-Wednesday), they will participate in the interactive part of the modules that have a group meeting on a suitable day (Friday-Saturday-Sunday) within the same week. The interview will take place for a maximum of 45 minutes. Interactive Zoom meetings will be held with a minimum of 6 and a maximum of 8 parents in each group. The aim is to discuss how to proceed in skill development by putting the topics in the module into practice. Parents can have a word, ask questions and interact with other parents online. Each week, all parents will evaluate the discussion part of the program with the online interview evaluation form.

Consultancy service

After Completing the modules and the interactive part each week, parents can request individual counseling the following week. The "Consultancy Service Evaluation Form" will be filled in with the researcher. At the end of the program, counseling will also be provided in line with the demands of the parents during the follow-up phase.

Motivational text messages

After the program is completed, parents in the intervention group will receive motivational messages on WhatsApp once a week during the follow-up phase to encourage them to put their acquired knowledge in the program into practice. Parents will receive a total of 12 messages over one month.

Table 2. Use of Meleis' Transition Theory in technology-based parent school

Basic Components	Sub-scales	Definition by Program Content	Practice	Measurement
Nature of the Transition	Transition Properties ✓ Awareness ✓ Taking responsibility ✓ Change and difference ✓ Time flow/transition ✓ Key milestones and events	For a healthy transition to occur, the individual must be aware of the changes, take responsibility, adapt to changing situations, embrace each transition period’s uniqueness, and know that it includes essential turning points and events. -Parents may or may not be aware of the transition period (1-3 years old) and may experience intense and mixed emotions. -For the child's healthy development, it is important that both parents take an active role and responsibility in the child's care. -Certain changes are observed in children's patterns and characteristics during the transitional periods. These changes mean that the routines that parents are used to changing. Adapting to new features can be challenging, and some problems may occur. -The period starting from the age of one and continuing until the age of three is rapid. In this quick process, there are many changes in the growth and development of the child. Everyone’s transition period is unique. It can end at different times. -Awareness and acceptance of the child's autonomy. While providing discipline in the child's feeding, excretion, and sleep patterns, parents may experience ups and downs.	-Parents will benefit from the modules (Modules 1, 2, 3, 4, and 5) on the website. -Modules will be discussed through online interaction. -Counseling will be provided to parents who need it after accessing the modules on the website and online interactions. -Parents will benefit from the list of books on child development on the website. - Counseling will be provided to teach coping with crises, overload, or unexpected situations (e.g., illness).	<ul style="list-style-type: none"> • Parent Skill Assessment Form • Skill Assessment Form the Toddler Development • Development of the Psychosocial Status Assessment Form for Parents (1-3 aged) • Process evaluation form: Online Interview Evaluation Form Self-Assessment Form Counseling Service Evaluation Form

Table 2. Continued

Basic Components	Sub-scales	Definition by Program Content	Practice	Measurement
Response Patterns	<p>Progress indicators</p> <ul style="list-style-type: none"> ✓ Interaction ✓ Connection ✓ Location and Presence ✓ Developing self-confidence and coping <p>Outcome indicators</p> <ul style="list-style-type: none"> ✓ Qualification ✓ Flexible integrated (adaptable) identity development 	<p>The transition generates a response with indicators of progress and outcome. The progress indicators include increasing satisfaction and trust (feeling of attachment) by benefiting from the program and using the acquired knowledge and skills to grow parental self-efficacy, improving parent-child interaction, and self-confidence, and developing coping.</p> <p>The outcome indicators are parents' self-efficacy in raising children and monitoring the effects of each applied module on the child.</p>	<p>-The parents will receive training on the child's physical development, the characteristics of the 1-3-year-old period, and the nutrition, sleep, and excretion patterns of this period through the website. In addition, they will receive training on the importance of early learning and interaction with the child for cognitive and language development. Finally, they will receive training that includes new-generation self-control methods for social and emotional development.</p> <p>- It will be ensured that parents get together online to answer their questions and interact with other parents.</p> <p>After the program, the parents will be followed up for three months, and the effects of the practices will be evaluated both on the parents and the child at the end of the third month.</p> <p>With the process evaluation forms, the satisfaction of the parents with the service they receive, the benefits of the consultancy service, the benefits provided specific to the program, the ability of the parents to apply the experiences gained in the program, and the effect on their children will be evaluated.</p>	<ul style="list-style-type: none"> • The Self-Efficacy for Parenting Tasks Index-Toddler Scale (SEPTI-TS) (1-3 years) • Parent Skill Assessment Form Skill • Skill Assessment Form the Toddler Development • Development of the Psychosocial Status Assessment Form for Parents (1-3 aged) • Process Evaluation Forms: Counseling Service Evaluation Form Parent School Satisfaction and Suggestion Form Online Interview Evaluation Form Self-Assessment Form

Control group

Parents in the control group will continue their routine controls in the outpatient clinic after the first follow-up. When the intervention group's follow-up within the program's scope is completed, the program website will be accessible to the control group. Parents will be able to benefit from the modules.

Outcome measures

In this study, parents will fill in the Parent and Child Descriptive Data Form, Parent Skill Assessment Form, Skill Assessment Form the Toddler Development, Development of the Psychosocial Status Assessment Form for Parents (1-3 aged), The Self-Efficacy for Parenting Tasks Index-Toddler Scale (SEPTI-TS) (1-3 years), and Parent School Process Evaluation Forms. These forms will be used to evaluate the primary results of the study. In addition, the counseling service and satisfaction with the program will be evaluated with the Parent School Process Evaluation Forms, which will form the secondary results of the study.

Parent and Child Descriptive Data Form: The form is developed by the researchers in line with the literature and consists of 9 questions including the parents' age, parents' education level, child's gender, child's age, socioeconomic status, and evaluation of parents' knowledge and skills about parenting of a toddler (Buoen et al., 2021; Gridley et al., 2020; Nandy et al., 2020).

Parent Skill Assessment Form: The form consisting of 36 items is developed by researchers in line with the literature (Franklin & Mooney-Doyle, 2017; Green, 2018; Rains, 2020; Richardson & Porcher, 2020). The form includes tasks parents can, cannot, and are hesitant to do for their children's physical, cognitive-language, and social-emotional development. Content validity will be performed when the expert opinion is received for the form.

Skill Assessment Form the Toddler Development: This form is a 27-item form developed by researchers in line with the literature (Franklin & Mooney-Doyle, 2017;

Green, 2018; Rains, 2020; Richardson & Porcher, 2020). The form will evaluate what tasks children can and cannot do according to their physical, cognitive-language, and social-emotional development and what they can do with help. Content validity will be carried out when the expert opinion is received for the form.

Development of the Psychosocial Status Assessment Form for Parents (1-3 aged): The form consisting of 36 items are developed by researchers in line with the literature (Dereli, 2017; Green, 2018; Rains, 2020; Richardson & Porcher, 2020; Wolff et al., 2013). The form was developed by the parents of 1-3-year-old children to determine their psychosocial status. Content validity will be carried out when the expert opinion is received for the form.

The Self-Efficacy for Parenting Tasks Index-Toddler Scale (SEPTI-TS) (1-3 years): It was created by Emde in 1989 and revised and rearranged by Zeanah in 1997. The total item Cronbach's alpha coefficient of the original scale was determined as 0.91. Turkish validity and reliability of the scale were performed by Elibol et al. in 2007. The Cronbach alpha coefficient of the Turkish version of the scale was found to be 0.90. The scale consists of 51 items rated on a five-point Likert scale with response categories varying from "Strongly agree" to "Strongly disagree" for positive items: 5: Strongly Agree, 4: Agree, 3: Unsure, 2: Disagree, 1: Strongly Disagree. Certain items are reverse scored (4, 7, 15, 21, 22, 23, 25, 26, 30, 33, 36, 38, 39, 40, 43, 47, 48, 49, 50) (Olexa, 2001). Total scores range from 51 to 255, with high scores indicating strong self-efficacy. The scale originally consisted of 7 sub-scales, which are Emotional Availability (7 items), Nurturance/Valuing/Empathetic/Responsiveness (7 items), Protection (7 items), Discipline/Limit Setting (6 items), Play (7 items), Teaching (9 items) and Instrumental Care/Structure/Routine (8 items). In the Turkish validity and reliability study of the scale, sub-factors could not be formed under these sub-scales. Therefore, the scale is evaluated by the overall mean score. It is seen that this scale is

Table 3. Content of technology-based parent school program

Modules	Content	Objective	Learning objectives	Web activities
Module 1 Child's Magical World	Getting to know The characteristic of the 1-3-year-old period	Meeting with the parents, giving information about the program, and introducing the features of the 1-3-year-old child.	Can grasp the characteristics of the 1-3-year-old child.	"Child's Magical World" module on the website Book recommendations Useful links
Module 2 Development of Patterns	Toilet training Eating pattern Sleep training	Creating positive toilet, nutrition, and sleep habits in children	Can grasp the steps of toilet training. Can learn to teach positive eating behavior. Can understand the way sleep training is given.	"Development of Patterns" module on the website Question-answer Sample dialogs
Module 3 Cognitive, Language and Emotional Intelligence Development	Language development Brain development Emotional intelligence	To explain the impact of the child's language development on brain development and the importance of raising children with high emotional intelligence.	Can learn which apps are effective for language development. Can understand the effects of language development and other factors on brain development. Can understand the impact of raising emotional intelligence on a child's life.	"Cognitive, Language and Emotional Intelligence Development" module on the website Sample dialogs
Module 4 Interaction with the Child	Playing games Reading Co-discovery	To explain the effect of interaction with the child on the child's development.	Will be able to comprehend the effect of playing games on the child's cognitive development. Can understand game-playing methods. Can comprehend the effect of reading a book on the child's cognitive development of the child. Can understand the importance of the child's autonomy. Can understand the effect of exploring together on the child.	The "Interaction with the Child" module on the website Videos
Module 5 New Generation Self-Control Methods	Developing self-control Developing internal motivation (no reward)	To explain the necessity of self- control in the child and how to develop internal motivation without rewards.	Know the necessity of self-control. Learn how to set boundaries. Can understand the importance of developing internal motivation. Can grasp the methods of developing internal motivation without giving rewards.	The "New Generation Self- Control Methods" module on the website Sample dialogs

used in the literature to measure parental self-efficacy widely (Erbaş et al., 2021; Rijen et al., 2014).

Parent School Process Evaluation Forms: The parent school program process evaluation forms created by the researchers were prepared to evaluate the program's content, the counseling service received by the parents, and the parents' satisfaction with the program. The forms will be filled out by the parents and the researcher. The contents of the forms are given below.

1. Forms to be filled out by parents

a) **Website Evaluation Form:** After the preliminary application, and at the end of the program, the website will be evaluated by the parents regarding the ease of access to educational materials, the harmony of the images, the useful links suggested on the site, books, and articles.

b) **Online Interview Evaluation Form:** After the online interviews, the researcher's level of guidance, effective communication and interaction skills, and ability to answer questions adequately and effectively will be evaluated by the parents.

c) **Self-Assessment Form:** Parents will evaluate their knowledge, and competencies after the program compared to the pre-program.

d) **Parent School Satisfaction and Suggestion Form:** At the end of the program, parents will evaluate the quality of the Parent School, its content, the program's benefit, the status of recommending the program, and the status of implementing the program.

2. Forms to be filled out by the researcher

a) **Web Site Module Monitoring Form:** Throughout the study, the researcher will evaluate the number of parents who attend the modules daily, the time to complete the module, the problems they have, if any, and the need for counseling support.

b) **Counseling Service Evaluation Form:** The researcher will evaluate parents requesting counseling regarding the problem experienced (reason for the request), duration of counseling, and satisfaction with the answers to the questions.

Data collection

“Parent and Child Descriptive Data Form,” “Parent Skill Assessment Form,” “Skill Assessment Form the Toddler Development,” “Development of the Psychosocial Status Assessment Form for Parents (1-3 aged),” and “The Self-Efficacy for Parenting Tasks Index-Toddler Scale (SEPTI-TS) (1-3 years)” will be e-mailed and applied to intervention and control groups at the beginning of the research (T0), one week (T1), one month (T2) after completing the program.

Ethical dimension

Permission was obtained from the ethics committee of the university (Research Code: 2022 – 315) to conduct the study. In addition, institutional permission from the hospital where the research will be conducted and permission from the author for the data collection tool (The self-efficacy for parenting tasks index-toddler scale (SEPTI-TS) (1-3 years)) were obtained in the study. Furthermore, the Declaration of Helsinki will be considered in getting the informed consent of the participants, and their informed consent will be obtained before the study (WMA, 2013).

Analysis

The data obtained in the research will be evaluated with the SPSS (IBM) 21.0 software for statistical analysis. The percentage and frequency values of the data will be given. The independent samples t-test will examine the relationship between normally distributed sociodemographic data. In more than two-stage measurements, variance analysis will be used for repeated measurements in parametric tests and Friedman F test will be performed in non-parametric tests. Differences will be considered significant at $p < .05$.

DISCUSSION

The use of technology in the health field makes health-related information more accessible and more manageable. The availability of information at any time and place increases the use of such educational methods. Web-based studies are needed for parents to improve their children's physical, cognitive, social-

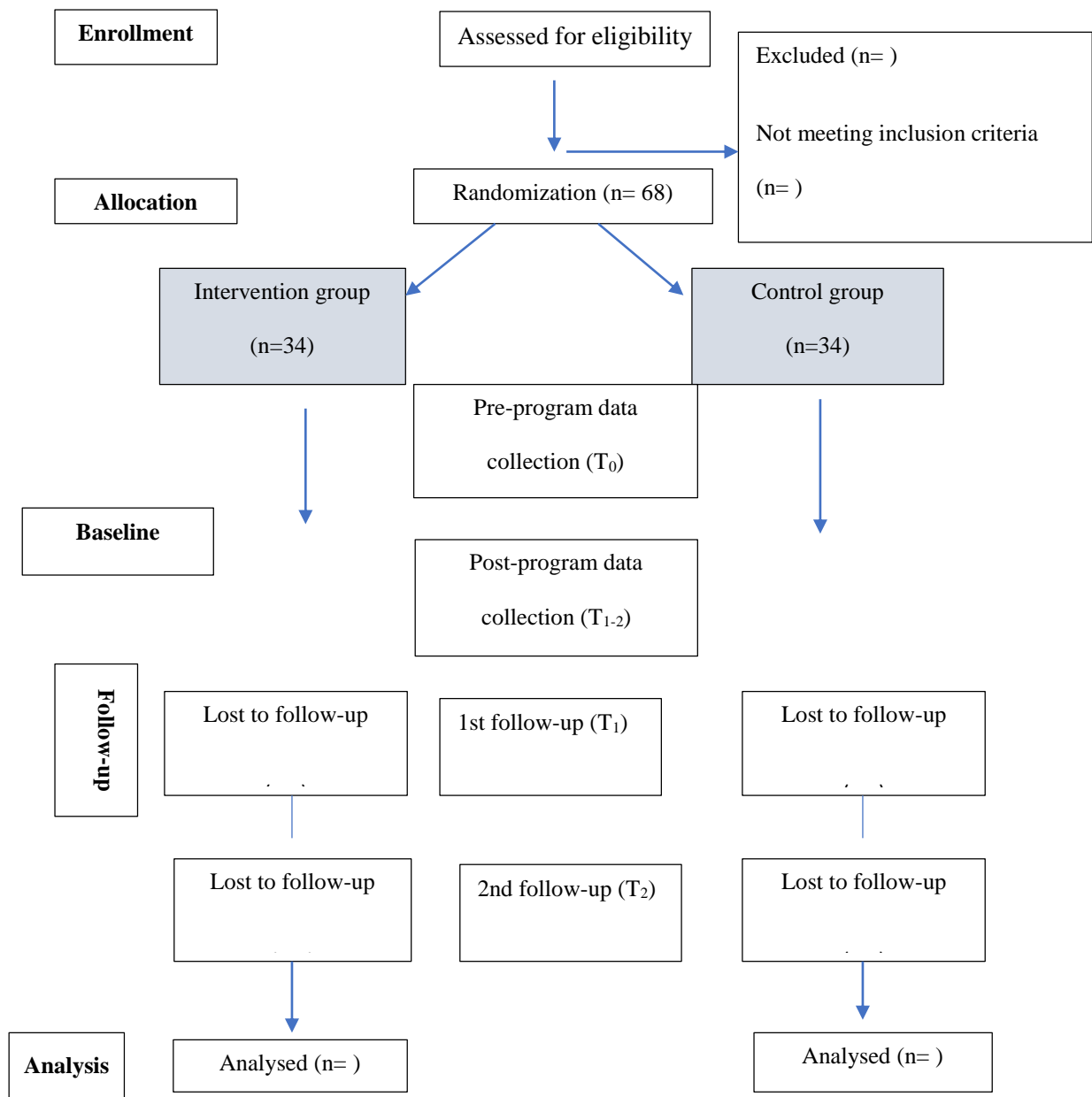


Figure 1. Consolidated Standards of Reporting Trials (CONSORT) Flow Diagram of Participants Through Trial

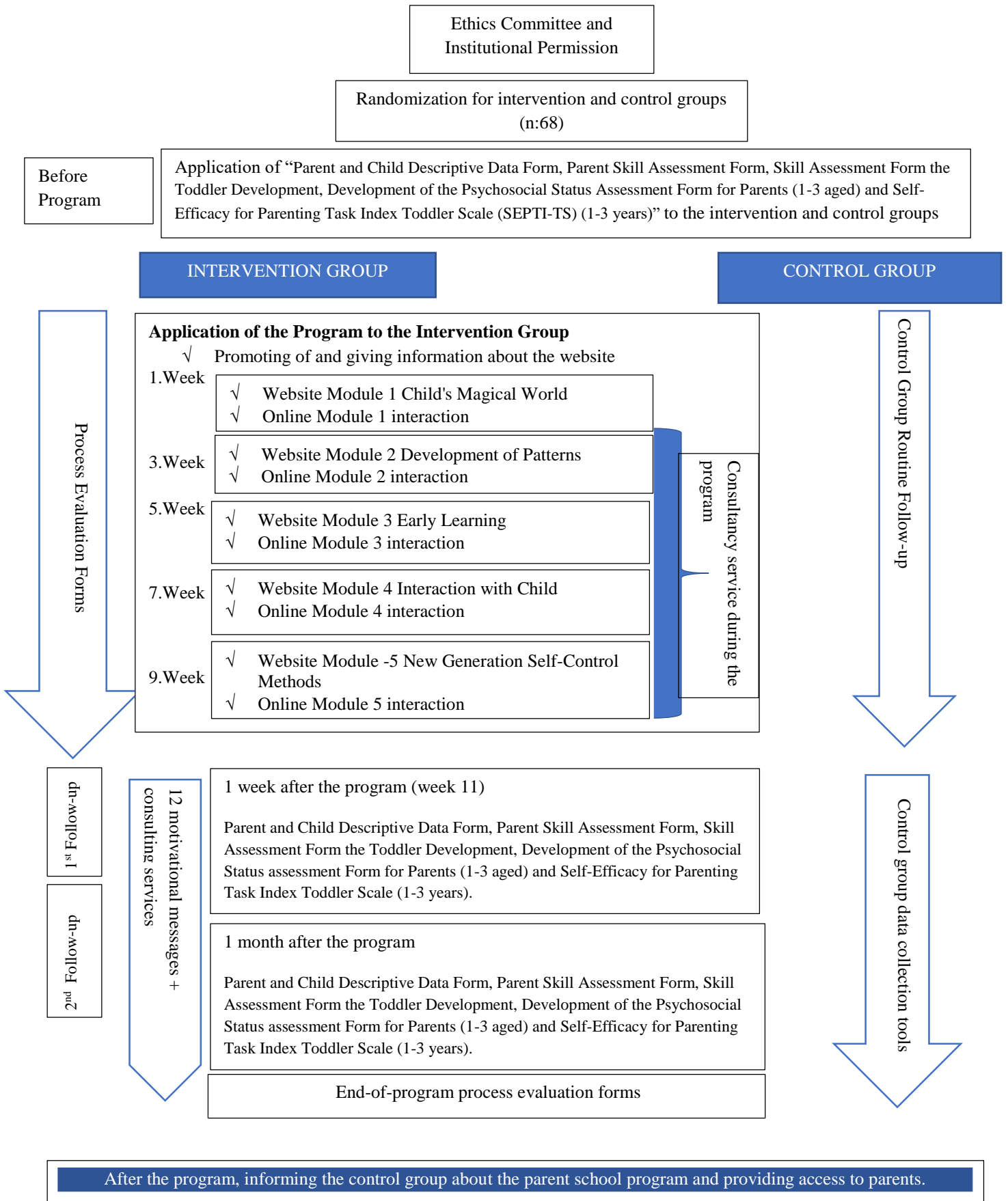


Figure 2. Implementation stages of technology-based parent school

emotional, and language development (Farris et al., 2013; Lau et al., 2016; Shorey et al., 2017). Therefore, a parent school study with different module contents was planned.

The content of the parent school program can be planned as preparing content for parents to increase children's physical, cognitive, social-emotional, and language development, getting expert opinions on the content, pre-practice with non-working parents, making online interactions, and providing counseling services. The research will combine technology, nursing theory, and consultancy service. No similar study has been reached to have formed this kind of combination in the literature before, and it is thought that it will contribute to the randomized controlled studies to be planned.

Limitations of this study

Blinding will not be possible as the researchers are implementing the program; therefore, only participant blinding is possible. Another limitation is that in the implementation phase of the program, there is a likelihood of difficulties such as limited internet access, unsuitable working hours for parents, and interruptions due to meeting the needs of their children during the program. The study is limited to the characteristics measured by the data collection tools and the personal and cultural characteristics of the parents. Therefore, study results may vary in individuals and different cultures.

CONCLUSIONS

In order to contribute to the child's development in the best way, there is a need for a parent

REFERENCES

- 1 Barimani, M., Frykedal, K.F., Rosander, M., & Berlin, A. (2017). Childbirth and parenting preparation in antenatal classes. *Midwifery*, 57, 1-7. <https://doi.org/10.1016/j.midw.2017.10.021>
- 2 Buoen, E.S., Lekhal, R., Lydersen, S., Berg-Nielsen, T.S., & Drugli, M.B. (2021). Promoting the quality of teacher-toddler interaction: a randomized controlled trial of "thrive by three" in-service Professional development in 187 Norwegian toddler classrooms. *Frontiers in Psychology*, 12, 778777. <https://doi.org/10.3389/fpsyg.2021.778777>

school where evidence-based information transfer will be possible using technology, shared experiences, and interaction will occur. Parent school is a guide that will guide individuals about the development and upbringing of the child in the age group under consideration, especially those who are parents for the first time. It is also a social environment where experiences are shared by interacting with other parents. With technology, time, and space restrictions removed, reaching more parents and contributing to the development of many more children will be possible. With the Technology-Based Parent School program, it is thought that parents will have high self-efficacy and skills in raising children, and it is believed that their children will grow up as healthy individuals in terms of physical, cognitive, social, emotional, and language development.

Author contributions

Working idea or design: AC, EKT

Data collecting: -

Analysis and interpretation of results: -

Preparing the draft: AC, EKT

Critical review: EKT

All authors (AC, ECT) reviewed the results and approved the final version of the article.

Trial registration: It was registered at ClinicalTrials.gov in May 2022 (NCT05370989).

Conflict of interest

The authors report no actual or potential conflicts of interests.

Funding sources

No external funding.

- 3 Cerqueira, C., Pereira, F., & do Ceu Barbieri Figueiredo, M. (2016). Patterns of response in parents of children with cancer: an integrative review. *Oncology Nursing Forum*, 43(2), E43-E55. <https://doi.org/10.1188/16.onf.e43-e55>
- 4 Chan, A.-W., Tetzlaff, J. M., Altman, D. G., Laupacis, A., Gøtzsche, P. C., Krleža-Jerić, K., & Berlin, J. A. (2021). SPIRIT 2013 bildirişi: klinik deneyler için standart protokol maddelerinin tanımlanması. *Journal of Hacettepe University Faculty of Nursing*, 8(1), 117-127.
- 5 Cheung, R., Shah, R., McKeown, R., & Viner, R.M. (2021). State of child health: how is the

- UK doing?. Archives Disease Childhood, 106(4), 313-314. <http://dx.doi.org/10.1136/archdischild-2020-319367>
- 6 Dereli, E. (2017). Montessori eğitimi programının çocukların psikososyal gelişimlerine ve sosyal problem çözme becerilerine et- kisinin incelenmesi. Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi, 18:135-53.
 - 7 Dündükcü, F.T., & Arslan, F.T. (2020). Geçiş kuramı üzerine anneliğe geçişte izlemsel bir olgu çalışması. Necmettin Erbakan Üniversitesi Genel Sağlık Bilimleri Dergisi, 2(3), 208-217. doi: 10.51123/jgehes.2020.11
 - 8 Elibol, F., Mağden, D., & Alpar, R. (2007). Anne babalık becerilerinde özyeterlik ölçeğinin (1-3 yaş) geçerlik ve güvenilirliği. Toplum Hekimliği Bülteni, 26(3), 25-31.
 - 9 Ellis, M., & Pant, P.R. (2020). Global community child health. International Journal of Environmental research and Public Health, 17(9), 3331. <https://doi.org/10.3390/ijerph17093331>
 - 10 Erbaş, A.N., Özcebe, E.E., & Esen, T.C. (2021). Investigation of the effect of Hanen's "more than words" on parental self-efficacy, emotional states, perceived social support, and on communication skills of children with ASD. Logopedics Phoniatrics Vocology, 46(1), 17-27. <https://doi.org/10.1080/14015439.2020.1717601>
 - 11 Farris, J.R., Bert, S.S.C., Nicholson, J.S., Glass, K., & Borkowski, J.G. (2013). Effective intervention programming: improving maternal adjustment through parent education. Administration and Policy in Mental Health, 40, 211-223. <https://doi.org/10.1007/s10488-011-0397-1>
 - 12 Franklin, Q., & Mooney-Doyle, K. (2017). Family, social, cultural, and religious influences on child health promotion. In: M.J. Hockenberry, D. Wilson & C.C. Rodgers (Eds), Wong's essentials of pediatric nursing (10nd ed., pp. 74-80). Missouri: Elsevier
 - 13 Fields-Olivieri, M.A., Cole, P., & Roben, C.K.P. (2020). Toddler emotion expressions and emotional traits: associations with parent-toddler verbal conversation. Infant Behavior & Development, 61, 101474. <https://doi.org/10.1016/j.infbeh.2020.101474>
 - 14 Green, C. (2018). Çocuk yetiştirme sanatı (çev. F. Avcılar). İstanbul: Yakamoz. (The original was published in 2014).
 - 15 Gridley, N., Hickey, G., Bywater, T., Blower, S., Whittaker, K., & Berry, V. (2020). The challenges of assessing sample representativeness within community-based evaluations of parenting programmes delivered in England and Ireland. Health and Social Care in the Community, 00, 1-12. <https://doi.org/10.1111/hsc.13535>
 - 16 Lau, Y., Htun, T.P., Tam, W.S., & Klainin-Yobas, P. (2016). Efficacy of e-technologies in improving breastfeeding outcomes among perinatal women: a meta- analysis. Maternal & Child Nutrition, 12(3), 381-401. <https://doi.org/10.1111/mcn.12202>
 - 17 Meleis, A.I. (2010). Transitions theory: Middle range and situation specific theories in nursing research and practice, New York: Springer
 - 18 McGarry, E., Vernon, T., & Baktha, A. (2020). Brief report: a pilot online pivotal response treatment training program for parents of toddlers with autism spectrum disorder. Journal of Autism and Developmental Disorders, 50(9), 3424-3431. <https://doi.org/10.1007/s10803-019-04100-2>
 - 19 Miyake, K., Tomokawa, S., & Asakura, T. (2021). Lesson on health promotion from Japanese early childhood development. Pediatrics International, 63(1), 22-36. <https://doi.org/10.1111/ped.14400>
 - 20 Nandy, A., Nixon, E., & Quigley, J. (2020). Parental toy play and toddlers' socio-emotional development: the moderating role of coparenting Dynamics. Infant Behavior & Development, 60, 101465. <https://doi.org/10.1016/j.infbeh.2020.101465>
 - 21 Nicholson, J.M., Cann, W., Matthew, J., Berthelsen, D., Ukoumunne, O.C., & Trajanovska, M. (2016). Enhancing the early home learning environment through a brief group parenting intervention: study protocol for a cluster randomised controlled trial. BMC Pediatrics, 16, 73. <https://doi.org/10.1186/s12887-016-0610-1>
 - 22 Olexa, M. (2001). A longitudinal and concurrent examination of vulnerable child syndrome: impact of maternal and child socio-emotional and behavioral status (Doctoral dissertation, State University of New York, 2001). Dissertation Abstracts International, 84, 3019545
 - 23 Pınar, Ş., & Doğan, A.K. (2020). Yeni çocuk sahibi olmuş ebeveynlerin anne baba rolüne hazır olma durumu ile sosyodemografik özelliklerinin karşılaştırılması. Sted, 29(4), 255-266. <https://doi.org/10.17942/sted.751964>
 - 24 Rains, S.G. (2020). Fifteen-to eighteen-month visit. In: B. Richardson (Eds), Pediatric primary care: practice guidelines for nurses (4nd ed., pp. 117-127). Burlington: Jones&Bartlett Learning
 - 25 Richardson, B., & Porcher, F.K. (2020). Two-year visit In: B. Richardson (Eds), Pediatric primary care: practice guidelines for nurse (4nd ed., pp. 117-127). Burlington: Jones&Bartlett Learning
 - 26 Rijen, E.H.M.V., Gasanova, N., Boonstra, A.M., & Huijding, J. (2014). Psychometric

- qualities of the short form of the self-efficacy for parenting tasks index-toddler scale. *Child Psychiatry Human Development*, 45(4), 443-455. <https://doi.org/10.1007/s10578-013-0414-6>
- 27** Schulz, K. F., Altman, D. G., & Moher, D. (2010). CONSORT 2010 statement: updated guidelines for reporting parallel group randomised trials. *Trials*, 11(1), 1-8. <https://doi.org/10.1186/1745-6215-11-32>
- 28** Shorey, S., Lau, Y.Y., Dennis, C.L., Chan, Y.S., Tam, W.W.S., & Chan, Y.H. (2017). A randomized-controlled trial to examine the effectiveness of the 'Home-but not Alone' mobile-health application educational programme on parental outcomes. *Journal of Advanced Nursing*, 73(9), 2103-2117. <https://doi.org/10.1111/jan.13293>
- 29** Shorey, S., Mei Ng, Y.P., Debby Ng, E., Siew, A.L., Mörelius, E., Yoong, J., & Gandhi, M. (2019). Effectiveness of a technology-based supportive educational parenting program on parental outcomes (Part 1): randomized controlled trial. *Journal of Medical Internet Research*, 21(2), e10816. <https://doi.org/10.2196/10816>
- 30** Strouse, G.A., & Ganea, P.A. (2017). Parent-toddler behavior and language differ when reading electronic and print picture books. *Frontiers in Psychology*, 8, 677. <https://doi.org/10.3389/fpsyg.2017.00677>
- 31** Toruner, E.K. & Buyukgonenc, L. (2017). *Çocuk sağlığı temel hemşirelik yaklaşımları*, Ankara: Nobel Tıp Yayınevleri
- 32** Unicef (2017). Erişim adresi: <https://www.unicefturk.org/yazi/calismalarimiz-dunyada-saglik>
- 33** Uribe, A.L.M., Rudt, H.G., & Leak, T.M. (2021). Stakeholders' views on mobile applications to deliver infant and toddler feeding education to latina mothers of low socioeconomic status. *Nutrients*, 13(8), 2569. <https://doi.org/10.3390/nu13082569>
- 34** Wolff, M. S., Theunissen, M. H. C., Vogels, A. G.C., Reijneveld, S. A. (2013). Three Questionnaires to Detect Psychosocial Problems in Toddlers: A Comparison of the BITSEA, ASQ:SE, and KIPPI. *Academic Pediatrics*, 13(6):587-92.
- 35** World Health Organization (2020a). Erişim adresi: [https://www.who.int/data/maternal-newborn-child-adolescent-ageing/indicator-explorer-new/mca/under-five-population-\(thousands\)](https://www.who.int/data/maternal-newborn-child-adolescent-ageing/indicator-explorer-new/mca/under-five-population-(thousands))
- 36** World Health Organization (2020b). Erişim adresi: Improving Early Childhood Development: WHO Guideline. <https://www.who.int/publications/i/item/97892400020986>
- 37** World Medical Association (WMA) (2013). World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. *Jama*, 310(20), 2191-2194. <https://doi.org/10.1001/jama.2013.281053>